1. VIELAS/MAISĪJUMA UN UZŅĒMĒJSABIEDRĪBAS/UZŅĒMUMA APZINĀŠANA

1.1 Produkta identifikators

1.1.1 Produkta nosaukums

NESSOL LI 200

1.1.2 Produkta kods

(ID 10523), 135148, 750300, 750400, 896100

REACH reģistrācijas numurs

01-2119458049-33-0006

Vielas nosaukums Hydrocarbons,C9-C12, n-alkanes, isoalkanes, cyclics, aromatics (2-25%)

1.2 Vielas vai maisījuma attiecīgi apzinātie lietojuma veidi un tādi, ko neiesaka izmantot

1.2.1 Ieteicamā lietošana

Vielas ražošana (Iedarbības scenārijs Nr. 1)
Vielas sadale (Nr. 2)
Vielu un maisījumu veidošana un iesaiņošana (pārpakošana) (Nr. 3)
Pielietojumi pārklājumos (Nr. 4, 5, 6)
Pielietojumi tīrīšanas līdzekļos (Nr. 7, 8, 9)
Pielietojumi naftas un gāzes ieguves nozarē urbšanas un ražošanas operācijās (Nr. 10)
Ellošanas materiāli (Nr. 11, 12, 13, 14, 15)
Metālapstrādes šķidrumi/velmēšanas eļļas (Nr. 16, 17)
Izmanto agroķīmijā (Nr. 18, 19)
Izmanto kā degvielu (Nr. 20, 21, 22)
Funkcionālie šķidrumi (Nr. 23, 24, 25)
Ceļu būves un celtniecības pielietojumi (Nr. 26)
Laboratoriju pielietojumi (Nr. 27, 28)
Gumijas ražošana un apstrāde (Nr. 29)
Polimēru apstrāde (Nr. 30, 31)
Ūdens apstrādei paredzētās ķimikālijas (Nr. 32, 33)
See the PROC/SU/ERC codes of the identified uses in the exposure scenarios.

1.3 Informācija par drošības datu lapas piegādātāju

1.3.1 Piegādātājs

	Neste Oyj
Adrese	Keilaranta 21
Pasta indekss un pasta nodaļa	FIN-00095 NESTE FINLAND
Pasta kastīte	P.O.B. 95
Pasta indekss un pasta nodaļa	FIN-00095 NESTE FINLAND
Tālrunis	+358-10 45811
Telefakss	+358-10 45 84442
Business ID	1852302-9
Email	SDS@neste.com (chemical safety)

1.4 Tālruņa numurs, kur zvanīt ārkārtas situācijās

1.4.1

+358-9-471 977, +358-9-4711, Saindēšanās informācijas centrs/HUS

2. BĪSTAMĪBAS APZINĀŠANA

2.1 Vielas vai maisījuma klasificēšana

1272/2008 (CLP)

Flam. Liq. 3, H226
Asp. Tox. 1, H304
STOT SE 3, H336
STOT RE 1, H372
Aquatic Chronic 2, H411
EUH066

67/548/EEC - 1999/45/EC

Xn, N; R10-65-66-67-51/53-48/20

2.2 Etiķetes elementi

PAPILDU MARĶĒJUMS UZ MAZUMTIRDZNIECĪBAS IEPAKOJUMA: Sargāt no bērniem. MAZUMTIRDZNIECĪBAS IEPAKOJUMS APRĪKOTS AR NOSTIPRINĀJUMU, KAS IR BĒRNIEM DROŠS UN LABI REDZAMIEM BRĪDINĀJUMIEM PAR BĪSTAMĪBU.

1272/2008 (CLP)

GHS09 - GHS08 - GHS07 - GHS02

Signālvārds **Bīstami**

Bīstamības paziņojumi

H226	Uzliesmojošs šķidrums un tvaiki.
H304	Var izraisīt nāvi, ja norij vai iekļūst elpceļos.
H336	Var izraisīt miegainību vai reiboņus.
H372	Izraisa orgānu bojājumus ilgstošas vai atkārtotas iedarbības rezultātā.
H411	Toksisks ūdens organismiem ar ilgstošām sekām.
EUH066	Atkārtota iedarbība var radīt sausu ādu vai izraisīt tās sprēgāšanu.

Paziņojumi par piesardzības pasākumiem

P210	Nelietot vietās, kur ir sastopams karstums/ dzirksteles/ atklāta uguns /[ ] / karstas virsmas. Nesmēķēt.
P273	Izvairīties no izplatīšanas apkārtējā vidē.
P280	Izmantot aizsargcimdus/ aizsargdrēbes/ acu aizsargus/ sejas aizsargus.
P301+P310	NORĪŠANAS GADĪJUMĀ: Nekavējoties sazināties ar SAINDĒŠANĀS CENTRU vai ārstu.
P304+P340	IEELPOŠANAS GADĪJUMĀ: izvest cietušo svaigā gaisā un turēt miera stāvoklī, lai būtu ērti elpot.
P403+P233	Glabāt labi vēdināmās telpās. Tvertni turēt cieši noslēgtu.

2.3 Citi apdraudējumi

Tvaiki ir smagāki par gaisu un var veidot eksplozīvu maisījumu ar gaisu. Lēni iztvaiko. Tvaiki var izraisīt acu, elpošanas sistēmas un ādas kairinājumu. Augsnes un ūdens piesārņojuma risks.

3. SASTĀVS/INFORMĀCIJA PAR SASTĀVDAĻĀM

3.1 Vielas

.

CAS / EK Nr.	Vielas ķīmiskais nosaukums	Koncentrācija	Klasifikācija

-	Ogļūdeņraži, C9-C12, n-alkāni, izoalkāni, cikliski, aromātiski (2-25%)	100 %	CLP: Flam.Liq. 3, H226; Asp.Tox 1, H304; STOT SE 3, H336; STOT RE 1, H372; Aq. Chronic 2, H411; EUH066 DSD-DPD: R10, Xn, R48/20-65-67-66, N, R51/53

3.3 Cita informācija

Satur: Benzols < 0.1 apjoms-% , n-heksāns < 1 %, aromātiskie ogļūdeņražu 14...20 apjoms-% .

Identitāte ārpus ES (CAS numurs un vielas nosaukums): 64742-82-1, Ligroīns (nafta), hidrodesulfurizēts, smagais. Iepriekšējais EK numurs: 265-185-4. Reģistrācijas numurs, skat. 1.1.2 punktu.

4. PIRMĀS PALĪDZĪBAS PASĀKUMI

4.1 Pirmās palīdzības pasākumu apraksts

4.1.2 Ieelpošana

Ja ir ieelpoti tvaiki, izvediet cietušo no riska zonas, turiet siltumā un mierā. Dodiet skābekli vai veiciet mākslīgo elpināšanu, ja nepieciešams. Pēc būtiskas pakļaušanas iedarbībai konsultējieties ar mediķi.

4.1.3 Nokļūšana uz ādas

Noģērbiet netīrās drēbes, ieteicamāk pēc aizsargdušas (šķidruma izgarojumi var radīt aizdegšanās risku). Nomazgājiet ādu ar lielu daudzumu ūdens un ziepēm. Ja ādas kairinājums nepāriet, konsultējieties ar ārstu.

4.1.4 Nokļūšana acīs

Nekavējoties noskalojiet ar lielu ūdens daudzumu, arī zem acu plakstiņiem. Turpiniet skalošanu vairākas minūtes, tikmēr grozot acis uz augšu, leju un sāniem. Konsultējieties ar ārstu (oftalmologu, radzenes bojājuma risks).

4.1.5 Norīšana

NEIZRAISIET VEMŠANU. Konsultējieties ar ārstu (risks iekļūt plaušās, īpaši, ja rodas nelabums vai kairinājums).

4.2 Svarīgākie simptomi un ietekme - akūta un aizkavēta

Izraisa galvassāpes, miegainību vai citu ietekmi uz centrālo nervu sistēmu. Iekļūšana plaušās var izraisīt nāvējošu ķīmisko pneimonītu. Atkārtota iedarbība var radīt sausu ādu vai izraisīt tās sprēgāšanu.

4.3 Norāde par nepieciešamo neatliekamo medicīnisko palīdzību un īpašu aprūpi

Iekļūšana plaušās var izraisīt nāvējošu ķīmisko pneimonītu.

5. UGUNSDZĒSĪBAS PASĀKUMI

5.1 Ugunsdzēsības līdzekļi

5.1.1 Piemēroti ugunsdzēsības līdzekļi

Ūdens šalts, putas, sauss pulveris, oglekļa dioksīds.

5.1.2 Ugunsdzēšanas līdzekļi, kurus aizliegts lietot, ņemot vērā drošības apsvērumus

Ūdens sprausla.

5.2 Īpaša vielas vai maisījuma izraisīta bīstamība

Uzliesmojošs. Tvaiku eksplozijas risks, ja tie ir smagāki par gaisu, uzkrājas ieplakās vai noslēgtās vietās. Eksplozijas risks pieaug spiediena dēļ, ja produkta konteineri vai cisternas pakļauj uguns iedarbībai. Stipra karsēšana vai uguns var radīt oglekļa monoksīdu un citus produktus, kas rodas nepilnīgas sadegšanas rezultātā.

5.3 Ieteikumi ugunsdzēsējiem

Atvēsiniet ar ūdens šalti produkta cilindrus un cisternas uguns tuvumā no pietiekami droša attāluma. Novērst virszemes ūdens vai gruntsūdeņu sistēmas piesārņošanu ar ugunsdzēšanas ūdeni.

5.4 Specifiskās metodes

Piesardzība ugunsdzēšanai : Noslēgti elpošanas orgāni un aizsargapģērbs.

6. PASĀKUMI NEJAUŠAS NOPLŪDES GADĪJUMOS

6.1 Individuālās drošības pasākumi, aizsardzības līdzekļi un procedūras ārkārtas situācijām

Izvairieties no tvaiku ieelpošanas un to saskares ar ādu. Nēsājiet visām darbībām atbilstošu aizsargaprīkojumu. Evakuējiet cilvēkus, kas no izplūšanas vietas atrodas vēja virzienā. Novērsiet aizdegšanās un eksplozijas risku, glabājot aizdegšanās avotu ārpus laukuma un novēršot tvaika uzkrāšanos ieplakās un noslēgtās vietās. Nodrošiniet efektīvu ventilāciju. Lielas izplūdes, var piesardzīgi noklāt ar putam, ja tādas ir pieejamas, lai ierobežotu tvaiku mākoņa veidošanos.

6.2 Vides drošības pasākumi

Mēģiniet ierobežot izplūdi un novērst produkta izplatīšanos apkārtējā vidē. Savāciet šķidrumu, pirms tas iekļūst drenāžā, zemē un ūdenī. Izšļakstīšanās gadījumā nekavējoties sazinieties ar vietējiem varas orgāniem. Augsnes un ūdens piesārņojuma risks.

6.3 Ierobežošanas un savākšanas paņēmieni un materiāli

Nekavējoties sāciet šķidruma un piesārņotās augsnes savākšanu. Lielas noplūdes utilizācijai savākt mehāniski (aizvākt pumpējot). Mazu daudzumu var savākt, izmantojot absorbējošu materiālu. Pievērsiet uzmanību uguns, eksplozijas un veselības draudiem, ko izraisa produkts. Ja ir notikusi noplūde ūdenī, savāciet produktu, to nosmeļot vai izmantojot citus piemērotus mehāniskus līdzekļus. Par kliedētāju izmantošanu jākonsultējas ar ekspertu un, ja nepieciešams, jāapstiprina vietējām varasiestādēm

6.4 Atsauce uz citām iedaļām

No produkta atkritumiem jāatbrīvojas, saskaņā ar vietējo likumdošanu (13. punkts). Personālajai aizsardzībai skat. 8. punktu.

7. LIETOŠANA UN GLABĀŠANA

7.1 Piesardzība drošai lietošanai

Apstrādājiet produktu noslēgtās sistēmās vai nodrošiniet pietiekamu ventilāciju. Izvairieties no tvaiku ieelpošanas un to saskares ar ādu. Ja nepieciešams, izmantojiet aizsargaprīkojumu. Nedzert, neēst un nesmēķēt, darbojoties ar vielu. Nomazgāt rokas pirms pārtraukumiem un darba dienas beigās. Izšļakstīšanās un noplūde : Saslaucīt, lai novērstu slīdēšanas briesmas. Tvertnes darbības laikā, IEVĒROJIET ĪPAŠUS NORĀDĪJUMUS (skābekļa un ogļūdeņražu izspiešanas risks).

Materiāls ir statisks akumulators. Turiet tālu no aizdegšanās avotiem. Veiciet piesardzības pasākumus (piemēram, sazemēšanu) pret statisko izlādēšanos.

7.2 Drošas glabāšanas apstākļi, tostarp visu veidu nesaderība

Ugunsnedrošu šķidrumu glabāšanai piemērotā cisternā vai noliktavā. Glabāt konteinerus cieši noslēgtus vēsā, labi vēdināmā vietā. Veiciet piesardzības pasākumus, lai aizkavētu produkta noliešanu drenāžā, zemē vai ūdenī. Glabājiet mazumtirdzniecības partijas cieši noslēgtās, marķētās tvertnēs, kas ir ogļūdeņražu necaurlaidīgas. Glabāt prom no ēdiena un dzēriena.

Piemēroti materiāli un pārklājumi (ķīmiskā saderība):
Teflons, polipropilēns, polietilēns, nerūsošais tērauds, oglekļa tērauds. Poliesteris.
Nepiemēroti materiāli un apvalki:
Butilkaučuks, dabīgais kaučuks, etilēna-propilēn-diēna monomērs (EPDM), polistirēns.

7.3 Konkrēts(-i) galalietošanas veids(-i)
Nekas nav zināms.

8. IEDARBĪBAS PĀRVALDĪBA/INDIVIDUĀLĀ AIZSARDZĪBA

8.1 Pārvaldības parametri

8.1.1 Sliekšņa robežvērtības
Ligroīna šķīdinātājs, 2 grupa 200 mg/m^3 (8 h)
HTP 2014/FIN

8.1.2 Cita informācija par robežvērtībām
Var pielietot arī benzīna ogļūdeņražu atsevišķās robežvērtības.
Saskares kontroles uzraudzības metode: SFS-EN 689, SFS-3861

8.1.4 DNEL
Darba ņēmēji :
ieelpojot 570 mg/m^3 (Short-term exposure, systemic effects);
330 mg/m^3 (Long-term exposure, systemic effects).
Dermal: 44 mg/kg bw/d (Long-term exposure, systemic effects)

Patērētāji:
ieelpojot 570 mg/m^3 (Short-term exposure, systemic effects);
71 mg/m^3 (Long-term exposure, systemic effects).
Oral: 26 mg/kg bw/d (Long-term exposure, systemic effects)

8.1.5 PNEC
Informācija nav pieejama.

8.2 Iedarbības pārvaldība

8.2.1 Atbilstoša tehniskā pārvaldība
Apstrādājiet produktu noslēgtās sistēmās vai nodrošiniet pietiekamu ventilāciju. Ja nepieciešams, izmantojiet aizsargaprīkojumu. Rīkoties atbilstoši labai rūpnieciskās higiēnas un drošības praksei.

8.2.2 Individuālie aizsardzības pasākumi

8.2.2.1 Elpošanas aizsardzība
Pusmaska (organisko tvaiku filtrs, A2 tips). Filtra ierīci nepārtraukti var izmantot maksimums 2 stundas. Filtra ierīci nevar izmantot apstākļos, kad skābekļa līmenis ir zems (< 19 apj.-%). Lielā koncentrācijā jālieto elpošanas aparāts (atsevišķs vai aparāts ar svaiga gaisa padeves šļūteni). Bieži jāmaina filtrs. Respiratori saskaņā ar standartiem EN 140 un EN 141.

8.2.2.2 Roku aizsardzība

Aizsargcimdi (piemēram, no nitrilgumijas). Pārrāvuma laiks >240, aizsardzības klase 5.. Aizsargcimdi jāmaina regulāri. Aizsargcimdi saskaņā ar standartiem EN 420 un EN 374.

8.2.2.3 Acu/sejas aizsardzība
Cieši pieguļošas drošības aizsargbrilles

8.2.2.4 Ādas aizsardzība
Aizsargtērps (antistatisks), šļakstu-drošs no ķīmiskās iedarbības aizsargājošs apģērbs, kad nepieciešams.

8.2.3 Vides riska pārvaldība
Jebkura iespējama noplūde ir ņemta vērā, konstruējot savākšanas baseinus un kanalizācijas sistēmas, kā arī nosedzot uzpildes un iztukšošanas stacijas.

9. FIZIKĀLĀS UN ĶĪMISKĀS ĪPAŠĪBAS

9.1 Informācija par pamata fizikālajām un ķīmiskajām īpašībām

9.1.1 Izskats
Dzidrs šķidrums ar mazu viskozitāti.

9.1.2	Smarža	Tipiska ogļūdeņraža smarža.
9.1.3	Smaržas slieksnis	dati nav pieejami
9.1.4	pH	dati nav pieejami
9.1.5	Smaržas slieksnis	Kušanas punkts/ Krišanas punkts (Melting/pour point) < -15 °C.
9.1.6	Viršanas punkts un viršanas temperatūras diapazons	150...200 °C (EN ISO 3405)
9.1.7	Uzliesmošanas temperatūra	Minimums 39 °C (DIN 51755)
9.1.8	Iztvaikošanas ātrums	dati nav pieejami
9.1.9	Uzliesmojamība (cietām vielām, gāzēm)	dati nav pieejami
9.1.10	Sprādzienbīstamās īpašības	
9.1.10.1	Apakšējā sprādzienbīstamības robeža	0.6 apjoms-% (novērtējums)
9.1.10.2	Augšējā sprādzienbīstamības robeža	7.0 apjoms-% (novērtējums)
9.1.11	Tvaika spiediens	Aptuv. 0.23 kPa @ 20 °C.
9.1.12	Tvaika blīvums	Tvaika blīvums > 3 (gaiss = 1).
9.1.13	Relatīvais blīvums	0.720-0.825 (15 °C; ūdens = 1) (ISO 12185).
9.1.14	Šķīdība	
9.1.14.1	Šķīdība ūdenī	Viegli šķīstošs
9.1.14.2	Šķīdība taukos (šķīdinātājs - norādītā eļļa)	dati nav pieejami
9.1.15	Sadalījuma koeficients: n-oktanols/ūdens	Ligroīna ogļūdeņraži log Kow = 2...7.
9.1.16	Pašaizdegšanās temperatūra	Aptuv. 250 °C (novērtējums) .
9.1.17	Noārdīšanās temperatūra	dati nav pieejami
9.1.18	Viskozitāte	Kinemātiskā viskozitāte < 2 mm²/s (40 °C; ūdens = 0.6 mm²/s, EN ISO 3104). Viskozitāte, dinamiskā < 50 mPa.s (20 °C).
9.1.19	Sprādzienbīstamība	Nav sprādzienbīstams
9.1.20	Oksidēšanas īpašības	Neoksidējas.

9.2 Cita informācija
Molekulmasa apm. 147.
Virsmas spraigums 24-27 mN/m @ 25 °C (Wilhelmy plate).

10. STABILITĀTE UN REAĢĒTSPĒJA

10.1 Reaģētspēja
Nav zināma bīstama reakcija normālos lietošanas apstākļos.

10.2 Ķīmiskā stabilitāte
Stabils normālos apstākļos.

10.3 Bīstamu reakciju iespējamība
Nekas nav zināms.

10.4 Apstākļi, no kuriem jāvairās
Sargāt no uguns, dzirkstelēm un karstām virsmām.

10.5 Nesaderīgi materiāli
Spēcīgi oksidētāji

10.6 Bīstami noārdīšanās produkti
Nesadalās, ja lieto, kā norādīts.

11. TOKSIKOLOĢISKĀ INFORMĀCIJA

11.1 Informācija par toksikoloģisko ietekmi

11.1.1 Akūta toksicitāte
ļoti zems toksiskums:
LD50/norijot/žurka >15 000 mg/kg (OECD 401)
LD50/dermāli/trusis >3400 mg/kg (OECD 402)
LC50/ieelpojot/4h/žurka = >13.1 mg/L (OECD 403)

11.1.2 Kairināmība un kodīgums
Nav klasificēts. (OECD 404, 405). Atkārtota iedarbība var radīt sausu ādu vai izraisīt tās sprēgāšanu.

11.1.3 Sensibilizācija
Nav ādas jutīguma. (OECD 406; HRIPT = Human Repeated Insult Patch Test).

11.1.4 Subakūtā, subhroniskā un prolongētā toksicitāte
Neklasificējas kā cilvēku kancerogēns. (OECD 453).
Nav toksisks reproduktīvajai sistēmai (OECD 413, 415)
Augļa bojājums nav klasificējams (OECD 414).
Genotoksisko izmēģinājumu (in vitro un in vivo) rezultāti ir bijuši negatīvi. (OECD 471, 473, 474, 475, 479).

11.1.5 Toksiskas ietekmes uz īpašu mērķorgānu vienreizēja iedarbība
Pakļaušana iedarbībai izraisa reiboni, nelabumu, galvas sāpes un arī narkotisku efektu.

11.1.6 Toksiskas ietekmes uz īpašu mērķorgānu atkārtota iedarbība
Izraisa orgānu bojājumus, ilgstoši vai atkārtoti iedarbojoties, ja ieelpots.

11.1.7 Bīstamība ieelpojot
Var izraisīt nāvi, ja norij vai iekļūst elpceļos. Iekļūšana plaušās var izraisīt nāvējošu ķīmisko pneimonītu.

11.1.8 Cita informācija par akūto toksicitāti
Toksikoloģiskie dati pamatojas uz izmēģinājumiem ar attiecīgajiem produktiem vai sastāvdaļām

12. EKOLOĢISKĀ INFORMĀCIJA

12.1 Toksicitāte

12.1.1 Ūdens toksicitāte

Toksisks ūdens organismiem ar ilgstošām sekām.

Akūtā toksicitāte ūdenī :
zivs: LL50/96h = 10-30 mg/L; NOELR/96h = 0.3 mg/L (OECD 203)
vēžveidīgais : EL50/48h = 10-22 mg/L (OECD 202)
aļģe : EC50/96h = 0.58-1.2 mg/L; NOEC/96h = 0.16 mg/L; EL50/72h = 4.6-10 mg/L; NOELR/72h = 0.22-1.0 mg/L (OECD 201)

Hroniskā toksicitāte ūdenī :
zivs: NOELR/28d = 0.13 mg/L (QSAR)
vēžveidīgais : NOEC/21d = 0.10-0.37 mg/L; LOEC/21d = 0.20-0.83 mg/L; EC10/21d = 0.11-0.25 mg/L (OECD 211)

12.2 Noturība un spēja noārdīties

12.2.1 Bioloģiskā noārdīšanās

Viegli sadalās (OECD 301F).

12.2.2 Ķīmiskā noārdīšanās

Nehidrolizējas ūdenī. Gaistošie ogļūdeņraži sadalās atmosfēras ķīmiskajos procesos.

12.3 Bioakumulācijas potenciāls

Nav pieejami dati par šo produktu.

12.4 Mobilitāte augsnē

Produkts viegli iztvaiko no augsnes virsmas un virsūdeņiem. Produkts var iesūkties augsnē, līdz sasniedz pazemes ūdeņu virsmu. Sadalīšanās notiek ļoti lēni anaerobos apstākļos. Daudzmolekulu ogļūdeņraži var adsorbēties organiskos materiālos augsnē vai nosēdumos. Izgarošana ir ātrākais un galvenais izdalīšanās process ūdens un augsnes virsmā.

12.5 PBT un vPvB ekspertīzes rezultāti

Šo vielu neuzskata par noturīgu, bioakumulējošos, ne toksisku (PBT). Šo vielu neuzskata par ļoti noturīgu, ne ļoti bioakumulējošos (vPvB).

12.6 Citas nelabvēlīgas ietekmes

Nekas nav zināms. Piedāvātā informācija pamatojas uz datiem par sastāvdaļām un līdzīgu produktu ekotoksikoloģiju.

13. APSVĒRUMI, KAS SAISTĪTI AR APSAIMNIEKOŠANU

13.1 Atkritumu apstrādes metodes

Produkta atkritumi ir bīstami atkritumi. Tos jāapstrādā saskaņā ar valsts noteikumiem un vietējo iestāžu ieteikumiem. Apstrādājot atkritumus, ņemiet vērā kaitīgumu un veiciet nepieciešamos drošības pasākumus, parūpējieties par marķējumu un informāciju.

13.2 Atlikumu / neizmantoto produktu atkritumi

Tukšas tvertnes var saturēt degošus produkta atlikumus. Tukšie konteineri jānogādā vietējai pārstrādei vai atkritumu utilizācijai.

14. INFORMĀCIJA PAR TRANSPORTĒŠANU

14.1	ANO numurs	1300
14.2	ANO sūtīšanas nosaukums	UN 1300 , TURPENTINE SUBSTITUTE (white spirit) 3, III
14.3	Transportēšanas bīstamības klase(-es)	3
14.4	Iepakojuma grupa	III

14.5 Vides apdraudējumi
MARINE POLLUTANT

14.6 Īpaši piesardzības pasākumi lietotājiem
EmS: F-E, S-E

14.7 Transportēšana bez taras atbilstoši MARPOL 73/78 II pielikumam un IBC kodeksam
Bulk: (MARPOL 73/78, Annex II): Noxious liquid , F, (6) n.o.s. (LI 200 contains white spirit, low (15 - 20 %) aromatic). Pollution Category Y, Ship Type 2. According to MARPOL: "Nonsolidifying substance".

15. INFORMĀCIJA PAR REGULĒJUMU

15.1 Drošības, veselības jomas un vides noteikumi/normatīvie akti, kas īpaši attiecas uz vielām un maisījumiem

Šī drošības datu lapa atbilst Regulās (EK) No. 1907/2006 prasībām. Atjaunots saskaņā ar Regulu (ES) Nr. 453/2010, ar kuru tiek veiktas izmaiņas Regulai (EK) Nr. 1907/2006 (REACH).

15.2 Ķīmiskās drošības novērtējums
Šai vielai ir veikts ķīmiskās drošības novērtējums.

16. CITA INFORMĀCIJA

16.1 Papildinājumi, svītrojumi, grozījumi
Punkts 1.: Uzņēmējsabiedrības / uzņēmuma apzināšana

16.2 Drošības datu lapā izmantoto saīsinājumu un akronīmu atšifrējums vai paskaidrojums
CLP = Eiropas Parlamenta un Padomes Regula (EK) Nr. 1272/2008
DSD = Padomes Direktīva 67/548/EEK
DPD = Eiropas Parlamenta un Padomes Direktīva 1999/45/EK

DNEL = Derived No-Effect Level
PNEC = Predicted No-Effect Concentration
SU = Sector of Use
PROC = Process Category
PC = Product Category
ERC = Environmental Release Category

16.3 Būtiskākās bibliogrāfiskās atsauces un datu avoti
Noteikumi, datu bāzes, literatūra, pētījumi. Ķīmiskās drošības ziņojums 2014.

16.5 Attiecīgo R frāžu, bīstamības paziņojumu, drošības frāžu un/vai piesardzības paziņojumu saraksts

R10	Uzliesmojošs.
R48/20	Kaitīgs - ieelpojot iespējams nopietns kaitējums veselībai pēc ilgstošas iedarbības.
R51/53	Toksisks ūdens organismiem, var radīt ilglaicīgu negatīvu ietekmi ūdens vidē.
R65	Kaitīgs - norijot var izraisīt plaušu bojājumu.
R66	Atkārtota iedarbība var radīt sausu ādu vai izraisīt tās sprēgāšanu.
R67	Tvaiki var radīt miegainību un reiboni.
H226	Uzliesmojošs šķidrums un tvaiki.
H304	Var izraisīt nāvi, ja norij vai iekļūst elpceļos.
H336	Var izraisīt miegainību vai reiboņus.
H372	Izraisa orgānu bojājumus ilgstošas vai atkārtotas iedarbības rezultātā.
H411	Toksisks ūdens organismiem ar ilgstošām sekām.

SECTION 1	**EXPOSURE SCENARIO TITLE**	
Title	**1. Manufacture of Substance - Industrial**	
Use Descriptor	Sector(s) of Use	**SU 3**: Industrial uses
		SU 8: Manufacture of bulk, large scale chemicals (including petroleum products)
		SU 9: Manufacture of fine chemicals
	Process Categories	**PROC 1**: Use in closed process, no likelihood of exposure.
		PROC 2: Use in closed, continuous process with occasional controlled exposure.
		PROC 3: Use in closed batch process (synthesis or formulation).
		PROC 4: Use in batch and other process (synthesis) where opportunity for exposure arises.
		PROC 8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities.
		PROC 8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities.
		PROC 15: Use as laboratory reagent
	Environmental Release Categories	**ERC 1**: Manufacture of substances
		ERC 4: Industrial use of processing aids in processes and products, not becoming part of articles
	Specific Environmental Release Category	ESVOC 1.1.v1
Processes, Tasks and Activities Covered	Manufacture of the substance or use as a process chemical or extraction agent within closed or contained systems. Includes incidental exposures during recycling/recovery, material transfers, storage, sampling, associated laboratory activities, maintenance and loading (including marine vessel/barge, road/rail car and bulk container).	
SECTION 2	**OPERATIONAL CONDITIONS AND RISK MANAGEMENT MEASURES**	
Section 2.1	**Control of worker exposure**	
Product characteristics	Physical form of product	Liquid, vapour pressure < 0.5 kPa at STP [OC3].
	Concentration of substance in product	Up to 100% (unless stated).
	Amount used	No limit.
	Frequency and duration of use	Covers daily exposures up to 8 hours (unless stated differently). [G2].
	Other operational conditions affecting worker exposure	Assumes use at not > 20oC above ambient [G15].
		Assumes a good basic standard of occupational hygiene is implemented. [G1].
Contributing Scenarios	**Specific Risk Management Measures and Operational Conditions** ***(only required controls to demonstrate safe use listed)***	
	General exposures (closed systems) [CS15] PROC 1, 2, 3	No other specific measures identified. [EI20]
	General exposures (open systems) [CS16] PROC 4	No other specific measures identified. [EI20]

	Process sampling [CS2] PROC 8b	No other specific measures identified. [EI20]
	Laboratory activities [CS36] PROC 15	No other specific measures identified. [EI20]
	Bulk transfers [CS14] (open systems) [CS108] PROC 8b	No other specific measures identified. [EI20]
	Bulk transfers [CS14] (closed systems) [CS107] PROC 8b	No other specific measures identified. [EI20]
	Equipment cleaning and maintenance [CS39] PROC 8a	No other specific measures identified. [EI20]
	Material storage [CS67] PROC 1, 2	No other specific measures identified. [EI20]
Section 2.2	**Control of environmental exposure**	
	Product characteristics	Substance is complex UVCB. [PrC3]. Predominantly hydrophobic. [PrC4a].
	Amounts used	Fraction of EU tonnage used in region: 0.1
		Regional use tonnage (tonnes/year): 1.7E+4
		Fraction of regional tonnage used locally: 1
		Annual site tonnage (tonnes/year): 1.7E+4
		Maximum daily site tonnage (kg/day): 5.6E+4
	Frequency and duration of use	Continuous release. [FD2].
		Emission days (days/year): 300
	Environmental factors not influenced by risk management	Local freshwater dilution fraction: 10
		Local marine dilution fraction: 100
	Other operational conditions affecting environmental exposure	Release fraction to air from process (initial release prior to RMM): 1.0E-2
		Release fraction to wastewater from process (initial release prior to RMM): 3.0E-5
		Release fraction to soil from process (initial release prior to RMM): 0.0001
	Technical conditions and measures at process level (source) to prevent release	Common practices vary across sites thus conservative process release estimates used [TCS1].
	Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil	Risk from environmental exposure is driven by Freshwater Sediment [TCR1b].
		Treat air emission to provide a typical removal efficiency of 90%.
		Treat onsite wastewater (prior to receiving water discharge) to provide the required removal efficiency ≥ 0.0 %
		If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of ≥ 0.0 %

	Organizational measures to prevent / limit release from site	Prevent discharge of undissolved substance to or recover from wastewater [OMS1]. Do not apply industrial sludge to natural soils [OMS2]. Sludge should be incinerated, contained or reclaimed [OMS3].
	Conditions and measures related to municipal sewage treatment plant	Not applicable as there is no release to wastewater [STP1]. Estimated substance removal from wastewater via domestic sewage treatment 93.7 %. Total efficiency of removal from wastewater after onsite and offsite (domestic treatment plant) RMMs 93.7 %. Maximum allowable site tonnage (MSafe) based on domestic sewage treatment release 3.2E+6 kg per day. Assumed domestic sewage treatment plant flow 10 000 m^3 per day.
	Conditions and measures related to external treatment of waste for disposal	During manufacturing no waste of the substance is generated [ETW4].
	Conditions and measures related to external recovery of waste	During manufacturing no waste of the substance is generated [ERW2].
SECTION 3	**EXPOSURE ESTIMATION**	
Section 3.1	**Health**	
	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. [G21].	
Section 3.2	**Environment**	
	The Hydrocarbon Block Method has been used to calculate environmental exposure with the Petrorisk model. [EE2].	
SECTION 4	**GUIDANCE TO CHECK COMPLIANCE WITH THE EXPOSURE SCENARIO**	
Section 4.1	**Health**	
	Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented. [G22]. Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels. [G23].	
Section 4.2	**Environment**	
	Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures [DSU1]. Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination [DSU2]. Required removal efficiency for air can be achieved using onsite technologies, either alone or in combination [DSU3]. Further details on scaling and control technologies are provided in SpERC factsheet (http://cefic.org/en/reach-for-industries-libraries.html) [DSU4].	

SECTION 1	**EXPOSURE SCENARIO TITLE**	
Title	**2. Distribution of Substance – Industrial**	
Use Descriptor	Sector(s) of Use	**SU 3**: Industrial uses
		SU 8: Manufacture of bulk, large scale chemicals (including petroleum products)
		SU 9: Manufacture of fine chemicals
	Process Categories	**PROC 1**: Use in closed process, no likelihood of exposure.
		PROC 2: Use in closed, continuous process with occasional controlled exposure.
		PROC 3: Use in closed batch process (synthesis or formulation).
		PROC 4: Use in batch and other process (synthesis) where opportunity for exposure arises.
		PROC 8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities.
		PROC 8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities.
		PROC9: Transfer of substance or preparation into small containers (dedicated filling line, including weighing)
		PROC 15: Use as laboratory reagent
	Environmental Release Categories	**ERC 1**: Manufacture of substances
		ERC 2: Formulation of preparations
		ERC 3: Formulation in materials
		ERC 4: Industrial use of processing aids in processes and products, not becoming part of articles
		ERC 5: Industrial use resulting in inclusion into or onto a matrix
		ERC 6a: Industrial use resulting in manufacture of another substance (use of intermediates)
		ERC 6b: Industrial use of reactive processing aids
		ERC 6c: Industrial use of monomers for manufacture of thermoplastics
		ERC 6d: Industrial use of process regulators for polymerisation processes in production of resins, rubbers, polymers
		ERC 7: Industrial use of sub-stances in closed systems
	Specific Environmental Release Category	ESVOC 1.1b.v1
Processes, Tasks and Activities Covered	Loading (including marine vessel/barge, rail/road car and IBC loading) and repacking (including drums and small packs) of substance, including its sampling, storage, unloading, maintenance and associated laboratory activities.	
SECTION 2	**OPERATIONAL CONDITIONS AND RISK MANAGEMENT MEASURES**	
Section 2.1	**Control of worker exposure**	
Product characteristics	Physical form of product	Liquid, vapour pressure < 0.5 kPa at STP [OC3].
	Concentration of substance in product	Up to 100% (unless stated).
	Amount used	No limit.

	Frequency and duration of use	Covers daily exposures up to 8 hours (unless stated). [G2].
	Other operational conditions affecting worker exposure	Assumes use at not > 20oC above ambient [G15]. Assumes a good basic standard of occupational hygiene is implemented. [G1].
Contributing Scenarios	**Specific Risk Management Measures and Operational Conditions** ***(only required controls to demonstrate safe use listed)***	
	General exposures (closed systems) [CS15] PROC 1, 2, 3	No other specific measures identified. [EI20]
	General exposures (open systems) [CS16] PROC 4	No other specific measures identified. [EI20]
	Process sampling [CS2] PROC3	No other specific measures identified. [EI20]
	Laboratory activities [CS36] PROC 15	No other specific measures identified. [EI20]
	Bulk transfers [CS14] (open systems) [CS108] PROC 8b	No other specific measures identified. [EI20]
	Bulk transfers [CS14] (closed systems) [CS107] PROC 8b	No other specific measures identified. [EI20]
	Drum and small package filling [CS6] PROC9	No other specific measures identified. [EI20]
	Equipment cleaning and maintenance [CS39] PROC 8a	No other specific measures identified. [EI20]
	Material storage [CS67] PROC 1, 2	No other specific measures identified. [EI20]
Section 2.2	**Control of environmental exposure**	
	Product characteristics	Substance is complex UVCB. [PrC3]. Predominantly hydrophobic. [PrC4a].
	Amounts used	Fraction of EU tonnage used in region: 0.1 Regional use tonnage (tonnes/year): 1.7E+4 Fraction of regional tonnage used locally: 1 Annual site tonnage (tonnes/year): 3.4E+0 Maximum daily site tonnage (kg/day): 1.7E+2
	Frequency and duration of use	Continuous release. [FD2]. Emission days (days/year): 20
	Environmental factors not influenced by risk management	Local freshwater dilution fraction: 10 Local marine dilution fraction: 100
	Other operational conditions affecting environmental exposure	Release fraction to air from process (initial release prior to RMM: 1.0E-3 Release fraction to wastewater from process (initial release prior to RMM): 1.0E-6 Release fraction to soil from process (initial release prior to RMM): 0.00001

	Technical conditions and measures at process level (source) to prevent release	Common practices vary across sites thus conservative process release estimates used [TCS1].
	Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil	Risk from environmental exposure is driven by Freshwater [TCR1a]. No wastewater treatment required [TCR6]. Treat air emission to provide a typical removal efficiency of 90%. Treat onsite wastewater (prior to receiving water discharge) to provide the required removal efficiency ≥ 0.0 % If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of ≥ 0.0 %
	Organizational measures to prevent / limit release from site	Prevent discharge of undissolved substance to or recover from wastewater [OMS1]. Do not apply industrial sludge to natural soils [OMS2]. Sludge should be incinerated, contained or reclaimed [OMS3].
	Conditions and measures related to municipal sewage treatment plant	Not applicable as there is no release to wastewater [STP1]. Estimated substance removal from wastewater via domestic sewage treatment 93.7 %. Total efficiency of removal from wastewater after onsite and offsite (domestic treatment plant) RMMs 93.7 %. Maximum allowable site tonnage (MSafe) based on domestic sewage treatment release 1.7E+5 kg per day. Assumed domestic sewage treatment plant flow 2 000 m^3 per day.
	Conditions and measures related to external treatment of waste for disposal	External treatment and disposal of waste should comply with applicable local and/or national regulations [ETW3].
	Conditions and measures related to external recovery of waste	External recovery and recycling of waste should comply with applicable local and/or national regulations [ERW1].
SECTION 3	**EXPOSURE ESTIMATION**	
Section 3.1	**Health**	
	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. [G21].	
Section 3.2	**Environment**	
	The Hydrocarbon Block Method has been used to calculate environmental exposure with the Petrorisk model. [EE2].	
SECTION 4	**GUIDANCE TO CHECK COMPLIANCE WITH THE EXPOSURE SCENARIO**	
Section 4.1	**Health**	
	Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented. [G22]. Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels. [G23].	
Section 4.2	**Environment**	
	Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures [DSU1].	

	Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination [DSU2]. Required removal efficiency for air can be achieved using onsite technologies, either alone or in combination [DSU3]. Further details on scaling and control technologies are provided in SpERC factsheet (http://cefic.org/en/reach-for-industries-libraries.html) [DSU4].

SECTION 1	**EXPOSURE SCENARIO TITLE**	
Title	**3. Formulation & (Re)packing of Substances and Mixtures – Industrial**	
Use Descriptor	Sector(s) of Use	**SU 3**: Industrial uses **SU 10**: Formulation [mixing] of preparations and/or re-packaging (excluding alloys)
	Process Categories	**PROC 1**: Use in closed process, no likelihood of exposure. **PROC 2**: Use in closed, continuous process with occasional controlled exposure. **PROC 3**: Use in closed batch process (synthesis or formulation). **PROC 4**: Use in batch and other process (synthesis) where opportunity for exposure arises. **PROC 5**: Mixing or blending in batch processes for formulation of preparations* and articles (multistage and/or significant contact) **PROC 8a**: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities. **PROC 8b**: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities. **PROC9:** Transfer of substance or preparation into small containers (dedicated filling line, including weighing) **PROC 14**: Production of preparations or articles by tabletting, compression, extrusion, pelletisation **PROC 15**: Use as laboratory reagent
	Environmental Release Categories	**ERC 2**: Formulation of prepara-tions
	Specific Environmental Release Category	ESVOC 2.2.v1
Processes, Tasks and Activities Covered	Formulation, packing and re-packing of the substance and its mixtures in batch or continuous operations, including storage, materials transfers, mixing, tabletting, compression, pelletization, extrusion, large and small scale packing, sampling, maintenance and associated laboratory activities.	
SECTION 2	**OPERATIONAL CONDITIONS AND RISK MANAGEMENT MEASURES**	
Section 2.1	**Control of worker exposure**	
Product characteristics	Physical form of product	Liquid, vapour pressure < 0.5 kPa at STP [OC3].
	Concentration of substance in product	Up to 100% (unless stated).
	Amount used	No limit.
	Frequency and duration of use	Covers daily exposures up to 8 hours (unless stated). [G2].
	Other operational conditions affecting worker exposure	Assumes use at not > 20oC above ambient [G15]. Assumes a good basic standard of occupational hygiene has been implemented [G1]

Contributing Scenarios	**Specific Risk Management Measures and Operational Conditions** *(only required controls to demonstrate safe use listed)*	
	General exposures (closed systems) [CS15] PROC 1, 2, 3	No other specific measures identified. [EI20]
	General exposures (open systems) [CS16] PROC 4	No other specific measures identified. [EI20]
	Batch processes at elevated temperatures [CS136]Operation is carried out at elevated temperature (> then 20°C above ambient temperature) [OC7] PROC3	No other specific measures identified. [EI20]
	Process sampling [CS2] PROC3	No other specific measures identified. [EI20]
	Laboratory activities [CS36] PROC 15	No other specific measures identified. [EI20]
	Bulk transfers [CS14] PROC 8b	No other specific measures identified. [EI20]
	Mixing operations (open systems) [CS30] PROC5	No other specific measures identified. [EI20]
	Manual [CS34]Transfer from/pouring from containers [CS22] PROC8a	No other specific measures identified. [EI20]
	Drum/batch transfers [CS8] PROC8b	No other specific measures identified. [EI20]
	Production or preparation or articles by tabletting, compression, extrusion or pelletisation [CS100] PROC14	No other specific measures identified. [EI20]
	Drum and small package filling [CS6] PROC9	No other specific measures identified. [EI20]
	Equipment cleaning and maintenance [CS39] PROC 8a	No other specific measures identified. [EI20]
	Material storage [CS67] PROC 1, 2	No other specific measures identified. [EI20]
Section 2.2	**Control of environmental exposure**	
	Product characteristics	Substance is complex UVCB. [PrC3]. Predominantly hydrophobic. [PrC4a].
	Amounts used	Fraction of EU tonnage used in region: 0.1
		Regional use tonnage (tonnes/year): 2.4E+3
		Fraction of regional tonnage used locally: 1
		Annual site tonnage (tonnes/year): 2.4E+3
		Maximum daily site tonnage (kg/day): 7.8E+3

	Frequency and duration of use	Continuous release. [FD2]. Emission days (days/year): 300
	Environmental factors not influenced by risk management	Local freshwater dilution fraction: 10 Local marine dilution fraction: 100
	Other operational conditions affecting environmental exposure	Release fraction to air from process (after typical onsite RMMs, consistent with EU Solvent Emissions Directive requirements): 1.0E-2 Release fraction to wastewater from process (initial release prior to RMM): 2.0E-5 Release fraction to soil from process (initial release prior to RMM): 0.0001
	Technical conditions and measures at process level (source) to prevent release	Common practices vary across sites thus conservative process release estimates used [TCS1].
	Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil	Risk from environmental exposure is driven by Freshwater Sediment [TCR1b]. No wastewater treatment required [TCR6]. Treat air emission to provide a typical removal efficiency of 0%. Treat onsite wastewater (prior to receiving water discharge) to provide the required removal efficiency ≥ 0.0 % If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of ≥ 0.0 %
	Organizational measures to prevent / limit release from site	Prevent discharge of undissolved substance to or recover from wastewater [OMS1]. Do not apply industrial sludge to natural soils [OMS2]. Sludge should be incinerated, contained or reclaimed [OMS3].
	Conditions and measures related to municipal sewage treatment plant	Not applicable as there is no release to wastewater [STP1]. Estimated substance removal from wastewater via domestic sewage treatment 93.7 %. Total efficiency of removal from wastewater after onsite and offsite (domestic treatment plant) RMMs 93.7 %. Maximum allowable site tonnage (MSafe) based on domestic sewage treatment release 9.5E+5 kg per day. Assumed domestic sewage treatment plant flow 2 000 m^3 per day.
	Conditions and measures related to external treatment of waste for disposal	External treatment and disposal of waste should comply with applicable local and/or national regulations [ETW3].
	Conditions and measures related to external recovery of waste	External recovery and recycling of waste should comply with applicable local and/or national regulations [ERW1].
SECTION 3	**EXPOSURE ESTIMATION**	
Section 3.1	**Health**	
	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. [G21].	

Section 3.2	**Environment**
	The Hydrocarbon Block Method has been used to calculate environmental exposure with the Petrorisk model. [EE2].
SECTION 4	**GUIDANCE TO CHECK COMPLIANCE WITH THE EXPOSURE SCENARIO**
Section 4.1	**Health**
	Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented. [G22]. Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels. [G23].
Section 4.2	**Environment**
	Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures [DSU1]. Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination [DSU2]. Required removal efficiency for air can be achieved using onsite technologies, either alone or in combination [DSU3]. Further details on scaling and control technologies are provided in SpERC factsheet (http://cefic.org/en/reach-for-industries-libraries.html) [DSU4].

SECTION 1	**EXPOSURE SCENARIO TITLE**	
Title	**4. Uses in Coatings – Industrial**	
Use Descriptor	Sector(s) of Use	**SU 3**: Industrial uses
	Process Categories	**PROC 1**: Use in closed process, no likelihood of exposure.
		PROC 2: Use in closed, continuous process with occasional controlled exposure.
		PROC 3: Use in closed batch process (synthesis or formulation).
		PROC 4: Use in batch and other process (synthesis) where opportunity for exposure arises.
		PROC 5: Mixing or blending in batch processes for formulation of preparations* and articles (multistage and/or significant contact)
		PROC 7: Industrial spraying
		PROC 8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities.
		PROC 8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities.
		PROC9: Transfer of substance or preparation into small containers (dedicated filling line, including weighing)
		PROC 10: Roller application or brushing
		PROC 13: Treatment of articles by dipping and pouring
		PROC 14: Production of preparations or articles by tabletting, compression, extrusion, pelletisation
		PROC 15: Use as laboratory reagent
	Environmental Release Categories	**ERC 4**: Industrial use of processing aids in processes and products, not becoming part of articles
	Specific Environmental Release Category	ESVOC 4.3a.v1

Processes, Tasks and Activities Covered	Covers the use in coatings (paints, inks, adhesives, etc) including exposures during use (including materials receipt, storage, preparation and transfer from bulk and semi-bulk, application by spray, roller, spreader, dip, flow, fluidised bed on production lines and film formation) and equipment cleaning, maintenance and associated laboratory activities.	
SECTION 2	**OPERATIONAL CONDITIONS AND RISK MANAGEMENT MEASURES**	
Section 2.1	**Control of worker exposure**	
Product characteristics	Physical form of product	Liquid, vapour pressure < 0.5 kPa at STP [OC3].
	Concentration of substance in product	Up to 100% (unless stated).
	Amount used	No limit.
	Frequency and duration of use	Covers daily exposures up to 8 hours (unless stated). [G2].
	Other operational conditions affecting worker exposure	Assumes use at not > 20oC above ambient [G15]. Assumes a good basic standard of occupational hygiene has been implemented [G1]
Contributing Scenarios	**Specific Risk Management Measures and Operational Conditions** ***(only required controls to demonstrate safe use listed)***	
	General exposures (closed systems) [CS15] PROC 1	No other specific measures identified. [EI20]
	General exposures (closed systems) [CS15] with sample collection [CS56] Use in contained systems [CS38] PROC2	No other specific measures identified. [EI20]
	Film formation - force drying, stoving and other technologies [CS99] Operation is carried out at elevated temperature (> then 20°C above ambient temperature) [OC7] PROC2	No other specific measures identified. [EI20]
	Mixing operations (closed systems) [CS29]General exposures (closed systems) [CS15] PROC3	No other specific measures identified. [EI20]
	Film formation - air drying [CS95] PROC4	No other specific measures identified. [EI20]
	Preparation of material for application [CS96] Mixing operations (open systems) [CS30] PROC5	No other specific measures identified. [EI20]
	Spraying (automatic/ robotic) [CS97] PROC7	Provide a good standard of controlled ventilation (10 to 15 air changes per hour). [E40]
	Manual [CS34]Spraying [CS10] PROC7	Provide a good standard of controlled ventilation (10 to 15 air changes per hour). [E40]
	Material transfers [CS3] PROC8a	No other specific measures identified. [EI20]

	Material transfers [CS3] PROC8b	No other specific measures identified. [EI20]
	Roller, spreader, flow application [CS98] PROC10	No other specific measures identified. [EI20]
	Dipping, immersion and pouring [CS4] PROC13	No other specific measures identified. [EI20]
	Laboratory activities [CS36] PROC 15	No other specific measures identified. [EI20]
	Material transfers [CS3] Drum/batch transfers [CS8] Transfer from/ pouring from containers [CS22] PROC9	No other specific measures identified. [EI20]
	Production or preparation or articles by tabletting, compression, extrusion or pelletisation [CS100] PROC14	No other specific measures identified. [EI20]
	Equipment cleaning and maintenance [CS39] PROC 8a	No other specific measures identified. [EI20]
	Material storage [CS67] PROC 1	No other specific measures identified. [EI20]
Section 2.2	**Control of environmental exposure**	
	Product characteristics	Substance is complex UVCB. [PrC3]. Predominantly hydrophobic. [PrC4a].
	Amounts used	Fraction of EU tonnage used in region: 0.1
		Regional use tonnage (tonnes/year): 4.3E+3
		Fraction of regional tonnage used locally: 1
		Annual site tonnage (tonnes/year): 4.3E+3
		Maximum daily site tonnage (kg/day): 4.3E+3
	Frequency and duration of use	Continuous release. [FD2].
		Emission days (days/year): 100
	Environmental factors not influenced by risk management	Local freshwater dilution fraction: 10
		Local marine dilution fraction: 100
	Other operational conditions affecting environmental exposure	Release fraction to air from process (initial release prior to RMM): 0.98
		Release fraction to wastewater from process (initial release prior to RMM): 7.0E-5
		Release fraction to soil from process (initial release prior to RMM): 0
	Technical conditions and measures at process level (source) to prevent release	Common practices vary across sites thus conservative process release estimates used [TCS1].

	Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil	Risk from environmental exposure is driven by Freshwater Sediment [TCR1b]. If discharging to domestic sewage treatment plant, no onsite wastewater treatment required [TCR10]. Treat air emission to provide a typical removal efficiency of 90%. Treat onsite wastewater (prior to receiving water discharge) to provide the required removal efficiency ≥ 59.8 % If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of ≥ 0.0 %
	Organizational measures to prevent / limit release from site	Prevent discharge of undissolved substance to or recover from wastewater [OMS1]. Do not apply industrial sludge to natural soils [OMS2]. Sludge should be incinerated, contained or reclaimed [OMS3].
	Conditions and measures related to municipal sewage treatment plant	Not applicable as there is no release to wastewater [STP1]. Estimated substance removal from wastewater via domestic sewage treatment 93.7 %. Total efficiency of removal from wastewater after onsite and offsite (domestic treatment plant) RMMs 93.7 %. Maximum allowable site tonnage (MSafe) based on domestic sewage treatment release 2.7E+5 kg per day. Assumed domestic sewage treatment plant flow 2 000 m^3 per day.
	Conditions and measures related to external treatment of waste for disposal	External treatment and disposal of waste should comply with applicable local and/or national regulations [ETW3].
	Conditions and measures related to external recovery of waste	External recovery and recycling of waste should comply with applicable local and/or national regulations [ERW1].
SECTION 3	**EXPOSURE ESTIMATION**	
Section 3.1	**Health**	
	ECETOC TRA has been used to estimate workplace exposures unless otherwise indicated [G21].	
Section 3.2	**Environment**	
	The Hydrocarbon Block Method has been used to calculate environmental exposure with the Petrorisk model. [EE2].	
SECTION 4	**GUIDANCE TO CHECK COMPLIANCE WITH THE EXPOSURE SCENARIO**	
Section 4.1	**Health**	
	Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented. [G22]. Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels. [G23].	
Section 4.2	**Environment**	
	Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures [DSU1]. Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination [DSU2]. Required removal efficiency for air can be achieved using onsite technologies, either alone or in combination [DSU3]. Further details on scaling and control technologies are provided in SpERC factsheet (http://cefic.org/en/reach-for-industries-libraries.html) [DSU4].	

SECTION 1	**EXPOSURE SCENARIO TITLE**	
Title	**5. Uses in Coatings – Professional**	
Use Descriptor	Sector(s) of Use	**SU 22**: Professional uses:
	Process Categories	**PROC 1**: Use in closed process, no likelihood of exposure.
		PROC 2: Use in closed, continuous process with occasional controlled exposure.
		PROC 3: Use in closed batch process (synthesis or formulation).
		PROC 4: Use in batch and other process (synthesis) where opportunity for exposure arises.
		PROC 5: Mixing or blending in batch processes for formulation of preparations* and articles (multistage and/or significant contact)
		PROC 8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities.
		PROC 8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities.
		PROC 10: Roller application or brushing
		PROC11: Non industrial spraying
		PROC 13: Treatment of articles by dipping and pouring
		PROC 15: Use as laboratory reagent
		PROC 19: Hand-mixing with intimate contact and only PPE available
	Environmental Release Categories	**ERC 8a**: Wide dispersive indoor use of processing aids in open systems
		ERC 8d: Wide dispersive outdoor use of processing aids in open systems
	Specific Environmental Release Category	ESVOC 8.3b.v1
Processes, Tasks and Activities Covered	Covers the use in coatings (paints, inks, adhesives, etc) including exposures during use (including materials receipt, storage, preparation and transfer from bulk and semi-bulk, application by spray, roller, brush, spreader by hand or similar methods, and film formation) and equipment cleaning, maintenance and associated laboratory activities.	
SECTION 2	**OPERATIONAL CONDITIONS AND RISK MANAGEMENT MEASURES**	
Section 2.1	**Control of worker exposure**	
Product characteristics	Physical form of product	Liquid, vapour pressure < 0.5 kPa at STP [OC3].
	Concentration of substance in product	Up to 100% (unless stated).
	Amount used	No limit.
	Frequency and duration of use	Covers daily exposures up to 8 hours (unless stated). [G2].
	Other operational conditions affecting worker exposure	Assumes use at not > 20oC above ambient [G15].
		Assumes a good basic standard of occupational hygiene has been implemented [G1]

Contributing Scenarios	Specific Risk Management Measures and Operational Conditions *(only required controls to demonstrate safe use listed)*	
	General exposures (closed systems) [CS15] PROC 1	Handle substance within a closed system [E47]
	Filling / preparation of equipment from drums or containers. [CS45] Use in contained systems [CS38] PROC2	Handle substance within a closed system [E47]
	General exposures (closed systems) [CS15] Use in contained systems [CS38] PROC2	Handle substance within a closed system [E47]
	Preparation of material for application [CS96] Use in contained batch processes [CS37] PROC3	No other specific measures identified. [EI20]
	Film formation - air drying [CS95] Outdoor [OC9] PROC4	No other specific measures identified. [EI20]
	Film formation - air drying [CS95] Indoor [OC8] PROC4	No other specific measures identified. [EI20]
	Preparation of material for application [CS96] Indoor [OC8] PROC5	No other specific measures identified. [EI20]
	Preparation of material for application [CS96] Outdoor [OC9] PROC5	No other specific measures identified. [EI20]
	Material transfers [CS3] Drum/batch transfers [CS8] PROC8a	No other specific measures identified. [EI20]
	Material transfers [CS3] Drum/batch transfers [CS8]Dedicated facility [CS81] PROC8b	No other specific measures identified. [EI20]
	Roller, spreader, flow application [CS98] Indoor [OC8] PROC10	No other specific measures identified. [EI20]
	Roller, spreader, flow application [CS98] Outdoor [OC9] PROC10	No other specific measures identified. [EI20]
	Manual [CS34] Spraying [CS10] Indoor [OC8] PROC11	Provide a good standard of controlled ventilation (10 to 15 air changes per hour). [E40] Wear a respirator conforming to EN140 with Type A filter or better. [PPE22]
	Manual [CS34] Spraying [CS10] Outdoor [OC9] PROC11	Ensure operation is undertaken outdoors [E69]Avoid carrying out activities involving exposure for more than 4 hours. [OC28] Ensure operation is undertaken outdoors [E69]Wear a respirator conforming to EN140 with Type A filter or better. [PPE22]

	Dipping, immersion and pouring [CS4] Indoor [OC8] PROC13	Avoid manual contact with wet work pieces [EI17]
	Dipping, immersion and pouring [CS4] Outdoor [OC9] PROC13	Avoid manual contact with wet work pieces [EI17]
	Laboratory activities [CS36] PROC15	No other specific measures identified. [EI20]
	Hand application – finger paints, pastels, adhesives [CS72] Indoor [OC8] PROC19	No other specific measures identified. [EI20]
	Hand application – finger paints, pastels, adhesives [CS72] Outdoor [OC9] PROC19	No other specific measures identified. [EI20]
Section 2.2	**Control of environmental exposure**	
	Product characteristics	Substance is complex UVCB. [PrC3]. Predominantly hydrophobic. [PrC4a].
	Amounts used	Fraction of EU tonnage used in region: 0.1
		Regional use tonnage (tonnes/year): 1.7E+3
		Fraction of regional tonnage used locally: 1
		Annual site tonnage (tonnes/year): 8.4E-1
		Maximum daily site tonnage (kg/day): 2.3E+0
	Frequency and duration of use	Continuous release. [FD2].
		Emission days (days/year): 365
	Environmental factors not influenced by risk management	Local freshwater dilution fraction: 10
		Local marine dilution fraction: 100
	Other operational conditions affecting environmental exposure	Release fraction to air from process (initial release prior to RMM): 0.98
		Release fraction to wastewater from process (initial release prior to RMM): 0.01
		Release fraction to soil from process (initial release prior to RMM): 0.01
	Technical conditions and measures at process level (source) to prevent release	Common practices vary across sites thus conservative process release estimates used [TCS1].
	Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil	Risk from environmental exposure is driven by Agricultural Soil [TCR1f] No wastewater treatment required [TCR6].
		Treat air emission to provide a typical removal efficiency of N/A.
		Treat onsite wastewater (prior to receiving water discharge) to provide the required removal efficiency ≥ 0.0 %
		If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of ≥ 0.0 %
	Organizational measures to prevent / limit release from site	Prevent discharge of undissolved substance to or recover from wastewater [OMS1].
		Do not apply industrial sludge to natural soils [OMS2].
		Sludge should be incinerated, contained or reclaimed [OMS3].

	Conditions and measures related to municipal sewage treatment plant	Not applicable as there is no release to wastewater [STP1]. Estimated substance removal from wastewater via domestic sewage treatment 93.7 %. Total efficiency of removal from wastewater after onsite and offsite (domestic treatment plant) RMMs 93.7 %. Maximum allowable site tonnage (MSafe) based on domestic sewage treatment release 1.9E+3 kg per day. Assumed domestic sewage treatment plant flow 2 000 m^3 per day.
	Conditions and measures related to external treatment of waste for disposal	External treatment and disposal of waste should comply with applicable local and/or national regulations [ETW3].
	Conditions and measures related to external recovery of waste	External recovery and recycling of waste should comply with applicable local and/or national regulations [ERW1].
SECTION 3	**EXPOSURE ESTIMATION**	
Section 3.1	**Health**	
	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. [G21].	
Section 3.2	**Environment**	
	The Hydrocarbon Block Method has been used to calculate environmental exposure with the Petrorisk model. [EE2].	
SECTION 4	**GUIDANCE TO CHECK COMPLIANCE WITH THE EXPOSURE SCENARIO**	
Section 4.1	**Health**	
	Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented. [G22]. Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels. [G23].	
Section 4.2	**Environment**	
	Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures [DSU1]. Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination [DSU2]. Required removal efficiency for air can be achieved using onsite technologies, either alone or in combination [DSU3]. Further details on scaling and control technologies are provided in SpERC factsheet (http://cefic.org/en/reach-for-industries-libraries.html) [DSU4].	

SECTION 1	**EXPOSURE SCENARIO TITLE**	
Title	**6. Uses in Coatings - Consumer**	
Use Descriptor	Sector(s) of Use	**SU 21**: Consumer uses
	Products Categories	**PC 1**: Adhesives, sealants
		PC 4: Anti-Freeze and de-icing products
		PC 8: Biocidal products (e.g. Disinfectants, pest control)
		PC 9a: Coatings and paints, thinners, paint removers
		PC 9b: Fillers, putties, plasters, modelling clay

		PC 9c: Finger paints
		PC 15: Non-metal-surface treatment products
		PC 18: Ink and toners
		PC 23: Leather tanning, dye, finishing, impregnation and care products
		PC 24: Lubricants, greases, release products
		PC 31: Polishes and wax blends
		PC 34: Textile dyes, finishing and impregnating products; including bleaches and other processing aids.
	Environmental Release Categories	**ERC 8a**: Wide dispersive indoor use of processing aids in open systems.
		ERC 8d: Wide dispersive outdoor use of processing aids in open systems.
	Specific Environmental Release Category	ESVOC 8.3c.v1
Processes, Tasks and Activities Covered	Covers the use in coatings (paints, inks, adhesives, etc) including exposures during use (including product transfer and preparation, application by brush, spray by hand or similar methods) and equipment cleaning.	
SECTION 2	**OPERATIONAL CONDITIONS AND RISK MANAGEMENT MEASURES**	
Section 2.1	**Control of consumer exposure**	
Product characteristics	Physical form of product	Liquid, vapour pressure > 10 Pa STP [OC15]
	Vapour Pressure (Pa)	231
	Concentration of substance in product	Unless otherwise stated, cover concentrations up to 100 %. [ConsOC1].
	Amounts used	Unless otherwise stated, covers use amounts up to 13 800 g [ConsOC2]; covers skin contact area up to 858 cm^2 [ConsOC5]
	Frequency and duration of use/exposure	Unless otherwise stated, covers use frequency up to 365 days per year [ConsOC3];Unless otherwise stated, covers use frequency up to 1 times per day [ConsOC4];covers exposure up to 6 hours per event [ConsOC14]
	Other operational conditions affecting exposure	Unless otherwise stated assumes use at ambient temperatures [ConsOC15]; assumes use in a 20 m^3 room [ConsOC11]; assumes use with typical ventilation [ConsOC8].
Product Category	**Specific Risk Management Measures and Operating Conditions** ***(only required controls to demonstrate safe use listed)***	
PC1: Adhesives, sealants - Glues, hobby use	Unless otherwise stated, covers concentrations up to 30% [ConsOC1]; covers use up to 365 days/year [ConsOC3]; covers use up to 1 time/on day of use [ConsOC4]; covers skin contact area up to 35.73 cm2 [ConsOC5]; for each use event, covers use amounts up to 9g [ConsOC2]; covers use under typical household ventilation [ConsOC8]; covers use in room size of 20m3 [ConsOC11]; for each use event, covers exposure up to 4.00hr/event [ConsOC14]. No specific RMMs identified beyond those OCs stated.	
PC1: Adhesives, sealants - Glues, DIY-use (carpet glue, tile glue, wood parquet glue)	Unless otherwise stated, covers concentrations up to 30% [ConsOC1]; covers use up to 1 days/year [ConsOC3]; covers use up to 1 time/on day of use [ConsOC4]; covers skin contact area up to 110.00 cm2 [ConsOC5]; for each use event, covers use amounts up to 6390g [ConsOC2]; covers use under typical household ventilation [ConsOC8]; covers use in room size of 20m3 [ConsOC11]; for each use event, covers exposure up to 6.00hr/event [ConsOC14]. No specific RMMs identified beyond those OCs stated.	

PC1: Adhesives, sealants - Glue from spray	Unless otherwise stated, covers concentrations up to 30% [ConsOC1]; covers use up to 6 days/year [ConsOC3]; covers use up to 1 time/on day of use [ConsOC4]; covers skin contact area up to 35.73 cm2 [ConsOC5]; for each use event, covers use amounts up to 85.05g [ConsOC2]; covers use under typical household ventilation [ConsOC8]; covers use in room size of 20m3 [ConsOC11]; for each use event, covers exposure up to 4.00hr/event [ConsOC14]. No specific RMMs identified beyond those OCs stated.
PC1: Adhesives, sealants -Sealants	Unless otherwise stated, covers concentrations up to 30% [ConsOC1]; covers use up to 365 days/year [ConsOC3]; covers use up to 1 time/on day of use [ConsOC4]; covers skin contact area up to 35.73 cm2 [ConsOC5]; for each use event, covers use amounts up to 75g [ConsOC2]; covers use under typical household ventilation [ConsOC8]; covers use in room size of 20m3 [ConsOC11]; for each use event, covers exposure up to 1.00hr/event [ConsOC14]. No specific RMMs identified beyond those OCs stated.
PC4_n: Anti-freeze and de-icing products - Washing car window	Unless otherwise stated, covers concentrations up to 1% [ConsOC1]; covers use up to 365 days/year[ConsOC3]; covers use up to 1 time/on day of use [ConsOC4]; for each use event, covers use amounts up to 0.5g [ConsOC2]; Covers use in a one car garage (34m3) under typcial ventilation [ConsOC10]; covers use in room size of 34m3 ConsOC11]; for each use event, covers exposure up to 0.02hr/event [ConsOC14]. No specific RMMs identified beyond those OCs stated.
PC4_n: Anti-freeze and de-icing products - Pouring into radiator	Unless otherwise stated, covers concentrations up to 10% [ConsOC1]; covers use up to 365 days/year [ConsOC3]; covers use up to 1 time/on day of use [ConsOC4]; covers skin contact area up to 428.00 cm2 [ConsOC5]; for each use event, covers use amounts up to 2000g [ConsOC2]; Covers use in a one car garage (34m3) under typcial ventilation [ConsOC10]; covers use in room size of 34m3 [ConsOC11]; for each use event, covers exposure up to 0.17hr/event [ConsOC14]. No specific RMMs identified beyond those OCs stated.
PC4_n: Anti-freeze and de-icing products - Lock de-icer	Unless otherwise stated, covers concentrations up to 50% [ConsOC1]; covers use up to 365 days/year [ConsOC3]; covers use up to 1 time/on day of use [ConsOC4]; covers skin contact area up to 214.40 cm2 [ConsOC5]; for each use event, covers use amounts up to 4g [ConsOC2]; Covers use in a one car garage (34m3) under typcial ventilation [ConsOC10]; covers use in room size of 34m3 [ConsOC11]; for each use event, covers exposure up to 0.25hr/event [ConsOC14]. No specific RMMs identified beyond those OCs stated.
PC8_n: Biocidal products (excipient use only for solvent products) - Laundry and dish washing products	Unless otherwise stated, covers concentrations up to 5% [ConsOC1]; covers use up to 365 days/year[ConsOC3]; covers use up to 1 time/on day of use [ConsOC4]; covers skin contact area up to 857.50 cm2 [ConsOC5]; for each use event, covers use amounts up to 15g [ConsOC2]; covers use under typical household ventilation [ConsOC8]; covers use in room size of 20m3 [ConsOC11]; for each use event, covers exposure up to 0.50hr/event [ConsOC14]. No specific RMMs identified beyond those OCs stated.
PC8_n: Biocidal products (excipient use only for solvent products) - Cleaners, liquids (all purpose cleaners; sanitary products; floor, glass, carpet and metal cleaners)	Unless otherwise stated, covers concentrations up to 5% [ConsOC1]; covers use up to 128 days/year[ConsOC3]; covers use up to 1 time/on day of use [ConsOC4]; covers skin contact area up to 857.50 cm2 [ConsOC5]; for each use event, covers use amounts up to 27g [ConsOC2]; covers use under typical household ventilation [ConsOC8]; covers use in room size of 20m3 [ConsOC11]; for each use event, covers exposure up to 0.33hr/event [ConsOC14]. No specific RMMs identified beyond those OCs stated.
PC8_n: Biocidal products (excipient use only for solvent products) - Cleaners, trigger sprays (all purpose cleaners, sanitary products, glass cleaners)	Unless otherwise stated, covers concentrations up to 15% [ConsOC1]; covers use up to 128 days/year [ConsOC3]; covers use up to 1 time/on day of use [ConsOC4]; covers skin contact area up to 428.00 cm2 [ConsOC5]; for each use event, covers use amounts up to 35g [ConsOC2]; covers use under typical household ventilation [ConsOC8]; covers use in room size of 20m3 [ConsOC11]; for each use event, covers exposure up to 0.17hr/event [ConsOC14]. No specific RMMs identified beyond those OCs stated.

PC9a: Coatings, paints, thinners, paint removers - Waterborne latex wall paint	Unless otherwise stated, covers concentrations up to 1.5% [ConsOC1]; covers use up to 4 days/year [ConsOC3]; covers use up to 1 time/on day of use [ConsOC4]; covers skin contact area up to 428.75 cm2 [ConsOC5]; for each use event, covers use amounts up to 2760g [ConsOC2]; covers use under typical household ventilation [ConsOC8]; covers use in room size of 20m3 [ConsOC11]; for each use event, covers exposure up to 2.20hr/event [ConsOC14]. No specific RMMs identified beyond those OCs stated.
PC9a: Coatings, paints, thinners, paint removers - Solvent rich, high solid, water borne paint	Unless otherwise stated, covers concentrations up to 27.5% [ConsOC1]; covers use up to 6 days/year [ConsOC3]; covers use up to 1 time/on day of use [ConsOC4]; covers skin contact area up to 428.75 cm2 [ConsOC5]; for each use event, covers use amounts up to 744g [ConsOC2]; covers use under typical household ventilation [ConsOC8]; covers use in room size of 20m3 [ConsOC11]; for each use event, covers exposure up to 2.20hr/event [ConsOC14]. No specific RMMs identified beyond those OCs stated.
PC9a: Coatings, paints, thinners, paint removers - Aerosol spray can	Unless otherwise stated, covers concentrations up to 50% [ConsOC1]; covers use up to 2 days/year [ConsOC3]; covers use up to 1 time/on day of use [ConsOC4]; for each use event, covers use amounts up to 215g [ConsOC2]; Covers use in a one car garage (34m3) under typcial ventilation [ConsOC10]; covers use in room size of 34m3 [ConsOC11]; for each use event, covers exposure up to 0.33hr/event [ConsOC14]. No specific RMMs identified beyond those OCs stated.
PC9a: Coatings, paints, thinners, paint removers - Removers (paint-, glue-, wall paper-, sealant-remover)	Unless otherwise stated, covers concentrations up to 50% [ConsOC1]; covers use up to 3 days/year[ConsOC3]; covers use up to 1 time/on day of use [ConsOC4]; covers skin contact area up to 857.50 cm2 [ConsOC5]; for each use event, covers use amounts up to 491g [ConsOC2]; covers use under typical household ventilation [ConsOC8]; covers use in room size of 20m3[ConsOC11]; for each use event, covers exposure up to 2.00hr/event [ConsOC14]. No specific RMMs identified beyond those OCs stated.
PC9b: Fillers, putties, plasters, modeling clay - Fillers and putty	Unless otherwise stated, covers concentrations up to 2% [ConsOC1]; covers use up to 12 days/year [ConsOC3]; covers use up to 1 time/on day of use[ConsOC4]; covers skin contact area up to 35.73 cm2 [ConsOC5]; for each use event, covers use amounts up to 85g [ConsOC2]; covers use under typical household ventilation [ConsOC8]; covers use in room size of 20m3 [ConsOC11]; for each use event, covers exposure up to 4.00hr/event [ConsOC14]. No specific RMMs identified beyond those OCs stated.
PC9b: Fillers, putties, plasters, modeling clay - Plasters and floor equalizers	Unless otherwise stated, covers concentrations up to 2% [ConsOC1]; covers use up to 12 days/year [ConsOC3]; covers use up to 1 time/on day of use[ConsOC4]; covers skin contact area up to 857.50 cm2 [ConsOC5]; for each use event, covers use amounts up to 13800g [ConsOC2]; covers use under typical household ventilation [ConsOC8]; covers use in room size of 20m3 [ConsOC11]; for each use event, covers exposure up to 2.00hr/event [ConsOC14]. No specific RMMs identified beyond those OCs stated.
PC9b: Fillers, putties, plasters, modeling clay - Modelling clay	Unless otherwise stated, covers concentrations up to 1% [ConsOC1]; covers use up to 365 days/year [ConsOC3]; covers use up to 1 time/on day of use [ConsOC4]; covers skin contact area up to 254.40 cm2 [ConsOC5]; for each use event, assumes swallowed amount of 1g [ConsOC13]. No specific RMMs identified beyond those OCs stated.
PC9c: Finger paints - Finger paints	Unless otherwise stated, covers concentrations up to 50% [ConsOC1]; covers use up to 365 days/year[ConsOC3]; covers use up to 1 time/on day of use [ConsOC4]; covers skin contact area up to 254.40 cm2 [ConsOC5]; for each use event, assumes swallowed amount of 1.35g [ConsOC13]. Avoid using at a product concentration greater than 5% [ConsRMM1].
PC15_n: Non-metal surface treatment products - Waterborne latex wall paint	Unless otherwise stated, covers concentrations up to 1.5% [ConsOC1]; covers use up to 4 days/year[ConsOC3]; covers use up to 1 time/on day of use [ConsOC4]; covers skin contact area up to 428.75 cm2 [ConsOC5]; for each use event, covers use amounts up to 2760g [ConsOC2]; covers use under typical household ventilation [ConsOC8]; covers use in room size of 20m3 [ConsOC11]; for each use event, covers exposure up to 2.20hr/event [ConsOC14]. No specific RMMs identified beyond those OCs stated.

PC15_n: Non-metal surface treatment products - Solvent rich, high solid, water borne paint	Unless otherwise stated, covers concentrations up to 27.5% [ConsOC1]; covers use up to 6 days/ year [ConsOC3]; covers use up to 1 time/on day of use [ConsOC4]; covers skin contact area up to 428.75 cm2 [ConsOC5]; for each use event, covers use amounts up to 744g [ConsOC2]; covers use under typical household ventilation [ConsOC8]; covers use in room size of 20m3 [ConsOC11]; for each use event, covers exposure up to 2.20hr/event [ConsOC14]. No specific RMMs identified beyond those OCs stated.
PC15_n: Non-metal surface treatment products - Aerosol spray can	Unless otherwise stated, covers concentrations up to 50% [ConsOC1]; covers use up to 2 days/year [ConsOC3]; covers use up to 1 time/on day of use [ConsOC4]; for each use event, covers use amounts up to 215g [ConsOC2]; Covers use in a one car garage (34m3) under typcial ventilation [ConsOC10]; covers use in room size of 34m3 [ConsOC11]; for each use event, covers exposure up to 0.33hr/event [ConsOC14]. No specific RMMs identified beyond those OCs stated.
PC15_n: Non-metal surface treatment products - Removers (paint-, glue-, wall paper-, sealant-remover)	Unless otherwise stated, covers concentrations up to 50% [ConsOC1]; covers use up to 3 days/year [ConsOC3]; covers use up to 1 time/on day of use[ConsOC4]; covers skin contact area up to 857.50 cm2 [ConsOC5]; for each use event, covers use amounts up to 491g [ConsOC2]; covers use under typical household ventilation [ConsOC8]; covers use in room size of 20m3 [ConsOC11]; for each use event, covers exposure up to 2.00hr/event [ConsOC14]. No specific RMMs identified beyond those OCs stated.
PC18_n: Ink and toners - Inks and toners.	Unless otherwise stated, covers concentrations up to 10% [ConsOC1]; covers use up to 365 days/year [ConsOC3]; covers use up to 1 time/on day of use [ConsOC4]; covers skin contact area up to 71.40 cm2 [ConsOC5]; for each use event, covers use amounts up to 40g [ConsOC2]; covers use under typical household ventilation [ConsOC8]; covers use in room size of 20m3 [ConsOC11]; for each use event, covers exposure up to 2.20hr/event[ConsOC14]. No specific RMMs identified beyond those OCs stated.
PC23_n: Leather tanning, dye, finishing, impregnation and care products - Polishes, wax / cream (floor, furniture, shoes)	Unless otherwise stated, covers concentrations up to 50% [ConsOC1]; covers use up to 29 days/year[ConsOC3]; covers use up to 1 time/on day of use[ConsOC4]; covers skin contact area up to 430.00 cm2 [ConsOC5]; for each use event, covers use amounts up to 56g [ConsOC2]; covers use under typical household ventilation [ConsOC8]; covers use in room size of 20m3[ConsOC11]; for each use event, covers exposure up to 1.23hr/event[ConsOC14]. No specific RMMs identified beyond those OCs stated.
PC23_n: Leather tanning, dye, finishing, impregnation and care products - Polishes, spray (furniture, shoes)	Unless otherwise stated, covers concentrations up to 50% [ConsOC1]; covers use up to 8 days/year[ConsOC3]; covers use up to 1 time/on day of use[ConsOC4]; covers skin contact area up to 430.00 cm2 [ConsOC5]; for each use event, covers use amounts up to 56g [ConsOC2]; covers use under typical household ventilation [ConsOC8]; covers use in room size of 20m3[ConsOC11]; for each use event, covers exposure up to 0.33hr/event[ConsOC14]. No specific RMMs identified beyond those OCs stated.
PC24: Lubricants, greases, and release products - Liquids	Unless otherwise stated, covers concentrations up to 100% [ConsOC1]; covers use up to 4 days/year[ConsOC3]; covers use up to 1 time/on day of use [ConsOC4]; covers skin contact area up to 468.00 cm2 [ConsOC5]; for each use event, covers use amounts up to 2200g [ConsOC2]; Covers use in a one car garage (34m3) under typcial ventilation [ConsOC10]; covers use in room size of 34m3[ConsOC11]; for each use event, covers exposure up to 0.17hr/event [ConsOC14]. No specific RMMs identified beyond those OCs stated.
PC24: Lubricants, greases, and release products - Pastes	Unless otherwise stated, covers concentrations up to 20% [ConsOC1]; covers use up to 10 days/year [ConsOC3]; covers use up to 1 time/on day of use [ConsOC4]; covers skin contact area up to 468.00 cm2 [ConsOC5]; for each use event, covers use amounts up to 34g [ConsOC2]; for each use event, covers exposure up to 4.00hr/event[ConsOC14]. No specific RMMs identified beyond those OCs stated.

PC24: Lubricants, greases, and release products - Sprays	Unless otherwise stated, covers concentrations up to 50% [ConsOC1]; covers use up to 6 days/year [ConsOC3]; covers use up to 1 time/on day of use [ConsOC4]; covers skin contact area up to 428.75 cm2 [ConsOC5]; for each use event, covers use amounts up to 73g [ConsOC2]; covers use under typical household ventilation [ConsOC8]; covers use in room size of 20m3 [ConsOC11]; for each use event, covers exposure up to 0.17hr/event [ConsOC14]. No specific RMMs identified beyond those OCs stated.	
PC31: Polishes and wax blends - Polishes, wax / cream (floor, furniture, shoes)	Unless otherwise stated, covers concentrations up to 50% [ConsOC1]; covers use up to 29 days/year[ConsOC3]; covers use up to 1 time/on day of use [ConsOC4]; covers skin contact area up to 430.00 cm2 [ConsOC5]; for each use event, covers use amounts up to 142g [ConsOC2]; covers use under typical household ventilation [ConsOC8]; covers use in room size of 20m3 [ConsOC11]; for each use event, covers exposure up to 1.23hr/event [ConsOC14]. No specific RMMs identified beyond those OCs stated.	
PC31: Polishes and wax blends - Polishes, spray (furniture, shoes)	Unless otherwise stated, covers concentrations up to 50% [ConsOC1]; covers use up to 8 days/year ConsOC3]; covers use up to 1 time/on day of use[ConsOC4]; covers skin contact area up to 430.00 cm2 [ConsOC5]; for each use event, covers use amounts up to 35g [ConsOC2]; covers use under typical household ventilation [ConsOC8]; covers use in room size of 20m3 [ConsOC11]; for each use event, covers exposure up to 0.33hr/event [ConsOC14]. No specific RMMs identified beyond those OCs stated.	
PC34_n: Textile dyes, finishing and impregnating products	Unless otherwise stated, covers concentrations up to 10% [ConsOC1]; covers use up to 365 days/year [ConsOC3]; covers use up to 1 time/on day of use [ConsOC4]; covers skin contact area up to 857.50 cm2 [ConsOC5]; for each use event, covers use amounts up to 115g [ConsOC2]; covers use under typical household ventilation [ConsOC8]; covers use in room size of 20m3 [ConsOC11]; for each use event, covers exposure up to 1.00hr/event [ConsOC14]. No specific RMMs identified beyond those OCs stated.	
Section 2.2	**Control of environmental exposure**	
	Product characteristics	Substance is complex UVCB. [PrC3]. Predominantly hydrophobic. [PrC4a].
	Amounts used	Fraction of EU tonnage used in region: 0.1
		Regional use tonnage (tonnes/year): 4.4E+3
		Fraction of regional tonnage used locally: 0.0005
		Annual site tonnage (tonnes/year): .2E+0
		Maximum daily site tonnage (kg/day): 6.0E+0
	Frequency and duration of use	Continuous release. [FD2].
		Emission days (days/year): 365
	Environmental factors not influenced by risk management	Local freshwater dilution fraction: 10
		Local marine dilution fraction: 100
	Other given operational conditions affecting environmental exposure	Release fraction to air from process (initial release prior to RMM): 0.985
		Release fraction to wastewater from process (initial release prior to RMM): 0.01
		Release fraction to soil from process (initial release prior to RMM): 0.005
	Conditions and measures related to municipal sewage treatment plant	Not applicable as there is no release to wastewater [STP1].
		Estimated substance removal from wastewater via domestic sewage treatment 93.7 %.
		Maximum allowable site tonnage (MSafe) based on domestic sewage treatment release (kg/d) 1.9E+3.
		Assumed domestic sewage treatment plant flow (m^3/day): 2000

	Conditions and measures related to external treatment of waste for disposal	External treatment and disposal of waste should comply with applicable local and/or national regulations [ETW3].
	Conditions and measures related to external recovery of waste	External recovery and recycling of waste should comply with applicable local and/or national regulations [ERW1].
SECTION 3	**EXPOSURE ESTIMATION**	
Section 3.1	**Health**	
	The ECETOC TRA tool has been used to estimate consumer exposures unless otherwise indicated. G30.	
Section 3.2	**Environment**	
	The Hydrocarbon Block Method has been used to calculate environmental exposure with the Petrorisk model. [EE2].	
SECTION 4	**GUIDANCE TO CHECK COMPLIANCE WITH THE EXPOSURE SCENARIO**	
Section 4.1	**Health**	
	Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented. G22. Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels. G23.	
Section 4.2	**Environment**	
	Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures [DSU1]. Further details on scaling and control technologies are provided in SpERC factsheet (http://cefic.org/en/reach-for-industries-libraries.html) [DSU4].	

SECTION 1	**EXPOSURE SCENARIO TITLE**	
Title	**7. Use in Cleaning Agents – Industrial**	
Use Descriptor	Sector(s) of Use	**SU 3**: Industrial uses
	Process Categories	**PROC 1**: Use in closed process, no likelihood of exposure.
		PROC 2: Use in closed, continuous process with occasional controlled exposure.
		PROC 3: Use in closed batch process (synthesis or formulation).
		PROC 4: Use in batch and other process (synthesis) where opportunity for exposure arises.
		PROC 7: Industrial spraying
		PROC 8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities.
		PROC 8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities.
		PROC 10: Roller application or brushing
		PROC 13: Treatment of articles by dipping and pouring
	Environmental Release Categories	**ERC 4**: Industrial use of processing aids in processes and products, not becoming part of articles

	Specific Environmental Release Category	ESVOC 4.4a.v1
Processes, Tasks and Activities Covered	Covers the use as a component of cleaning products including transfer from storage, pouring/unloading from drums or containers. Exposures during mixing/diluting in the preparatory phase and cleaning activities (including spraying, brushing, dipping, wiping, automated and by hand), related equipment cleaning and maintenance.	
SECTION 2	**OPERATIONAL CONDITIONS AND RISK MANAGEMENT MEASURES**	
Section 2.1	**Control of worker exposure**	
Product characteristics	Physical form of product	Liquid, vapour pressure < 0.5 kPa at STP [OC3].
	Concentration of substance in product	Up to 100% (unless stated).
	Amount used	No limit.
	Frequency and duration of use	Covers daily exposures up to 8 hours (unless stated). [G2].
	Other operational conditions affecting worker exposure	Assumes use at not > 20oC above ambient [G15].
		Assumes a good basic standard of occupational hygiene has been implemented [G1]
Contributing Scenarios	**Specific Risk Management Measures and Operational Conditions** ***(only required controls to demonstrate safe use listed)***	
	Bulk transfers [CS14] PROC8a	No other specific measures identified. [EI20]
	Automated process with (semi) closed systems. [CS93]Use in contained systems[CS38] PROC2, 3	No other specific measures identified. [EI20]
	Application of cleaning products in closed systems [CS101] PROC2	No other specific measures identified. [EI20]
	Filling / preparation of equipment from drums or containers. [CS45] PROC8b	No other specific measures identified. [EI20]
	Use in contained batch processes [CS37] PROC4	No other specific measures identified. [EI20]
	Degreasing small objects in cleaning station [CS41] PROC13	No other specific measures identified. [EI20]
	Cleaning with low-pressure washers [CS42] PROC10	No other specific measures identified. [EI20]
	Cleaning with high pressure washers [CS44] PROC7	Provide a good standard of controlled ventilation (10 to 15 air changes per hour). [E40]
		Wear a respirator conforming to EN140 with Type A filter or better. [PPE22]
	Manual [CS34] Surfaces [CS48]Cleaning [CS47] PROC10	No other specific measures identified. [EI20]

	Material storage [CS67] PROC1	No other specific measures identified. [EI20]
Section 2.2	**Control of environmental exposure**	
	Product characteristics	Substance is complex UVCB. [PrC3]. Predominantly hydrophobic. [PrC4a].
	Amounts used	Fraction of EU tonnage used in region: 0.1
		Regional use tonnage (tonnes/year): 1.4E+3
		Fraction of regional tonnage used locally: 1
		Annual site tonnage (tonnes/year): 1.0E+2
		Maximum daily site tonnage (kg/day): 5.0E+3
	Frequency and duration of use	Continuous release. [FD2].
		Emission days (days/year): 20
	Environmental factors not influenced by risk management	Local freshwater dilution fraction: 10
		Local marine dilution fraction: 100
	Other operational conditions affecting environmental exposure	Release fraction to air from process (initial release prior to RMM): 1.0
		Release fraction to wastewater from process (initial release prior to RMM): 3.0E-7
		Release fraction to soil from process (initial release prior to RMM): 0
	Technical conditions and measures at process level (source) to prevent release	Common practices vary across sites thus conservative process release estimates used [TCS1].
	Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil	Risk from environmental exposure is driven byFreshwater [TCR1a] No wastewater treatment required [TCR6].
		Treat air emission to provide a typical removal efficiency of 70%.
		Treat onsite wastewater (prior to receiving water discharge) to provide the required removal efficiency ≥ 0.0 %
		If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of ≥ 0.0 %
	Organizational measures to prevent / limit release from site	Prevent discharge of undissolved substance to or recover from wastewater [OMS1].
		Do not apply industrial sludge to natural soils [OMS2].
		Sludge should be incinerated, contained or reclaimed [OMS3].
	Conditions and measures related to municipal sewage treatment plant	Not applicable as there is no release to wastewater [STP1].
		Estimated substance removal from wastewater via domestic sewage treatment 93.7 %.
		Total efficiency of removal from wastewater after onsite and offsite (domestic treatment plant) RMMs 93.7 %.
		Maximum allowable site tonnage (MSafe) based on domestic sewage treatment release 4.6E+6 kg per day.
		Assumed domestic sewage treatment plant flow 2 000 m^3 per day.
	Conditions and measures related to external treatment of waste for disposal	External treatment and disposal of waste should comply with applicable local and/or national regulations [ETW3].

	Conditions and measures related to external recovery of waste	External recovery and recycling of waste should comply with applicable local and/or national regulations [ERW1].
SECTION 3	**EXPOSURE ESTIMATION**	
Section 3.1	**Health**	
	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. [G21].	
Section 3.2	**Environment**	
	The Hydrocarbon Block Method has been used to calculate environmental exposure with the Petrorisk model. [EE2].	
SECTION 4	**GUIDANCE TO CHECK COMPLIANCE WITH THE EXPOSURE SCENARIO**	
Section 4.1	**Health**	
	Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented. [G22]. Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels. [G23].	
Section 4.2	**Environment**	
	Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures [DSU1]. Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination [DSU2]. Required removal efficiency for air can be achieved using onsite technologies, either alone or in combination [DSU3]. Further details on scaling and control technologies are provided in SpERC factsheet (http://cefic.org/en/reach-for-industries-libraries.html) [DSU4].	

SECTION 1	**EXPOSURE SCENARIO TITLE**	
Title	**8. Use in Cleaning Agents – Professional**	
Use Descriptor	Sector(s) of Use	**SU 22**: Professional uses:
	Process Categories	**PROC 1**: Use in closed process, no likelihood of exposure.
		PROC 2: Use in closed, continuous process with occasional controlled exposure.
		PROC 3: Use in closed batch process (synthesis or formulation).
		PROC 4: Use in batch and other process (synthesis) where opportunity for exposure arises.
		PROC 8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities.
		PROC 8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities.
		PROC 10: Roller application or brushing
		PROC11: Non industrial spraying
		PROC 13: Treatment of articles by dipping and pouring
	Environmental Release Categories	**ERC 8a**: Wide dispersive indoor use of processing aids in open systems
		ERC 8d: Wide dispersive outdoor use of processing aids in open systems

	Specific Environmental Release Category	ESVOC 8.4b.v1
Processes, Tasks and Activities Covered	Covers the use as a component of cleaning products including pouring/unloading from drums or containers; and exposures during mixing/diluting in the preparatory phase and cleaning activities (including spraying, brushing, dipping, wiping automated and by hand).	
SECTION 2	**OPERATIONAL CONDITIONS AND RISK MANAGEMENT MEASURES**	
Section 2.1	**Control of worker exposure**	
Product characteristics	Physical form of product	Liquid, vapour pressure < 0.5 kPa at STP [OC3].
	Concentration of substance in product	Up to 100% (unless stated).
	Amount used	No limit.
	Frequency and duration of use	Covers daily exposures up to 8 hours (unless stated). [G2].
	Other operational conditions affecting worker exposure	Assumes use at not > 20oC above ambient [G15].
		Assumes a good basic standard of occupational hygiene has been implemented [G1]
Contributing Scenarios	**Specific Risk Management Measures and Operational Conditions** ***(only required controls to demonstrate safe use listed)***	
	Filling / preparation of equipment from drums or containers. [CS45] PROC8b	No other specific measures identified. [EI20]
	Automated process with (semi) closed systems. [CS93] Use in contained systems [CS38] PROC2	No other specific measures identified. [EI20]
	Automated process with (semi) closed systems. [CS93] Drum/batch transfers [CS8]Use in contained systems [CS38] PROC3	No other specific measures identified. [EI20]
	Semi Automated process. (e.g.: Semiautomatic application of floor care and maintenance products) [CS76] PROC4	No other specific measures identified. [EI20]
	Filling / preparation of equipment from drums or containers. [CS45] PROC8a	No other specific measures identified. [EI20]
	Manual [CS34] Surfaces [CS48] Cleaning [CS47] Dipping, immersion and pouring [CS4] PROC13	No other specific measures identified. [EI20]
	Cleaning with low-pressure washers [CS42] Rolling, Brushing [CS51] no spraying [CS60] PROC10	No other specific measures identified. [EI20]

	Cleaning with high pressure washers [CS44] Spraying [CS10]Indoor [OC8] PROC11	Provide a good standard of controlled ventilation (10 to 15 air changes per hour). [E40] Wear a respirator conforming to EN140 with Type A filter or better. [PPE22]
	Cleaning with high pressure washers [CS44] Spraying [CS10] Outdoor [OC9] PROC11	Ensure operation is undertaken outdoors [E69]Limit the substance content in the product to 25 % [OC18] Wear a respirator conforming to EN140 with Type A filter or better. [PPE22]
	Manual [CS34] Surfaces [CS48] Cleaning [CS47] Spraying [CS10] PROC10	No other specific measures identified. [EI20]
	Ad hoc manual application via trigger sprays, dipping, etc. [CS27] Rolling, Brushing [CS51] PROC10	No other specific measures identified. [EI20]
	Application of cleaning products in closed systems [CS101] Outdoor [OC9] PROC4	No other specific measures identified. [EI20]
	Cleaning of medical devices [CS74] PROC4	No other specific measures identified. [EI20]
	Material storage [CS67] PROC1	No other specific measures identified. [EI20]
Section 2.2	**Control of environmental exposure**	
	Product characteristics	Substance is complex UVCB. [PrC3]. Predominantly hydrophobic. [PrC4a].
	Amounts used	Fraction of EU tonnage used in region: 0.1 Regional use tonnage (tonnes/year): 3.4E+2 Fraction of regional tonnage used locally: 1 Annual site tonnage (tonnes/year): 1.7E-1 Maximum daily site tonnage (kg/day): 4.7E-1
	Frequency and duration of use	Continuous release. [FD2]. Emission days (days/year): 365
	Environmental factors not influenced by risk management	Local freshwater dilution fraction: 10 Local marine dilution fraction: 100
	Other operational conditions affecting environmental exposure	Release fraction to air from process (initial release prior to RMM): 0.02 Release fraction to wastewater from process (initial release prior to RMM): 0.000001 Release fraction to soil from process (initial release prior to RMM): 0
	Technical conditions and measures at process level (source) to prevent release	Common practices vary across sites thus conservative process release estimates used [TCS1].

	Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil	Risk from environmental exposure is driven by Freshwater [TCR1a] No wastewater treatment required [TCR6]. Treat air emission to provide a typical removal efficiency of N/A. Treat onsite wastewater (prior to receiving water discharge) to provide the required removal efficiency ≥ 0.0 % If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of ≥ 0.0 %
	Organizational measures to prevent / limit release from site	Prevent discharge of undissolved substance to or recover from wastewater [OMS1]. Do not apply industrial sludge to natural soils [OMS2]. Sludge should be incinerated, contained or reclaimed [OMS3].
	Conditions and measures related to municipal sewage treatment plant	Not applicable as there is no release to wastewater [STP1]. Estimated substance removal from wastewater via domestic sewage treatment 93.7 %. Total efficiency of removal from wastewater after onsite and offsite (domestic treatment plant) RMMs 93.7 %. Maximum allowable site tonnage (MSafe) based on domestic sewage treatment release 4.7E+2 kg per day. Assumed domestic sewage treatment plant flow 2 000 m^3 per day.
	Conditions and measures related to external treatment of waste for disposal	External treatment and disposal of waste should comply with applicable local and/or national regulations [ETW3].
	Conditions and measures related to external recovery of waste	External recovery and recycling of waste should comply with applicable local and/or national regulations [ERW3].
SECTION 3	**EXPOSURE ESTIMATION**	
Section 3.1	**Health**	
	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. [G21].	
Section 3.2	**Environment**	
	The Hydrocarbon Block Method has been used to calculate environmental exposure with the Petrorisk model. [EE2].	
SECTION 4	**GUIDANCE TO CHECK COMPLIANCE WITH THE EXPOSURE SCENARIO**	
Section 4.1	**Health**	
	Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented. [G22]. Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels. [G23].	
Section 4.2	**Environment**	
	Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures [DSU1]. Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination [DSU2]. Required removal efficiency for air can be achieved using onsite technologies, either alone or in combination [DSU3]. Further details on scaling and control technologies are provided in SpERC factsheet (http://cefic.org/en/reach-for-industries-libraries.html) [DSU4].	

SECTION 1	**EXPOSURE SCENARIO TITLE**	
Title	**9. Use in Cleaning Agents – Consumer**	
Use Descriptor	Sector(s) of Use	**SU 21**: Consumer uses
	Products Categories	**PC 3**: Air care products
		PC 4: Anti-Freeze and de-icing products
		PC 8: Biocidal products (e.g. Disinfectants, pest control)
		PC 9a: Coatings and paints, thinners, paint removers
		PC 9b: Fillers, putties, plasters, modelling clay
		PC 9c: Finger paints
		PC 24: Lubricants, greases, release products
		PC 35: Washing and cleaning products (including solvent based products)
		PC 38: Welding and soldering products (with flux coatings or flux cores.), flux products
	Environmental Release Categories	**ERC 8a**: Wide dispersive indoor use of processing aids in open systems.
		ERC 8d: Wide dispersive outdoor use of processing aids in open systems.
	Specific Environmental Release Category	ESVOC 8.4c.v1
Processes, Tasks and Activities Covered	Covers general exposures to consumers arising from the use of household products sold as washing and cleaning products, aerosols, coatings, de-icers, lubricants and air care products.	
SECTION 2	**OPERATIONAL CONDITIONS AND RISK MANAGEMENT MEASURES**	
Section 2.1	**Control of consumer exposure**	
Product characteristics	Physical form of product	Liquid, vapour pressure > 10 Pa STP [OC15]
	Vapour Pressure (Pa)	231
	Concentration of substance in product	Unless otherwise stated, cover concentrations up to 100 %. [ConsOC1].
	Amounts used	Unless otherwise stated, covers use amounts up to 13 800 g [ConsOC2]; covers skin contact area up to 857.5 cm^2 [ConsOC5]
	Frequency and duration of use/exposure	Unless otherwise stated, covers use frequency up to 365 days per year [ConsOC3]; Unless otherwise stated, covers use frequency up to 4 times per day [ConsOC4]; covers exposure up to 8 hours per event [ConsOC14]
	Other operational conditions affecting exposure	Unless otherwise stated assumes use at ambient temperatures [ConsOC15]; assumes use in a 20 m^3 room [ConsOC11]; assumes use with typical ventilation [ConsOC8].

Product Category	Specific Risk Management Measures and Operating Conditions *(only required controls to demonstrate safe use listed)*
PC3: Air care products - Air care, instant action (aerosol sprays)	Unless otherwise stated, covers concentrations up to 50% [ConsOC1]; covers use up to 365 days/year [ConsOC3]; covers use up to 4 times/day of use [ConsOC4]; for each use event, covers use amounts up to 0.1g [ConsOC2]; covers use under typical household ventilation [ConsOC8]; covers use in room size of 20m3 [ConsOC11]; for each use event, covers exposure up to 0.25hr/event [ConsOC14]; No specific RMMs identified beyond those OCs stated.
PC3: Air care products - Air care, instant action (aerosol sprays), -pesticidal-excipient only	Unless otherwise stated, covers concentrations up to 50% [ConsOC1]; covers use up to 365 days/year [ConsOC3]; covers use up to 4 times/day of use [ConsOC4]; for each use event, covers use amounts up to 0.5g [ConsOC2]; covers use under typical household ventilation [ConsOC8]; covers use in room size of 20m3 [ConsOC11]; for each use event, covers exposure up to 0.25hr/even t[ConsOC14]; No specific RMMs identified beyond those OCs stated.
PC3: Air care products - Air care, continuous action (solid and liquid)	Unless otherwise stated, covers concentrations up to 10% [ConsOC1]; covers use up to 365 days/year [ConsOC3]; covers use up to 1 time/on day of use [ConsOC4]; covers skin contact area up to 35.70 cm2 [ConsOC5]; for each use event, covers use amounts up to 0.48g [ConsOC2]; covers use under typical household ventilation [ConsOC8]; covers use in room size of 20m3 [ConsOC11]; for each use event, covers exposure up to 8.00hr/event [ConsOC14]; No specific RMMs identified beyond those OCs stated.
PC3: Air care products - Air care, continuous action (solid and liquid) -pesticidal-excipient only	Unless otherwise stated, covers concentrations up to 50% [ConsOC1]; covers use up to 365 days/year [ConsOC3]; covers use up to 1 time/on day of use [ConsOC4]; covers skin contact area up to 35.70 cm2 [ConsOC5]; for each use event, covers use amounts up to 0.48g [ConsOC2]; covers use under typical household ventilation [ConsOC8]; covers use in room size of 20m3 [ConsOC11]; for each use event, covers exposure up to 8.00hr/event[ConsOC14]; No specific RMMs identified beyond those OCs stated.
PC4_n: Anti-freeze and de-icing products - Washing car window	Unless otherwise stated, covers concentrations up to 1% [ConsOC1]; covers use up to 365 days/year [ConsOC3]; covers use up to 1 time/on day of use [ConsOC4]; for each use event, covers use amounts up to 0.5g [ConsOC2]; Covers use in a one car garage (34m3) under typcial ventilation [ConsOC10]; covers use in room size of 34m3 [ConsOC11]; for each use event, covers exposure up to 0.02hr/event [ConsOC14]; No specific RMMs identified beyond those OCs stated.
PC4_n: Anti-freeze and de-icing products - Pouring into radiator	Unless otherwise stated, covers concentrations up to 10% [ConsOC1]; covers use up to 365 days/year [ConsOC3]; covers use up to 1 time/on day of use [ConsOC4]; covers skin contact area up to 428.00 cm2 [ConsOC5]; for each use event, covers use amounts up to 2000g [ConsOC2]; Covers use in a one car garage (34m3) under typcial ventilation [ConsOC10]; covers use in room size of 34m3 [ConsOC11]; for each use event, covers exposure up to 0.17hr/event [ConsOC14]; No specific RMMs identified beyond those OCs stated.
PC4_n: Anti-freeze and de-icing products - Lock de-icer	Unless otherwise stated, covers concentrations up to 50% [ConsOC1]; covers use up to 365 days/year [ConsOC3]; covers use up to 1 time/on day of use [ConsOC4]; covers skin contact area up to 214.40 cm2 [ConsOC5]; for each use event, covers use amounts up to 4g [ConsOC2]; Covers use in a one car garage (34m3) under typcial ventilation [ConsOC10]; covers use in room size of 34m3 [ConsOC11]; for each use event, covers exposure up to 0.25hr/event [ConsOC14]. No specific RMMs identified beyond those OCs stated.
PC8_n: Biocidal products (excipient use only for solvent products) - Laundry and dish washing products	Unless otherwise stated, covers concentrations up to 5% [ConsOC1]; covers use up to 365 days/year[ConsOC3]; covers use up to 1 time/on day of use [ConsOC4]; covers skin contact area up to 857.50 cm2 [ConsOC5]; for each use event, covers use amounts up to 15g [ConsOC2]; covers use under typical household ventilation [ConsOC8]; covers use in room size of 20m3[ConsOC11]; for each use event, covers exposure up to 0.50hr/event [ConsOC14]; No specific RMMs identified beyond those OCs stated.

PC8_n: Biocidal products (excipient use only for solvent products) - Cleaners, liquids (all purpose cleaners; sanitary products; floor, glass, carpet and metal cleaners)	Unless otherwise stated, covers concentrations up to 5% [ConsOC1]; covers use up to 128 days/year [ConsOC3]; covers use up to 1 time/on day of use [ConsOC4]; covers skin contact area up to 857.50 cm2 [ConsOC5]; for each use event, covers use amounts up to 27g [ConsOC2]; covers use under typical household ventilation [ConsOC8]; covers use in room size of 20m3 [ConsOC11]; for each use event, covers exposure up to 0.33hr/event [ConsOC14]; No specific RMMs identified beyond those OCs stated.
PC8_n: Biocidal products (excipient use only for solvent products) - Cleaners, trigger sprays (all purpose cleaners, sanitary products, glass cleaners)	Unless otherwise stated, covers concentrations up to 15% [ConsOC1]; covers use up to 128 days/year [ConsOC3]; covers use up to 1 time/on day of use [ConsOC4]; covers skin contact area up to 428.00 cm2 [ConsOC5]; for each use event, covers use amounts up to 35g [ConsOC2]; covers use under typical household ventilation [ConsOC8]; covers use in room size of 20m3 [ConsOC11]; for each use event, covers exposure up to 0.17hr/event [ConsOC14]; No specific RMMs identified beyond those OCs stated.
PC9a: Coatings, paints, thinners, paint removers - Waterborne latex wall paint	Unless otherwise stated, covers concentrations up to 1.5% [ConsOC1]; covers use up to 4 days/year [ConsOC3]; covers use up to 1 time/on day of use [ConsOC4]; covers skin contact area up to 428.75 cm2 [ConsOC5]; for each use event, covers use amounts up to 2760g [ConsOC2]; covers use under typical household ventilation [ConsOC8]; covers use in room size of 20m3 [ConsOC11]; for each use event, covers exposure up to 2.20hr/event [ConsOC14]. No specific RMMs identified beyond those OCs stated.
PC9a: Coatings, paints, thinners, paint removers - Solvent rich, high solid, water borne paint	Unless otherwise stated, covers concentrations up to 27.5% [ConsOC1]; covers use up to 6 days/year [ConsOC3]; covers use up to 1 time/on day of use [ConsOC4]; covers skin contact area up to 428.75 cm2 [ConsOC5]; for each use event, covers use amounts up to 744g [ConsOC2]; covers use under typical household ventilation [ConsOC8]; covers use in room size of 20m3 [ConsOC11]; for each use event, covers exposure up to 2.20hr/event [ConsOC14]. No specific RMMs identified beyond those OCs stated.
PC9a: Coatings, paints, thinners, paint removers - Aerosol spray can	Unless otherwise stated, covers concentrations up to 50% [ConsOC1]; covers use up to 2 days/year [ConsOC3]; covers use up to 1 time/on day of use [ConsOC4]; for each use event, covers use amounts up to 215g [ConsOC2]; Covers use in a one car garage (34m3) under typcial ventilation [ConsOC10]; covers use in room size of 34m3 [ConsOC11]; for each use event, covers exposure up to 0.33hr/event [ConsOC14]. No specific RMMs identified beyond those OCs stated.
PC9a: Coatings, paints, thinners, paint removers - Removers (paint-, glue-, wall paper-, sealant-remover)	Unless otherwise stated, covers concentrations up to 50% [ConsOC1]; covers use up to 3 days/year[ConsOC3]; covers use up to 1 time/on day of use [ConsOC4]; covers skin contact area up to 857.50 cm2 [ConsOC5]; for each use event, covers use amounts up to 491g [ConsOC2]; covers use under typical household ventilation [ConsOC8]; covers use in room size of 20m3[ConsOC11]; for each use event, covers exposure up to 2.00hr/event [ConsOC14]. No specific RMMs identified beyond those OCs stated.
PC9b: Fillers, putties, plasters, modeling clay - Fillers and putty	Unless otherwise stated, covers concentrations up to 2% [ConsOC1]; covers use up to 12 days/year [ConsOC3]; covers use up to 1 time/on day of use [ConsOC4]; covers skin contact area up to 35.73 cm2 [ConsOC5]; for each use event, covers use amounts up to 85g [ConsOC2]; covers use under typical household ventilation [ConsOC8]; covers use in room size of 20m3 [ConsOC11]; for each use event, covers exposure up to 4.00hr/event [ConsOC14]. No specific RMMs identified beyond those OCs stated.
PC9b: Fillers, putties, plasters, modeling clay - Plasters and floor equalizers	Unless otherwise stated, covers concentrations up to 2% [ConsOC1]; covers use up to 12 days/year [ConsOC3]; covers use up to 1 time/on day of use [ConsOC4]; covers skin contact area up to 857.50 cm2 [ConsOC5]; for each use event, covers use amounts up to 13800g [ConsOC2]; covers use under typical household ventilation [ConsOC8]; covers use in room size of 20m3 [ConsOC11]; for each use event, covers exposure up to 2.00hr/event [ConsOC14]. No specific RMMs identified beyond those OCs stated.

PC9b: Fillers, putties, plasters, modeling clay - Modelling clay	Unless otherwise stated, covers concentrations up to 1% [ConsOC1]; covers use up to 365 days/year [ConsOC3]; covers use up to 1 time/on day of use [ConsOC4]; covers skin contact area up to 254.40 cm2 [ConsOC5]; for each use event, assumes swallowed amount of 1g [ConsOC13]. No specific RMMs identified beyond those OCs stated.
PC9c: Finger paints - Finger paints	Unless otherwise stated, covers concentrations up to 50% [ConsOC1]; covers use up to 365 days/year [ConsOC3]; covers use up to 1 time/on day of use [ConsOC4]; covers skin contact area up to 254.40 cm2 [ConsOC5]; for each use event, assumes swallowed amount of 1.35g [ConsOC13]. Avoid using at a product concentration greater than 5% [ConsRMM1].
PC24: Lubricants, greases, and release products - Liquids	Unless otherwise stated, covers concentrations up to 100% [ConsOC1]; covers use up to 4 days/year [ConsOC3]; covers use up to 1 time/on day of use [ConsOC4]; covers skin contact area up to 468.00 cm2 [ConsOC5]; for each use event, covers use amounts up to 2200g [ConsOC2]; Covers use in a one car garage (34m3) under typcial ventilation [ConsOC10]; covers use in room size of 34m3 [ConsOC11]; for each use event, covers exposure up to 0.17hr/event [ConsOC14]. No specific RMMs identified beyond those OCs stated.
PC24: Lubricants, greases, and release products - Pastes	Unless otherwise stated, covers concentrations up to 20% [ConsOC1]; covers use up to 10 days/year [ConsOC3]; covers use up to 1 time/on day of use [ConsOC4]; covers skin contact area up to 468.00 cm2 [ConsOC5]; for each use event, covers use amounts up to 34g [ConsOC2]; for each use event, covers exposure up to 4.00hr/event [ConsOC14]. No specific RMMs identified beyond those OCs stated.
PC24: Lubricants, greases, and release products - Sprays	Unless otherwise stated, covers concentrations up to 50% [ConsOC1]; covers use up to 6 days/year [ConsOC3]; covers use up to 1 time/on day of use [ConsOC4]; covers skin contact area up to 428.75 cm2 [ConsOC5]; for each use event, covers use amounts up to 73g [ConsOC2]; covers use under typical household ventilation [ConsOC8]; covers use in room size of 20m3 [ConsOC11]; for each use event, covers exposure up to 0.17hr/event [ConsOC14]. No specific RMMs identified beyond those OCs stated.
PC35: Washing and cleaning products (including solvent based products) - Laundry and dish washing products	Unless otherwise stated, covers concentrations up to 5% [ConsOC1]; covers use up to 365 days/year [ConsOC3]; covers use up to 1 time/on day of use [ConsOC4]; covers skin contact area up to 857.50 cm2 [ConsOC5]; for each use event, covers use amounts up to 15g [ConsOC2]; covers use under typical household ventilation [ConsOC8]; covers use in room size of 20m3 [ConsOC11]; for each use event, covers exposure up to 0.50hr/event [ConsOC14]; No specific RMMs identified beyond those OCs stated.
PC35: Washing and cleaning products (including solvent based products) - Cleaners, liquids (all purpose cleaners; sanitary products; floor, glass, carpet and metal cleaners)	Unless otherwise stated, covers concentrations up to 5% [ConsOC1]; covers use up to 128 days/year [ConsOC3]; covers use up to 1 time/on day of use [ConsOC4]; covers skin contact area up to 857.50 cm2 [ConsOC5]; for each use event, covers use amounts up to 27g [ConsOC2]; covers use under typical household ventilation [ConsOC8]; covers use in room size of 20m3 [ConsOC11]; for each use event, covers exposure up to 0.33hr/event [ConsOC14]; No specific RMMs identified beyond those OCs stated.
PC35: Washing and cleaning products (including solvent based products) - Cleaners, trigger sprays (all purpose cleaners, sanitary products, glass cleaners)	Unless otherwise stated, covers concentrations up to 15% [ConsOC1]; covers use up to 128 days/year[ConsOC3]; covers use up to 1 time/on day of use[ConsOC4]; covers skin contact area up to 428.00 cm2 [ConsOC5]; for each use event, covers use amounts up to 35g [ConsOC2]; covers use under typical household ventilation [ConsOC8]; covers use in room size of 20m3[ConsOC11]; for each use event, covers exposure up to 0.17hr/event[ConsOC14]; No specific RMMs identified beyond those OCs stated.

PC38_n: Welding and soldering products, flux products	Unless otherwise stated, covers concentrations up to 20% [ConsOC1]; covers use up to 365 days/year [ConsOC3]; covers use up to 1 time/on day of use [ConsOC4]; for each use event, covers use amounts up to 12g [ConsOC2]; covers use under typical household ventilation [ConsOC8]; covers use in room size of 20m3 [ConsOC11]; for each use event, covers exposure up to 1.00hr/event [ConsOC14]; No specific RMMs identified beyond those OCs stated.	
Section 2.2	**Control of environmental exposure**	
	Product characteristics	Substance is complex UVCB. [PrC3]. Predominantly hydrophobic. [PrC4a].
	Amounts used	Fraction of EU tonnage used in region: 0.1
		Regional use tonnage (tonnes/year): 5.0E+1
		Fraction of regional tonnage used locally: 0.0005
		Annual site tonnage (tonnes/year): .2.5E-2
		Maximum daily site tonnage (kg/day): 6.8E-2
	Frequency and duration of use	Continuous release. [FD2].
		Emission days (days/year): 365
	Environmental factors not influenced by risk management	Local freshwater dilution fraction: 10
		Local marine dilution fraction: 100
	Other given operational conditions affecting environmental exposure	Release fraction to air from process (initial release prior to RMM): 0.95
		Release fraction to wastewater from process (initial release prior to RMM): 0.025
		Release fraction to soil from process (initial release prior to RMM): 0.025
	Conditions and measures related to municipal sewage treatment plant	Not applicable as there is no release to wastewater [STP1].
		Estimated substance removal from wastewater via domestic sewage treatment 93.7 %.
		Maximum allowable site tonnage (MSafe) based on domestic sewage treatment release (kg/d) 6.3E+1.
		Assumed domestic sewage treatment plant flow (m^3/day): 2000
	Conditions and measures related to external treatment of waste for disposal	External treatment and disposal of waste should comply with applicable local and/or national regulations [ETW3].
	Conditions and measures related to external recovery of waste	External recovery and recycling of waste should comply with applicable local and/or national regulations [ERW1].
SECTION 3	**EXPOSURE ESTIMATION**	
Section 3.1	**Health**	
	The ECETOC TRA tool has been used to estimate consumer exposures unless otherwise indicated. G30.	
Section 3.2	**Environment**	
	The Hydrocarbon Block Method has been used to calculate environmental exposure with the Petrorisk model. [EE2].	

SECTION 4	GUIDANCE TO CHECK COMPLIANCE WITH THE EXPOSURE SCENARIO
Section 4.1	**Health**
	Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented. G22. Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels. G23.
Section 4.2	**Environment**
	Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures [DSU1]. Further details on scaling and control technologies are provided in SpERC factsheet (http://cefic.org/en/reach-for-industries-libraries.html) [DSU4].

SECTION 1	EXPOSURE SCENARIO TITLE	
Title	**10. Use in Oil and Gas Field Drilling and Production Operations – Professional**	
Use Descriptor	Sector(s) of Use	**SU 22**: Professional uses
	Process Categories	**PROC 1**: Use in closed process, no likelihood of exposure.
		PROC 2: Use in closed, continuous process with occasional controlled exposure.
		PROC 3: Use in closed batch process (synthesis or formulation).
		PROC 4: Use in batch and other process (synthesis) where opportunity for exposure arises.
		PROC 8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities.
		PROC 8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities.
	Environmental Release Categories	**ERC 8d**: Wide dispersive outdoor use of processing aids in open systems
	Specific Environmental Release Category	Not Applicable
Processes, Tasks and Activities Covered	Oil field well drilling operations (including drilling muds and well cleaning) including material transfers, on-site formulation, well head operations, shaker room activities and related maintenance.	
SECTION 2	**OPERATIONAL CONDITIONS AND RISK MANAGEMENT MEASURES**	
Section 2.1	**Control of worker exposure**	
Product characteristics	Physical form of product	Liquid, vapour pressure < 0.5 kPa at STP [OC3].
	Concentration of substance in product	Up to 100% (unless stated).
	Amount used	No limit.
	Frequency and duration of use	Covers daily exposures up to 8 hours (unless stated). [G2].
	Other operational conditions affecting worker exposure	Assumes use at not > 20oC above ambient [G15].
		Assumes a good basic standard of occupational hygiene has been implemented [G1]

Contributing Scenarios	**Specific Risk Management Measures and Operational Conditions** *(only required controls to demonstrate safe use listed)*	
	Bulk transfers [CS14] PROC8b	No other specific measures identified. [EI20]
	Filling / preparation of equipment from drums or containers. [CS45] PROC8b	No other specific measures identified. [EI20]
	Drilling mud (re-) formulation [CS115] PROC3	No other specific measures identified. [EI20]
	Drill floor operations [CS116] PROC4	No other specific measures identified. [EI20]
	Operation of solids filtering equipment - vapour exposures [CS118] PROC4	No other specific measures identified. [EI20]
	Cleaning of solids filtering equipment [CS120] PROC8a	No other specific measures identified. [EI20]
	Treatment and disposal of filtered solids [CS121] PROC3	No other specific measures identified. [EI20]
	Process sampling [CS2] PROC3	No other specific measures identified. [EI20]
	General exposures (closed systems) [CS15] PROC1	No other specific measures identified. [EI20]
	Pouring from small containers [CS9] PROC8a	No other specific measures identified. [EI20]
	General exposures (open systems) [CS16] PROC4	No other specific measures identified. [EI20]
	Equipment cleaning and maintenance [CS39] PROC8a	No other specific measures identified. [EI20]
	Batch process [CS55] PROC2	No other specific measures identified. [EI20]
Section 2.2	**Control of environmental exposure**	
	Product characteristics	Substance is complex UVCB. [PrC3]. Predominantly hydrophobic. [PrC4a].
	Amounts used	Fraction of EU tonnage used in region [A1]: 1
		Regional use tonnage (tonnes/year) [A2]: 168
		Fraction of regional tonnage used locally [A3]: N/A
		Annual site tonnage (tonnes/year) [A4]: N/A
		Maximum daily site tonnage (kg/day) [A5]: N/A
	Frequency and duration of use	Emission days (days/year) [FD4]: N/A

	Environmental factors not influenced by risk management	Local freshwater dilution fraction [EF1]: N/A Local marine water dilution fraction [EF2]: N/A
	Other given operational conditions affecting environmental exposure	Release fraction to air from process (initial release prior to RMM): N/A Release fraction to wastewater from process (initial release prior to RMM): N/A
	Technical conditions and measures at process level (source) to prevent release	Discharge to aquatic environment is restricted (see Section 4.2) [TCS2].
	Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil	Treat air emission to provide a typical removal efficiency of N/A. Treat onsite wastewater (prior to receiving water discharge) to provide the required removal efficiency N/A. If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of N/A.
	Organizational measures to prevent / limit release from site	Prevent environmental discharge consistent with regulatory requirements [OMS4].
	Conditions and measures related to municipal sewage treatment plant	Total efficiency of removal from wastewater after onsite and offsite (domestic treatment plant) RMMs (%) N/A Maximum allowable site tonnage (MSafe) based on release following total wastewater treatment removal (kg/d) N/A Assumed domestic sewage treatment plant flow (m3/d) N/A
	Conditions and measures related to external treatment of waste for disposal	External treatment and disposal of waste should comply with applicable local and/or national regulations [ETW3].
	Conditions and measures related to external recovery of waste	External recovery and recycling of waste should comply with applicable local and/or national regulations [ERW1].
SECTION 3	**EXPOSURE ESTIMATION**	
Section 3.1	**Health**	
	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. [G21].	
Section 3.2	**Environment**	
	Quantitative exposure and risk assessment not possible due to lack of emissions to aquatic environment [EE7]. Qualitative approach used to conclude safe use [EE8].	
SECTION 4	**GUIDANCE TO CHECK COMPLIANCE WITH THE EXPOSURE SCENARIO**	
Section 4.1	**Health**	
	Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented. [G22]. Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels. [G23].	
Section 4.2	**Environment**	
	Discharge to aquatic environment is restricted by law and industry prohibits release [DSU9].	

SECTION 1	**EXPOSURE SCENARIO TITLE**	
Title	**11. Lubricants – Industrial**	
Use Descriptor	Sector(s) of Use	**SU 3**: Industrial uses
	Process Categories	**PROC 1**: Use in closed process, no likelihood of exposure. **PROC 2**: Use in closed, continuous process with occasional controlled exposure. **PROC 3**: Use in closed batch process (synthesis or formulation). **PROC 4**: Use in batch and other process (synthesis) where opportunity for exposure arises. **PROC 7**: Industrial spraying **PROC 8a**: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities. **PROC 8b**: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities. **PROC9:** Transfer of substance or preparation into small containers (dedicated filling line, including weighing) **PROC 10**: Roller application or brushing **PROC 13**: Treatment of articles by dipping and pouring **PROC 17**: Lubrication at high energy conditions and in partly open process **PROC 18**: Greasing at high energy conditions
	Environmental Release Categories	**ERC 4**: Industrial use of processing aids in processes and products, not becoming part of articles **ERC 7**: Industrial use of sub-stances in closed systems
	Specific Environmental Release Category	ESVOC 4.6a.v1
Processes, Tasks and Activities Covered	Covers the use of formulated lubricants in closed and open systems including transfers operations, operation of machinery/engines and similar articles, reworking on reject articles, equipment maintenance and disposal of wastes.	
SECTION 2	**OPERATIONAL CONDITIONS AND RISK MANAGEMENT MEASURES**	
Section 2.1	**Control of worker exposure**	
Product characteristics	Physical form of product	Liquid, vapour pressure < 0.5 kPa at STP [OC3].
	Concentration of substance in product	Up to 100% (unless stated).
	Amount used	No limit.
	Frequency and duration of use	Covers daily exposures up to 8 hours (unless stated). [G2].
	Other operational conditions affecting worker exposure	Assumes use at not > 20oC above ambient [G15]. Assumes a good basic standard of occupational hygiene has been implemented [G1]

Contributing Scenarios	**Specific Risk Management Measures and Operational Conditions** *(only required controls to demonstrate safe use listed)*	
	General exposures (closed systems) [CS15] PROC 1, 2, 3	No other specific measures identified. [EI20]
	General exposures (open systems) [CS16] PROC4	No other specific measures identified. [EI20]
	Bulk transfers [CS14] PROC8b	No other specific measures identified. [EI20]
	Filling / preparation of equipment from drums or containers. [CS45] PROC8a, 8b	No other specific measures identified. [EI20]
	Initial factory fill of equipment [CS75] PROC9	No other specific measures identified. [EI20]
	Operation and lubrication of high energy open equipment [CS17] PROC17, 18	No other specific measures identified. [EI20]
	Manual applications e.g. brushing, rolling [CS13] PROC10	No other specific measures identified. [EI20]
	Treatment by dipping and pouring [CS35] PROC13	Allow time for product to drain from workpiece [EI21]
	Spraying [CS10] PROC7	Provide a good standard of controlled ventilation (10 to 15 air changes per hour). [E40]
	Maintenance (of larger plant items) and machine set up [CS77] PROC8b	No other specific measures identified. [EI20]
	Maintenance (of larger plant items) and machine set up [CS77] Operation is carried out at elevated temp. (> then 20°C above ambient temp.) [OC7] PROC8b	No other specific measures identified. [EI20]
	Maintenance of small items [CS18] PROC8a	No other specific measures identified. [EI20]
	Remanufacture of reject articles [CS19] PROC9	No other specific measures identified. [EI20]
	Material storage [CS67] PROC1, 2	No other specific measures identified. [EI20]
Section 2.2	**Control of environmental exposure**	
	Product characteristics	Substance is complex UVCB. [PrC3]. Predominantly hydrophobic. [PrC4a].
	Amounts used	Fraction of EU tonnage used in region: 0.1
		Regional use tonnage (tonnes/year): 1.0E+1
		Fraction of regional tonnage used locally: 1

		Annual site tonnage (tonnes/year): 1.0E+1
		Maximum daily site tonnage (kg/day): 5.0E+2
	Frequency and duration of use	Continuous release. [FD2].
		Emission days (days/year): 20
	Environmental factors not influenced by risk management	Local freshwater dilution fraction: 10
		Local marine dilution fraction: 100
	Other operational conditions affecting environmental exposure	Release fraction to air from process (initial release prior to RMM: 5.0E-3
		Release fraction to wastewater from process (initial release prior to RMM): 3.0E-6
		Release fraction to soil from process (initial release prior to RMM): 0.001
	Technical conditions and measures at process level (source) to prevent release	Common practices vary across sites thus conservative process release estimates used [TCS1].
	Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil	Risk from environmental exposure is driven by Freshwater [TCR1a] No wastewater treatment required [TCR6].
		Treat air emission to provide a typical removal efficiency of 70%.
		Treat onsite wastewater (prior to receiving water discharge) to provide the required removal efficiency ≥ 0.0 %
		If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of ≥ 0.0 %
	Organizational measures to prevent / limit release from site	Prevent discharge of undissolved substance to or recover from wastewater [OMS1].
		Do not apply industrial sludge to natural soils [OMS2].
		Sludge should be incinerated, contained or reclaimed [OMS3].
	Conditions and measures related to municipal sewage treatment plant	Not applicable as there is no release to wastewater [STP1].
		Estimated substance removal from wastewater via domestic sewage treatment 93.7 %.
		Total efficiency of removal from wastewater after onsite and offsite (domestic treatment plant) RMMs 93.7 %.
		Maximum allowable site tonnage (MSafe) based on domestic sewage treatment release 4.6E+5 kg per day.
		Assumed domestic sewage treatment plant flow 2 000 m^3 per day.
	Conditions and measures related to external treatment of waste for disposal	External treatment and disposal of waste should comply with applicable local and/or national regulations [ETW3].
	Conditions and measures related to external recovery of waste	External recovery and recycling of waste should comply with applicable local and/or national regulations [ERW1].
SECTION 3	**EXPOSURE ESTIMATION**	
Section 3.1	**Health**	
	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. [G21].	

Section 3.2	**Environment**
	The Hydrocarbon Block Method has been used to calculate environmental exposure with the Petrorisk model. [EE2].
SECTION 4	**GUIDANCE TO CHECK COMPLIANCE WITH THE EXPOSURE SCENARIO**
Section 4.1	**Health**
	Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented. [G22]. Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels. [G23].
Section 4.2	**Environment**
	Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures [DSU1]. Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination [DSU2]. Required removal efficiency for air can be achieved using onsite technologies, either alone or in combination [DSU3]. Further details on scaling and control technologies are provided in SpERC factsheet (http://cefic.org/en/reach-for-industries-libraries.html) [DSU4].

SECTION 1	**EXPOSURE SCENARIO TITLE**	
Title	**12. Lubricants – Professional: Low Environmental Release**	
Use Descriptor	Sector(s) of Use	**SU 22**: Professional uses:
	Process Categories	**PROC 1**: Use in closed process, no likelihood of exposure.
		PROC 2: Use in closed, continuous process with occasional controlled exposure.
		PROC 3: Use in closed batch process (synthesis or formulation).
		PROC 4: Use in batch and other process (synthesis) where opportunity for exposure arises.
		PROC 8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities.
		PROC 8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities.
		PROC 9: Transfer of substance or preparation into small containers (dedicated filling line, including weighing)
		PROC 10: Roller application or brushing
		PROC11: Non industrial spraying
		PROC 13: Treatment of articles by dipping and pouring
		PROC 17: Lubrication at high energy conditions and in partly open process
		PROC 18: Greasing at high energy conditions
		PROC 20: Heat and pressure transfer fluids in dispersive, professional use but closed systems
	Environmental Release Categories	**ERC 9a**: Wide dispersive indoor use of substances in closed systems
		ERC 9b: Wide dispersive outdoor use of substances in closed systems
	Specific Environmental Release Category	ESVOC 9.6b.v1

Processes, Tasks and Activities Covered	Covers the use of formulated lubricants in closed or contained systems including transfers operations, operation of engines and similar articles, reworking on reject articles, equipment maintenance and disposal of waste oil.	
SECTION 2	**OPERATIONAL CONDITIONS AND RISK MANAGEMENT MEASURES**	
Section 2.1	**Control of worker exposure**	
Product characteristics	Physical form of product	Liquid, vapour pressure < 0.5 kPa at STP [OC3].
	Concentration of substance in product	Up to 100% (unless stated).
	Amount used	No limit.
	Frequency and duration of use	Covers daily exposures up to 8 hours (unless stated). [G2].
	Other operational conditions affecting worker exposure	Assumes use at not > 20oC above ambient [G15]. Assumes a good basic standard of occupational hygiene has been implemented [G1]
Contributing Scenarios	**Specific Risk Management Measures and Operational Conditions** ***(only required controls to demonstrate safe use listed)***	
	General exposures (closed systems) [CS15] PROC1, 2, 3	No other specific measures identified. [EI20]
	Operation of equipment containing engine oils and similar [CS26] PROC20	No other specific measures identified. [EI20]
	General exposures (open systems) [CS16] PROC4	No other specific measures identified. [EI20]
	Bulk transfers [CS14] PROC8b	No other specific measures identified. [EI20]
	Filling / preparation of equipment from drums or containers. [CS45] Dedicated facility [CS81] PROC8b	No other specific measures identified. [EI20]
	Filling / preparation of equipment from drums or containers. [CS45] Non-dedicated facility [CS82] PROC8a	No other specific measures identified. [EI20]
	Operation and lubrication of high energy open equipment [CS17] Indoor [OC8] PROC17	No other specific measures identified. [EI20]
	Operation and lubrication of high energy open equipment [CS17] PROC18	No other specific measures identified. [EI20]
	Operation and lubrication of high energy open equipment [CS17] Outdoor [OC9] PROC17	No other specific measures identified. [EI20]

	Maintenance (of larger plant items) and machine set up [CS77] PROC8b	No other specific measures identified. [EI20]
	Maintenance (of larger plant items) and machine set up [CS77] Operation is carried out at elevated temp. (> then 20°C above ambient temperature) [OC7] PROC8b	No other specific measures identified. [EI20]
	Maintenance of small items [CS18] Operation is carried out at elevated temp. (> then 20°C above ambient temperature) [OC7] PROC8a	Drain or remove substance from equipment prior to break-in or maintenance [E81]
	Engine lubricant service [CS78] PROC9	No other specific measures identified. [EI20]
	Manual applications e.g. brushing, rolling [CS13] PROC10	No other specific measures identified. [EI20]
	Spraying [CS10] PROC11	Provide a good standard of controlled ventilation (10 to 15 air changes per hour). [E40]
	Treatment by dipping and pouring [CS35] PROC13	No other specific measures identified. [EI20]
	Material storage [CS67] PROC1, 2	No other specific measures identified. [EI20]
Section 2.2	**Control of environmental exposure**	
	Product characteristics	Substance is complex UVCB. [PrC3]. Predominantly hydrophobic. [PrC4a].
	Amounts used	Fraction of EU tonnage used in region: 0.1
		Regional use tonnage (tonnes/year): 3.5E+1
		Fraction of regional tonnage used locally: 1
		Annual site tonnage (tonnes/year): 1.8E-2
		Maximum daily site tonnage (kg/day): 365
	Frequency and duration of use	Continuous release. [FD2].
		Emission days (days/year): 365
	Environmental factors not influenced by risk management	Local freshwater dilution fraction: 10
		Local marine dilution fraction: 100
	Other operational conditions affecting environmental exposure	Release fraction to air from process (initial release prior to RMM): 0.01
		Release fraction to wastewater from process (initial release prior to RMM): 0.01
		Release fraction to soil from process (initial release prior to RMM): 0.01
	Technical conditions and measures at process level (source) to prevent release	Common practices vary across sites thus conservative process release estimates used [TCS1].

	Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil	Risk from environmental exposure is driven by Freshwater [TCR1a] No wastewater treatment required [TCR6]. Treat air emission to provide a typical removal efficiency of N/A. Treat onsite wastewater (prior to receiving water discharge) to provide the required removal efficiency ≥ 0.0 % If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of ≥ 0.0 %
	Organizational measures to prevent / limit release from site	Prevent discharge of undissolved substance to or recover from wastewater [OMS1]. Do not apply industrial sludge to natural soils [OMS2]. Sludge should be incinerated, contained or reclaimed [OMS3].
	Conditions and measures related to municipal sewage treatment plant	Not applicable as there is no release to wastewater [STP1]. Estimated substance removal from wastewater via domestic sewage treatment 93.7 %. Total efficiency of removal from wastewater after onsite and offsite (domestic treatment plant) RMMs 93.7 %. Maximum allowable site tonnage (MSafe) based on domestic sewage treatment release 4.6E+1 kg per day. Assumed domestic sewage treatment plant flow 2 000 m^3 per day.
	Conditions and measures related to external treatment of waste for disposal	External treatment and disposal of waste should comply with applicable local and/or national regulations [ETW3].
	Conditions and measures related to external recovery of waste	External recovery and recycling of waste should comply with applicable local and/or national regulations [ERW1].
SECTION 3	**EXPOSURE ESTIMATION**	
Section 3.1	**Health**	
	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. [G21].	
Section 3.2	**Environment**	
	The Hydrocarbon Block Method has been used to calculate environmental exposure with the Petrorisk model. [EE2].	
SECTION 4	**GUIDANCE TO CHECK COMPLIANCE WITH THE EXPOSURE SCENARIO**	
Section 4.1	**Health**	
	Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented. [G22]. Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels. [G23].	
Section 4.2	**Environment**	
	Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures [DSU1]. Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination [DSU2]. Required removal efficiency for air can be achieved using onsite technologies, either alone or in combination [DSU3]. Further details on scaling and control technologies are provided in SpERC factsheet (http://cefic.org/en/reach-for-industries-libraries.html) [DSU4].	

SECTION 1	**EXPOSURE SCENARIO TITLE**	
Title	**13. Lubricants – Professional: High Environmental Release**	
Use Descriptor	Sector(s) of Use	**SU 22**: Professional uses
	Process Categories	**PROC 1**: Use in closed process, no likelihood of exposure. **PROC 2**: Use in closed, continuous process with occasional controlled exposure. **PROC 3**: Use in closed batch process (synthesis or formulation). **PROC 4**: Use in batch and other process (synthesis) where opportunity for exposure arises. **PROC 8a**: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities. **PROC 8b**: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities. **PROC 9**: Transfer of substance or preparation into small containers (dedicated filling line, including weighing) **PROC 10**: Roller application or brushing **PROC11**: Non industrial spraying **PROC 13**: Treatment of articles by dipping and pouring **PROC 17**: Lubrication at high energy conditions and in partly open process **PROC 18**: Greasing at high energy conditions **PROC 20**: Heat and pressure transfer fluids in dispersive, professional use but closed systems
	Environmental Release Categories	**ERC 8a**: Wide dispersive indoor use of processing aids in open systems. **ERC 8d**: Wide dispersive outdoor use of processing aids in open systems.
	Specific Environmental Release Category	ESVOC 8.6b.v1
Processes, Tasks and Activities Covered	Covers the use of formulated lubricants in open systems including transfers operations, operation of engines and similar articles, reworking on reject articles, equipment maintenance and disposal of waste oil.	
SECTION 2	**OPERATIONAL CONDITIONS AND RISK MANAGEMENT MEASURES**	
Section 2.1	**Control of worker exposure**	
Product characteristics	Physical form of product	Liquid, vapour pressure < 0.5 kPa at STP [OC3].
	Concentration of substance in product	Up to 100% (unless stated).
	Amount used	No limit.
	Frequency and duration of use	Covers daily exposures up to 8 hours (unless stated). [G2].
	Other operational conditions affecting worker exposure	Assumes use at not > 20oC above ambient [G15]. Assumes a good basic standard of occupational hygiene has been implemented [G1]

Contributing Scenarios	Specific Risk Management Measures and Operational Conditions *(only required controls to demonstrate safe use listed)*	
	General exposures (closed systems) [CS15] PROC1, 2, 3	No other specific measures identified. [EI20]
	Operation of equipment containing engine oils and similar [CS26] PROC20	No other specific measures identified. [EI20]
	General exposures (open systems) [CS16] PROC4	No other specific measures identified. [EI20]
	Bulk transfers [CS14] PROC8b	No other specific measures identified. [EI20]
	Filling / preparation of equipment from drums or containers. [CS45] Dedicated facility [CS81] PROC8b	No other specific measures identified. [EI20]
	Filling / preparation of equipment from drums or containers. [CS45] Non-dedicated facility [CS82] PROC8a	No other specific measures identified. [EI20]
	Operation and lubrication of high energy open equipment [CS17]Indoor [OC8] PROC17	No other specific measures identified. [EI20]
	Operation and lubrication of high energy open equipment [CS17] PROC18	No other specific measures identified. [EI20]
	Operation and lubrication of high energy open equipment [CS17]Outdoor [OC9] PROC17	No other specific measures identified. [EI20]
	Maintenance (of larger plant items) and machine set up [CS77] PROC8b	No other specific measures identified. [EI20]
	Maintenance (of larger plant items) and machine set up [CS77] Operation is carried out at elevated temp. (> then 20°C above ambient temperature) [OC7] PROC8b	No other specific measures identified. [EI20]
	Maintenance of small items [CS18] Operation is carried out at elevated temp. (> then 20°C above ambient temperature) [OC7] PROC8a	Drain or remove substance from equipment prior to break-in or maintenance [E81]
	Engine lubricant service [CS78] PROC9	No other specific measures identified. [EI20]

	Manual applications e.g. brushing, rolling [CS13] PROC10	No other specific measures identified. [EI20]
	Spraying [CS10] PROC11	Provide a good standard of controlled ventilation (10 to 15 air changes per hour). [E40]
	Treatment by dipping and pouring [CS35] PROC13	No other specific measures identified. [EI20]
	Material storage [CS67] PROC1, 2	No other specific measures identified. [EI20]
Section 2.2	**Control of environmental exposure**	
	Product characteristics	Substance is complex UVCB. [PrC3]. Predominantly hydrophobic. [PrC4a].
	Amounts used	Fraction of EU tonnage used in region: 0.1
		Regional use tonnage (tonnes/year): 3.5E+1
		Fraction of regional tonnage used locally: 1
		Annual site tonnage (tonnes/year): 1.8E-2
		Maximum daily site tonnage (kg/day): 4.8E-2
	Frequency and duration of use	Continuous release. [FD2].
		Emission days (days/year): 365
	Environmental factors not influenced by risk management	Local freshwater dilution fraction: 10
		Local marine dilution fraction: 100
	Other operational conditions affecting environmental exposure	Release fraction to air from process (initial release prior to RMM): 1.5E-1
		Release fraction to wastewater from process (initial release prior to RMM): 0.05
		Release fraction to soil from process (initial release prior to RMM): 0.05
	Technical conditions and measures at process level (source) to prevent release	Common practices vary across sites thus conservative process release estimates used [TCS1].
	Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil	Risk from environmental exposure is driven by Freshwater [TCR1a] No wastewater treatment required [TCR6].
		Treat air emission to provide a typical removal efficiency of N/A.
		Treat onsite wastewater (prior to receiving water discharge) to provide the required removal efficiency ≥ 0.0 %
		If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of ≥ 0.0 %
	Organizational measures to prevent / limit release from site	Prevent discharge of undissolved substance to or recover from wastewater [OMS1].
		Do not apply industrial sludge to natural soils [OMS2].
		Sludge should be incinerated, contained or reclaimed [OMS3].
	Conditions and measures related to municipal sewage treatment plant	Not applicable as there is no release to wastewater [STP1].
		Estimated substance removal from wastewater via domestic sewage treatment 93.7 %.
		Total efficiency of removal from wastewater after onsite and offsite (domestic treatment plant) RMMs 93.7 %.

		Maximum allowable site tonnage (MSafe) based on domestic sewage treatment release 4.3E+1 kg per day.
		Assumed domestic sewage treatment plant flow 2 000 m^3 per day.
	Conditions and measures related to external treatment of waste for disposal	External treatment and disposal of waste should comply with applicable local and/or national regulations [ETW3].
	Conditions and measures related to external recovery of waste	External recovery and recycling of waste should comply with applicable local and/or national regulations [ERW1].
SECTION 3	**EXPOSURE ESTIMATION**	
Section 3.1	**Health**	
	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. [G21].	
Section 3.2	**Environment**	
	The Hydrocarbon Block Method has been used to calculate environmental exposure with the Petrorisk model. [EE2].	
SECTION 4	**GUIDANCE TO CHECK COMPLIANCE WITH THE EXPOSURE SCENARIO**	
Section 4.1	**Health**	
	Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented. [G22]. Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels. [G23].	
Section 4.2	**Environment**	
	Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures [DSU1]. Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination [DSU2]. Required removal efficiency for air can be achieved using onsite technologies, either alone or in combination [DSU3]. Further details on scaling and control technologies are provided in SpERC factsheet (http://cefic.org/en/reach-for-industries-libraries.html) [DSU4].	

SECTION 1	**EXPOSURE SCENARIO TITLE**	
Title	**14. Lubricants – Consumer: Low Environmental Release**	
Use Descriptor	Sector(s) of Use	**SU 21**: Consumer uses
	Products Categories	**PC1**: Adhesives, sealants
		PC 24: Lubricants, greases, release products
		PC 31: Polishes and wax blends
	Environmental Release Categories	**ERC 9a**: Wide dispersive indoor use of substances in closed systems
		ERC 9b: Wide dispersive outdoor use of substances in closed systems
	Specific Environmental Release Category	ESVOC 9.6d.v1
Processes, Tasks and Activities Covered	Covers the consumer use of formulated lubricants in closed or contained systems including transfer operations, application, operation of engines and similar articles, equipment maintenance and disposal of waste oil.	

SECTION 2	OPERATIONAL CONDITIONS AND RISK MANAGEMENT MEASURES	
Section 2.1	**Control of consumer exposure**	
Product characteristics	Physical form of product	Liquid, vapour pressure > 10 Pa STP [OC15]
	Vapour Pressure (Pa)	231
	Concentration of substance in product	Unless otherwise stated, cover concentrations up to 100 %. [ConsOC1].
	Amounts used	Unless otherwise stated, covers use amounts up to6390g [ConsOC2];covers skin contact area up to 468cm2 [ConsOC5]
	Frequency and duration of use/exposure	Unless otherwise stated, covers use frequency up to 365 days per year [ConsOC3];Unless otherwise stated, covers use frequency up to 1 times per day [ConsOC4];covers exposure up to 6 hours per event [ConsOC14]
	Other operational conditions affecting exposure	Unless otherwise stated assumes use at ambient temperatures [ConsOC15]; assumes use in a 20 m3 room [ConsOC11]; assumes use with typical ventilation [ConsOC8].
Product Category	**Specific Risk Management Measures and Operating Conditions** ***(only required controls to demonstrate safe use listed)***	
PC1: Adhesives, sealants - Glues, hobby use	Unless otherwise stated, covers concentrations up to 30% [ConsOC1]; covers use up to 365 days/year [ConsOC3]; covers use up to 1 time/on day of use [ConsOC4]; covers skin contact area up to 35.73 cm2 [ConsOC5]; for each use event, covers use amounts up to 9g [ConsOC2]; covers use under typical household ventilation [ConsOC8]; covers use in room size of 20m3 [ConsOC11]; for each use event, covers exposure up to 4.00hr/event [ConsOC14]; No specific RMMs identified beyond those OCs stated.	
PC1: Adhesives, sealants - Glues DIY-use (carpet glue, tile glue, wood parquet glue)	Unless otherwise stated, covers concentrations up to 30% [ConsOC1]; covers use up to 1 days/year[ConsOC3]; covers use up to 1 time/on day of use [ConsOC4]; covers skin contact area up to 110.00 cm2 [ConsOC5]; for each use event, covers use amounts up to 6390g [ConsOC2]; covers use under typical household ventilation [ConsOC8]; covers use in room size of 20m3 [ConsOC11]; for each use event, covers exposure up to 6.00hr/event [ConsOC14]; No specific RMMs identified beyond those OCs stated.	
PC1: Adhesives, sealants - Glue from spray	Unless otherwise stated, covers concentrations up to 30% [ConsOC1]; covers use up to 6 days/year [ConsOC3]; covers use up to 1 time/on day of use [ConsOC4]; covers skin contact area up to 35.73 cm2 [ConsOC5]; for each use event, covers use amounts up to 85.05g [ConsOC2]; covers use under typical household ventilation [ConsOC8]; covers use in room size of 20m3 [ConsOC11]; for each use event, covers exposure up to 4.00hr/event [ConsOC14]; No specific RMMs identified beyond those OCs stated.	
PC1:Adhesives, sealants - Sealants	Unless otherwise stated, covers concentrations up to 30% [ConsOC1]; covers use up to 365 days/year [ConsOC3]; covers use up to 1 time/on day of use [ConsOC4]; covers skin contact area up to 35.73 cm2 [ConsOC5]; for each use event, covers use amounts up to 75g [ConsOC2]; covers use under typical household ventilation [ConsOC8]; covers use in room size of 20m3 [ConsOC11]; for each use event, covers exposure up to 1.00hr/event [ConsOC14]; No specific RMMs identified beyond those OCs stated.	
PC24: Lubricants, greases, and release products - Liquids	Unless otherwise stated, covers concentrations up to 100% [ConsOC1]; covers use up to 4 days/year [ConsOC3]; covers use up to 1 time/on day of use [ConsOC4]; covers skin contact area up to 468.00 cm2 [ConsOC5]; for each use event, covers use amounts up to 2200g [ConsOC2]; Covers use in a one car garage (34m3) under typcial ventilation [ConsOC10]; covers use in room size of 34m3[ConsOC11]; for each use event, covers exposure up to 0.17hr/event [ConsOC14]; No specific RMMs identified beyond those OCs stated.	

PC24: Lubricants, greases, and release products - Pastes	Unless otherwise stated, covers concentrations up to 20% [ConsOC1]; covers use up to 10 days/year [ConsOC3]; covers use up to 1 time/on day of use [ConsOC4]; covers skin contact area up to 468.00 cm2 [ConsOC5]; for each use event, covers use amounts up to 34g [ConsOC2]; for each use event, covers exposure up to 4.00hr/event [ConsOC14]; No specific RMMs identified beyond those OCs stated.	
PC24: Lubricants, greases, and release products - Sprays	Unless otherwise stated, covers concentrations up to 50% [ConsOC1]; covers use up to 6 days/year [ConsOC3]; covers use up to 1 time/on day of use [ConsOC4]; covers skin contact area up to 428.75 cm2 [ConsOC5]; for each use event, covers use amounts up to 73g [ConsOC2]; covers use under typical household ventilation [ConsOC8]; covers use in room size of 20m3[ConsOC11]; for each use event, covers exposure up to 0.17hr/event [ConsOC14]; No specific RMMs identified beyond those OCs stated.	
PC31:Polishes and wax blends - Polishes, wax / cream (floor, furniture, shoes)	Unless otherwise stated, covers concentrations up to 50% [ConsOC1]; covers use up to 29 days/year[ConsOC3]; covers use up to 1 time/on day of use[ConsOC4]; covers skin contact area up to 430.00 cm2 [ConsOC5]; for each use event, covers use amounts up to 142g [ConsOC2]; covers use under typical household ventilation [ConsOC8]; covers use in room size of 20m3[ConsOC11]; for each use event, covers exposure up to 1.23hr/event[ConsOC14]; No specific RMMs identified beyond those OCs stated.	
PC31:Polishes and wax blends - Polishes, spray (furniture, shoes)	Unless otherwise stated, covers concentrations up to 50% [ConsOC1]; covers use up to 8 days/year [ConsOC3]; covers use up to 1 time/on day of use[ConsOC4]; covers skin contact area up to 430.00 cm2 [ConsOC5]; for each use event, covers use amounts up to 35g [ConsOC2]; covers use under typical household ventilation [ConsOC8]; covers use in room size of 20m3 [ConsOC11]; for each use event, covers exposure up to 0.33hr/event [ConsOC14]; No specific RMMs identified beyond those OCs stated.	
Section 2.2	**Control of environmental exposure**	
	Product characteristics	Substance is complex UVCB. [PrC3]. Predominantly hydrophobic. [PrC4a].
	Amounts used	Fraction of EU tonnage used in region: 0.1
		Regional use tonnage (tonnes/year): 2.5E+1
		Fraction of regional tonnage used locally: 0.0005
		Annual site tonnage (tonnes/year): 1.3E-2
		Maximum daily site tonnage (kg/day): 3.4E-2
	Frequency and duration of use	Continuous release. [FD2].
		Emission days (days/year): 365
	Environmental factors not influenced by risk management	Local freshwater dilution fraction: 10
		Local marine dilution fraction: 100
	Other given operational conditions affecting environmental exposure	Release fraction to air from process (initial release prior to RMM): 0.01
		Release fraction to wastewater from process (initial release prior to RMM): 0.01
		Release fraction to soil from process (initial release prior to RMM): 0.01
	Conditions and measures related to municipal sewage treatment plant	Not applicable as there is no release to wastewater [STP1].
		Estimated substance removal from wastewater via domestic sewage treatment 93.7 %.
		Maximum allowable site tonnage (MSafe) based on domestic sewage treatment release (kg/d) 3.3E+1.
		Assumed domestic sewage treatment plant flow (m^3/day): 2000

	Conditions and measures related to external treatment of waste for disposal	External treatment and disposal of waste should comply with applicable local and/or national regulations [ETW3].
	Conditions and measures related to external recovery of waste	External recovery and recycling of waste should comply with applicable local and/or national regulations [ERW1].
SECTION 3	**EXPOSURE ESTIMATION**	
Section 3.1	**Health**	
	The ECETOC TRA tool has been used to estimate consumer exposures unless otherwise indicated. G30.	
Section 3.2	**Environment**	
	The Hydrocarbon Block Method has been used to calculate environmental exposure with the Petrorisk model. [EE2].	
SECTION 4	**GUIDANCE TO CHECK COMPLIANCE WITH THE EXPOSURE SCENARIO**	
Section 4.1	**Health**	
	Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented. G22. Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels. G23.	
Section 4.2	**Environment**	
	Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures [DSU1]. Further details on scaling and control technologies are provided in SpERC factsheet (http://cefic.org/en/reach-for-industries-libraries.html) [DSU4].	

SECTION 1	**EXPOSURE SCENARIO TITLE**	
Title	**15. Lubricants – Consumer: High Environmental Release**	
Use Descriptor	Sector(s) of Use	**SU 21**: Consumer uses
	Products Categories	**PC1**: Adhesives, sealants
		PC 24: Lubricants, greases, release products
		PC 31: Polishes and wax blends
	Environmental Release Categories	**ERC 8a**: Wide dispersive indoor use of processing aids in open systems.
		ERC 8d: Wide dispersive outdoor use of processing aids in open systems.
	Specific Environmental Release Category	8.6e.v1
Processes, Tasks and Activities Covered	Covers the consumer use of formulated lubricants in open systems including transfer operations, application, operation of engines and similar articles, equipment maintenance and disposal of waste oil.	

SECTION 2	OPERATIONAL CONDITIONS AND RISK MANAGEMENT MEASURES	
Section 2.1	**Control of consumer exposure**	
Product characteristics	Physical form of product	Liquid, vapour pressure > 10 Pa STP [OC15]
	Vapour Pressure (Pa)	231
	Concentration of substance in product	Unless otherwise stated, cover concentrations up to 100 %. [ConsOC1].
	Amounts used	Unless otherwise stated, covers use amounts up to6390g [ConsOC2];covers skin contact area up to 468cm2 [ConsOC5]
	Frequency and duration of use/exposure	Unless otherwise stated, covers use frequency up to 365 days per year [ConsOC3];Unless otherwise stated, covers use frequency up to 1 times per day [ConsOC4];covers exposure up to 6 hours per event [ConsOC14]
	Other operational conditions affecting exposure	Unless otherwise stated assumes use at ambient temperatures [ConsOC15]; assumes use in a 20 m3 room [ConsOC11]; assumes use with typical ventilation [ConsOC8].
Product Category	**Specific Risk Management Measures and Operating Conditions** ***(only required controls to demonstrate safe use listed)***	
PC1:Adhesives, sealants - Glues, hobby use	Unless otherwise stated, covers concentrations up to 30% [ConsOC1]; covers use up to 365 days/year [ConsOC3]; covers use up to 1 time/on day of use [ConsOC4]; covers skin contact area up to 35.73 cm2 [ConsOC5]; for each use event, covers use amounts up to 9g [ConsOC2]; covers use under typical household ventilation [ConsOC8]; covers use in room size of 20m3 [ConsOC11]; for each use event, covers exposure up to 4.00hr/event [ConsOC14]; No specific RMMs identified beyond those OCs stated.	
PC1: Adhesives, sealants - Glues DIY-use (carpet glue, tile glue, wood parquet glue)	Unless otherwise stated, covers concentrations up to 30% [ConsOC1]; covers use up to 1 days/year [ConsOC3]; covers use up to 1 time/on day of use [ConsOC4]; covers skin contact area up to 110.00 cm2 [ConsOC5]; for each use event, covers use amounts up to 6390g [ConsOC2]; covers use under typical household ventilation [ConsOC8]; covers use in room size of 20m3 [ConsOC11]; for each use event, covers exposure up to 6.00hr/event [ConsOC14]; No specific RMMs identified beyond those OCs stated.	
PC1:Adhesives, sealants - Glue from spray	Unless otherwise stated, covers concentrations up to 30% [ConsOC1]; covers use up to 6 days/year [ConsOC3]; covers use up to 1 time/on day of use [ConsOC4]; covers skin contact area up to 35.73 cm2 [ConsOC5]; for each use event, covers use amounts up to 85.05g [ConsOC2]; covers use under typical household ventilation [ConsOC8]; covers use in room size of 20m3 [ConsOC11]; for each use event, covers exposure up to 4.00hr/event [ConsOC14]; No specific RMMs identified beyond those OCs stated.	
PC1:Adhesives, sealants - Sealants	Unless otherwise stated, covers concentrations up to 30% [ConsOC1]; covers use up to 365 days/year [ConsOC3]; covers use up to 1 time/on day of use [ConsOC4]; covers skin contact area up to 35.73 cm2 [ConsOC5]; for each use event, covers use amounts up to 75g [ConsOC2]; covers use under typical household ventilation [ConsOC8]; covers use in room size of 20m3 [ConsOC11]; for each use event, covers exposure up to 1.00hr/event [ConsOC14]; No specific RMMs identified beyond those OCs stated.	
PC24: Lubricants, greases, and release products - Liquids	Unless otherwise stated, covers concentrations up to 100% [ConsOC1]; covers use up to 4 days/year [ConsOC3]; covers use up to 1 time/on day of use [ConsOC4]; covers skin contact area up to 468.00 cm2 [ConsOC5]; for each use event, covers use amounts up to 2200g [ConsOC2]; Covers use in a one car garage (34m3) under typcial ventilation [ConsOC10]; covers use in room size of 34m3 [ConsOC11]; for each use event, covers exposure up to 0.17hr/event [ConsOC14]; No specific RMMs identified beyond those OCs stated.	

PC24: Lubricants, greases, and release products - Pastes	Unless otherwise stated, covers concentrations up to 20% [ConsOC1]; covers use up to 10 days/year [ConsOC3]; covers use up to 1 time/on day of use [ConsOC4]; covers skin contact area up to 468.00 cm2 [ConsOC5]; for each use event, covers use amounts up to 34g [ConsOC2]; for each use event, covers exposure up to 4.00hr/event [ConsOC14]; No specific RMMs identified beyond those OCs stated.	
PC24: Lubricants, greases, and release products - Sprays	Unless otherwise stated, covers concentrations up to 50% [ConsOC1]; covers use up to 6 days/year [ConsOC3]; covers use up to 1 time/on day of use [ConsOC4]; covers skin contact area up to 428.75 cm2 [ConsOC5]; for each use event, covers use amounts up to 73g [ConsOC2]; covers use under typical household ventilation [ConsOC8]; covers use in room size of 20m3 [ConsOC11]; for each use event, covers exposure up to 0.17hr/event [ConsOC14]; No specific RMMs identified beyond those OCs stated.[	
PC31:Polishes and wax blends - Polishes, wax / cream (floor, furniture, shoes)	Unless otherwise stated, covers concentrations up to 50% [ConsOC1]; covers use up to 29 days/year [ConsOC3]; covers use up to 1 time/on day of use [ConsOC4]; covers skin contact area up to 430.00 cm2 [ConsOC5]; for each use event, covers use amounts up to 142g [ConsOC2]; covers use under typical household ventilation [ConsOC8]; covers use in room size of 20m3 [ConsOC11]; for each use event, covers exposure up to 1.23hr/event [ConsOC14]; No specific RMMs identified beyond those OCs stated.	
PC31:Polishes and wax blends - Polishes, spray (furniture, shoes)	Unless otherwise stated, covers concentrations up to 50% [ConsOC1]; covers use up to 8 days/year [ConsOC3]; covers use up to 1 time/on day of use [ConsOC4]; covers skin contact area up to 430.00 cm2 [ConsOC5]; for each use event, covers use amounts up to 35g [ConsOC2]; covers use under typical household ventilation [ConsOC8]; covers use in room size of 20m3 [ConsOC11]; for each use event, covers exposure up to 0.33hr/event[ConsOC14]; No specific RMMs identified beyond those OCs stated.	
Section 2.2	**Control of environmental exposure**	
	Product characteristics	Substance is complex UVCB. [PrC3]. Predominantly hydrophobic. [PrC4a].
	Amounts used	Fraction of EU tonnage used in region: 0.1
		Regional use tonnage (tonnes/year): 2.5E+1
		Fraction of regional tonnage used locally: 0.0005
		Annual site tonnage (tonnes/year): 1.3E-2
		Maximum daily site tonnage (kg/day): 3.4E-2
	Frequency and duration of use	Continuous release. [FD2].
		Emission days (days/year): 365
	Environmental factors not influenced by risk management	Local freshwater dilution fraction: 10
		Local marine dilution fraction: 100
	Other given operational conditions affecting environmental exposure	Release fraction to air from process (initial release prior to RMM: 1.5E-1
		Release fraction to wastewater from process (initial release prior to RMM): 0.05
		Release fraction to soil from process (initial release prior to RMM): 0.05
	Conditions and measures related to municipal sewage treatment plant	Not applicable as there is no release to wastewater [STP1].
		Estimated substance removal from wastewater via domestic sewage treatment 93.7 %.
		Maximum allowable site tonnage (MSafe) based on domestic sewage treatment release (kg/d) 3.1E+1.
		Assumed domestic sewage treatment plant flow (m^3/day): 2000

	Conditions and measures related to external treatment of waste for disposal	External treatment and disposal of waste should comply with applicable local and/or national regulations [ETW3].
	Conditions and measures related to external recovery of waste	External recovery and recycling of waste should comply with applicable local and/or national regulations [ERW1].
SECTION 3	**EXPOSURE ESTIMATION**	
Section 3.1	**Health**	
	The ECETOC TRA tool has been used to estimate consumer exposures unless otherwise indicated. G30.	
Section 3.2	**Environment**	
	The Hydrocarbon Block Method has been used to calculate environmental exposure with the Petrorisk model. [EE2].	
SECTION 4	**GUIDANCE TO CHECK COMPLIANCE WITH THE EXPOSURE SCENARIO**	
Section 4.1	**Health**	
	Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented. G22. Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels. G23.	
Section 4.2	**Environment**	
	Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures [DSU1]. Further details on scaling and control technologies are provided in SpERC factsheet (http://cefic.org/en/reach-for-industries-libraries.html) [DSU4].	

SECTION 1	**EXPOSURE SCENARIO TITLE**	
Title	**16. Use in Metal Working Fluids/Rolling Oils – Industrial**	
Use Descriptor	Sector(s) of Use	**SU 3**: Industrial uses
	Process Categories	**PROC 1**: Use in closed process, no likelihood of exposure.
		PROC 2: Use in closed, continuous process with occasional controlled exposure.
		PROC 3: Use in closed batch process (synthesis or formulation).
		PROC 4: Use in batch and other process (synthesis) where opportunity for exposure arises.
		PROC 5: Mixing or blending in batch processes for formulation of preparations* and articles (multistage and/or significant contact)
		PROC 7: Industrial spraying
		PROC 8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities.
		PROC 8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities.
		PROC 10: Roller application or brushing
		PROC 13: Treatment of articles by dipping and pouring

		PROC 17: Lubrication at high energy conditions and in partly open process
	Environmental Release Categories	**ERC 4**: Industrial use of processing aids in processes and products, not becoming part of articles
	Specific Environmental Release Category	ESVOC 4.7a.v1
Processes, Tasks and Activities Covered	Covers the use in formulated MWFs/rolling oils including transfer operations, rolling and annealing activities, cutting/machining activities, automated and manual application of corrosion protections (including brushing, dipping and spraying), equipment maintenance, draining and disposal of waste oils.	
SECTION 2	**OPERATIONAL CONDITIONS AND RISK MANAGEMENT MEASURES**	
Section 2.1	**Control of worker exposure**	
Product characteristics	Physical form of product	Liquid, vapour pressure < 0.5 kPa at STP [OC3].
	Concentration of substance in product	Up to 100% (unless stated).
	Amount used	No limit.
	Frequency and duration of use	Covers daily exposures up to 8 hours (unless stated). [G2].
	Other operational conditions affecting worker exposure	Assumes use at not > 20oC above ambient [G15].
		Assumes a good basic standard of occupational hygiene has been implemented [G1]
Contributing Scenarios	**Specific Risk Management Measures and Operational Conditions** ***(only required controls to demonstrate safe use listed)***	
	General exposures (closed systems) [CS15] PROC1, 2, 3	No other specific measures identified. [EI20]
	General exposures (open systems) [CS16] PROC4	No other specific measures identified. [EI20]
	Bulk transfers [CS14] PROC8b	No other specific measures identified. [EI20]
	Filling / preparation of equipment from drums or containers. [CS45] PROC 5, 8b, 9	No other specific measures identified. [EI20]
	Process sampling [CS2] PROC8b	No other specific measures identified. [EI20]
	Metal machining operations [CS79] PROC17	No other specific measures identified. [EI20]
	Treatment by dipping and pouring [CS35] PROC13	No other specific measures identified. [EI20]
	Spraying [CS10] PROC7	Provide a good standard of controlled ventilation (10 to 15 air changes per hour). [E40]
	Manual applications e.g. brushing, rolling [CS13] PROC10	No other specific measures identified. [EI20]

	Automated metal rolling/ forming [CS80]Use in contained systems [CS38] Operation is carried out at elevated temp. (> then 20°C above ambient temp.) [OC7] PROC2	No other specific measures identified. [EI20]
	Semi-automated metal rolling/ forming [CS83] Operation is carried out at elevated temp. (> then 20°C above ambient temp.) [OC7] PROC17	No other specific measures identified. [EI20]
	Semi-automated metal rolling/forming[CS83] PROC8b	No other specific measures identified. [EI20]
	Equipment cleaning and maintenance [CS39] Dedicated facility [CS81] PROC8a	No other specific measures identified. [EI20]
	Equipment cleaning and maintenance [CS39] Non-dedicated facility [CS82] PROC1	No other specific measures identified. [EI20]
	Material storage [CS67] PROC1	No other specific measures identified. [EI20]
Section 2.2	**Control of environmental exposure**	
	Product characteristics	Substance is complex UVCB. [PrC3]. Predominantly hydrophobic. [PrC4a].
	Amounts used	Fraction of EU tonnage used in region: 0.1
		Regional use tonnage (tonnes/year): 1.0E+2
		Fraction of regional tonnage used locally: 1
		Annual site tonnage (tonnes/year): 1.0E+2
		Maximum daily site tonnage (kg/day): 5.0E+3
	Frequency and duration of use	Continuous release. [FD2].
		Emission days (days/year): 20
	Environmental factors not influenced by risk management	Local freshwater dilution fraction: 10
		Local marine dilution fraction: 100
	Other given operational conditions affecting environmental exposure	Release fraction to air from process (initial release prior to RMM): 0.02
		Release fraction to wastewater from process (initial release prior to RMM): 3.0E-6
		Release fraction to soil from process (initial release prior to RMM): 0
	Technical conditions and measures at process level (source) to prevent release	Common practices vary across sites thus conservative process release estimates used [TCS1].

	Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil	Risk from environmental exposure is driven by Freshwater [TCR1a] No wastewater treatment required [TCR6]. Treat air emission to provide a typical removal efficiency of 70%. Treat onsite wastewater (prior to receiving water discharge) to provide the required removal efficiency ≥ 0.0 % If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of ≥ 0.0 %
	Organizational measures to prevent / limit release from site	Prevent discharge of undissolved substance to or recover from wastewater [OMS1]. Do not apply industrial sludge to natural soils [OMS2]. Sludge should be incinerated, contained or reclaimed [OMS3].
	Conditions and measures related to municipal sewage treatment plant	Not applicable as there is no release to wastewater [STP1]. Estimated substance removal from wastewater via domestic sewage treatment 93.7 %. Total efficiency of removal from wastewater after onsite and offsite (domestic treatment plant) RMMs 93.7 %. Maximum allowable site tonnage (MSafe) based on domestic sewage treatment release 2.9E+6 kg per day. Assumed domestic sewage treatment plant flow 2 000 m^3 per day.
	Conditions and measures related to external treatment of waste for disposal	External treatment and disposal of waste should comply with applicable local and/or national regulations [ETW3].
	Conditions and measures related to external recovery of waste	External recovery and recycling of waste should comply with applicable local and/or national regulations [ERW1].
SECTION 3	**EXPOSURE ESTIMATION**	
Section 3.1	**Health**	
	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. [G21].	
Section 3.2	**Environment**	
	The Hydrocarbon Block Method has been used to calculate environmental exposure with the Petrorisk model. [EE2].	
SECTION 4	**GUIDANCE TO CHECK COMPLIANCE WITH THE EXPOSURE SCENARIO**	
Section 4.1	**Health**	
	Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented. [G22]. Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels. [G23].	
Section 4.2	**Environment**	
	Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures [DSU1]. Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination [DSU2]. Required removal efficiency for air can be achieved using onsite technologies, either alone or in combination [DSU3]. Further details on scaling and control technologies are provided in SpERC factsheet (http://cefic.org/en/reach-for-industries-libraries.html) [DSU4].	

SECTION 1	**EXPOSURE SCENARIO TITLE**	
Title	**17. Use in Metal working fluids / rolling oils – Professional: High Environmental release**	
Use Descriptor	Sector(s) of Use	**SU 22**: Professional uses
	Process Categories	**PROC 1**: Use in closed process, no likelihood of exposure.
		PROC 2: Use in closed, continuous process with occasional controlled exposure.
		PROC 3: Use in closed batch process (synthesis or formulation).
		PROC 5: Mixing or blending in batch processes for formulation of preparations* and articles (multistage and/or significant contact)
		PROC 8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities.
		PROC 8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities.
		PROC 9: Transfer of substance or preparation into small containers (dedicated filling line, including weighing)
		PROC 10: Roller application or brushing
		PROC11: Non industrial spraying
		PROC 13: Treatment of articles by dipping and pouring
		PROC 17: Lubrication at high energy conditions and in partly open process
	Environmental Release Categories	**ERC 8a**: Wide dispersive indoor use of processing aids in open systems
		ERC 8d: Wide dispersive outdoor use of processing aids in open systems
	Specific Environmental Release Category	ESVOC 8.7c.v1
Processes, Tasks and Activities Covered	Covers the use in formulated MWFs including transfer operations, open and contained cutting/machining activities, automated and manual application of corrosion protections, draining and working on contaminated/ reject articles, and disposal of waste oils.	
SECTION 2	**OPERATIONAL CONDITIONS AND RISK MANAGEMENT MEASURES**	
Section 2.1	**Control of worker exposure**	
Product characteristics	Physical form of product	Liquid, vapour pressure < 0.5 kPa at STP [OC3].
	Concentration of substance in product	Up to 100% (unless stated).
	Amount used	No limit.
	Frequency and duration of use	Covers daily exposures up to 8 hours (unless stated). [G2].
	Other operational conditions affecting worker exposure	Assumes use at not > 20oC above ambient [G15].
		Assumes a good basic standard of occupational hygiene has been implemented [G1]

Contributing Scenarios	**Specific Risk Management Measures and Operational Conditions** *(only required controls to demonstrate safe use listed)*	
	General exposures (closed systems) [CS15] PROC1, 2, 3	Handle substance within a closed system [E47]
	Bulk transfers [CS14] PROC8b	No other specific measures identified. [EI20]
	Filling / preparation of equipment from drums or containers. [CS45] Dedicated facility [CS81] PROC8b, 9	No other specific measures identified. [EI20]
	Filling / preparation of equipment from drums or containers. [CS45]Non-dedicated facility [CS82] PROC8a	No other specific measures identified. [EI20]
	Process sampling [CS2] PROC8b	Use dedicated equipment [E85]
	Metal machining operations [CS79] PROC17	No other specific measures identified. [EI20]
	Manual applications e.g. brushing, rolling [CS13] PROC10	No other specific measures identified. [EI20]
	Spraying [CS10] PROC11	Provide a good standard of controlled ventilation (10 to 15 air changes per hour). [E40]
		Wear a respirator conforming to EN140 with Type A/P2 filter or better [PPE29]
	Treatment by dipping and pouring [CS35] PROC13	Allow time for product to drain from workpiece [EI21]
	Equipment cleaning and maintenance [CS39] Non-dedicated facility [CS82] PROC8a	No other specific measures identified. [EI20]
	Equipment cleaning and maintenance [CS39]Dedicated facility [CS81] PROC8b	No other specific measures identified. [EI20]
	Material storage [CS67] PROC1, 2	Store substance within a closed system [E84]
	Filling / preparation of equipment from drums or containers. [CS45] PROC5	No other specific measures identified. [EI20]
Section 2.2	**Control of environmental exposure**	
	Product characteristics	Substance is complex UVCB. [PrC3]. Predominantly hydrophobic. [PrC4a].
	Amounts used	Fraction of EU tonnage used in region: 0.1
		Regional use tonnage (tonnes/year): 1.9E+1

		Fraction of regional tonnage used locally: 1
		Annual site tonnage (tonnes/year): 9.3E-3
		Maximum daily site tonnage (kg/day): 2.5E-2
	Frequency and duration of use	Continuous release. [FD2].
		Emission days (days/year): 365
	Environmental factors not influenced by risk management	Local freshwater dilution fraction: 10
		Local marine dilution fraction: 100
	Other operational conditions affecting environmental exposure	Release fraction to air from process (initial release prior to RMM: 1.5E-1
		Release fraction to wastewater from process (initial release prior to RMM): 0.05
		Release fraction to soil from process (initial release prior to RMM): 0.05
	Technical conditions and measures at process level (source) to prevent release	Common practices vary across sites thus conservative process release estimates used [TCS1].
	Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil	Risk from environmental exposure is driven by Freshwater [TCR1a] No wastewater treatment required [TCR6].
		Treat air emission to provide a typical removal efficiency of N/A.
		Treat onsite wastewater (prior to receiving water discharge) to provide the required removal efficiency ≥ 0.0 %
		If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of ≥ 0.0 %
	Organizational measures to prevent / limit release from site	Prevent discharge of undissolved substance to or recover from wastewater [OMS1].
		Do not apply industrial sludge to natural soils [OMS2].
		Sludge should be incinerated, contained or reclaimed [OMS3].
	Conditions and measures related to municipal sewage treatment plant	Not applicable as there is no release to wastewater [STP1].
		Estimated substance removal from wastewater via domestic sewage treatment 93.7 %.
		Total efficiency of removal from wastewater after onsite and offsite (domestic treatment plant) RMMs 93.7 %.
		Maximum allowable site tonnage (MSafe) based on domestic sewage treatment release 2.4E+1 kg per day.
		Assumed domestic sewage treatment plant flow 2 000 m^3 per day.
	Conditions and measures related to external treatment of waste for disposal	External treatment and disposal of waste should comply with applicable local and/or national regulations [ETW3].
	Conditions and measures related to external recovery of waste	External recovery and recycling of waste should comply with applicable local and/or national regulations [ERW1].
SECTION 3	**EXPOSURE ESTIMATION**	
Section 3.1	**Health**	
	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. [G21].	

Section 3.2	**Environment**
	The Hydrocarbon Block Method has been used to calculate environmental exposure with the Petrorisk model. [EE2].
SECTION 4	**GUIDANCE TO CHECK COMPLIANCE WITH THE EXPOSURE SCENARIO**
Section 4.1	**Health**
	Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented. [G22]. Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels. [G23].
Section 4.2	**Environment**
	Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures [DSU1]. Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination [DSU2]. Required removal efficiency for air can be achieved using onsite technologies, either alone or in combination [DSU3]. Further details on scaling and control technologies are provided in SpERC factsheet (http://cefic.org/en/reach-for-industries-libraries.html) [DSU4].

SECTION 1	**EXPOSURE SCENARIO TITLE**	
Title	**18. Use in Agrochemicals – Professional**	
Use Descriptor	Sector(s) of Use	**SU 22**: Professional uses
	Process Categories	**PROC 1**: Use in closed process, no likelihood of exposure.
		PROC 2: Use in closed, continuous process with occasional controlled exposure.
		PROC 4: Use in batch and other process (synthesis) where opportunity for exposure arises
		PROC 8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities.
		PROC 8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities.
		PROC11: Non industrial spraying
		PROC 13: Treatment of articles by dipping and pouring
	Environmental Release Categories	**ERC 8a**: Wide dispersive indoor use of processing aids in open systems
		ERC 8d: Wide dispersive outdoor use of processing aids in open systems
	Specific Environmental Release Category	ESVOC 8.11a.v1
Processes, Tasks and Activities Covered	Use as an agrochemical excipient for application by manual or machine spraying, smokes and fogging; including equipment clean-downs and disposal.	

SECTION 2	OPERATIONAL CONDITIONS AND RISK MANAGEMENT MEASURES	
Section 2.1	**Control of worker exposure**	
Product characteristics	Physical form of product	Liquid, vapour pressure < 0.5 kPa at STP [OC3].
	Concentration of substance in product	Up to 100% (unless stated).
	Amount used	No limit.
	Frequency and duration of use	Covers daily exposures up to 8 hours (unless stated). [G2].
	Other operational conditions affecting worker exposure	Assumes use at not > 20oC above ambient [G15].
		Assumes a good basic standard of occupational hygiene has been implemented [G1]
Contributing Scenarios	**Specific Risk Management Measures and Operational Conditions** ***(only required controls to demonstrate safe use listed)***	
	Transfer from/pouring from containers [CS22] PROC8b	No other specific measures identified. [EI20]
	Mixing and blending [CS23] PROC4	No other specific measures identified. [EI20]
	Spraying/fogging by manual application [CS24] PROC11	Ensure operation is undertaken outdoors [E69]Avoid carrying out activities involving exposure for more than 4 hours. [OC28]
	Spraying/ fogging by machine application [CS25] PROC11	Apply within a vented cab supplied with filtered air under positive pressure and with a protection factor of >20 [E70]
	Ad hoc manual application via trigger sprays, dipping, etc. [CS27] PROC13	No other specific measures identified. [EI20]
	Clean-down and maintenance of equipment [CS26] PROC8a	No other specific measures identified. [EI20]
	Disposal of wastes [CS28] PROC8a	No other specific measures identified. [EI20]
	Material storage [CS67] PROC1, 2	Store substance within a closed system [E84]
Section 2.2	**Control of environmental exposure**	
	Product characteristics	Substance is complex UVCB. [PrC3]. Predominantly hydrophobic. [PrC4a].
	Amounts used	Fraction of EU tonnage used in region: 0.1
		Regional use tonnage (tonnes/year): 9.6E+0
		Fraction of regional tonnage used locally: 1
		Annual site tonnage (tonnes/year): 1.9E-2
		Maximum daily site tonnage (kg/day): 5.3E-2
	Frequency and duration of use	Continuous release. [FD2].
		Emission days (days/year): 365

	Environmental factors not influenced by risk management	Local freshwater dilution fraction: 10 Local marine dilution fraction: 100
	Other operational conditions affecting environmental exposure	Release fraction to air from process (initial release prior to RMM): 0.9 Release fraction to wastewater from process (initial release prior to RMM): 0.01 Release fraction to soil from process (initial release prior to RMM): 0.09
	Technical conditions and measures at process level (source) to prevent release	Common practices vary across sites thus conservative process release estimates used [TCS1].
	Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil	Risk from environmental exposure is driven by Freshwater [TCR1a]. No wastewater treatment required [TCR6]. Treat air emission to provide a typical removal efficiency of N/A. Treat onsite wastewater (prior to receiving water discharge) to provide the required removal efficiency ≥ 0.0 % If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of ≥ 0.0 %
	Organizational measures to prevent / limit release from site	Prevent discharge of undissolved substance to or recover from wastewater [OMS1]. Do not apply industrial sludge to natural soils [OMS2]. Sludge should be incinerated, contained or reclaimed [OMS3].
	Conditions and measures related to municipal sewage treatment plant	Not applicable as there is no release to wastewater [STP1]. Estimated substance removal from wastewater via domestic sewage treatment 93.7 %. Total efficiency of removal from wastewater after onsite and offsite (domestic treatment plant) RMMs 93.7 %. Maximum allowable site tonnage (MSafe) based on domestic sewage treatment release 5.1E+1 kg per day. Assumed domestic sewage treatment plant flow 2 000 m^3 per day.
	Conditions and measures related to external treatment of waste for disposal	External treatment and disposal of waste should comply with applicable local and/or national regulations [ETW3].
	Conditions and measures related to external recovery of waste	External recovery and recycling of waste should comply with applicable local and/or national regulations [ERW1].
SECTION 3	**EXPOSURE ESTIMATION**	
Section 3.1	**Health**	
	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. [G21].	
Section 3.2	**Environment**	
	The Hydrocarbon Block Method has been used to calculate environmental exposure with the Petrorisk model. [EE2].	

SECTION 4	GUIDANCE TO CHECK COMPLIANCE WITH THE EXPOSURE SCENARIO
Section 4.1	**Health**
	Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented. [G22]. Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels. [G23].
Section 4.2	**Environment**
	Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures [DSU1]. Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination [DSU2]. Required removal efficiency for air can be achieved using onsite technologies, either alone or in combination [DSU3]. Further details on scaling and control technologies are provided in SpERC factsheet (http://cefic.org/en/reach-for-industries-libraries.html) [DSU4].

SECTION 1	EXPOSURE SCENARIO TITLE	
Title	**19. Use in Agrochemicals – Consumer**	
Use Descriptor	Sector(s) of Use	**SU 21**: Consumer uses
	Products Categories	**PC12**: Fertilizers
		PC 27: Plant protection products
	Environmental Release Categories	**ERC 8a**: Wide dispersive indoor use of processing aids in open systems.
		ERC 8d: Wide dispersive outdoor use of processing aids in open systems.
	Specific Environmental Release Category	8.11b.v1
Processes, Tasks and Activities Covered	Covers the consumer use in agrochemicals in liquid and solid forms.	
SECTION 2	**OPERATIONAL CONDITIONS AND RISK MANAGEMENT MEASURES**	
Section 2.1	**Control of consumer exposure**	
Product characteristics	Physical form of product	Liquid, vapour pressure > 10 Pa STP [OC15]
	Vapour Pressure (Pa)	231
	Concentration of substance in product	Unless otherwise stated, cover concentrations up to 100 %. [ConsOC1].
	Amounts used	Covers skin contact area up to 857.5cm2 [ConsOC5]
	Frequency and duration of use/exposure	Unless otherwise stated, covers use frequency up to 365 days per year [ConsOC3]; Unless otherwise stated, covers use frequency up to 1 times per day [ConsOC4]; covers exposure up to 4 hours per event [ConsOC14]
	Other operational conditions affecting exposure	Unless otherwise stated assumes use at ambient temperatures [ConsOC15]; assumes use in a 20 m3 room [ConsOC11]; assumes use with typical ventilation [ConsOC8].

Product Category	**Specific Risk Management Measures and Operating Conditions** ***(only required controls to demonstrate safe use listed)***	
PC12:Fertilizers - Lawn and garden preparations	Unless otherwise stated, covers concentrations up to 50% [ConsOC1]; covers use up to 365 days/year [ConsOC3]; covers use up to 1 time/on day of use [ConsOC4]; covers skin contact area up to 857.50 cm2 [ConsOC5]; for each use event, assumes swallowed amount of 0.3g [ConsOC13]; for each use event, covers exposure up to 4.00hr/event [ConsOC14]; No specific RMMs identified beyond those OCs stated.	
PC27_n: Plant protection products	Unless otherwise stated, covers concentrations up to 50% [ConsOC1]; covers use up to 365 days/year [ConsOC3]; covers use up to 1 time/on day of use [ConsOC4]; covers skin contact area up to 857.50 cm2 [ConsOC5]; for each use event, assumes swallowed amount of 0.3g [ConsOC13]; for each use event, covers exposure up to 4.00hr/event [ConsOC14]; No specific RMMs identified beyond those OCs stated.	
Section 2.2	**Control of environmental exposure**	
	Product characteristics	Substance is complex UVCB. [PrC3]. Predominantly hydrophobic. [PrC4a].
	Amounts used	Fraction of EU tonnage used in region: 0.1
		Regional use tonnage (tonnes/year): 1.8E+0
		Fraction of regional tonnage used locally: 0.0005
		Annual site tonnage (tonnes/year): 3.6E-3
		Maximum daily site tonnage (kg/day): 9.9E-3
	Frequency and duration of use	Continuous release. [FD2].
		Emission days (days/year): 365
	Environmental factors not influenced by risk management	Local freshwater dilution fraction: 10
		Local marine dilution fraction: 100
	Other given operational conditions affecting environmental exposure	Release fraction to air from process (initial release prior to RMM): 0.9
		Release fraction to wastewater from process (initial release prior to RMM): 0.01
		Release fraction to soil from process (initial release prior to RMM): 0.09
	Conditions and measures related to municipal sewage treatment plant	Not applicable as there is no release to wastewater [STP1].
		Estimated substance removal from wastewater via domestic sewage treatment 93.7 %.
		Maximum allowable site tonnage (MSafe) based on domestic sewage treatment release (kg/d) 9.7E+0.
		Assumed domestic sewage treatment plant flow (m^3/day): 2000
	Conditions and measures related to external treatment of waste for disposal	External treatment and disposal of waste should comply with applicable local and/or national regulations [ETW3].
	Conditions and measures related to external recovery of waste	External recovery and recycling of waste should comply with applicable local and/or national regulations [ERW1].
SECTION 3	**EXPOSURE ESTIMATION**	
Section 3.1	**Health**	
	The ECETOC TRA tool has been used to estimate consumer exposures unless otherwise indicated. G30.	

Section 3.2	**Environment**
	The Hydrocarbon Block Method has been used to calculate environmental exposure with the Petrorisk model. [EE2].
SECTION 4	**GUIDANCE TO CHECK COMPLIANCE WITH THE EXPOSURE SCENARIO**
Section 4.1	**Health**
	Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented. G22. Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels. G23.
Section 4.2	**Environment**
	Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures [DSU1]. Further details on scaling and control technologies are provided in SpERC factsheet (http://cefic.org/en/reach-for-industries-libraries.html) [DSU4].

SECTION 1	**EXPOSURE SCENARIO TITLE**	
Title	**20. Use as a Fuel – Industrial**	
Use Descriptor	Sector(s) of Use	**SU 3**: Industrial uses
	Process Categories	**PROC 1**: Use in closed process, no likelihood of exposure. **PROC 2**: Use in closed, continuous process with occasional controlled exposure. **PROC 3**: Use in closed batch process (synthesis or formulation). **PROC 8a**: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities. **PROC 8b**: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities. **PROC 16**: Using material as fuel sources, limited exposure to unburned product to be expected
	Environmental Release Categories	**ERC 7**: Industrial use of sub-stances in closed systems
	Specific Environmental Release Category	ESVOC 7.12a.v1
Processes, Tasks and Activities Covered	Covers the use as a fuel (or fuel additive) and includes activities associated with its transfer, use, equipment maintenance and handling of waste.	
SECTION 2	**OPERATIONAL CONDITIONS AND RISK MANAGEMENT MEASURES**	
Section 2.1	**Control of worker exposure**	
Product characteristics	Physical form of product	Liquid, vapour pressure < 0.5 kPa at STP [OC3].
	Concentration of substance in product	Up to 100% (unless stated).
	Amount used	No limit.
	Frequency and duration of use	Covers daily exposures up to 8 hours (unless stated). [G2].

	Other operational conditions affecting worker exposure	Assumes use at not > 20oC above ambient [G15]. Assumes a good basic standard of occupational hygiene has been implemented [G1]
Contributing Scenarios	**Specific Risk Management Measures and Operational Conditions** ***(only required controls to demonstrate safe use listed)***	
	Bulk transfers [CS14] PROC8b	Handle substance within a closed system [E47]
	Drum/batch transfers [CS8] PROC8b	No other specific measures identified. [EI20]
	General exposures (closed systems) [CS15] Use in contained batch processes [CS37] PROC1,2, 3	Handle substance within a closed system [E47]
	General exposures (closed systems) [CS15] PROC1, 2	Handle substance within a closed system [E47]
	Use as a fuel [GEST12] PROC16	Handle substance within a closed system [E47]
	General exposures (closed systems) [CS15] (closed systems) [CS107] PROC3	Handle substance within a closed system [E47]
	Equipment cleaning and maintenance [CS39] PROC8a	No other specific measures identified. [EI20]
	Material storage [CS67] PROC1, 2	Store substance within a closed system [E84] Transfer via enclosed lines [E52]
Section 2.2	**Control of environmental exposure**	
	Product characteristics	Substance is complex UVCB. [PrC3]. Predominantly hydrophobic. [PrC4a].
	Amounts used	Fraction of EU tonnage used in region: 0.1 Regional use tonnage (tonnes/year): 1.0E+2 Fraction of regional tonnage used locally: 1 Annual site tonnage (tonnes/year): 1.0E+2 Maximum daily site tonnage (kg/day): 5.0E+3
	Frequency and duration of use	Continuous release. [FD2]. Emission days (days/year): 20
	Environmental factors not influenced by risk management	Local freshwater dilution fraction: 10 Local marine dilution fraction: 100
	Other operational conditions affecting environmental exposure	Release fraction to air from process (initial release prior to RMM: 5.0E-3 Release fraction to wastewater from process (initial release prior to RMM): 0.00001 Release fraction to soil from process (initial release prior to RMM): 0

	Technical conditions and measures at process level (source) to prevent release	Common practices vary across sites thus conservative process release estimates used [TCS1].
	Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil	Risk from environmental exposure is driven by Freshwater Sediment [TCR1b]. No wastewater treatment required [TCR6]. Treat air emission to provide a typical removal efficiency of 95%. Treat onsite wastewater (prior to receiving water discharge) to provide the required removal efficiency ≥ 0.0 % If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of ≥ 0.0 %
	Organizational measures to prevent / limit release from site	Prevent discharge of undissolved substance to or recover from wastewater [OMS1]. Do not apply industrial sludge to natural soils [OMS2]. Sludge should be incinerated, contained or reclaimed [OMS3].
	Conditions and measures related to municipal sewage treatment plant	Not applicable as there is no release to wastewater [STP1]. Estimated substance removal from wastewater via domestic sewage treatment 93.7 %. Total efficiency of removal from wastewater after onsite and offsite (domestic treatment plant) RMMs 93.7 %. Maximum allowable site tonnage (MSafe) based on domestic sewage treatment release 1.9E+6 kg per day. Assumed domestic sewage treatment plant flow 2 000 m^3 per day.
	Conditions and measures related to external treatment of waste for disposal	Combustion emissions limited by required exhaust emission controls [ETW1]. Combustion emissions considered in regional exposure assessment [ETW2].
	Conditions and measures related to external recovery of waste	This substance is consumed during use and no waste of the substance is generated [ERW3].
SECTION 3	**EXPOSURE ESTIMATION**	
Section 3.1	**Health**	
	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. [G21].	
Section 3.2	**Environment**	
	The Hydrocarbon Block Method has been used to calculate environmental exposure with the Petrorisk model. [EE2].	
SECTION 4	**GUIDANCE TO CHECK COMPLIANCE WITH THE EXPOSURE SCENARIO**	
Section 4.1	**Health**	
	Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented. [G22]. Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels. [G23].	

Section 4.2	**Environment**
	Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures [DSU1]. Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination [DSU2]. Required removal efficiency for air can be achieved using onsite technologies, either alone or in combination [DSU3]. Further details on scaling and control technologies are provided in SpERC factsheet (http://cefic.org/en/reach-for-industries-libraries.html) [DSU4].

SECTION 1	**EXPOSURE SCENARIO TITLE**	
Title	**21. Use as a Fuel – Professional**	
Use Descriptor	Sector(s) of Use	**SU 22**: Professional uses
	Process Categories	**PROC 1**: Use in closed process, no likelihood of exposure.
		PROC 2: Use in closed, continuous process with occasional controlled exposure.
		PROC 3: Use in closed batch process (synthesis or formulation)
		PROC 8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities.
		PROC 8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities.
		PROC 16: Using material as fuel sources, limited exposure to unburned product to be expected
	Environmental Release Categories	**ERC 9a**: Wide dispersive indoor use of substances in closed systems
		ERC 9b: Wide dispersive outdoor use of substances in closed systems
	Specific Environmental Release Category	ESVOC 9.12b.v1
Processes, Tasks and Activities Covered	Covers the use as a fuel (or fuel additive) and includes activities associated with its transfer, use, equipment maintenance and handling of waste.	
SECTION 2	**OPERATIONAL CONDITIONS AND RISK MANAGEMENT MEASURES**	
Section 2.1	**Control of worker exposure**	
Product characteristics	Physical form of product	Liquid, vapour pressure < 0.5 kPa at STP [OC3].
	Concentration of substance in product	Up to 100% (unless stated).
	Amount used	No limit.
	Frequency and duration of use	Covers daily exposures up to 8 hours (unless stated). [G2].
	Other operational conditions affecting worker exposure	Assumes use at not > 20oC above ambient [G15].
		Assumes a good basic standard of occupational hygiene has been implemented [G1]
Contributing Scenarios	**Specific Risk Management Measures and Operational Conditions** ***(only required controls to demonstrate safe use listed)***	
	Bulk transfers [CS14] PROC8b	Handle substance within a closed system [E47]Clear transfer lines prior to de-coupling [E39]

	Drum/batch transfers [CS8] PROC8b	No other specific measures identified. [EI20]
	Refueling [CS507] PROC8b	No other specific measures identified. [EI20]
	General exposures (closed systems) [CS15] PROC1, 2	Handle substance within a closed system [E47]
	General exposures (closed systems) [CS15] (closed systems) [CS107] PROC3	No other specific measures identified. [EI20]
	Use as a fuel [GEST12] PROC16	No other specific measures identified. [EI20]
	Equipment cleaning and maintenance [CS39] PROC8a	No other specific measures identified. [EI20]
	Material storage [CS67] PROC1	Store substance within a closed system [E84]
Section 2.2	**Control of environmental exposure**	
	Product characteristics	Substance is complex UVCB. [PrC3]. Predominantly hydrophobic. [PrC4a].
	Amounts used	Fraction of EU tonnage used in region: 0.1
		Regional use tonnage (tonnes/year): 1.0E+2
		Fraction of regional tonnage used locally: 1
		Annual site tonnage (tonnes/year): 5.0E-2
		Maximum daily site tonnage (kg/day): 1.4E-1
	Frequency and duration of use	Continuous release. [FD2].
		Emission days (days/year): 365
	Environmental factors not influenced by risk management	Local freshwater dilution fraction: 10
		Local marine dilution fraction: 100
	Other operational conditions affecting environmental exposure	Release fraction to air from process (initial release prior to RMM: 1.0E-4
		Release fraction to wastewater from process (initial release prior to RMM): 0.00001
		Release fraction to soil from process (initial release prior to RMM): 0.00001
	Technical conditions and measures at process level (source) to prevent release	Common practices vary across sites thus conservative process release estimates used [TCS1].
	Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil	Risk from environmental exposure is driven by Freshwater [TCR1a]. No wastewater treatment required [TCR6].
		Treat air emission to provide a typical removal efficiency of N/A.
		Treat onsite wastewater (prior to receiving water discharge) to provide the required removal efficiency ≥ 0.0 %
		If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of ≥ 0.0 %

	Organizational measures to prevent / limit release from site	Prevent discharge of undissolved substance to or recover from wastewater [OMS1]. Do not apply industrial sludge to natural soils [OMS2]. Sludge should be incinerated, contained or reclaimed [OMS3].
	Conditions and measures related to municipal sewage treatment plant	Not applicable as there is no release to wastewater [STP1]. Estimated substance removal from wastewater via domestic sewage treatment 93.7 %. Total efficiency of removal from wastewater after onsite and offsite (domestic treatment plant) RMMs 93.7 %. Maximum allowable site tonnage (MSafe) based on domestic sewage treatment release 1.4E+2 kg per day. Assumed domestic sewage treatment plant flow 2 000 m^3 per day.
	Conditions and measures related to external treatment of waste for disposal	Combustion emissions limited by required exhaust emission controls [ETW1]. Combustion emissions considered in regional exposure assessment [ETW2].
	Conditions and measures related to external recovery of waste	This substance is consumed during use and no waste of the substance is generated [ERW3].
SECTION 3	**EXPOSURE ESTIMATION**	
Section 3.1	**Health**	
	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. [G21].	
Section 3.2	**Environment**	
	The Hydrocarbon Block Method has been used to calculate environmental exposure with the Petrorisk model. [EE2].	
SECTION 4	**GUIDANCE TO CHECK COMPLIANCE WITH THE EXPOSURE SCENARIO**	
Section 4.1	**Health**	
	Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented. [G22]. Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels. [G23].	
Section 4.2	**Environment**	
	Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures [DSU1]. Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination [DSU2]. Required removal efficiency for air can be achieved using onsite technologies, either alone or in combination [DSU3]. Further details on scaling and control technologies are provided in SpERC factsheet (http://cefic.org/en/reach-for-industries-libraries.html) [DSU4].	

SECTION 1	**EXPOSURE SCENARIO TITLE**	
Title	**22. Use as a Fuel – Consumer**	
Use Descriptor	Sector(s) of Use	**SU 21**: Consumer uses
	Products Categories	**PC13**: Fuels

	Environmental Release Categories	**ERC 9a:** Wide dispersive indoor use of substances in closed systems **ERC 9b:** Wide dispersive outdoor use of substances in closed systems
	Specific Environmental Release Category	9.12c.v1
Processes, Tasks and Activities Covered	Covers consumer uses in liquid fuels.	
SECTION 2	**OPERATIONAL CONDITIONS AND RISK MANAGEMENT MEASURES**	
Section 2.1	**Control of consumer exposure**	
Product characteristics	Physical form of product	Liquid, vapour pressure > 10 Pa STP [OC15]
	Vapour Pressure (Pa)	231
	Concentration of substance in product	Unless otherwise stated, cover concentrations up to 100 %. [ConsOC1].
	Amounts used	Unless otherwise stated, covers use amounts up to37500g [ConsOC2];covers skin contact area up to 420cm2 [ConsOC5]
	Frequency and duration of use/exposure	Unless otherwise stated, covers use frequency up to 365 days per year [ConsOC3];Unless otherwise stated, covers use frequency up to 1 times per day [ConsOC4];covers exposure up to 2 hours per event [ConsOC14]
	Other operational conditions affecting exposure	Unless otherwise stated assumes use at ambient temperatures [ConsOC15]; assumes use in a 20 m3 room [ConsOC11]; assumes use with typical ventilation [ConsOC8].
Product Category	**Specific Risk Management Measures and Operating Conditions** ***(only required controls to demonstrate safe use listed)***	
PC13: Fuels - liquid – subcategories added: Automotive Refuelling	Unless otherwise stated, covers concentrations up to 100% [ConsOC1]; covers use up to 52 days/year [ConsOC3]; covers use up to 1 time/on day of use[ConsOC4]; covers skin contact area up to 210.00 cm2 [ConsOC5]; for each use event, covers use amounts up to 37500g [ConsOC2]; covers outdoor use [ConsOC12]; covers use in room size of 100m3 [ConsOC11]; for each use event, covers exposure up to 0.05hr/event [ConsOC14]; No specific RMMs identified beyond those OCs stated.	
PC13: Fuels - liquid - subcategories added: Scooter Refuelling	Unless otherwise stated, covers concentrations up to 100% [ConsOC1]; covers use up to 52 days/year [ConsOC3]; covers use up to 1 time/on day of use [ConsOC4]; covers skin contact area up to 210.00 cm2 [ConsOC5]; for each use event, covers use amounts up to 3750g [ConsOC2]; covers outdoor use [ConsOC12]; covers use in room size of 100m3 [ConsOC11]; for each use event, covers exposure up to 0.03hr/event [ConsOC14]; No specific RMMs identified beyond those OCs stated.	
PC13: Fuels - liquid - subcategories added: Garden Equipment - Use	Unless otherwise stated, covers concentrations up to 100% [ConsOC1]; covers use up to 26 days/year [ConsOC3]; covers use up to 1 time/on day of use [ConsOC4]; for each use event, covers use amounts up to 750g [ConsOC2]; covers outdoor use [ConsOC12]; covers use in room size of 100m3 [ConsOC11]; for each use event, covers exposure up to 2.00hr/event [ConsOC14]; No specific RMMs identified beyond those OCs stated.	
PC13: Fuels - liquid - subcategories added: Garden Equipment - Refueling	Unless otherwise stated, covers concentrations up to 100% [ConsOC1]; covers use up to 26 days/year [ConsOC3]; covers use up to 1 time/on day of use [ConsOC4]; covers skin contact area up to 420.00 cm2 [ConsOC5]; for each use event, covers use amounts up to 750g [ConsOC2]; Covers use in a one car garage (34m3) under typical ventilation [ConsOC10]; covers use in room size of 34m3 [ConsOC11]; for each use event, covers exposure up to 0.03hr/event [ConsOC14]; No specific RMMs identified beyond those OCs stated.	

PC13: Fuels - liquid - subcategories added: Home space heater fuel	Unless otherwise stated, covers concentrations up to 100% [ConsOC1]; covers use up to 365 days/year [ConsOC3]; covers use up to 1 time/on day of use [ConsOC4]; covers skin contact area up to 210.00 cm2 [ConsOC5]; for each use event, covers use amounts up to 3000g [ConsOC2]; covers use under typical household ventilation [ConsOC8]; covers use in room size of 20m3 [ConsOC11]; for each use event, covers exposure up to 0.03hr/event[ConsOC14]; No specific RMMs identified beyond those OCs stated.	
PC13: Fuels--Liquid - subcategories added: Lamp oil	Unless otherwise stated, covers concentrations up to 100% [ConsOC1]; covers use up to 52 days/year [ConsOC3]; covers use up to 1 time/on day of use [ConsOC4]; covers skin contact area up to 210.00 cm2 [ConsOC5]; for each use event, covers use amounts up to 100g [ConsOC2]; covers use under typical household ventilation [ConsOC8]; covers use in room size of 20m3 [ConsOC11]; for each use event, covers exposure up to 0.01hr/event [ConsOC14]; No specific RMMs identified beyond those OCs stated.	
Section 2.2	**Control of environmental exposure**	
	Product characteristics	Substance is complex UVCB. [PrC3]. Predominantly hydrophobic. [PrC4a].
	Amounts used	Fraction of EU tonnage used in region: 0.1
		Regional use tonnage (tonnes/year): 2.9E+1
		Fraction of regional tonnage used locally: 0.0005
		Annual site tonnage (tonnes/year): 1.5E-2
		Maximum daily site tonnage (kg/day): 4.0E-2
	Frequency and duration of use	Continuous release. [FD2].
		Emission days (days/year): 365
	Environmental factors not influenced by risk management	Local freshwater dilution fraction: 10
		Local marine dilution fraction: 100
	Other given operational conditions affecting environmental exposure	Release fraction to air from process (initial release prior to RMM: 1.0E-4
		Release fraction to wastewater from process (initial release prior to RMM): 0.00001
		Release fraction to soil from process (initial release prior to RMM): 0.00001
	Conditions and measures related to municipal sewage treatment plant	Not applicable as there is no release to wastewater [STP1].
		Estimated substance removal from wastewater via domestic sewage treatment 93.7 %.
		Maximum allowable site tonnage (MSafe) based on domestic sewage treatment release (kg/d) 3.9E+1.
		Assumed domestic sewage treatment plant flow (m^3/day): 2000
	Conditions and measures related to external treatment of waste for disposal	Combustion emissions limited by required exhaust emission controls [ETW1]. Combustion emissions considered in regional exposure assessment [ETW2].
	Conditions and measures related to external recovery of waste	This substance is consumed during use and no waste of the substance is generated [ERW3].
SECTION 3	**EXPOSURE ESTIMATION**	
Section 3.1	**Health**	
	The ECETOC TRA tool has been used to estimate consumer exposures unless otherwise indicated. G30.	

Section 3.2	**Environment**
	The Hydrocarbon Block Method has been used to calculate environmental exposure with the Petrorisk model. [EE2].
SECTION 4	**GUIDANCE TO CHECK COMPLIANCE WITH THE EXPOSURE SCENARIO**
Section 4.1	**Health**
	Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented. G22. Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels. G23.
Section 4.2	**Environment**
	Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures [DSU1]. Further details on scaling and control technologies are provided in SpERC factsheet (http://cefic.org/en/reach-for-industries-libraries.html) [DSU4].

SECTION 1	**EXPOSURE SCENARIO TITLE**	
Title	**23. Use as Functional Fluids – Industrial**	
Use Descriptor	Sector(s) of Use	**SU 3**: Industrial uses
	Process Categories	**PROC 1**: Use in closed process, no likelihood of exposure. **PROC 2**: Use in closed, continuous process with occasional controlled exposure. **PROC 3**: Use in closed batch process (synthesis or formulation) **PROC 4**: Use in batch and other process (synthesis) where opportunity for exposure arises **PROC 8a**: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities. **PROC 8b**: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities. **PROC 9**: Transfer of substance or preparation into small containers (dedicated filling line, including weighing)
	Environmental Release Categories	**ERC 7**: Industrial use of sub-stances in closed systems
	Specific Environmental Release Category	ESVOC 7.13a.v1
Processes, Tasks and Activities Covered	Use as functional fluids e.g. cable oils, transfer oils, coolants, insulators, refrigerants, hydraulic fluids in industrial equipment including maintenance and related material transfers.	
SECTION 2	**OPERATIONAL CONDITIONS AND RISK MANAGEMENT MEASURES**	
Section 2.1	**Control of worker exposure**	
Product characteristics	Physical form of product	Liquid, vapour pressure < 0.5 kPa at STP [OC3].
	Concentration of substance in product	Up to 100% (unless stated).
	Amount used	No limit.

	Frequency and duration of use	Covers daily exposures up to 8 hours (unless stated). [G2].
	Other operational conditions affecting worker exposure	Assumes use at not > 20oC above ambient [G15]. Assumes a good basic standard of occupational hygiene has been implemented [G1]
Contributing Scenarios	**Specific Risk Management Measures and Operational Conditions** ***(only required controls to demonstrate safe use listed)***	
	Bulk transfers [CS14] (closed systems) [CS107] PROC1, 2	No other specific measures identified. [EI20]
	Drum/batch transfers [CS8] PROC8b	No other specific measures identified. [EI20]
	Filling of articles/ equipment [CS84] (closed systems) [CS107] PROC9	No other specific measures identified. [EI20]
	Filling / preparation of equipment from drums or containers. [CS45] PROC8a	No other specific measures identified. [EI20]
	General exposures (closed systems) [CS15] PROC2, 3	No other specific measures identified. [EI20]
	General exposures (open systems) [CS16] PROC4	No other specific measures identified. [EI20]
	Remanufacture of reject articles [CS19] PROC9	No other specific measures identified. [EI20]
	Equipment maintenance [CS5] PROC8a	No other specific measures identified. [EI20]
	Material storage [CS67] PROC1, 2	No other specific measures identified. [EI20]
Section 2.2	**Control of environmental exposure**	
	Product characteristics	Substance is complex UVCB. [PrC3]. Predominantly hydrophobic. [PrC4a].
	Amounts used	Fraction of EU tonnage used in region: 0.1 Regional use tonnage (tonnes/year): 1.0E+2 Fraction of regional tonnage used locally: 1 Annual site tonnage (tonnes/year): 1.0E+1 Maximum daily site tonnage (kg/day): 5.0E+2
	Frequency and duration of use	Continuous release. [FD2]. Emission days (days/year): 20
	Environmental factors not influenced by risk management	Local freshwater dilution fraction: 10 Local marine dilution fraction: 100
	Other operational conditions affecting environmental exposure	Release fraction to air from process (initial release prior to RMM: 5.0E-3 Release fraction to wastewater from process (initial release prior to RMM): 3.0E-6

		Release fraction to soil from process (initial release prior to RMM): 0.001
	Technical conditions and measures at process level (source) to prevent release	Common practices vary across sites thus conservative process release estimates used [TCS1].
	Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil	Risk from environmental exposure is driven by Freshwater [TCR1a]. No wastewater treatment required [TCR6]. Treat air emission to provide a typical removal efficiency of 0 %. Treat onsite wastewater (prior to receiving water discharge) to provide the required removal efficiency ≥ 0.0 % If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of ≥ 0.0 %
	Organizational measures to prevent / limit release from site	Prevent discharge of undissolved substance to or recover from wastewater [OMS1]. Do not apply industrial sludge to natural soils [OMS2]. Sludge should be incinerated, contained or reclaimed [OMS3].
	Conditions and measures related to municipal sewage treatment plant	Not applicable as there is no release to wastewater [STP1]. Estimated substance removal from wastewater via domestic sewage treatment 93.7 %. Total efficiency of removal from wastewater after onsite and offsite (domestic treatment plant) RMMs 93.7 %. Maximum allowable site tonnage (MSafe) based on domestic sewage treatment release 4.6E+5 kg per day. Assumed domestic sewage treatment plant flow 2 000 m^3 per day.
	Conditions and measures related to external treatment of waste for disposal	External treatment and disposal of waste should comply with applicable local and/or national regulations [ETW3].
	Conditions and measures related to external recovery of waste	External recovery and recycling of waste should comply with applicable local and/or national regulations [ERW1].
SECTION 3	**EXPOSURE ESTIMATION**	
Section 3.1	**Health**	
	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. [G21].	
Section 3.2	**Environment**	
	The Hydrocarbon Block Method has been used to calculate environmental exposure with the Petrorisk model. [EE2].	
SECTION 4	**GUIDANCE TO CHECK COMPLIANCE WITH THE EXPOSURE SCENARIO**	
Section 4.1	**Health**	
	Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented. [G22]. Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels. [G23].	

Section 4.2	**Environment**
	Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures [DSU1]. Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination [DSU2]. Required removal efficiency for air can be achieved using onsite technologies, either alone or in combination [DSU3]. Further details on scaling and control technologies are provided in SpERC factsheet (http://cefic.org/en/reach-for-industries-libraries.html) [DSU4].

SECTION 1	**EXPOSURE SCENARIO TITLE**	
Title	**24. Use as Functional Fluids – Professional**	
Use Descriptor	Sector(s) of Use	**SU 22**: Professional uses:
	Process Categories	**PROC 1**: Use in closed process, no likelihood of exposure.
		PROC 2: Use in closed, continuous process with occasional controlled exposure.
		PROC 3: Use in closed batch process (synthesis or formulation)
		PROC 8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities.
		PROC 9: Transfer of substance or preparation into small containers (dedicated filling line, including weighing)
		PROC 20: Heat and pressure transfer fluids in dispersive, professional use but closed systems
	Environmental Release Categories	**ERC 9a**: Wide dispersive indoor use of substances in closed systems
		ERC 9b: Wide dispersive outdoor use of substances in closed systems
	Specific Environmental Release Category	ESVOC 9.13b.v1
Processes, Tasks and Activities Covered	Use as functional fluids e.g. cable oils, transfer oils, insulators, refrigerants, hydraulic fluids in professional equipment including maintenance and related material transfers.	
SECTION 2	**OPERATIONAL CONDITIONS AND RISK MANAGEMENT MEASURES**	
Section 2.1	**Control of worker exposure**	
Product characteristics	Physical form of product	Liquid, vapour pressure < 0.5 kPa at STP [OC3].
	Concentration of substance in product	Up to 100% (unless stated).
	Amount used	No limit.
	Frequency and duration of use	Covers daily exposures up to 8 hours (unless stated). [G2].
	Other operational conditions affecting worker exposure	Assumes use at not > 20oC above ambient [G15].
		Assumes a good basic standard of occupational hygiene has been implemented [G1]
Contributing Scenarios	**Specific Risk Management Measures and Operational Conditions** ***(only required controls to demonstrate safe use listed)***	
	Drum/batch transfers [CS8] PROC8a	No other specific measures identified. [EI20]

	Transfer from/pouring from containers [CS22] PROC9	No other specific measures identified. [EI20]
	Filling / preparation of equipment from drums or containers. [CS45] PROC9	No other specific measures identified. [EI20]
	General exposures (closed systems) [CS15] PROC1, 2, 3	No other specific measures identified. [EI20]
	Operation of equipment containing engine oils and similar [CS26] PROC20	No other specific measures identified. [EI20]
	Operation of equipment containing engine oils and similar [CS26]Operation is carried out at elevated temp. (> then 20°C above ambient temperature) [OC7] PROC20	No other specific measures identified. [EI20]
	Remanufacture of reject articles [CS19] PROC9	No other specific measures identified. [EI20]
	Equipment maintenance [CS5] PROC8a	No other specific measures identified. [EI20]
	Material storage [CS67] PROC1, 2	Store substance within a closed system [E84]
Section 2.2	**Control of environmental exposure**	
	Product characteristics	Substance is complex UVCB. [PrC3]. Predominantly hydrophobic. [PrC4a].
	Amounts used	Fraction of EU tonnage used in region: 0.1
		Regional use tonnage (tonnes/year): 1.0E+2
		Fraction of regional tonnage used locally: 1
		Annual site tonnage (tonnes/year): 5.0E-2
		Maximum daily site tonnage (kg/day): 1.4E-1
	Frequency and duration of use	Continuous release. [FD2].
		Emission days (days/year): 365
	Environmental factors not influenced by risk management	Local freshwater dilution fraction: 10
		Local marine dilution fraction: 100
	Other operational conditions affecting environmental exposure	Release fraction to air from process (initial release prior to RMM): 0.05
		Release fraction to wastewater from process (initial release prior to RMM): 0.025
		Release fraction to soil from process (initial release prior to RMM): 0.025
	Technical conditions and measures at process level (source) to prevent release	Common practices vary across sites thus conservative process release estimates used [TCS1].

	Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil	Risk from environmental exposure is driven by Freshwater [TCR1a]. No wastewater treatment required [TCR6]. Treat air emission to provide a typical removal efficiency of N/A. Treat onsite wastewater (prior to receiving water discharge) to provide the required removal efficiency ≥ 0.0 % If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of ≥ 0.0 %
	Organizational measures to prevent / limit release from site	Prevent discharge of undissolved substance to or recover from wastewater [OMS1]. Do not apply industrial sludge to natural soils [OMS2]. Sludge should be incinerated, contained or reclaimed [OMS3].
	Conditions and measures related to municipal sewage treatment plant	Not applicable as there is no release to wastewater [STP1]. Estimated substance removal from wastewater via domestic sewage treatment 93.7 %. Total efficiency of removal from wastewater after onsite and offsite (domestic treatment plant) RMMs 93.7 %. Maximum allowable site tonnage (MSafe) based on domestic sewage treatment release 1.2E+2 kg per day. Assumed domestic sewage treatment plant flow 2 000 m^3 per day.
	Conditions and measures related to external treatment of waste for disposal	External treatment and disposal of waste should comply with applicable local and/or national regulations [ETW3].
	Conditions and measures related to external recovery of waste	External recovery and recycling of waste should comply with applicable local and/or national regulations [ERW1].
SECTION 3	**EXPOSURE ESTIMATION**	
Section 3.1	**Health**	
	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. [G21].	
Section 3.2	**Environment**	
	The Hydrocarbon Block Method has been used to calculate environmental exposure with the Petrorisk model. [EE2].	
SECTION 4	**GUIDANCE TO CHECK COMPLIANCE WITH THE EXPOSURE SCENARIO**	
Section 4.1	**Health**	
	Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented. [G22]. Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels. [G23].	
Section 4.2	**Environment**	
	Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures [DSU1]. Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination [DSU2]. Required removal efficiency for air can be achieved using onsite technologies, either alone or in combination [DSU3]. Further details on scaling and control technologies are provided in SpERC factsheet (http://cefic.org/en/reach-for-industries-libraries.html) [DSU4].	

SECTION 1	**EXPOSURE SCENARIO TITLE**	
Title	**25. Use as Functional Fluids – Consumer**	
Use Descriptor	Sector(s) of Use	**SU 21**: Consumer uses
	Products Categories	**PC16**: Heat transfer fluids
		PC 17: Hydraulic fluids
	Environmental Release Categories	**ERC 9a:** Wide dispersive indoor use of substances in closed systems
		ERC 9b: Wide dispersive outdoor use of substances in closed systems
	Specific Environmental Release Category	9.13c.v1
Processes, Tasks and Activities Covered	Use of sealed items containing functional fluids e.g. transfer oils, hydraulic fluids, refrigerants.	
SECTION 2	**OPERATIONAL CONDITIONS AND RISK MANAGEMENT MEASURES**	
Section 2.1	**Control of consumer exposure**	
Product characteristics	Physical form of product	Liquid, vapour pressure > 10 Pa STP [OC15]
	Vapour Pressure (Pa)	231
	Concentration of substance in product	Unless otherwise stated, cover concentrations up to 100 %. [ConsOC1].
	Amounts used	Unless otherwise stated, covers use amounts up to2200g [ConsOC2];covers skin contact area up to 468cm2 [ConsOC5]
	Frequency and duration of use/exposure	Unless otherwise stated, covers use frequency up to 4 days per year [ConsOC3];Unless otherwise stated, covers use frequency up to 1 times per day [ConsOC4];covers exposure up to 0.17 hours per event [ConsOC14]
	Other operational conditions affecting exposure	Unless otherwise stated assumes use at ambient temperatures [ConsOC15]; assumes use in a 20 m3 room [ConsOC11]; assumes use with typical ventilation [ConsOC8].
Product Category	**Specific Risk Management Measures and Operating Conditions** ***(only required controls to demonstrate safe use listed)***	
PC16_n: Heat transfer fluids--Liquids	Unless otherwise stated, covers concentrations up to 100% [ConsOC1]; covers use up to 4 days/year[ConsOC3]; covers use up to 1 time/on day of use[ConsOC4]; covers skin contact area up to 468.00 cm2 [ConsOC5]; for each use event, covers use amounts up to 2200g [ConsOC2]; Covers use in a one car garage (34m3) under typcial ventilation [ConsOC10]; covers use in room size of 34m3[ConsOC11]; for each use event, covers exposure up to 0.17hr/event[ConsOC14]; No specific RMMs identified beyond those OCs stated.	
PC17_n: Hydraulic fluids--Liquids	Unless otherwise stated, covers concentrations up to 100% [ConsOC1]; covers use up to 4 days/year[ConsOC3]; covers use up to 1 time/on day of use[ConsOC4]; covers skin contact area up to 468.00 cm2 [ConsOC5]; for each use event, covers use amounts up to 2200g [ConsOC2]; Covers use in a one car garage (34m3) under typcial ventilation [ConsOC10]; covers use in room size of 34m3[ConsOC11]; for each use event, covers exposure up to 0.17hr/event[ConsOC14]; No specific RMMs identified beyond those OCs stated.	
Section 2.2	**Control of environmental exposure**	
	Product characteristics	Substance is complex UVCB. [PrC3]. Predominantly hydrophobic. [PrC4a].

	Amounts used	Fraction of EU tonnage used in region: 0.1
		Regional use tonnage (tonnes/year): 2.0E+1
		Fraction of regional tonnage used locally: 0.0005
		Annual site tonnage (tonnes/year): 1.0E-2
		Maximum daily site tonnage (kg/day): 2.7E-2
	Frequency and duration of use	Continuous release. [FD2].
		Emission days (days/year): 365
	Environmental factors not influenced by risk management	Local freshwater dilution fraction: 10
		Local marine dilution fraction: 100
	Other given operational conditions affecting environmental exposure	Release fraction to air from process (initial release prior to RMM): 0.05
		Release fraction to wastewater from process (initial release prior to RMM): 0.25
		Release fraction to soil from process (initial release prior to RMM): 0.025
	Conditions and measures related to municipal sewage treatment plant	Not applicable as there is no release to wastewater [STP1].
		Estimated substance removal from wastewater via domestic sewage treatment 93.7 %.
		Maximum allowable site tonnage (MSafe) based on domestic sewage treatment release (kg/d) 2.6E+1.
		Assumed domestic sewage treatment plant flow (m^3/day): 2000
	Conditions and measures related to external treatment of waste for disposal	External treatment and disposal of waste should comply with applicable local and/or national regulations [ETW3].
	Conditions and measures related to external recovery of waste	External recovery and recycling of waste should comply with applicable local and/or national regulations [ERW1].
SECTION 3	**EXPOSURE ESTIMATION**	
Section 3.1	**Health**	
	The ECETOC TRA has been used to estimate consumer exposures unless otherwise indicated. G30.	
Section 3.2	**Environment**	
	The Hydrocarbon Block Method has been used to calculate environmental exposure with the Petrorisk model. [EE2].	
SECTION 4	**GUIDANCE TO CHECK COMPLIANCE WITH THE EXPOSURE SCENARIO**	
Section 4.1	**Health**	
	Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented. G22. Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels. G23.	
Section 4.2	**Environment**	
	Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures [DSU1]. Further details on scaling and control technologies are provided in SpERC factsheet (http://cefic.org/en/reach-for-industries-libraries.html) [DSU4].	

SECTION 1	**EXPOSURE SCENARIO TITLE**	
Title	**26. Use in Road and Construction Applications – Professional**	
Use Descriptor	Sector(s) of Use	**SU 22**: Professional uses
	Process Categories	**PROC 8a**: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities.
		PROC 8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities.
		PROC 9: Transfer of substance or preparation into small containers (dedicated filling line, including weighing)
		PROC 10: Roller application or brushing
		PROC 11: Non industrial spraying
		PROC 13: Treatment of articles by dipping and pouring
	Environmental Release Categories	**ERC 8d**: Wide dispersive outdoor use of processing aids in open systems
		ERC 8f: Wide dispersive outdoor use resulting in inclusion into or onto a matrix
	Specific Environmental Release Category	ESVOC 8.15.v1
Processes, Tasks and Activities Covered	Application of surface coatings and binders in road and construction activities, including paving uses, manual mastic and in the application of roofing and water-proofing membranes.	
SECTION 2	**OPERATIONAL CONDITIONS AND RISK MANAGEMENT MEASURES**	
Section 2.1	**Control of worker exposure**	
Product characteristics	Physical form of product	Liquid, vapour pressure < 0.5 kPa at STP [OC3].
	Concentration of substance in product	Up to 100% (unless stated).
	Amount used	No limit.
	Frequency and duration of use	Covers daily exposures up to 8 hours (unless stated). [G2].
	Other operational conditions affecting worker exposure	Assumes use at not > 20oC above ambient [G15].
		Assumes a good basic standard of occupational hygiene has been implemented [G1]
Contributing Scenarios	**Specific Risk Management Measures and Operational Conditions** ***(only required controls to demonstrate safe use listed)***	
	Drum/batch transfers [CS8] Non-dedicated facility [CS82] PROC8a	No other specific measures identified. [EI20]
	Drum/batch transfers [CS8]Dedicated facility [CS81] PROC8b	Use dedicated equipment [E85]Clear transfer lines prior to de-coupling [E39]

	Drum/batch transfers [CS8] Dedicated facility [CS81] Operation is carried out at elevated temp. (> then 20°C above ambient temp.) [OC7] PROC8b	Use dedicated equipment [E85]Clear transfer lines prior to de-coupling [E39]
	Manual applications e.g. brushing, rolling [CS13] PROC10	No other specific measures identified. [EI20]
	Spraying/fogging by machine application [CS25] Operation is carried out at elevated temp.(> then 20°C above ambient temp.) [OC7] PROC11	Ensure operation is undertaken outdoors [E69] Wear a respirator conforming to EN140 with Type A filter or better. [PPE22]
	Spraying/fogging by machine application [CS25] PROC11	Provide a good standard of controlled ventilation (10 to 15 air changes per hour). [E40]
	Dipping, immersion and pouring [CS4] PROC13	No other specific measures identified. [EI20]
	Equipment cleaning and maintenance [CS39] PROC8a	Retain drain downs in sealed storage pending disposal or for subsequent recycle [ENVT4]
	Drum and small package filling [CS6] PROC9	No other specific measures identified. [EI20]
Section 2.2	**Control of environmental exposure**	
	Product characteristics	Substance is complex UVCB. [PrC3]. Predominantly hydrophobic. [PrC4a].
	Amounts used	Fraction of EU tonnage used in region: 0.1
		Regional use tonnage (tonnes/year): 1.9E+2
		Fraction of regional tonnage used locally: 1
		Annual site tonnage (tonnes/year): 9.3E-2
		Maximum daily site tonnage (kg/day): 2.5E-1
	Frequency and duration of use	Continuous release. [FD2].
		Emission days (days/year): 365
	Environmental factors not influenced by risk management	Local freshwater dilution fraction: 10
		Local marine dilution fraction: 100
	Other operational conditions affecting environmental exposure	Release fraction to air from process (initial release prior to RMM): 0.95
		Release fraction to wastewater from process (initial release prior to RMM): 0.01
		Release fraction to soil from process (initial release prior to RMM): 0.04
	Technical conditions and measures at process level (source) to prevent release	Common practices vary across sites thus conservative process release estimates used [TCS1].

	Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil	Risk from environmental exposure is driven by Freshwater [TCR1a]. No wastewater treatment required [TCR6]. Treat air emission to provide a typical removal efficiency of N/A. Treat onsite wastewater (prior to receiving water discharge) to provide the required removal efficiency ≥ 0.0 % If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of ≥ 0.0 %
	Organizational measures to prevent / limit release from site	Prevent discharge of undissolved substance to or recover from wastewater [OMS1]. Do not apply industrial sludge to natural soils [OMS2]. Sludge should be incinerated, contained or reclaimed [OMS3].
	Conditions and measures related to municipal sewage treatment plant	Not applicable as there is no release to wastewater [STP1]. Estimated substance removal from wastewater via domestic sewage treatment 93.7 %. Total efficiency of removal from wastewater after onsite and offsite (domestic treatment plant) RMMs 93.7 %. Maximum allowable site tonnage (MSafe) based on domestic sewage treatment release 2.3E+2 kg per day. Assumed domestic sewage treatment plant flow 2 000 m^3 per day.
	Conditions and measures related to external treatment of waste for disposal	External treatment and disposal of waste should comply with applicable local and/or national regulations [ETW3].
	Conditions and measures related to external recovery of waste	External recovery and recycling of waste should comply with applicable local and/or national regulations [ERW1].
SECTION 3	**EXPOSURE ESTIMATION**	
Section 3.1	**Health**	
	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. [G21].	
Section 3.2	**Environment**	
	The Hydrocarbon Block Method has been used to calculate environmental exposure with the Petrorisk model. [EE2].	
SECTION 4	**GUIDANCE TO CHECK COMPLIANCE WITH THE EXPOSURE SCENARIO**	
Section 4.1	**Health**	
	Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented. [G22]. Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels. [G23].	
Section 4.2	**Environment**	
	Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures [DSU1]. Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination [DSU2]. Required removal efficiency for air can be achieved using onsite technologies, either alone or in combination [DSU3]. Further details on scaling and control technologies are provided in SpERC factsheet (http://cefic.org/en/reach-for-industries-libraries.html) [DSU4].	

SECTION 1	**EXPOSURE SCENARIO TITLE**	
Title	**27. Use in Laboratories – Industrial**	
Use Descriptor	Sector(s) of Use	**SU 3**: Industrial uses
	Process Categories	**PROC 10**: Roller application or brushing
		PROC 15: Use as laboratory reagent
	Environmental Release Categories	**ERC 2**: Formulation of preparations
		ERC 4: Industrial use of processing aids in processes and products, not becoming part of articles
	Environmental Release Category	Not Applicable
Processes, Tasks and Activities Covered	Use of the substance within laboratory settings, including material transfers and equipment cleaning.	
SECTION 2	**OPERATIONAL CONDITIONS AND RISK MANAGEMENT MEASURES**	
Section 2.1	**Control of worker exposure**	
Product characteristics	Physical form of product	Liquid, vapour pressure < 0.5 kPa at STP [OC3].
	Concentration of substance in product	Up to 100% (unless stated).
	Amount used	No limit.
	Frequency and duration of use	Covers daily exposures up to 8 hours (unless stated). [G2].
	Other operational conditions affecting worker exposure	Assumes use at not > 20oC above ambient [G15].
		Assumes a good basic standard of occupational hygiene has been implemented [G1]
Contributing Scenarios	**Specific Risk Management Measures and Operational Conditions** ***(only required controls to demonstrate safe use listed)***	
	Laboratory activities [CS36] PROC15	No other specific measures identified. [EI20]
	Cleaning [CS47] PROC10	No other specific measures identified. [EI20]
Section 2.2	**Control of environmental exposure**	
	Product characteristics	Substance is complex UVCB. [PrC3]. Predominantly hydrophobic. [PrC4a].
	Amounts used	Fraction of EU tonnage used in region: 0.1
		Regional use tonnage (tonnes/year): 1.0E-2
		Fraction of regional tonnage used locally: 1
		Annual site tonnage (tonnes/year): 1.0E-2
		Maximum daily site tonnage (kg/day): 5.0E-1
	Frequency and duration of use	Continuous release. [FD2].
		Emission days (days/year): 20
	Environmental factors not influenced by risk management	Local freshwater dilution fraction: 10
		Local marine dilution fraction: 100

	Other operational conditions affecting environmental exposure	Release fraction to air from process (initial release prior to RMM): 0.025 Release fraction to wastewater from process (initial release prior to RMM): 0.02 Release fraction to soil from process (initial release prior to RMM): 0.0001
	Technical conditions and measures at process level (source) to prevent release	Common practices vary across sites thus conservative process release estimates used [TCS1].
	Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil	Risk from environmental exposure is driven by Freshwater [TCR1a]. No wastewater treatment required [TCR6]. Treat air emission to provide a typical removal efficiency of 0 %. Treat onsite wastewater (prior to receiving water discharge) to provide the required removal efficiency ≥ 0.0 % If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of ≥ 0.0 %
	Organizational measures to prevent / limit release from site	Prevent discharge of undissolved substance to or recover from wastewater [OMS1]. Do not apply industrial sludge to natural soils [OMS2]. Sludge should be incinerated, contained or reclaimed [OMS3].
	Conditions and measures related to municipal sewage treatment plant	Not applicable as there is no release to wastewater [STP1]. Estimated substance removal from wastewater via domestic sewage treatment 93.7 %. Total efficiency of removal from wastewater after onsite and offsite (domestic treatment plant) RMMs 93.7 %. Maximum allowable site tonnage (MSafe) based on domestic sewage treatment release 3.4E+2 kg per day. Assumed domestic sewage treatment plant flow 2 000 m^3 per day.
	Conditions and measures related to external treatment of waste for disposal	External treatment and disposal of waste should comply with applicable local and/or national regulations [ETW3].
	Conditions and measures related to external recovery of waste	External recovery and recycling of waste should comply with applicable local and/or national regulations [ERW1].
SECTION 3	**EXPOSURE ESTIMATION**	
Section 3.1	**Health**	
	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. [G21].	
Section 3.2	**Environment**	
	The Hydrocarbon Block Method has been used to calculate environmental exposure with the Petrorisk model. [EE2].	
SECTION 4	**GUIDANCE TO CHECK COMPLIANCE WITH THE EXPOSURE SCENARIO**	
Section 4.1	**Health**	
	Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented. [G22].	

	Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels. [G23].
Section 4.2	**Environment**
	Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures [DSU1]. Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination [DSU2]. Required removal efficiency for air can be achieved using onsite technologies, either alone or in combination [DSU3].

SECTION 1	**EXPOSURE SCENARIO TITLE**	
Title	**28. Use in Laboratories – Professional**	
Use Descriptor	Sector(s) of Use	**SU 22**: Professional uses
	Process Categories	**PROC 10**: Roller application or brushing
		PROC 15: Use as laboratory reagent
	Environmental Release Categories	**ERC 8a**: Wide dispersive indoor use of processing aids in open systems
	Specific Environmental Release Category	ESVOC 8.17.v1
Processes, Tasks and Activities Covered	Use of small quantities within laboratory settings, including material transfers and equipment cleaning.	
SECTION 2	**OPERATIONAL CONDITIONS AND RISK MANAGEMENT MEASURES**	
Section 2.1	**Control of worker exposure**	
Product characteristics	Physical form of product	Liquid, vapour pressure < 0.5 kPa at STP [OC3].
	Concentration of substance in product	Up to 100% (unless stated).
	Amount used	No limit.
	Frequency and duration of use	Covers daily exposures up to 8 hours (unless stated). [G2].
	Other operational conditions affecting worker exposure	Assumes use at not > 20oC above ambient [G15].
		Assumes a good basic standard of occupational hygiene has been implemented [G1]
Contributing Scenarios	**Specific Risk Management Measures and Operational Conditions** ***(only required controls to demonstrate safe use listed)***	
	Laboratory activities [CS36] PROC15	No other specific measures identified. [EI20]
	Cleaning [CS47] PROC10	No other specific measures identified. [EI20]
Section 2.2	**Control of environmental exposure**	
	Product characteristics	Substance is complex UVCB. [PrC3]. Predominantly hydrophobic. [PrC4a].
	Amounts used	Fraction of EU tonnage used in region: 0.1
		Regional use tonnage (tonnes/year): 1.0E-2
		Fraction of regional tonnage used locally: 1

		Annual site tonnage (tonnes/year): 5.0E-6
		Maximum daily site tonnage (kg/day): 1.4E-5
	Frequency and duration of use	Continuous release. [FD2].
		Emission days (days/year): 365
	Environmental factors not influenced by risk management	Local freshwater dilution fraction: 10
		Local marine dilution fraction: 100
	Other operational conditions affecting environmental exposure	Release fraction to air from process (initial release prior to RMM): 0.5
		Release fraction to wastewater from process (initial release prior to RMM): 0.5
		Release fraction to soil from process (initial release prior to RMM): 0
	Technical conditions and measures at process level (source) to prevent release	Common practices vary across sites thus conservative process release estimates used [TCS1].
	Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil	Risk from environmental exposure is driven by Freshwater [TCR1a]. No wastewater treatment required [TCR6].
		Treat air emission to provide a typical removal efficiency of 0 %.
		Treat onsite wastewater (prior to receiving water discharge) to provide the required removal efficiency ≥ 0.0 %
		If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of ≥ 0.0 %
	Organizational measures to prevent / limit release from site	Prevent discharge of undissolved substance to or recover from wastewater [OMS1].
		Do not apply industrial sludge to natural soils [OMS2].
		Sludge should be incinerated, contained or reclaimed [OMS3].
	Conditions and measures related to municipal sewage treatment plant	Not applicable as there is no release to wastewater [STP1].
		Estimated substance removal from wastewater via domestic sewage treatment 93.7 %.
		Total efficiency of removal from wastewater after onsite and offsite (domestic treatment plant) RMMs 93.7 %.
		Maximum allowable site tonnage (MSafe) based on domestic sewage treatment release 1.4E-2 kg per day.
		Assumed domestic sewage treatment plant flow 2 000 m^3 per day.
	Conditions and measures related to external treatment of waste for disposal	External treatment and disposal of waste should comply with applicable local and/or national regulations [ETW3].
	Conditions and measures related to external recovery of waste	External recovery and recycling of waste should comply with applicable local and/or national regulations [ERW1].
SECTION 3	**EXPOSURE ESTIMATION**	
Section 3.1	**Health**	
	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. [G21].	

Section 3.2	**Environment**
	The Hydrocarbon Block Method has been used to calculate environmental exposure with the Petrorisk model. [EE2].
SECTION 4	**GUIDANCE TO CHECK COMPLIANCE WITH THE EXPOSURE SCENARIO**
Section 4.1	**Health**
	Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented. [G22]. Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels. [G23].
Section 4.2	**Environment**
	Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures [DSU1]. Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination [DSU2]. Required removal efficiency for air can be achieved using onsite technologies, either alone or in combination [DSU3]. Further details on scaling and control technologies are provided in SpERC factsheet (http://cefic.org/en/reach-for-industries-libraries.html) [DSU4].

SECTION 1	**EXPOSURE SCENARIO TITLE**	
Title	**29. Rubber Production and Processing – Industrial**	
Use Descriptor	Sector(s) of Use	**SU 3**: Industrial uses
		SU 10: Formulation [mixing] of preparations and/or re-packaging (excluding alloys)
	Process Categories	**PROC 1**: Use in closed process, no likelihood of exposure
		PROC 2: Use in closed, continuous process with occasional controlled exposure
		PROC 3: Use in closed batch process (synthesis or formulation)
		PROC 4: Use in batch and other process (synthesis) where opportunity for exposure arises
		PROC 5: Mixing or blending in batch processes for formulation of preparations* and articles (multistage and/or significant contact)
		PROC 6: Calendering operations
		PROC 7: Industrial spraying
		PROC 8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities
		PROC 8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities
		PROC 9: Transfer of substance or preparation into small containers (dedicated filling line, including weighing)
		PROC 13: Treatment of articles by dipping and pouring
		PROC 14: Production of preparations* or articles by tabletting, compression, extrusion, pelletisation
		PROC 15: Use as laboratory reagent
		PROC 21: Low energy manipulation of substances bound in materials and/or articles

	Environmental Release Categories	**ERC 1**: Manufacture of substances **ERC 4**: Industrial use of processing aids in processes and products, not becoming part of articles **ERC 6d**: Industrial use of process regulators for polymerisation processes in production of resins, rubbers, polymers
	Specific Environmental Release Category	ESVOC 4.19.v1
Processes, Tasks and Activities Covered	Manufacture of tyres and general rubber articles, including processing of raw (uncured) rubber, handling and mixing of rubber additives, vulcanising, cooling and finishing.	
SECTION 2	**OPERATIONAL CONDITIONS AND RISK MANAGEMENT MEASURES**	
Section 2.1	**Control of worker exposure**	
Product characteristics	Physical form of product	Liquid, vapour pressure < 0.5 kPa at STP [OC3].
	Concentration of substance in product	Up to 100% (unless stated).
	Amount used	No limit.
	Frequency and duration of use	Covers daily exposures up to 8 hours (unless stated). [G2].
	Other operational conditions affecting worker exposure	Assumes use at not > 20oC above ambient [G15]. Assumes a good basic standard of occupational hygiene has been implemented [G1]
Contributing Scenarios	**Specific Risk Management Measures and Operational Conditions** ***(only required controls to demonstrate safe use listed)***	
	Material transfers [CS3] (closed systems) [CS107] PROC1, 2	No other specific measures identified. [EI20]
	Material transfers [CS3] PROC8b	No other specific measures identified. [EI20]
	Bulk weighing [CS91] PROC1, 2	Handle substance within a closed system [E47]
	Small scale weighing [CS90] PROC9	No other specific measures identified. [EI20]
	Additive premixing [CS92] PROC3, 4, 5	No other specific measures identified. [EI20]
	Material transfers [CS3] PROC8b, 9	No other specific measures identified. [EI20]
	Calendering (including Banburys) [CS64] Operation is carried out at elevated temp. (> then 20°C above ambient temp.) [OC7] PROC6	No other specific measures identified. [EI20]
	Pressing uncured rubber blanks [CS73] PROC14	No other specific measures identified. [EI20]
	Tyre build up [CS112] PROC7	Provide a good standard of controlled ventilation (10 to 15 air changes per hour). [E40]

	Vulcanisation [CS70]Operation is carried out at elevated tempe. (> then 20°C above ambient temp.) [OC7] PROC6	No other specific measures identified. [EI20]
	Vulcanisation [CS70] Operation is carried out at elevated temp. (> then 20°C above ambient temperature) [OC7] Manual [CS34] PROC6	No other specific measures identified. [EI20]
	Cooling cured articles [CS71] Operation is carried out at elevated temp. (> then 20°C above ambient temperature) [OC7] PROC6	No other specific measures identified. [EI20]
	Production of articles by dipping and pouring [CS113] PROC13	No other specific measures identified. [EI20]
	Finishing operations [CS102] PROC21	No other specific measures identified. [EI20]
	Laboratory activities [CS36] PROC15	No other specific measures identified. [EI20]
	Equipment maintenance [CS5] PROC8a	No other specific measures identified. [EI20]
	Material storage [CS67] PROC1, 2	Store substance within a closed system [E84]
Section 2.2	**Control of environmental exposure**	
	Product characteristics	Substance is complex UVCB. [PrC3]. Predominantly hydrophobic. [PrC4a].
	Amounts used	Fraction of EU tonnage used in region: 0.1
		Regional use tonnage (tonnes/year): 3.4E+1
		Fraction of regional tonnage used locally: 1
		Annual site tonnage (tonnes/year): 3.4E+1
		Maximum daily site tonnage (kg/day): 1.7E+3
	Frequency and duration of use	Continuous release. [FD2].
		Emission days (days/year): 20
	Environmental factors not influenced by risk management	Local freshwater dilution fraction: 10
		Local marine dilution fraction: 100
	Other operational conditions affecting environmental exposure	Release fraction to air from process (initial release prior to RMM): 0.01
		Release fraction to wastewater from process (initial release prior to RMM): 3.0E-5
		Release fraction to soil from process (initial release prior to RMM): 0.0001
	Technical conditions and measures at process level (source) to prevent release	Common practices vary across sites thus conservative process release estimates used [TCS1].

	Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil	Risk from environmental exposure is driven by Freshwater Sediment [TCR1b]. No wastewater treatment required [TCR6]. Treat air emission to provide a typical removal efficiency of 0 %. Treat onsite wastewater (prior to receiving water discharge) to provide the required removal efficiency ≥ 0.0 % If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of ≥ 0.0 %
	Organizational measures to prevent / limit release from site	Prevent discharge of undissolved substance to or recover from wastewater [OMS1]. Do not apply industrial sludge to natural soils [OMS2]. Sludge should be incinerated, contained or reclaimed [OMS3].
	Conditions and measures related to municipal sewage treatment plant	Not applicable as there is no release to wastewater [STP1]. Estimated substance removal from wastewater via domestic sewage treatment 93.7 %. Total efficiency of removal from wastewater after onsite and offsite (domestic treatment plant) RMMs 93.7 %. Maximum allowable site tonnage (MSafe) based on domestic sewage treatment release 6.4E+5 kg per day. Assumed domestic sewage treatment plant flow 2 000 m^3 per day.
	Conditions and measures related to external treatment of waste for disposal	External treatment and disposal of waste should comply with applicable local and/or national regulations [ETW3].
	Conditions and measures related to external recovery of waste	External recovery and recycling of waste should comply with applicable local and/or national regulations [ERW1].
SECTION 3	**EXPOSURE ESTIMATION**	
Section 3.1	**Health**	
	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. [G21].	
Section 3.2	**Environment**	
	The Hydrocarbon Block Method has been used to calculate environmental exposure with the Petrorisk model. [EE2].	
SECTION 4	**GUIDANCE TO CHECK COMPLIANCE WITH THE EXPOSURE SCENARIO**	
Section 4.1	**Health**	
	Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented. [G22]. Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels. [G23].	
Section 4.2	**Environment**	
	Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures [DSU1]. Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination [DSU2]. Required removal efficiency for air can be achieved using onsite technologies, either alone or in combination [DSU3]. Further details on scaling and control technologies are provided in SpERC factsheet (http://cefic.org/en/reach-for-industries-libraries.html) [DSU4].	

SECTION 1	**EXPOSURE SCENARIO TITLE**	
Title	**30. Use in Polymer Processing – Industrial**	
Use Descriptor	Sector(s) of Use	**SU 3**: Industrial uses
		SU 10: Formulation [mixing] of preparations and/or re-packaging (excluding alloys)
	Process Categories	**PROC 1**: Use in closed process, no likelihood of exposure
		PROC 2: Use in closed, continuous process with occasional controlled exposure
		PROC 3: Use in closed batch process (synthesis or formulation)
		PROC 4: Use in batch and other process (synthesis) where opportunity for exposure arises
		PROC 5: Mixing or blending in batch processes for formulation of preparations* and articles (multistage and/or significant contact)
		PROC 6: Calendering operations
		PROC 8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities
		PROC 8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities
		PROC 9: Transfer of substance or preparation into small containers (dedicated filling line, including weighing)
		PROC 13: Treatment of articles by dipping and pouring
		PROC 14: Production of preparations* or articles by tabletting, compression, extrusion, pelletisation
		PROC 21: Low energy manipulation of substances bound in materials and/or articles
	Environmental Release Categories	**ERC 4**: Industrial use of processing aids in processes and products, not becoming part of articles
	Specific Environmental Release Category	ESVOC 4.21a.v1
Processes, Tasks and Activities Covered	Processing of formulated polymers including material transfers, additives handling (e.g. pigments, stabilisers, fillers, plasticisers, etc.), moulding, curing and forming activities, material re-works, storage and associated maintenance.	
SECTION 2	**OPERATIONAL CONDITIONS AND RISK MANAGEMENT MEASURES**	
Section 2.1	**Control of worker exposure**	
Product characteristics	Physical form of product	Liquid, vapour pressure < 0.5 kPa at STP [OC3].
	Concentration of substance in product	Up to 100% (unless stated).
	Amount used	No limit.
	Frequency and duration of use	Covers daily exposures up to 8 hours (unless stated). [G2].
	Other operational conditions affecting worker exposure	Assumes use at not > 20oC above ambient [G15].
		Assumes a good basic standard of occupational hygiene has been implemented [G1]

Contributing Scenarios	**Specific Risk Management Measures and Operational Conditions** *(only required controls to demonstrate safe use listed)*	
	Bulk transfers [CS14] (closed systems) [CS107] PROC1, 2	No other specific measures identified. [EI20]
	Bulk transfers [CS14] PROC8b	No other specific measures identified. [EI20]
	Bulk weighing [CS91] PROC1, 2	No other specific measures identified. [EI20]
	Small scale weighing [CS90] PROC9	No other specific measures identified. [EI20]
	Additive premixing [CS92] PROC3, 4	No other specific measures identified. [EI20]
	Additive premixing [CS92]Mixing operations (open systems) [CS30] PROC5	No other specific measures identified. [EI20]
	Bulk transfers [CS14] PROC8b, 9	No other specific measures identified. [EI20]
	Calendering (including Banburys) [CS64] Operation is carried out at elevated temp. (> then 20°C above ambient temp.) [OC7] PROC6	No other specific measures identified. [EI20]
	Production of articles by dipping and pouring [CS113] PROC13	No other specific measures identified. [EI20]
	Extrusion and masterbatching [CS88] PROC14	Provide a good standard of controlled ventilation (10 to 15 air changes per hour). [E40]
	Injection moulding of articles [CS89] PROC14	No other specific measures identified. [EI20]
	Finishing operations [CS102] PROC21	No other specific measures identified. [EI20]
	Equipment maintenance [CS5] PROC8a	No other specific measures identified. [EI20]
	Material storage [CS67] PROC1, 2	Store substance within a closed system [E84]
Section 2.2	**Control of environmental exposure**	
	Product characteristics	Substance is complex UVCB. [PrC3]. Predominantly hydrophobic. [PrC4a].
	Amounts used	Fraction of EU tonnage used in region: 0.1
		Regional use tonnage (tonnes/year): 3.0E+2
		Fraction of regional tonnage used locally: 1
		Annual site tonnage (tonnes/year): 3.0E+2
		Maximum daily site tonnage (kg/day): 1.5E+4
	Frequency and duration of use	Continuous release. [FD2].
		Emission days (days/year): 20

	Environmental factors not influenced by risk management	Local freshwater dilution fraction: 10 Local marine dilution fraction: 100
	Other operational conditions affecting environmental exposure	Release fraction to air from process (initial release prior to RMM: 2.5E-1 Release fraction to wastewater from process (initial release prior to RMM): 0 Release fraction to soil from process (initial release prior to RMM): 0.00001
	Technical conditions and measures at process level (source) to prevent release	Common practices vary across sites thus conservative process release estimates used [TCS1].
	Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil	Risk from environmental exposure is driven by Freshwater [TCR1a]. No wastewater treatment required [TCR6]. Treat air emission to provide a typical removal efficiency of 80 %. Treat onsite wastewater (prior to receiving water discharge) to provide the required removal efficiency ≥ 0.0 % If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of ≥ 0.0 %
	Organizational measures to prevent / limit release from site	Prevent discharge of undissolved substance to or recover from wastewater [OMS1]. Do not apply industrial sludge to natural soils [OMS2]. Sludge should be incinerated, contained or reclaimed [OMS3].
	Conditions and measures related to municipal sewage treatment plant	Not applicable as there is no release to wastewater [STP1]. Estimated substance removal from wastewater via domestic sewage treatment 93.7 %. Total efficiency of removal from wastewater after onsite and offsite (domestic treatment plant) RMMs 93.7 %. Maximum allowable site tonnage (MSafe) based on domestic sewage treatment release 1.5E+7 kg per day. Assumed domestic sewage treatment plant flow 2 000 m^3 per day.
	Conditions and measures related to external treatment of waste for disposal	External treatment and disposal of waste should comply with applicable local and/or national regulations [ETW3].
	Conditions and measures related to external recovery of waste	External recovery and recycling of waste should comply with applicable local and/or national regulations [ERW1].
SECTION 3	**EXPOSURE ESTIMATION**	
Section 3.1	**Health**	
	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. [G21].	
Section 3.2	**Environment**	
	The Hydrocarbon Block Method has been used to calculate environmental exposure with the Petrorisk model. [EE2].	

SECTION 4	GUIDANCE TO CHECK COMPLIANCE WITH THE EXPOSURE SCENARIO
Section 4.1	**Health**
	Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented. [G22]. Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels. [G23].
Section 4.2	**Environment**
	Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures [DSU1]. Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination [DSU2]. Required removal efficiency for air can be achieved using onsite technologies, either alone or in combination [DSU3]. Further details on scaling and control technologies are provided in SpERC factsheet (http://cefic.org/en/reach-for-industries-libraries.html) [DSU4].

SECTION 1	EXPOSURE SCENARIO TITLE	
Title	**31. Use in Polymer Processing – Professional**	
Use Descriptor	Sector(s) of Use	**SU 22**: Professional uses
	Process Categories	**PROC 1:** Use in closed process, no likelihood of exposure
		PROC 2: Use in closed, continuous process with occasional controlled exposure
		PROC 6: Calendering operations
		PROC 8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities
		PROC 8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities
		PROC 14: Production of preparations* or articles by tabletting, compression, extrusion, pelletisation
		PROC 21: Low energy manipulation of substances bound in materials and/or articles
	Environmental Release Categories	**ERC 8a**: Wide dispersive indoor use of processing aids in open systems
		ERC 8d: Wide dispersive outdoor use of processing aids in open systems
	Specific Environmental Release Category	ESVOC 8.21b.v1
Processes, Tasks and Activities Covered	Processing of formulated polymers including material transfers, moulding and forming activities, material re-works and associated maintenance.	
SECTION 2	**OPERATIONAL CONDITIONS AND RISK MANAGEMENT MEASURES**	
Section 2.1	**Control of worker exposure**	
Product characteristics	Physical form of product	Liquid, vapour pressure < 0.5 kPa at STP [OC3].
	Concentration of substance in product	Up to 100% (unless stated).

	Amount used	No limit.
	Frequency and duration of use	Covers daily exposures up to 8 hours (unless stated). [G2].
	Other operational conditions affecting worker exposure	Assumes use at not > 20oC above ambient [G15].
		Assumes a good basic standard of occupational hygiene has been implemented [G1]
Contributing Scenarios	**Specific Risk Management Measures and Operational Conditions**	
	(only required controls to demonstrate safe use listed)	
	Bulk transfers [CS14] (closed systems) [CS107] PROC1, 2	Handle substance within a closed system [E47]
	Material transfers [CS3] PROC8b	Transfer via enclosed lines [E52]
	Injection moulding of articles [CS89] PROC6, 14	No other specific measures identified. [EI20]
	Rework of articles [CS86] PROC21	No other specific measures identified. [EI20]
	Equipment maintenance [CS5] PROC8a	Drain or remove substance from equipment prior to break-in or maintenance [E81]
	Material storage [CS67] PROC1, 2	Store substance within a closed system [E84]
Section 2.2	**Control of environmental exposure**	
	Product characteristics	Substance is complex UVCB. [PrC3]. Predominantly hydrophobic. [PrC4a].
	Amounts used	Fraction of EU tonnage used in region: 0.1
		Regional use tonnage (tonnes/year): 2.8E+2
		Fraction of regional tonnage used locally: 1
		Annual site tonnage (tonnes/year): 1.4E-1
		Maximum daily site tonnage (kg/day): 3.8E-1
	Frequency and duration of use	Continuous release. [FD2].
		Emission days (days/year): 365
	Environmental factors not influenced by risk management	Local freshwater dilution fraction: 10
		Local marine dilution fraction: 100
	Other operational conditions affecting environmental exposure	Release fraction to air from process (initial release prior to RMM): 0.98
		Release fraction to wastewater from process (initial release prior to RMM): 0.01
		Release fraction to soil from process (initial release prior to RMM): 0.01
	Technical conditions and measures at process level (source) to prevent release	Common practices vary across sites thus conservative process release estimates used [TCS1].

	Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil	Risk from environmental exposure is driven by Freshwater [TCR1a]. No wastewater treatment required [TCR6]. Treat air emission to provide a typical removal efficiency of N/A. Treat onsite wastewater (prior to receiving water discharge) to provide the required removal efficiency ≥ 0.0 % If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of ≥ 0.0 %
	Organizational measures to prevent / limit release from site	Prevent discharge of undissolved substance to or recover from wastewater [OMS1]. Do not apply industrial sludge to natural soils [OMS2]. Sludge should be incinerated, contained or reclaimed [OMS3].
	Conditions and measures related to municipal sewage treatment plant	Not applicable as there is no release to wastewater [STP1]. Estimated substance removal from wastewater via domestic sewage treatment 93.7 %. Total efficiency of removal from wastewater after onsite and offsite (domestic treatment plant) RMMs 93.7 %. Maximum allowable site tonnage (MSafe) based on domestic sewage treatment release 3.2E+2 kg per day. Assumed domestic sewage treatment plant flow 2 000 m^3 per day.
	Conditions and measures related to external treatment of waste for disposal	External treatment and disposal of waste should comply with applicable local and/or national regulations [ETW3].
	Conditions and measures related to external recovery of waste	External recovery and recycling of waste should comply with applicable local and/or national regulations [ERW1].
SECTION 3	**EXPOSURE ESTIMATION**	
Section 3.1	**Health**	
	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. [G21].	
Section 3.2	**Environment**	
	The Hydrocarbon Block Method has been used to calculate environmental exposure with the Petrorisk model. [EE2].	
SECTION 4	**GUIDANCE TO CHECK COMPLIANCE WITH THE EXPOSURE SCENARIO**	
Section 4.1	**Health**	
	Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented. [G22]. Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels. [G23].	
Section 4.2	**Environment**	
	Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures [DSU1]. Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination [DSU2]. Required removal efficiency for air can be achieved using onsite technologies, either alone or in combination [DSU3]. Further details on scaling and control technologies are provided in SpERC factsheet (http://cefic.org/en/reach-for-industries-libraries.html) [DSU4].	

SECTION 1	**EXPOSURE SCENARIO TITLE**	
Title	**32. Use in Water Treatment Chemicals – Industrial**	
Use Descriptor	Sector(s) of Use	**SU 3**: Industrial uses
	Process Categories	**PROC 1**: Use in closed process, no likelihood of exposure
		PROC 2: Use in closed, continuous process with occasional controlled exposure
		PROC 3: Use in closed batch process (synthesis or formulation)
		PROC 4: Use in batch and other process (synthesis) where opportunity for exposure arises
		PROC 8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities
		PROC 8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities
		PROC 13: Treatment of articles by dipping and pouring
	Environmental Release Categories	**ERC 3**: Formulation in materials
		ERC 4: Industrial use of processing aids in processes and products, not becoming part of articles
	Specific Environmental Release Category	ESVOC 3.22a.v1
Processes, Tasks and Activities Covered	Covers the use of the substance for the treatment of water at industrial facilities in open and closed systems.	
SECTION 2	**OPERATIONAL CONDITIONS AND RISK MANAGEMENT MEASURES**	
Section 2.1	**Control of worker exposure**	
Product characteristics	Physical form of product	Liquid, vapour pressure < 0.5 kPa at STP [OC3].
	Concentration of substance in product	Up to 100% (unless stated).
	Amount used	No limit.
	Frequency and duration of use	Covers daily exposures up to 8 hours (unless stated). [G2].
	Other operational conditions affecting worker exposure	Assumes use at not > 20oC above ambient [G15].
		Assumes a good basic standard of occupational hygiene has been implemented [G1]
Contributing Scenarios	**Specific Risk Management Measures and Operational Conditions** ***(only required controls to demonstrate safe use listed)***	
	Bulk transfers [CS14]Use in contained systems [CS38] PROC2	Transfer via enclosed lines [E52]
	Drum/batch transfers [CS8] PROC8b	No other specific measures identified. [EI20]
	General exposures (closed systems) [CS15] PROC3	No other specific measures identified. [EI20]

	General exposures (open systems) [CS16] PROC4	No other specific measures identified. [EI20]
	Pouring from small containers [CS9] PROC13	No other specific measures identified. [EI20]
	Equipment maintenance [CS5] PROC8a	No other specific measures identified. [EI20]
	Material storage [CS67] PROC1	Store substance within a closed system [E84]
Section 2.2	**Control of environmental exposure**	
	Product characteristics	Substance is complex UVCB. [PrC3]. Predominantly hydrophobic. [PrC4a].
	Amounts used	Fraction of EU tonnage used in region: 0.1
		Regional use tonnage (tonnes/year): 1.1E+1
		Fraction of regional tonnage used locally: 1
		Annual site tonnage (tonnes/year): 1.1E+1
		Maximum daily site tonnage (kg/day): 3.7E+1
	Frequency and duration of use	Continuous release. [FD2].
		Emission days (days/year): 300
	Environmental factors not influenced by risk management	Local freshwater dilution fraction: 10
		Local marine dilution fraction: 100
	Other operational conditions affecting environmental exposure	Release fraction to air from process (initial release prior to RMM): 0.05
		Release fraction to wastewater from process (initial release prior to RMM): 0.95
		Release fraction to soil from process (initial release prior to RMM): 0
	Technical conditions and measures at process level (source) to prevent release	Common practices vary across sites thus conservative process release estimates used [TCS1].
	Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil	Risk from environmental exposure is driven by Freshwater Sediment [TCR1b] If discharging to domestic sewage treatment plant, additional onsite wastewater treatment required [TCR14].
		Treat air emission to provide a typical removal efficiency of 0 %.
		Treat onsite wastewater (prior to receiving water discharge) to provide the required removal efficiency ≥ 96.6 %
		If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of ≥ 46.3 %
	Organizational measures to prevent / limit release from site	Prevent discharge of undissolved substance to or recover from wastewater [OMS1].
		Do not apply industrial sludge to natural soils [OMS2].
		Sludge should be incinerated, contained or reclaimed [OMS3].
	Conditions and measures related to municipal sewage treatment plant	Not applicable as there is no release to wastewater [STP1].
		Estimated substance removal from wastewater via domestic sewage treatment 93.7 %.
		Total efficiency of removal from wastewater after onsite and offsite (domestic treatment plant) RMMs 96.6 %.

		Maximum allowable site tonnage (MSafe) based on domestic sewage treatment release 3.7E+1 kg per day. Assumed domestic sewage treatment plant flow 2 000 m^3 per day.
	Conditions and measures related to external treatment of waste for disposal	External treatment and disposal of waste should comply with applicable local and/or national regulations [ETW3].
	Conditions and measures related to external recovery of waste	External recovery and recycling of waste should comply with applicable local and/or national regulations [ERW1].
SECTION 3	**EXPOSURE ESTIMATION**	
Section 3.1	**Health**	
	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. [G21].	
Section 3.2	**Environment**	
	The Hydrocarbon Block Method has been used to calculate environmental exposure with the Petrorisk model. [EE2].	
SECTION 4	**GUIDANCE TO CHECK COMPLIANCE WITH THE EXPOSURE SCENARIO**	
Section 4.1	**Health**	
	Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented. [G22]. Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels. [G23].	
Section 4.2	**Environment**	
	Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures [DSU1]. Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination [DSU2]. Required removal efficiency for air can be achieved using onsite technologies, either alone or in combination [DSU3]. Further details on scaling and control technologies are provided in SpERC factsheet (http://cefic.org/en/reach-for-industries-libraries.html) [DSU4].	

SECTION 1	**EXPOSURE SCENARIO TITLE**	
Title	**33. Use in Water Treatment Chemicals – Professional**	
Use Descriptor	Sector(s) of Use	**SU 22**: Professional uses:
	Process Categories	**PROC 1:** Use in closed process, no likelihood of exposure
		PROC 3: Use in closed batch process (synthesis or formulation)
		PROC 4: Use in batch and other process (synthesis) where opportunity for exposure arises
		PROC 8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities
		PROC 8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities
		PROC 13: Treatment of articles by dipping and pouring
	Environmental Release Categories	**ERC 8f**: Wide dispersive outdoor use resulting in inclusion into or onto a matrix

	Specific Environmental Release Category	ESVOC 8.22b.v1
Processes, Tasks and Activities Covered	Covers the use of the substance for the treatment of water in open and closed systems.	
SECTION 2	**OPERATIONAL CONDITIONS AND RISK MANAGEMENT MEASURES**	
Section 2.1	**Control of worker exposure**	
Product characteristics	Physical form of product	Liquid, vapour pressure < 0.5 kPa at STP [OC3].
	Concentration of substance in product	Up to 100% (unless stated).
	Amount used	No limit.
	Frequency and duration of use	Covers daily exposures up to 8 hours (unless stated). [G2].
	Other operational conditions affecting worker exposure	Assumes use at not > 20oC above ambient [G15].
		Assumes a good basic standard of occupational hygiene has been implemented [G1]
Contributing Scenarios	**Specific Risk Management Measures and Operational Conditions** ***(only required controls to demonstrate safe use listed)***	
	Drum/batch transfers [CS8] PROC8b	No other specific measures identified. [EI20]
	General exposures (closed systems) [CS15] PROC3	No other specific measures identified. [EI20]
	General exposures (open systems) [CS16] PROC4	No other specific measures identified. [EI20]
	Pouring from small containers [CS9] PROC13	No other specific measures identified. [EI20]
	Equipment maintenance [CS5] PROC8a	No other specific measures identified. [EI20]
	Material storage [CS67] PROC1	Store substance within a closed system [E84]
Section 2.2	**Control of environmental exposure**	
	Product characteristics	Substance is complex UVCB. [PrC3]. Predominantly hydrophobic. [PrC4a].
	Amounts used	Fraction of EU tonnage used in region: 0.1
		Regional use tonnage (tonnes/year): 4.5E+0
		Fraction of regional tonnage used locally: 1
		Annual site tonnage (tonnes/year): 1.5E+0
		Maximum daily site tonnage (kg/day): 4.0E+0
	Frequency and duration of use	Continuous release. [FD2].
		Emission days (days/year): 365
	Environmental factors not influenced by risk management	Local freshwater dilution fraction: 10
		Local marine dilution fraction: 100

	Other operational conditions affecting environmental exposure	Release fraction to air from process (initial release prior to RMM): 0.01 Release fraction to wastewater from process (initial release prior to RMM): 0.99 Release fraction to soil from process (initial release prior to RMM): 0
	Technical conditions and measures at process level (source) to prevent release	Common practices vary across sites thus conservative process release estimates used [TCS1].
	Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil	Risk from environmental exposure is driven by Agricultural Soil [TCR1f] If discharging to domestic sewage treatment plant, no onsite wastewater treatment required [TCR10]. Treat air emission to provide a typical removal efficiency of N/A. Treat onsite wastewater (prior to receiving water discharge) to provide the required removal efficiency ≥ 69.8 % If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of ≥ 0.0 %
	Organizational measures to prevent / limit release from site	Prevent discharge of undissolved substance to or recover from wastewater [OMS1]. Do not apply industrial sludge to natural soils [OMS2]. Sludge should be incinerated, contained or reclaimed [OMS3].
	Conditions and measures related to municipal sewage treatment plant	Not applicable as there is no release to wastewater [STP1]. Estimated substance removal from wastewater via domestic sewage treatment 93.7 %. Total efficiency of removal from wastewater after onsite and offsite (domestic treatment plant) RMMs 93.7 %. Maximum allowable site tonnage (MSafe) based on domestic sewage treatment release 1.9E+1 kg per day. Assumed domestic sewage treatment plant flow 2 000 m^3 per day.
	Conditions and measures related to external treatment of waste for disposal	External treatment and disposal of waste should comply with applicable local and/or national regulations [ETW3].
	Conditions and measures related to external recovery of waste	External recovery and recycling of waste should comply with applicable local and/or national regulations [ERW1].
SECTION 3	**EXPOSURE ESTIMATION**	
Section 3.1	**Health**	
	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. [G21].	
Section 3.2	**Environment**	
	The Hydrocarbon Block Method has been used to calculate environmental exposure with the Petrorisk model. [EE2].	
SECTION 4	**GUIDANCE TO CHECK COMPLIANCE WITH THE EXPOSURE SCENARIO**	
Section 4.1	**Health**	
	Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented. [G22].	

	Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels. [G23].
Section 4.2	**Environment**
	Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures [DSU1]. Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination [DSU2]. Required removal efficiency for air can be achieved using onsite technologies, either alone or in combination [DSU3]. Further details on scaling and control technologies are provided in SpERC factsheet (http://cefic.org/en/reach-for-industries-libraries.html) [DSU4].