1. AINEEN TAI SEOKSEN JA YHTIÖN TAI YRITYKSEN TUNNISTETIEDOT

1.1 Tuotetunniste

1.1.1 Kauppanimi

Polttoöljy -0/-10, -5/-15, -15/-25, -29/-34, -40/-44; Neste-polttoöljy -0/-10, -5/-15, -15/-25, -29/-34, -40/-44

1.1.2 Tunnuskoodi

(ID 13779) 160041, 160051, 160055, 160061, 160071; 160350, 160360, 160370, 160205, 160216

1.2 Aineen tai seoksen merkitykselliset tunnistetut käytöt ja käytöt, joita ei suositella

1.2.1 Käyttötarkoitus

Aineen jakelu
Käyttö polttoaineena
Tie- ja rakennussovellukset
Räjähteiden valmistus ja käyttö
Tunnistettujen käyttöjen PROC/SU/ERC-koodit kohdassa 16.

1.3 Käyttöturvallisuustiedotteen toimittajan tiedot

1.3.1 Valmistaja, maahantuoja, muu toiminnanharjoittaja

	Neste Oyj
Katuosoite	Keilaranta 21
Postinumero ja -toimipaikka	Espoo Suomi
Postinumero ja -toimipaikka	PL 95 00095 NESTE Suomi
Puhelin	010 45811
Y-tunnus	1852302-9
Sähköposti	products.oil@neste.com (öljytuoteneuvonta)

1.4 Hätäpuhelinnumero

1.4.1 Numero, nimi ja osoite

09-471 977 tai 09-4711 Myrkytystietokeskus / HUS
PL 340 (Haartmaninkatu 4), 00029 HUS (Helsinki)

2. VAARAN YKSILÖINTI

2.1 Aineen tai seoksen luokitus

1272/2008 (CLP)

Flam. Liq. 3, H226
Asp. Tox. 1, H304
Skin Irrit. 2, H315
Acute Tox. 4, H332
Carc. 2, H351
STOT RE 2, H373
Aquatic Chronic 2, H411

67/548/EEC - 1999/45/EC

Xn, N; R20-38-40-65-51/53

2.2 Merkinnät

1272/2008 (CLP)

GHS09 - GHS08 - GHS07 - GHS02

Huomiosana **Vaara**

Vaaralausekkeet

H226 Syttyvä neste ja höyry.

H304	Voi olla tappavaa nieltynä ja joutuessaan hengitysteihin.
H315	Ärsyttää ihoa.
H332	Haitallista hengitettynä.
H351	Epäillään aiheuttavan syöpää.
H373	Saattaa vahingoittaa elimiä pitkäaikaisessa tai toistuvassa altistumisessa.
H411	Myrkyllistä vesieliöille, pitkäaikaisia haittavaikutuksia.

Turvalausekkeet

P210	Suojaa lämmöltä/kipinöiltä/avotulelta/kuumilta pinnoilta. - Tupakointi kielletty.
P261	Vältä höyryn hengittämistä.
P301+P310	JOS KEMIKAALIA ON NIELTY: Ota välittömästi yhteys MYRKYTYSTIETOKESKUKSEEN tai lääkäriin.
P331	EI saa oksennuttaa.
P302+P352	JOS KEMIKAALIA JOUTUU IHOLLE: Pese runsaalla vedellä ja saippualla.
P273	Vältettävä päästämistä ympäristöön.

2.3 Muut vaarat

Hitaasti haihtuva. Öljysumu saattaa ärsyttää silmiä ja hengitysteitä. Maaperän ja pohjaveden saastumisvaara.

3. KOOSTUMUS JA TIEDOT AINEOSISTA

3.2 Seokset

Vaaraa aiheuttavat aineosat

CAS/EY-numero ja rek. nro	Aineosan nimi	Pitoisuus	Luokitus
68334-30-5/269-822-7 (CAS/EC)	Polttoaineet, diesel	Min. 60 %	DSD-DPD: Xn, Xi, R20-38-65; Carc Cat. 3, R40; .N, R51/53 CLP: Flam. Liq. 3, H226; Asp. Tox. 1, H304; Skin Irrit. 2, H315; Acute Tox. 4, H332; Carc. 2, H351; STOT RE 2, H373; Aq. Chronic 2, H411
-	Uusiutuvat hiilivedyt (dieseltyyppinen jae)	Max. 40 %	DSD-DPD: Xn; R65-66 CLP: Asp. Tox. 1, H304; EUH066

3.3 Muut tiedot

Uusiutuvista raaka-aineista valmistetun dieselin, maaöljytuotteen ja lisäaineiden seos. Sisältää petrolijakeita sekä suoratislattuja ja vetykrakattuja kaasuöljyjakeita.

Polttoaineet, diesel: REACH-rekisteröintinumero : 01-2119484664-27-0012.
Uusiutuvat hiilivedyt (dieseltyyppinen jae): REACH-rekisteröintinumero 01-2119450077-42-0000. Identiteetti EU:n ulkopuolella (CAS-numero ja aineosan nimi): Alkaanit, C10-C20-haaraketjuiset ja lineaariset, CAS 928771-01-1.

4. ENSIAPUTOIMENPITEET

4.1 Ensiaputoimenpiteiden kuvaus

Ennen kuin yrität pelastaa onnettomuuden uhreja, eristä alue kaikista sytytyslähteistä, mukaan lukien katkaise alueelta sähköt.

4.1.2 Hengitys

Jos tuotetta on hengitetty, potilas on siirrettävä raittiiseen ilmaan. Otetaan yhteys lääkäriin.

4.1.3 Iho

Roiskeet huuhdeltava välittömästi saippualla ja runsaalla vedellä sekä riisuttava tahriintuneet vaatteet ja kengät. Mikäli ihoärsytys jatkuu, ota yhteys lääkäriin.

4.1.4 Roiskeet silmiin
Huuhdellaan välittömästi runsaalla vedellä, myös silmäluomien alta. Jos esiintyy ärsytystä, samentunutta näkökykyä tai turvotusta eivätkä oireet häviä, ota yhteys silmälääkäriin.

4.1.5 Nieleminen
EI SAA OKSENNUTTAA. Jos tuotetta on nielty, oleta aina, että aspiraatio on tapahtunut. Otetaan yhteys lääkäriin (keuhkoihin joutumisen vaara erityisesti tunnettaessa pahoinvointia tai ärsytysoireita).

4.2 Tärkeimmät oireet ja vaikutukset, sekä välittömät että viivästyneet
Haitallista hengitettynä. Keuhkoihin joutuneena tuote voi aiheuttaa hengenvaarallisen kemiallisen keuhkotulehduksen. Nesteroiskeet ärsyttävät ihoa ja silmiä. Öljysumu saattaa ärsyttää silmiä ja hengitysteitä.

4.3 Mahdollisesti tarvittavaa välitöntä lääketieteellistä apua ja erityishoitoa koskevat ohjeet
Keuhkoihin joutuneena tuote voi aiheuttaa hengenvaarallisen kemiallisen keuhkotulehduksen.

5. PALONTORJUNTATOIMENPITEET

5.1 Sammutusaineet
5.1.1 Sopivat sammutusaineet
Jauhe ja hiilidioksidi. Hiekka. Raskasvaahto ja vesisumu palontorjunnan ammattilaisten käyttöön.

5.1.2 Sammutusaineet, joita ei pidä käyttää turvallisuussyistä
Voimakas vesisuihku

5.2 Aineesta tai seoksesta johtuvat erityiset vaarat
Syttyvä neste ja höyry. Räjähdysvaara paineen kasvaessa, jos tuotetynnyrit tai -säiliöt kuumenevat tulipalossa. Voimakkaasti kuumennettaessa tai tulipalossa voi syntyä hiilimonoksidia sekä muita epätäydellisen palamisen tuotteita. Tämä aine kelluu ja voi syttyä uudelleen palamaan veden pinnalla.

5.3 Palontorjuntaa koskevat ohjeet
Avotulen läheisyydessä olevia tuoteastioita ja -säiliöitä jäähdytetään riittävältä turvaetäisyydeltä vesisuihkuin. Estettävä sammutusvesien pääsy saastuttamaan pinta- tai pohjavesijärjestelmiä.

5.4 Muita ohjeita
Suojautuminen tulipalossa: Paineilmahengityslaite ja täydellinen suojavarustus.

6. TOIMENPITEET ONNETTOMUUSPÄÄSTÖISSÄ

6.1 Varotoimenpiteet, henkilönsuojaimet ja menettely hätätilanteessa
Päästöalueella olevat evakuoidaan tuulen yläpuolelle. Huolehdittava riittävästä ilmanvaihdosta, erityisesti suljetuissa tiloissa. Höyryt ovat ilmaa raskaampia ja leviävät pitkin maanpintaa. Suurten vuotojen yhteydessä varoita tuulen alapuolella olevia ihmisiä. Vältettävä ihokosketusta sekä öljysumun hengittämistä. Kaikissa toimenpiteissä on käytettävä riittäviä suojavarusteita.

Poistettava kaikki sytytyslähteet. Estä varotoimenpitein sähköstaattisen varauksen muodostuminen. Suuret vuodot voidaan mahdollisesti peittää varovaisesti vaahdolla tulipalovaaran pienentämiseksi

6.2 Ympäristöön kohdistuvat varotoimet
Pyritään rajoittamaan päästö ja estämään tuotteen leviäminen ympäristöön. Nestemäinen tuote kerätään talteen ennen sen leviämistä viemäreihin, maaperään ja vesistöön. Vahingosta on ilmoitettava välittömästi paikalliselle viranomaiselle. Maaperän ja pohjaveden saastumisvaara.

6.3 Suojarakenteita ja puhdistusta koskevat menetelmät ja -välineet

Aloitetaan välittömästi nestemäisen tuotteen ja likaantuneen maan talteenotto. Kerää vuotanut tuote sopivalla tavalla. Pienet määrät voidaan imeyttää palamattomaan absorboivaan aineeseen. Huomioitava tuotteen aiheuttama palo- ja terveysvaara.

Jos mahdollista, suuret vuodot avoimissa vesissä tulee rajoittaa kelluvilla puomeilla tai muilla mekaanisilla välineillä. Asiantuntijan tulee neuvoa dispergoivien aineiden käytössä ja tarvittaessa paikallisten viranomaisten tulee hyväksyä niiden käyttö.

6.4 Viittaukset muihin kohtiin

Henkilökohtainen suojaus, ks. kohta 8. Tuotetta sisältävä jäte hävitetään kohdan 13 mukaisesti.

7. KÄSITTELY JA VARASTOINTI

7.1 Turvallisen käsittelyn edellyttämät toimenpiteet

Tuotetta pyrittävä käsittelemään suljetuissa järjestelmissä tai järjestettävä riittävä ilmanvaihto. Vältettävä höyryjen hengittämistä ja ihokosketusta. Tarvittaessa käytettävä henkilökohtaisia suojaimia. Syöminen, juominen ja tupakointi kielletty ainetta käsiteltäessä. Kädet pestävä ennen taukoja ja työpäivän jälkeen.

Säiliötöissä noudatettava erityisohjeita (hapen syrjäytymisen ja hiilivetyjen vaara). Kevyitä hiilivetyhöyryjä voi kertyä säiliöiden ilmatilaan. Älä käytä paineilmaa täytön, purkamisen tai käsittelyn yhteydessä.

Pidettävä erillään tulesta, kipinöistä ja kuumista pinnoista. Eristettävä sytytyslähteistä. Estettävä varotoimenpitein (esim. maadoituksin) staattisen sähkön aiheuttama kipinöinti. Tuote on ilmaa raskaampaa ja vuodon yhteydessä höyryä voi kerääntyä suljettuihin tiloihin ja alaville alueille, joissa se voi helposti syttyä palamaan.

7.2 Turvallisen varastoinnin edellyttämät olosuhteet, mukaan luettuina yhteensopimattomuudet

Palaville nesteille soveltuvassa säiliössä tai varastossa. Suojattava auringonvalolta. Ehkäistävä varotoimenpitein tuotteen joutuminen viemäreihin, maaperään tai vesistöön. Mahdollisiin vuotoihin varaudutaan esim. keräysaltailla, täyttö- ja tyhjennyspaikan päällystyksellä ja viemäröinnillä. Säilytettävä paikallisten säädösten mukaisesti. Pienet tuote-erät säilytetään hiilivetyjä läpäisemättömissä, tiiviisti suljetuissa, etiketöidyissä astioissa.

Säilytetään asianmukaisesti etiketöidyissä astioissa. Suositellut säiliöiden materiaalit tai pinnoitteet: pehmeä teräs, ruostumaton teräs. Jotkut synteettiset aineet eivät sovi säiliöiksi tai niiden pinnoitteeksi käyttötarkoituksesta ja materiaalivaatimuksista riippuen.

7.3 Erityinen loppukäyttö

Ei tunneta.

8. ALTISTUMISEN EHKÄISEMINEN JA HENKILÖNSUOJAIMET

8.1 Valvontaa koskevat muuttujat

8.1.1 HTP-arvot

Öljysumu *	5 mg/m^3 (8 h) HTP 2011/FIN

8.1.2 Muut raja-arvot

* Altistuksen seurantamenetelmä: SFS-EN 689, NIOSH Method 5026.
Hiilivedyille voidaan soveltaa niiden yksittäisiä raja-arvoja.

8.1.4 DNEL

Työntekijät :

Polttoaineet, diesel, hengitysteitse: 4300 mg/m^3 /15min, aerosoli (Lyhytaikainen altistuminen, systeemiset vaikutukset)

Polttoaineet, diesel, hengitysteitse: 68 mg/m^3 /8h, aerosoli, ja iholla: 2.9 mg/kg bw /8h (Pitkäaikainen altistuminen, systeemiset vaikutukset)

Uusiutuvat hiilivedyt (dieseltyyppinen jae), hengitysteitse: 147 mg/m^3 /päivä, ja iholla: 42 mg/kg bw /päivä (Pitkäaikainen altistuminen, systeemiset vaikutukset)

Kuluttajat:

Polttoaineet, diesel, hengitysteitse: 2600 mg/m^3 /15min, aerosoli (Lyhytaikainen altistuminen, systeemiset vaikutukset)

Polttoaineet, diesel, hengitysteitse: 20 mg/m^3 /24h, aerosoli, ja iholla: 1.3 mg/kg bw /24h (Pitkäaikainen altistuminen, systeemiset vaikutukset)

Uusiutuvat hiilivedyt (dieseltyyppinen jae), hengitysteitse: 94 mg/m^3 ja iholla: 18 mg/kg bw /päivä (Pitkäaikainen altistuminen, systeemiset vaikutukset)

8.1.5 PNEC

Tietoa ei ole käytettävissä.

8.2 Altistumisen ehkäiseminen

8.2.1 Tekniset torjuntatoimenpiteet

Tuotetta pyrittävä käsittelemään suljetuissa järjestelmissä tai järjestettävä riittävä ilmanvaihto. Tarvittaessa käytettävä henkilökohtaisia suojaimia ja/tai kohdepoistoa. Käsiteltävä hyvän työhygienian ja turvallisuuskäytännön mukaisesti. Säiliötöissä noudatettava erityisohjeita (hapen syrjäytymisen ja hiilivetyjen vaara).

8.2.2 Henkilökohtaiset suojatoimenpiteet

8.2.2.1 Hengityksensuojaus

Suodatinsuojain/Puolinaamari. Hengityksensuojain (yhdistetty hiukkas- ja kaasunsuodatin, tyyppi A2/P3).

Suodatinsuojainta voi käyttää enintään 2 tuntia kerrallaan. Suodatinsuojaimia ei saa käyttää vähähappisissa olosuhteissa (< 17 til.-%). Suurissa pitoisuuksissa on käytettävä hengityslaitteita (paineilma- tai raitisilma). Suodatin on vaihdettava riittävän usein. Hengityksensuojaimet standardien EN 140 ja EN 141 mukaiset.

8.2.2.2 Käsiensuojaus

Suojakäsineet (esim. nitriili, neopreeni, PVC, Viton). Läpäisyaika >480, suojausluokka 6. Suojakäsineet standardien EN 420 ja EN 374 mukaiset. Suojakäsineet on vaihdettava säännöllisesti.

8.2.2.3 Silmien tai kasvojen suojaus

Tiiviisti asettuvat suojalasit. Tarvittaessa kasvonsuojain.

8.2.2.4 Ihonsuojaus

Suojavaatetus (antistaattinen), roisketiivis kemikaalisuojavaatetus tarvittaessa.

8.2.3 Ympäristöaltistumisen torjuminen

Mahdollisiin vuotoihin varaudutaan esim. keräysaltailla, täyttö- ja tyhjennyspaikan päällystyksellä ja viemäröinnillä.

9. FYSIKAALISET JA KEMIALLISET OMINAISUUDET

9.1 Fysikaalisia ja kemiallisia perusominaisuuksia koskevat tiedot

9.1.1 Olomuoto

Punaiseksi värjätty neste.

9.1.2	**Haju**	Mieto hiilivetyjen haju.
9.1.3	**Hajukynnys**	Tietoja ei ole käytettävissä
9.1.4	**pH**	Tietoja ei ole käytettävissä

9.1.5	**Sulamis- tai jäätymispiste**	Samepiste enintään 0 °C
9.1.6	**Kiehumispiste ja kiehumisalue**	150...370 °C (EN ISO 3405)
9.1.7	**Leimahduspiste**	> 55 °C (EN ISO 2719)
9.1.8	**Haihtumisnopeus**	Tietoja ei ole käytettävissä
9.1.10	**Räjähdysominaisuudet**	
9.1.10.1	**Alempi räjähdysraja**	1 til-% (arvio)
9.1.10.2	**Ylempi räjähdysraja**	6 til-% (arvio)
9.1.11	**Höyrynpaine**	< 1 kPa 40 °C
9.1.12	**Höyryntiheys**	Tietoja ei ole käytettävissä
9.1.13	**Suhteellinen tiheys**	0,80...0,85 (15/4 °C; vesi = 1) (EN ISO 12185)
9.1.14	**Liukoisuus (liukoisuudet)**	
9.1.14.1	**Vesiliukoisuus**	Niukkaliukoinen (< 50 mg/l; 20 °C)
9.1.15	**Jakautumiskerroin: n-oktanoli/vesi**	log Kow = 3...yli 6.
9.1.16	**Itsesyttymislämpötila**	Noin 240 °C (arvio)
9.1.17	**Hajoamislämpötila**	Tietoja ei ole käytettävissä
9.1.18	**Viskositeetti**	Kinemaattinen viskositeetti enint. 4,5 mm²/s (40 °C; vesi= 0,6 mm²/s).
9.1.19	**Räjähtävyys**	Ei räjähtävä
9.1.20	**Hapettavuus**	Ei hapettava

9.2 Muut tiedot
Ei tunneta.

10. STABIILISUUS JA REAKTIIVISUUS

10.1 Reaktiivisuus
Vaarallisia reaktioita ei tunneta normaaleissa käyttöolosuhteissa.

10.2 Kemiallinen stabiilisuus
Stabiili suositeltavissa varasto-olosuhteissa.

10.3 Vaarallisten reaktioiden mahdollisuus
Ei tunneta.

10.4 Vältettävät olosuhteet
Pidettävä erillään tulesta, kipinöistä ja kuumista pinnoista.

10.5 Yhteensopimattomat materiaalit
Hapettavat aineet

10.6 Vaaralliset hajoamistuotteet
Vaarallisia hajoamistuotteita ei tunneta.

11. MYRKYLLISYYTEEN LIITTYVÄT TIEDOT

11.1 Tiedot myrkyllisistä vaikutuksista

11.1.1 Välitön myrkyllisyys

Haitallista hengitettynä.

Polttoaineet, diesel:
LD50/suun kautta/rotta > 5000 mg/kg (OECD 401, 420)
LC50/hengitysteitse/4h/rotta = 3.6 - 5.4 mg/L (OECD 403)
LD50/ihon kautta/kani = 4300 mg/kg (OECD 434)

Uusiutuvat hiilivedyt (dieseltyyppinen jae):
LD50/suun kautta/rotta > 2000 mg/kg (EC B1 tris)
LD50/ihon kautta/rotta > 2000 mg/kg (EC B3)

11.1.2 Ärsyttävyys ja syövyttävyys

Ärsyttää ihoa. Pitkäaikainen tai toistuva kosketus aiheuttaa ihon kuivumista ja ärtymistä. Öljysumu saattaa ärsyttää silmiä ja hengitysteitä. Nieltynä tuote ärsyttää ruuansulatuskanavaa.

Vaaraluokitukset
Polttoaineet, diesel: Ärsyttää ihoa. Ei ärsytä silmiä. (OECD 404, 405).
Uusiutuvat hiilivedyt (dieseltyyppinen jae): Ei ärsytä ihoa. Ei ärsytä silmiä. (EC B4, B5).

11.1.3 Herkistyminen

Ei herkistävä . (Polttoaineet, diesel: OECD 406, Uusiutuvat hiilivedyt (dieseltyyppinen jae): EC B6).

11.1.4 Syöpää aiheuttavat, perimää vaurioittavat tai lisääntymiselle vaaralliset vaikutukset

Polttoaineet, diesel:
Epäillään aiheuttavan syöpää. Pitkäaikainen kosketus on aiheuttanut koe-eläinten iholla kasvaimia (hiiri). Tuote sisältää vetykrakattuja kaasuöljyjakeita, jotka on luokiteltu karsinogeeneiksi.
In vitro -kokeet osoittivat mutageenisia vaikutuksia, joita ei havaittu in vivo -kokeessa. (OECD 471, 475)
Ei luokiteltavissa sikiövaurioita aiheuttavaksi (OECD 414).

Uusiutuvat hiilivedyt (dieseltyyppinen jae):
In vitro -kokeet eivät osoittaneet mutageenisia vaikutuksia (EC B10, B13/14, B17).
Ei myrkyllistä vaikutusta lisääntymiskykyyn (OECD 416).

11.1.5 Elinkohtainen myrkyllisyys - kerta-altistuminen

Ei tunnettuja vaikutuksia.

11.1.6 Elinkohtainen myrkyllisyys - toistuva altistuminen

Polttoaineet, diesel: Saattaa vahingoittaa elimiä pitkäaikaisessa tai toistuvassa altistumisessa. (OECD 410, 411, 413)
Uusiutuvat hiilivedyt (dieseltyyppinen jae): Ei tunnettuja vaikutuksia. (OECD 408)

11.1.7 Aspiraatiovaara

Voi olla tappavaa nieltynä ja joutuessaan hengitysteihin. Tuotteen joutuminen keuhkoihin (aspiraatio) voi aiheuttaa hengenvaarallisen kemiallisen keuhkotulehduksen.

11.1.8 Muut terveysvaikutuksiin liittyvät tiedot

Polttoaineet, diesel: Toksikologiset tiedot perustuvat testeihin vastaavilla tuotteilla ja komponenteilla.

12. TIEDOT VAARALLISUUDESTA YMPÄRISTÖLLE

12.1 Myrkyllisyys

12.1.1 Myrkyllisyys vesieliöille

Myrkyllistä vesieliöille, pitkäaikaisia haittavaikutuksia.

Välitön myrkyllisyys vesieliöille
Polttoaineet, diesel:
kala: LL50/96h = 21 mg/L, NOEL/96h = 10 mg/L; WAF (OECD 203, EC C.1)
äyriäinen : EL50/48h = 68mg/L; NOEL/48h = 47 mg/L; WAF (OECD 202, EC C.2)
levä : EbL/72h = 10 mg/L; NOEL/48h = 3 mg/L; NOEL/72h = 1 mg/L; WAF (OECD 201, EC C.3)

Uusiutuvat hiilivedyt (dieseltyyppinen jae):
kala: LL50/96h > 1000 mg/L; WAF (OECD 203)
äyriäinen : EL50/48h > 100 mg/L; WAF (OECD 202)
levä : EL50/72h > 100 mg/L; WAF (OECD 201)

Pitkäaikaismyrkyllisyys vesieliöille
Polttoaineet, diesel:
kala: NOEL/14d = 0.08 mg/L (QSAR)
äyriäinen : NOEL/21d = 0.2 mg/L (QSAR)

Uusiutuvat hiilivedyt (dieseltyyppinen jae):
äyriäinen : NOEC/21d = 1mg/L; LOEC/21d = 3.2 mg/L; WAF (OECD 211)
sedimenttieliöt : NOEC/10d = 373 mg/kg; LOEC/10d =1165 mg/kg; LC50/10d = 1200 mg/kg (OSPAR Protocols, Part A: Sediment Bioassay, 2005)

12.1.2 Myrkyllisyys muille eliöille

Mikro-organismit (jätevesiliete) :
Polttoaineet, diesel: EL50/40h > 1000 mg/L; NOEL/40h = 3.22 mg/L (QSAR)
Uusiutuvat hiilivedyt (dieseltyyppinen jae): EC50/30min > 1000 mg/L; EC50/3h > 1000 mg/L (OECD 209).

12.2 Pysyvyys ja hajoavuus

12.2.1 Biologinen hajoavuus

Polttoaineet, diesel: Luonnostaan biohajoava. (OECD 301F)
Uusiutuvat hiilivedyt (dieseltyyppinen jae): Nopeasti hajoava (OECD 301B).

12.2.2 Kemiallinen hajoavuus

Ei hydrolysoidu vedessä. Kaasuöljyhiilivedyt voivat hajota pintavedessä myös valokemiallisesti. Haihtuvat hiilivedyt ovat ilmakemiallisesti hajoavia.

12.3 Biokertyvyys

Mahdollisesti kertyvä (log Kow > 3).

12.4 Liikkuvuus maaperässä

Tuote haihtuu hitaasti maan ja veden pinnalta. Se on veteen niukkaliukoinen. Tuote voi läpäistä maaperän ja kulkeutua pohjaveden pinnalle. Petroli- ja kaasuöljyhiilivedyt voivat adsorboitua maaperän tai sedimentin orgaaniseen aineeseen. Anaerobisissa olosuhteissa hajoaminen on erittäin hidasta.

12.5 PBT- ja vPvB-arvioinnin tulokset

Tämä valmiste ei sisällä aineita, joiden katsotaan olevan pysyviä, kertyviä ja myrkyllisiä (PBT).
Tämä valmiste ei sisällä aineita, joiden katsotaan olevan erittäin pysyviä ja erittäin kertyviä (vPvB). (Antraseeni < 0.1 %)

12.6 Muut haitalliset vaikutukset

Tuote on tahraava, ja suora kosketus aiheuttaa mm. linnuille ja kasveille haitallisia vaikutuksia. Adsorboituneet hiilivetyjäämät voivat aiheuttaa haitallisia vaikutuksia pohjasedimenttien eliöille.

13. JÄTTEIDEN KÄSITTELYYN LIITTYVÄT NÄKÖKOHDAT

13.1 Jätteiden käsittelymenetelmät

Hävitettävä jätelainsäädännön ja ympäristöviranomaisen ohjeiden mukaisesti. Jätettä käsiteltäessä on huomattava sen aiheuttamat vaarat sekä huolehdittava tarvittavista varotoimenpiteistä, varoitusmerkinnöistä ja tietojen toimittamisvelvoitteesta.

13.2 Jätteet jäännöksistä/käyttämättömistä tuotteista

Tyhjät säiliöt voivat sisältää syttyviä tuotejäämiä. Tyhjät säiliöt on toimitettava kierrätykseen, uudelleenkäyttöön tai jätteenkäsittelyyn.

14. KULJETUSTIEDOT

14.1	**YK-numero**	1202
14.2	**Kuljetuksessa käytettävä virallinen nimi**	UN 1202 Kevyt polttoöljy, 3, III
14.3	**Kuljetuksen vaaraluokka**	3
14.4	**Pakkausryhmä**	III

14.5 Ympäristövaarat

MARINE POLLUTANT

14.6 Erityiset varotoimet käyttäjälle

Tunnelirajoituskoodi: D/E

14.7 Kuljetus irtolastina MARPOL 73/78 -sopimuksen II liitteen ja IBC-säännöstön mukaisesti

Product name: Bio-fuel blends of Diesel/gas oil and Alkanes (C10-C26), linear and branched with a flashpoint ≤ 60 °C (>25% but <99% by volume), Pollution Category X, Ship Type 2.

Kun biopolttoaineseos sisältää maaöljytuotetta 75% tai enemmän, se kuuluu MARPOL liitteen I (Annex I) piiriin.

15. LAINSÄÄDÄNTÖÄ KOSKEVAT TIEDOT

15.1 Nimenomaisesti ainetta tai seosta koskevat turvallisuus-, terveys- ja ympäristösäännökset tai -lainsäädäntö

Tämä käyttöturvallisuustiedote täyttää Asetuksen (EY) N:o 1907/2006 vaatimukset.
Päivitetty asetuksen (EY) N:o 1907/2006 (REACH) muutoksen (EU) N:o 453/2010 mukaan.

15.2 Kemikaaliturvallisuusarviointi

Näille aineille on suoritettu kemikaaliturvallisuusarviot.

16. MUUT TIEDOT

16.1 Muutokset edelliseen versioon

Kohta 12.2: Biologinen hajoavuus
Kohta 14.6: Tunnelirajoituskoodi

16.2 Lyhenteiden selitykset

CLP = Euroopan parlamentin ja neuvoston asetus 1272/2008/EY aineiden ja seosten luokituksesta, merkinnöistä ja pakkaamisesta sekä direktiivien 67/548/ETY ja 1999/45/EY muuttamisesta ja kumoamisesta ja asetuksen (EY) N:o 1907/2006 muuttamisesta
DSD = Euroopan neuvoston direktiivi 67/548/ETY vaarallisten aineiden luokitusta, pakkaamista ja merkintöjä koskevien lakien, asetusten ja hallinnollisten määräysten lähentämisestä
DPD = Euroopan parlamentin ja neuvoston direktiivi 1999/45/EY vaarallisten valmisteiden luokitusta, pakkaamista ja merkintöjä koskevien lakien, asetusten ja hallinnollisten määräysten lähentämisestä

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

16.3 Tietolähteet

Concawe Report No 8/2012, 10/2014
Kemikaaliturvallisuusraportti: CONCAWE: VHGO Chemical Safety Report 2012-10-25; Uusiutuvat hiilivedyt (dieseltyyppinen jae) , 2010

16.5 Luettelo R-lausekkeista ja vaaralausekkeista

R20	Terveydelle haitallista hengitettynä.
R38	Ärsyttää ihoa.
R40	Epäillään aiheuttavan syöpäsairauden vaaraa.
R51/53	Myrkyllistä vesieliöille, voi aiheuttaa pitkäaikaisia haittavaikutuksia vesiympäristössä.
R65	Haitallista: voi aiheuttaa keuhkovaurion nieltäessä.
H226	Syttyvä neste ja höyry.
H304	Voi olla tappavaa nieltynä ja joutuessaan hengitysteihin.
H315	Ärsyttää ihoa.
H332	Haitallista hengitettynä.
H351	Epäillään aiheuttavan syöpää.
H373	Saattaa vahingoittaa elimiä pitkäaikaisessa tai toistuvassa altistumisessa.
H411	Myrkyllistä vesieliöille, pitkäaikaisia haittavaikutuksia.

16.7 Käyttörajoitukset

Tunnistetut käyttötavat :

Aineen jakelu (SU 3; PROC: 1, 2, 3, 4, 8a, 8b, 9, 15; ERC: 1, 2, 3, 4, 5, 6a, 6b, 6c, 6d, 7)

Käyttö polttoaineena
Teollisuuskäyttö (SU 3; PROC: 1, 2, 3, 8a, 8b, 16; ERC: 7)
Ammattikäyttö (SU 22; PROC: 1, 2, 3, 8a, 8b, 16; ERC: 9a, 9b)
Kuluttajat (SU 21; PC 13; ERC: 9a, 9b)

Tie- ja rakennussovellukset (SU 22; PROC: 8a, 8b, 9, 10, 11, 13; ERC: 8d, 8f)

Räjähteiden valmistus ja käyttö (SU 22; PROC: 1, 3, 5, 8a, 8b; ERC: 8e)

POLTTOÖLJYÄ EI SAA IMEÄ LETKUN KAUTTA SUULLA.

Diesel for non-road use -0/-10, -5/-15, -15/-25, -29/-34, -40/-44; Neste light fuel oil for heating and non road use -0/10, -5/15, -15/25, -29/34, -40/44

Date: 9.6.2014 Previous date: 20.4.2012 ID 13779

SECTION 1	EXPOSURE SCENARIO TITLE	
Title	**Distribution of Substance - Industrial**	
Use Descriptor	Sector(s) of Use	**SU3**: Industrial
	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 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 SpERC 1.1b.v1
Processes, Tasks and Activities Covered	Bulk 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	Liquid, vapour pressure <0.5 kPa at STP [OC3].
	Concentration of substance in product	Covers percentage substance in the product up to 100 % (unless stated differently) [G13].
	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 more than 20 °C above ambient temperature, unless stated differently [G15]. Assumes a good basic standard of occupational hygiene is implemented [G1].
Contributing Scenarios	**Specific Risk Management Measures and Operational Conditions**	
	General measures applicable to all activities [CS135]	Control any potential exposure using measures such as contained systems, properly designed and maintained facilities and a good standard of general ventilation. Drain down systems and transfer lines prior to breaking containment. Drain down and flush equipment where possible prior to maintenance. Where there is potential for exposure: Ensure relevant staff are informed of exposure potential and aware of basic actions to minimise exposures; ensure suitable personal protective equipment is available; clear up spills and dispose of waste in accordance with regulatory requirements; monitor effectiveness of control measures; provide regular health surveillance as appropriate; identify and implement corrective actions [G25].
	General measures (skin irritants) [G19]	Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off skin contamination immediately. Provide basic employee training to prevent / minimise exposures and to report any skin effects that may develop [E3].
	General exposures (closed systems)[CS15]	Handle substance within a closed system [E47].
	General exposures (open systems) [CS16]	Wear suitable gloves tested to EN374 [PPE15].
	Process sampling [CS2]	No other specific measures identified [EI20].
	Laboratory activities [CS36]	No other specific measures identified [EI20].
	Bulk closed loading and unloading [CS501]	Handle substance within a closed system [E47]. Wear suitable gloves tested to EN374 [PPE15].
	Bulk open loading and unloading [CS503]	Wear suitable gloves tested to EN374 [PPE15].

	Drum and small pack filling [CS6]	Wear suitable gloves tested to EN374 [PPE15].
	Equipment cleaning and maintenance [CS39]	Drain down system prior to equipment break-in or maintenance [E65]. Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training [PPE16].
	Storage [CS67]	Handle 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 tonnage: 2.8 e^7 tonnes per year
		Fraction of Regional tonnage used locally: 0.002
		Annual site tonnage: 5.6 e^4 tonnes per year
		Maximum daily site tonnage: 0.19 kilotonnes per day
	Frequency and duration of use	Continuous release [FD2].
		Emission days per year: 300
	Environmental factors not influenced by risk management	Local freshwater dilution fraction: 10
		Local marine dilution fraction: 100
	Other Operational Conditions of use affecting environmental exposure	Release fraction to air from process (initial release prior to RMM): 0.001
		Release fraction to wastewater from process (initial release prior to RMM): 0.000001
		Release fraction to soil from process (initial release prior to RMM): 0.01
	Technical conditions and measures at process level (source) to prevent release	TCS 1: Common practices vary across sites thus conservative process release estimates used.
	Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil	TCR1j: Risk from environmental exposure is driven by human via indirect exposure (primarily ingestion).
		TCR14: Prevent discharge of undissolved substance to or recover from onsite wastewater.
		TCR6: No wastewater treatment required.
		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 %.
		If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of ≥ 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	Estimated substance removal from wastewater via domestic sewage treatment 94.1 %. Total efficiency of removal from wastewater after onsite and offsite (domestic treatment plant) RMMs 94.1 %. Maximum allowable site tonnage (M_{Safe}) based on release following total wastewater treatment removal 2.9 kilotonnes per day. Assumed domestic sewage treatment plant flow 2000 m^3 /day.
	Conditions and measures related to external treatment of waste for disposal	ETW3: External treatment and disposal of waste should comply with applicable regulations.
	Conditions and measures related to external recovery of waste	ERW1: External recovery and recycling of waste should comply with applicable regulations.
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]. Available hazard data do not enable the derivation of a DNEL for dermal irritant effects [G32]. Available hazard data do not support the need for a DNEL to be established for other health effects [G36]. Risk Management Measures are based on qualitative risk characterisation [G37].	
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	**Use as a fuel - Industrial**	
Use Descriptor	Sector(s) of Use	**SU3**: Industrial
	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 SpERC 7.12a.v1
Processes, Tasks and Activities Covered	Covers the use as a fuel (or fuel additives and additive components) 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	Liquid, vapour pressure <0.5 kPa at STP [OC3].
	Concentration of substance in product	Covers percentage substance in the product up to 100 % (unless stated differently) [G13].
	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 more than 20 °C above ambient temperature, unless stated differently [G15]. Assumes a good basic standard of occupational hygiene is implemented [G1].

Contributing Scenarios	Specific Risk Management Measures and Operational Conditions	
	General measures applicable to all activities [CS135]	Control any potential exposure using measures such as contained systems, properly designed and maintained facilities and a good standard of general ventilation. Drain down systems and transfer lines prior to breaking containment. Drain down and flush equipment where possible prior to maintenance. Where there is potential for exposure: Ensure relevant staff are informed of exposure potential and aware of basic actions to minimise exposures; ensure suitable personal protective equipment is available; clear up spills and dispose of waste in accordance with regulatory requirements; monitor effectiveness of control measures; provide regular health surveillance as appropriate; identify and implement corrective actions [G25].
	General measures (skin irritants) [G19]	Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off skin contamination immediately. Provide basic employee training to prevent / minimise exposures and to report any skin effects that may develop [E3].
	Bulk transfers [CS14]	Wear suitable gloves tested to EN374 [PPE15].
	Drum/batch transfers [CS8]	Wear suitable gloves tested to EN374 [PPE15].
	Use as a fuel (closed systems) [GEST_12I, CS107]	No other specific measures identified [EI20].
	Equipment cleaning and maintenance [CS39]	Drain down system prior to equipment break-in or maintenance [E65]. Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training [PPE16].
	Storage [CS67]	Handle 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 tonnage: 4.5 e^6 tonnes per year
		Fraction of Regional tonnage used locally: 0.34
		Annual site tonnage: 1.5 e^6 tonnes per year
		Maximum daily site tonnage: 5 kilotonnes per day
	Frequency and duration of use	Continuous release [FD2].
		Emission days per year: 300
	Environmental factors not influenced by risk management	Local freshwater dilution fraction: 10
		Local marine dilution fraction: 100

	Other Operational Conditions of use affecting environmental exposure	Release fraction to air from process (initial release prior to RMM): 0.005 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	TCS 1: Common practices vary across sites thus conservative process release estimates used.
	Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil	TCR1b: Risk from environmental exposure is driven by freshwater sediment. TCR9: If discharging to domestic sewage treatment plant, no onsite wastewater treatment required. 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 ≥ 97.7 %. If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of ≥ 60.4 %.
	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	Estimated substance removal from wastewater via domestic sewage treatment 94.1 %. Total efficiency of removal from wastewater after onsite and offsite (domestic treatment plant) RMMs 97.7 %. Maximum allowable site tonnage (M_{Safe}) based on release following total wastewater treatment removal 5 kilotonnes per day. Assumed domestic sewage treatment plant flow 2000 m^3 /day.
	Conditions and measures related to external treatment of waste for disposal	ETW1: Combustion emissions limited by required exhaust emission controls. ETW2: Combustion emissions considered in regional exposure assessment.
	Conditions and measures related to external recovery of waste	ERW1: External recovery and recycling of waste should comply with applicable regulations.
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]. Available hazard data do not enable the derivation of a DNEL for dermal irritant effects [G32]. Available hazard data do not support the need for a DNEL to be established for other health effects [G36]. Risk Management Measures are based on qualitative risk characterisation [G37].
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	**Use as a Fuel - Professional**	
Use Descriptor	Sector(s) of Use	**SU22**: Professional
	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 SpERC 9.12b.v1
Processes, Tasks and Activities Covered	Covers the use as a fuel (or fuel additives and additive components) 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	Liquid, vapour pressure <0.5 kPa at STP [OC3].
	Concentration of substance in product	Covers percentage substance in the product up to 100 % (unless stated differently) [G13].
	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 more than 20 °C above ambient temperature, unless stated differently [G15]. Assumes a good basic standard of occupational hygiene is implemented [G1].
Contributing Scenarios	**Specific Risk Management Measures and Operational Conditions**	
	General measures applicable to all activities [CS135]	Control any potential exposure using measures such as contained systems, properly designed and maintained facilities and a good standard of general ventilation. Drain down systems and transfer lines prior to breaking containment. Drain down and flush equipment where possible prior to maintenance. Where there is potential for exposure: Ensure relevant staff are informed of exposure potential and aware of basic actions to minimise exposures; ensure suitable personal protective equipment is available; clear up spills and dispose of waste in accordance with regulatory requirements; monitor effectiveness of control measures; provide regular health surveillance as appropriate; identify and implement corrective actions [G25].
	General measures (skin irritants) [G19]	Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off skin contamination immediately. Provide basic employee training to prevent / minimise exposures and to report any skin effects that may develop [E3].
	Bulk transfers [CS14]	Wear suitable gloves tested to EN374 [PPE15].
	Drum/batch transfers [CS8]	Use drum pumps or carefully pour from container [E64]. Wear suitable gloves tested to EN374 [PPE15].
	Refuelling activities [CS507]	Wear suitable gloves tested to EN374 [PPE15].

	Use as a fuel (closed systems) [GEST_12l, CS107]	Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour) [E11] **or** Ensure operation is undertaken outdoors [E69].
	Equipment cleaning and maintenance [CS39]	Drain down system prior to equipment break-in or maintenance [E65]. Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training [PPE16].
	Storage [CS67]	Handle 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 tonnage: 6.7 e^7 per year
		Fraction of Regional tonnage used locally: 0.0005
		Annual site tonnage: 3.3 kilotonnes per year
		Maximum daily site tonnage: 9.2 tonnes per day
	Frequency and duration of use	Continuous release [FD2].
		Emission days per year: 365
	Environmental factors not influenced by risk management	Local freshwater dilution fraction: 10
		Local marine dilution fraction: 100
	Other Operational Conditions of use affecting environmental exposure	Release fraction to air from process (initial release prior to RMM): 0.0001
		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	TCS 1: Common practices vary across sites thus conservative process release estimates used.
	Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil	TCR1j: Risk from environmental exposure is driven by human via indirect exposure (primarily ingestion).
		TCR6: No wastewater treatment required.
		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 %.
		If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of ≥ 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	Estimated substance removal from wastewater via domestic sewage treatment 94.1 %. Total efficiency of removal from wastewater after onsite and offsite (domestic treatment plant) RMMs 94.1 %. Maximum allowable site tonnage (M_{Safe}) based on release following total wastewater treatment removal 140 tonnes per day. Assumed domestic sewage treatment plant flow 2000 m^3 per day.
	Conditions and measures related to external treatment of waste for disposal	ETW1: Combustion emissions limited by required exhaust emission controls. ETW2: Combustion emissions considered in regional exposure assessment.
	Conditions and measures related to external recovery of waste	ERW1: External recovery and recycling of waste should comply with applicable regulations.
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]. Available hazard data do not enable the derivation of a DNEL for dermal irritant effects [G32]. Available hazard data do not support the need for a DNEL to be established for other health effects [G36]. Risk Management Measures are based on qualitative risk characterisation [G37].	
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	**Use as a fuel - Consumer**	
Use Descriptor	Sector(s) of Use	**SU21**: Consumer
	Product Categories	**PC 13**: 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	ESVOC SpERC 9.12c.v1
Processes, Tasks and Activities Covered	Covers consumer uses in 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	Liquid, vapour pressure > 10 Pa [OC15].
	Concentration of substance in product	Unless otherwise stated, cover concentrations up to 100 % [ConsOC1].
	Frequency and duration of use	Unless otherwise stated, covers use amounts up to 37500 g [ConsOC2]; covers skin contact area up to 420 cm^2 [ConsOC5]
	Other operational conditions affecting worker exposure	Unless otherwise stated, covers use frequency up to 0.143 times per day [ConsOC4]; covers exposure up to 2 hours per event [ConsOC14]
Product Category	**Specific Risk Management Measures and Operational Conditions**	
PC13: Fuels- Liquid Subcategories added: Automotive Refuelling	OC	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 cm^2 [ConsOC5]; for each use event, covers use amounts up to 37500 g [ConsOC2]; covers outdoor use [ConsOC12]; covers use in room size of 100 m^3 [ConsOC11]; for each use event, covers exposure up to 0.05 hr/event [ConsOC14].
	RMM	No specific RMMs developed beyond those OCs stated [ConsRMM15].

PC13: Fuels - Liquid Subcategories added: Garden Equipment - Use	OC	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 750 g [ConsOC2]; covers outdoor use [ConsOC12]; covers use in room size of 100 m^3 [ConsOC11]; for each use event, covers exposure up to 2.00 hr/event [ConsOC14].
	RMM	No specific RMMs developed beyond those OCs stated [ConsRMM15].
PC13: Fuels – Liquid Subcategories added: Garden Equipment - Refuelling	OC	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 cm^2 [ConsOC5]; for each use event, covers use amounts up to 750 g [ConsOC2]; Covers use in a one car garage (34 m^3) under typical ventilation [ConsOC10]; covers use in room size of 34 m^3 [ConsOC11]; for each use event, covers exposure up to 0.03 hr/event [ConsOC14];
	RMM	No specific RMMs developed beyond those OCs stated [ConsRMM15].
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 tonnage: 1.6 e^7 per year
		Fraction of Regional tonnage used locally: 0.0005
		Annual site tonnage: 8.2 kilotonnes per year
		Maximum daily site tonnage: 23 tonnes per day
	Frequency and duration of use	Continuous release [FD2].
		Emission days per year: 365
	Environmental factors not influenced by risk management	Local freshwater dilution fraction: 10
		Local marine dilution fraction: 100
	Other Operational Conditions of use affecting environmental exposure	Release fraction to air from wide dispersive use (regional only): 0.0001
		Release fraction to wastewater from wide dispersive use: 0.00001
		Release fraction to soil from wide dispersive use (regional only): 0.00001
	Conditions and measures related to municipal sewage treatment plant	Estimated substance removal from wastewater via domestic sewage treatment 94.1 %.
		Maximum allowable site tonnage (M_{Safe}) based on release following total wastewater treatment removal 230 tonnes /day.

		Assumed domestic sewage treatment plant flow 2000 m^3 /day.
	Conditions and measures related to external treatment of waste for disposal	ETW1: Combustion emissions limited by required exhaust emission controls. ETW2: Combustion emissions considered in regional exposure assessment.
	Conditions and measures related to external recovery of waste	ERW1: External recovery and recycling of waste should comply with applicable regulations.
SECTION 3	**EXPOSURE ESTIMATION**	
Section 3.1	**Health**	
	The ECETOC TRA tool has been used to estimate consumer exposures, consistent with the content of ECETOC Report #107 and the Chapter R15 of the IR&CSA TGD. Where exposure determinants differ to these sources, then they are indicated.	
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**	
	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	**Use in Road and Construction Applications - Professional**	
Use Descriptor	Sector(s) of Use	**SU22**: Professional
	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 SpERC 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	Liquid, vapour pressure <0.5 kPa at STP [OC3].
	Concentration of substance in product	Covers percentage substance in the product up to 100 % (unless stated differently) [G13].
	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 more than 20 °C above ambient temperature, unless stated differently [G15]. Assumes a good basic standard of occupational hygiene is implemented [G1].
Contributing Scenarios	**Specific Risk Management Measures and Operational Conditions**	
	General measures applicable to all activities [CS135]	Control any potential exposure using measures such as contained systems, properly designed and maintained facilities and a good standard of general ventilation. Drain down systems and transfer lines prior to breaking containment. Drain down and flush equipment where possible prior to maintenance.
		Where there is potential for exposure: Ensure relevant staff are informed of exposure potential and aware of basic actions to minimise exposures; ensure suitable personal protective equipment is available; clear up spills and dispose of waste in accordance with regulatory requirements; monitor effectiveness of control measures; provide regular health surveillance as appropriate; identify and implement corrective actions [G25].
	General measures (skin irritants) [G19]	Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off skin contamination immediately. Provide basic employee training to prevent / minimise exposures and to report any skin effects that may develop [E3]. Other skin protection measures such as impervious suits and face shields

		may be required during high dispersion activities which are likely to lead to substantial aerosol release, e.g. spraying [E4].
	Drum/batch transfers (Nondedicated facility) [CS8, CS82]	Wear gloves tested to EN374 [PPE15].
	Drum/batch transfers (Dedicated facility) [CS8, CS82]	Wear gloves tested to EN374 [PPE15].
	Spraying/fogging by machine application [CS25]	Minimise exposure by partial enclosure of the operation or equipment and provide extract ventilation at openings [E60]. Ensure operation is undertaken outdoors [E69]. Wear gloves tested to EN374 [PPE15].
	Manual applications e.g. brushing, rolling [CS13]	Wear chemically resistant gloves (tested to EN374) in combination with specific activity training [PPE17].
	Dipping, immersion and pouring [CS4]	Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training [PPE16].
	Equipment cleaning and maintenance [CS39]	Drain down system prior to equipment break-in or maintenance [E65]. Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training [PPE16].
	Store substance within a closed system [E84].	Handle 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 tonnage: 31 kilotonnes per year
		Fraction of Regional tonnage used locally: 0.0005
		Annual site tonnage: 15 tonnes per year
		Maximum daily site tonnage: 0.042 tonnes per day
	Frequency and duration of use	Continuous release [FD2].
		Emission days per year: 365
	Environmental factors not influenced by risk management	Local freshwater dilution fraction: 10
		Local marine dilution fraction: 100
	Other Operational Conditions of use 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	TCS 1: Common practices vary across sites thus conservative process release estimates used.
	Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil	TCR1b: Risk from environmental exposure is driven by freshwater sediment. TCR9: If discharging to domestic sewage treatment plant, no onsite wastewater treatment required. 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 ≥ 12.2 %. If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of ≥ 0 %.
	Organizational measures to prevent / limit release from site	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	Estimated substance removal from wastewater via domestic sewage treatment 94.1 %. Total efficiency of removal from wastewater after onsite and offsite (domestic treatment plant) RMMs 94.1 %. Maximum allowable site tonnage (M_{Safe}) based on release following total wastewater treatment removal 0.62 tonnes /day. Assumed domestic sewage treatment plant flow 2000 m^3 /day.
	Conditions and measures related to external treatment of waste for disposal	ETW3: External treatment and disposal of waste should comply with applicable regulations.
	Conditions and measures related to external recovery of waste	ERW1: External recovery and recycling of waste should comply with applicable regulations.
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]. Available hazard data do not enable the derivation of a DNEL for dermal irritant effects [G32]. Available hazard data do not support the need for a DNEL to be established for other health effects [G36]. Risk Management Measures are based on qualitative risk characterisation [G37].
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	**Explosives Manufacture and Use - Professional**	
Use Descriptor	Sector(s) of Use	**SU22**: Professional
	Process Categories	**PROC 1:** Use in closed process, no likelihood of 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.
	Environmental Release Categories	**ERC 8e**: Wide dispersive outdoor use of reactive substances in open systems
	Specific Environmental Release Category	Not applicable

Processes, Tasks and Activities Covered	Covers exposures arising from the manufacture and use of slurry explosives (including materials transfer, mixing and charging) 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 With potential for aerosol generation [CS138].
	Vapour Pressure	Liquid, vapour pressure <0.5 kPa at STP [OC3].
	Concentration of substance in product	Covers percentage substance in the product up to 100 % (unless stated differently) [G13].
	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 more than 20 °C above ambient temperature, unless stated differently [G15]. Assumes a good basic standard of occupational hygiene is implemented [G1].
Contributing Scenarios	**Specific Risk Management Measures and Operational Conditions**	
	General measures applicable to all activities [CS135]	Control any potential exposure using measures such as contained systems, properly designed and maintained facilities and a good standard of general ventilation. Drain down systems and transfer lines prior to breaking containment. Drain down and flush equipment where possible prior to maintenance. Where there is potential for exposure: Ensure relevant staff are informed of exposure potential and aware of basic actions to minimise exposures; ensure suitable personal protective equipment is available; clear up spills and dispose of waste in accordance with regulatory requirements; monitor effectiveness of control measures; provide regular health surveillance as appropriate; identify and implement corrective actions [G25].
	General measures (skin irritants) [G19]	Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off skin contamination immediately. Provide basic employee training to prevent / minimise exposures and to report any skin effects that may develop [E3].
	General exposures (closed systems) [CS15]	Handle substance within a closed system [E47]
	General exposures (open systems) [CS16]	Wear gloves tested to EN374 [PPE15].
	Process sampling [CS2]	No specific measures identified [EI18].
	Drum and batch transfers [CS8]	Use drum pumps or carefully pour from container [E64] Wear chemically resistant gloves (tested to EN374) in combination

		with basic employee training [PPE16]
	Bulk transfers [CS14]	Handle substance within a closed system [E47] Wear suitable gloves tested to EN374 [PPE15]
	Mixing operations (open systems) [CS30]	Provide extract ventilation to points where emissions occur [E54] Wear chemically resistant gloves (tested to EN374) in combination with basic employee training [PPE16]
	Production or preparation or articles by tabletting, compression, extrusion or pelletisation [CS100]	Wear suitable gloves tested to EN374 [PPE15]
	Drum and small package filling [CS8]	Wear suitable gloves tested to EN374 [PPE15]
	Laboratory activities [CS36]	No specific measures identified [EI18]
	Equipment clean down and maintenance [CS39]	Drain down system prior to equipment break-in or maintenance. E65. Wear chemically resistant gloves (tested to EN374) in combination with basic employee training. [PPE16]
	Storage [CS67]	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 tonnage: 13 kilotonnes per year
		Fraction of Regional tonnage used locally: 0.0005
		Annual site tonnage: 6,7 tonnes per year
		Maximum daily site tonnage: 0.018 tonnes per day
	Frequency and duration of use	Continuous release [FD2].
		Emission days per year: 365
	Environmental factors not influenced by risk management	Local freshwater dilution fraction: 10
		Local marine dilution fraction: 100
	Other Operational Conditions of use affecting environmental exposure	Release fraction to air from process (initial release prior to RMM): 0.001
		Release fraction to wastewater from process (initial release prior to RMM): 0.02
		Release fraction to soil from process (initial release prior to RMM): 0.01
	Technical conditions and measures at process level (source) to prevent release	TCS 1: Common practices vary across sites thus conservative process release estimates used.
	Technical onsite	TCR1b: Risk from environmental exposure is driven by

	conditions and measures to reduce or limit discharges, air emissions and releases to soil	freshwater sediment. TCR9: If discharging to domestic sewage treatment plant, no onsite wastewater treatment required. 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 ≥ 8,8 %. If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of ≥ 0 %.
	Organizational measures to prevent / limit release from site	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	Estimated substance removal from wastewater via domestic sewage treatment 94.1 %. Total efficiency of removal from wastewater after onsite and offsite (domestic treatment plant) RMMs 94.1 %. Maximum allowable site tonnage (M_{Safe}) based on release following total wastewater treatment removal 0.29 tonnes /day. Assumed domestic sewage treatment plant flow 2000 m^3 /day.
	Conditions and measures related to external treatment of waste for disposal	ETW3: External treatment and disposal of waste should comply with applicable regulations.
	Conditions and measures related to external recovery of waste	ERW1: External recovery and recycling of waste should comply with applicable regulations.
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]. Available hazard data do not enable the derivation of a DNEL for dermal irritant effects [G32]. Available hazard data do not support the need for a DNEL to be established for other health effects [G36]. Risk Management Measures are based on qualitative risk characterisation [G37].
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].