CHEMICAL SAFETY REPORT

Part B

Straight Run Gas Oils

Prepared by: CONCAWE

9. EXPOSURE ASSESSMENT

Table 9.1. Identified Use Description and Exposure Scenario Number Key

IU	Category	Identified Use Name	Sector	ES Number	Sector of Use (SU)	Product Category (PC)	Process Category (PROC)	Article Category (AC)	Environmental Release Category (ERC)	Specific Environmental Release Category (SpERC)
1	Straight Run Gas Oils	01 – Manufacture of Substance	Industrial	ES 9.1.1	3, 8, 9	NA	1, 2, 3, 4, 8a, 8b, 15	NA	1, 4	ESVOC SpERC 1.1.v1
2	Straight Run Gas Oils	01b – Use of Substance as Intermediate	Industrial	ES 9.2.1	3, 8, 9	NA	1, 2, 3, 4, 8a, 8b, 15	NA	6a	ESVOC SpERC 6.1a.v1
3	Straight Run Gas Oils	01a – Distribution of Substance	Industrial	ES 9.3.1	3	NA	1, 2, 3, 4, 8a, 8b, 9, 15	NA	1, 2, 3, 4, 5, 6a, 6b, 6c, 6d, 7	ESVOC SpERC 1.1b.v1
4	Straight Run Gas Oils	02 – Formulation & (Re)packing of Substances and Mixtures	Industrial	ES 9.4.1	3, 10	NA	1, 2, 3, 4, 5, 8a, 8b, 9, 14, 15	NA	2	ESVOC SpERC 2.2.v1
5	Straight Run Gas Oils	03a – Uses in Coatings: Industrial	Industrial	ES 9.5.1	3	NA	1, 2, 3, 4, 5, 7, 8a, 8b, 10, 13, 15	NA	4	ESVOC SpERC 4.3a.v1
6	Straight Run Gas Oils	03b – Uses in Coatings: Professional	Professional	ES 9.6.1	22	NA	1, 2, 3, 4, 5, 8a, 8b, 10, 11, 13, 15, 19	NA	8a, 8d	ESVOC SpERC 8.3b.v1
7	Straight Run Gas Oils	04a – Use in Cleaning Agents: Industrial	Industrial	ES 9.7.1	3	NA	1, 2, 3, 4, 7, 8a, 8b, 10, 13	NA	4	ESVOC SpERC 4.4a.v1
8	Straight Run Gas Oils	04b – Use in Cleaning Agents: Professional	Professional	ES 9.8.1	22	NA	1, 2, 3, 4, 8a, 8b, 10, 11, 13	NA	8a, 8d	ESVOC SpERC 8.4b.v1

9	Straight Run Gas Oils	05a – Use in Oil and Gas Field Drilling and Production Operations: Industrial	Industrial	ES 9.9.1	3	NA	1, 2, 3, 4, 8a, 8b	NA	4	QUALITATIVE ASSESSMENT FOR ENVIRONMENT
10	Straight Run Gas Oils	05b – Use in Oil and Gas field drilling and production operations: Professional	Professional	ES 9.10.1	22	NA	1, 2, 3, 4, 8a, 8b	NA	8d	QUALITATIVE ASSESSMENT FOR ENVIRONMENT
11	Straight Run Gas Oils	06a – Lubricants: Industrial	Industrial	ES 9.11.1	3	NA	1, 2, 3, 4, 7, 8a, 8b, 9, 10, 13, 17, 18	NA	4, 7	ESVOC SpERC 4.6a.v1
12	Straight Run Gas Oils	06b – Lubricants: Professional (Low Release)	Professional	ES 9.12.1	22	NA	1, 2, 3, 4, 8a, 8b, 9, 10, 11, 13, 17, 18, 20	NA	9a, 9b	ESVOC SpERC 9.6b.v1
13	Straight Run Gas Oils	06c – Lubricants: Professional (High Release)	Professional	ES 9.13.1	22	NA	1, 2, 3, 4, 8a, 8b, 9, 10, 11, 13, 17, 18, 20	NA	8a, 8d	ESVOC SpERC 8.6c.v1
14	Straight Run Gas Oils	07a – Use in Metal Working Fluids / Rolling Oils: Industrial	Industrial	ES 9.14.1	3	NA	1, 2, 3, 5, 8a, 8b, 9, 10, 11, 13, 17	NA	4	ESVOC SpERC 4.7a.v1
15	Straight Run Gas Oils	07b – Use in Metal working fluids / rolling oils: Professional	Professional	ES 9.15.1	22	NA	1, 2, 3, 4, 5, 7, 8a, 8b, 9, 10, 13, 17	NA	8a, 8d	ESVOC SpERC 8.7c.v1
16	Straight Run Gas Oils	10a – Use as Release Agents or Binders: Industrial	Industrial	ES 9.16.1	3	NA	1, 2, 3, 4, 6, 7, 8b, 10, 13, 14	NA	4	ESVOC SpERC 4.10a.v1
17	Straight Run Gas Oils	10b – Use as Release Agents or Binders: Professional	Professional	ES 9.17.1	22	NA	1, 2, 3, 4, 6, 8a, 8b, 10, 11, 14	NA	8a, 8d	ESVOC SpERC 8.10b.v1
18	Straight Run Gas Oils	12a – Use as a Fuel: Industrial	Industrial	ES 9.18.1	3	NA	1, 2, 3, 8a, 8b, 16	NA	7	ESVOC SpERC 7.12a.v1

19	Straight Run Gas Oils	12b – Use as a Fuel: Professional	Professional	ES 9.19.1	22	NA	1, 2, 3, 8a, 8b, 16	NA	9a, 9b	ESVOC SpERC 9.12b.v1
20	Straight Run Gas Oils	12c – Use as a Fuel: Consumer	Consumer	ES 9.20.1	21	13	NA	NA	9a, 9b	ESVOC SpERC 9.12c.v1
21	Straight Run Gas Oils	18b – Explosives Manufacture & Use: Professional	Professional	ES 9.21.1	22	NA	1, 3, 5, 8a, 8b	NA	8e	ERC DEFINED RELEASE FRACTIONS
22	Straight Run Gas Oils	13a – Use as Functional Fluids: Industrial	Industrial	ES 9.22.1	3	NA	1, 2, 3, 4, 8a, 8b, 9	NA	7	ESVOC SpERC 7.13a.v1
23	Straight Run Gas Oils	13b – Use as Functional Fluids: Professional	Professional	ES 9.23.1	22	NA	1, 2, 3, 8a, 9, 20	NA	9a, 9b	ESVOC SpERC 9.13b.v1
24	Straight Run Gas Oils	15 – Use in Road and Construction Applications: Professional	Professional	ES 9.24.1	22	NA	8a, 8b, 9, 10, 11, 13	NA	8d, 8f	ESVOC SpERC 8.15.v1
25	Straight Run Gas Oils	19 – Rubber Production and processing: Industrial	Industrial	ES 9.25.1	3, 10, 11	NA	1, 2, 3, 4, 5, 6, 7, 8a, 8b, 9, 13, 14, 15, 21	NA	1, 4, 6d	ESVOC SpERC 4.19.v1
26	Straight Run Gas Oils	16 – Other Consumer Uses	Consumer	ES 9.26.1	21	28, 39	NA	NA	8a, 8d	ESVOC SpERC 8.16.v1

9.1. Manufacture of Straight Run Gas Oil (Xn; R20, Xn; R65, R66, N; R51/53) – Industrial

9.1.1. Exposure Scenario

Section 1 Exposure Scenario Title Straight Run Gas Oil (Xn; R20, Xn; R65, R66, N; R51/53)	
Title	
Manufacture of Substance	
Use Descriptor	
Sector(s) of Use	3, 8, 9
Process Categories	1, 2, 3, 4, 8a, 8b, 15 *Further information on the mapping and allocation of PROC codes is contained in Table 9.1*
Environmental Release Categories	1, 4
Specific Environmental Release Category	ESVOC SpERC 1.1.v1
Processes, tasks, activities covered	
Manufacture of the substance or use as a process chemical or extraction agent. Includes recycling / recovery, material transfers, storage, sampling, associated laboratory activities, maintenance and loading (including marine vessel/barge, road/rail car and bulk container).	
Assessment Method	
See Section 3.	
Section 2 Operational conditions and risk management measures	
Section 2.1 Control of worker exposure	
Product characteristics	
Physical form of product	Liquid
Vapour pressure (kPa)	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/exposure	Covers daily exposures up to 8 hours (unless stated differently) G2
Other Operational Conditions affecting exposure	Operation is carried out at elevated temperature (> 20°C above ambient temperature). OC7. Assumes a good basic standard of occupational hygiene is implemented G1.
Specific Risk Management Measures and Operating Conditions	
See Appendix 3.	
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)	7.7e5
Fraction of Regional tonnage used locally	0.78
Annual site tonnage (tonnes/year)	6.0e5
Maximum daily site tonnage (kg/day)	2.0e6
Frequency and duration of use	
Continuous release [FD2].	
Emission days (days/year)	300
Environmental factors not influenced by risk management	
Local freshwater dilution factor	10
Local marine water dilution factor	100
Other given 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]. If discharging to domestic sewage treatment plant, no onsite wastewater treatment required [TCR9]. Prevent discharge of undissolved substance to or recover from onsite wastewater [TCR14].	
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 ≥ (%)	93.8
If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of ≥ (%)	0
Organisation 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 (kg/d)	2.1e6
Assumed domestic sewage treatment plant flow (m^3/d)	10000
Conditions and measures related to external treatment of waste for disposal	
External treatment and disposal of waste should comply with applicable regulations [ETW3].	
Conditions and measures related to external recovery of waste	
External recovery and recycling of waste should comply with applicable regulations [ERW1].	
Additional information on the basis for the allocation of the indentified OCs and RMMs is contained in PETRORISK file.	
Section 3 Exposure Estimation	
3.1. Health	
See Appendix 2.	
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	
4.1. Health	
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.	
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]. Scaled assessments for EU refineries have been performed using site-specific data and are attached in PETRORISK file in IUCLID section 13 – "Site-Specific Production" worksheet [DSU6].	

9.1.2. Exposure Estimation

9.1.2.1. Human Health

See Appendix 2.

9.1.2.2. Environment

See *PETRORISK file in IUCLID section 13* – "LocalCSR" worksheet

9.2. Use of Straight Run Gas Oil (Xn; R20, Xn; R65, R66, N; R51/53) as Intermediate – Industrial

9.2.1. Exposure Scenario

Section 1 Exposure Scenario Title Straight Run Gas Oil (Xn; R20, Xn; R65, R66, N; R51/53)	
Title	
Use of Substance as Intermediate	
Use Descriptor	
Sector(s) of Use	3, 8, 9
Process Categories	1, 2, 3, 4, 8a, 8b, 15 Further information on the mapping and allocation of PROC codes is contained in Table 9.1
Environmental Release Categories	6a
Specific Environmental Release Category	ESVOC SpERC 6.1a.v1
Processes, tasks, activities covered	
Use of substance as an intermediate. Includes recycling/ recovery, material transfers, storage, sampling, associated laboratory activities, maintenance and loading (including marine vessel/barge, road/rail car and bulk container).	
Assessment Method	
See Section 3.	
Section 2 Operational conditions and risk management measures	
Section 2.1 Control of worker exposure	
Product characteristics	
Physical form of product	Liquid
Vapour pressure (kPa)	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/exposure	Covers daily exposures up to 8 hours (unless stated differently) G2
Other Operational Conditions affecting exposure	Operation is carried out at elevated temperature (> 20°C above ambient temperature). OC7. Assumes a good basic standard of occupational hygiene is implemented G1.
Specific Risk Management Measures and Operating Conditions	
See Appendix 3.	
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)	5.1e4
Fraction of Regional tonnage used locally	0.29
Annual site tonnage (tonnes/year)	1.5e4
Maximum daily site tonnage (kg/day)	5.0e4
Frequency and duration of use	
Continuous release [FD2].	
Emission days (days/year)	300
Environmental factors not influenced by risk management	
Local freshwater dilution factor	10
Local marine water dilution factor	100
Other given 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)	3.0e-5
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 sediment [TCR1b]. If discharging to domestic sewage treatment plant, no onsite wastewater treatment required [TCR9]. Prevent discharge of undissolved substance to or recover from onsite wastewater [TCR14].	
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 ≥ (%)	50.4
If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of ≥ (%)	0
Organisation 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 (kg/d)	4.2e5
Assumed domestic sewage treatment plant flow (m^3/d)	2000
Conditions and measures related to external treatment of waste for disposal	
External treatment and disposal of waste should comply with applicable regulations [ETW3].	
Conditions and measures related to external recovery of waste	
External recovery and recycling of waste should comply with applicable regulations [ERW1].	
Additional information on the basis for the allocation of the indentified OCs and RMMs is contained in PETRORISK file.	
Section 3 Exposure Estimation	
3.1. Health	
See Appendix 2.	
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	
4.1. Health	
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.	
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].	

9.2.2. Exposure Estimation

9.2.2.1. Human Health

See Appendix 2.

9.2.2.2. Environment

See *PETRORISK file in IUCLID section 13* – "LocalCSR" worksheet

9.3. Distribution of Straight Run Gas Oil (Xn; R20, Xn; R65, R66, N; R51/53) – Industrial

9.3.1. Exposure Scenario

Section 1 Exposure Scenario Title Straight Run Gas Oil (Xn; R20, Xn; R65, R66, N; R51/53)	
Title	
Distribution of Substance	
Use Descriptor	
Sector(s) of Use	3
Process Categories	1, 2, 3, 4, 8a, 8b, 9, 15 *Further information on the mapping and allocation of PROC codes is contained in Table 9.1*
Environmental Release Categories	1, 2, 3, 4, 5, 6a, 6b, 6c, 6d, 7
Specific Environmental Release Category	ESVOC SpERC 1.1b.v1
Processes, tasks, 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.	
Assessment Method	
See Section 3.	
Section 2 Operational conditions and risk management measures	
Section 2.1 Control of worker exposure	
Product characteristics	
Physical form of product	Liquid
Vapour pressure (kPa)	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/exposure	Covers daily exposures up to 8 hours (unless stated differently) G2
Other Operational Conditions affecting 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.
Specific Risk Management Measures and Operating Conditions	
See Appendix 3.	
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)	7.7e5
Fraction of Regional tonnage used locally	0.002
Annual site tonnage (tonnes/year)	1.5e3
Maximum daily site tonnage (kg/day)	1.5e4
Frequency and duration of use	
Continuous release [FD2].	
Emission days (days/year)	100
Environmental factors not influenced by risk management	
Local freshwater dilution factor	10
Local marine water dilution factor	100
Other given 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 sediment [TCR1b]. 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
If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of ≥ (%)	0
Organisation 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 (kg/d)	3.9e6
Assumed domestic sewage treatment plant flow (m^3/d)	2000
Conditions and measures related to external treatment of waste for disposal	
External treatment and disposal of waste should comply with applicable regulations [ETW3].	
Conditions and measures related to external recovery of waste	
External recovery and recycling of waste should comply with applicable regulations [ERW1].	
Additional information on the basis for the allocation of the indentified OCs and RMMs is contained in PETRORISK file.	
Section 3 Exposure Estimation	
3.1. Health	
See Appendix 2.	
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	
4.1. Health	
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.	
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].	

9.3.2. Exposure Estimation

9.3.2.1. Human Health

See Appendix 2.

9.3.2.2. Environment

See *PETRORISK file in IUCLID section 13* – "LocalCSR" worksheet

9.4. Formulation & (Re)packing of Straight Run Gas Oil (Xn; R20, Xn; R65, R66, N; R51/53) – Industrial

9.4.1. Exposure Scenario

Section 1 Exposure Scenario Title Straight Run Gas Oil (Xn; R20, Xn; R65, R66, N; R51/53)	
Title	
Formulation & (Re)packing of Substances and Mixtures – Industrial	
Use Descriptor	
Sector(s) of Use	3, 10
Process Categories	1, 2, 3, 4, 5, 8a, 8b, 9, 14, 15 *Further information on the mapping and allocation of PROC codes is contained in Table 9.1*
Environmental Release Categories	2
Specific Environmental Release Category	ESVOC SpERC 2.2.v1
Processes, tasks, 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, maintenance, sampling and associated laboratory activities	
Assessment Method	
See Section 3.	
Section 2 Operational conditions and risk management measures	
Section 2.1 Control of worker exposure	
Product characteristics	
Physical form of product	Liquid
Vapour pressure (kPa)	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/exposure	Covers daily exposures up to 8 hours (unless stated differently) G2
Other Operational Conditions affecting 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.
Specific Risk Management Measures and Operating Conditions	
See Appendix 3.	
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)	7.1e5
Fraction of Regional tonnage used locally	0.042
Annual site tonnage (tonnes/year)	3.0e4
Maximum daily site tonnage (kg/day)	1.0e5
Frequency and duration of use	
Continuous release [FD2].	
Emission days (days/year)	300
Environmental factors not influenced by risk management	
Local freshwater dilution factor	10
Local marine water dilution factor	100
Other given 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]. If discharging to domestic sewage treatment plant, no onsite wastewater treatment required [TCR9]. Prevent discharge of undissolved substance to or recover from onsite wastewater [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 ≥ (%)	62.8
If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of ≥ (%)	0
Organisation 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 (kg/d)	6.3e5
Assumed domestic sewage treatment plant flow (m^3/d)	2000
Conditions and measures related to external treatment of waste for disposal	
External treatment and disposal of waste should comply with applicable regulations [ETW3].	
Conditions and measures related to external recovery of waste	
External recovery and recycling of waste should comply with applicable regulations [ERW1].	
Additional information on the basis for the allocation of the indentified OCs and RMMs is contained in PETRORISK file.	
Section 3 Exposure Estimation	
3.1. Health	
See Appendix 2.	
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	
4.1. Health	
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.	
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].	

9.4.2. Exposure Estimation

9.4.2.1. Human Health

See Appendix 2.

9.4.2.2. Environment

See *PETRORISK file in IUCLID section 13* – "LocalCSR" worksheet

9.5. Uses of Straight Run Gas Oil (Xn; R20, Xn; R65, R66, N; R51/53) in Coatings – Industrial

9.5.1. Exposure Scenario

Section 1 Exposure Scenario Title Straight Run Gas Oil (Xn; R20, Xn; R65, R66, N; R51/53)	
Title	
Uses in Coatings	
Use Descriptor	
Sector(s) of Use	3
Process Categories	1, 2, 3, 4, 5, 7, 8a, 8b, 10, 13, 15 *Further information on the mapping and allocation of PROC codes is contained in Table 9.1*
Environmental Release Categories	4
Specific Environmental Release Category	ESVOC SpERC 4.3a.v1
Processes, tasks, 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.	
Assessment Method	
See Section 3.	
Section 2 Operational conditions and risk management measures	
Section 2.1 Control of worker exposure	
Product characteristics	
Physical form of product	Liquid
Vapour pressure (kPa)	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/exposure	Covers daily exposures up to 8 hours (unless stated differently) G2
Other Operational Conditions affecting 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.
Specific Risk Management Measures and Operating Conditions	
See Appendix 3.	
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)	8.2e2
Fraction of Regional tonnage used locally	1
Annual site tonnage (tonnes/year)	8.2e2
Maximum daily site tonnage (kg/day)	4.1e4
Frequency and duration of use	
Continuous release [FD2].	
Emission days (days/year)	20
Environmental factors not influenced by risk management	
Local freshwater dilution factor	10
Local marine water dilution factor	100

Other given 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 [TCR9]. Prevent discharge of undissolved substance to or recover from onsite wastewater [TCR14].	
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 ≥ (%)	74.1
If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of ≥ (%)	0
Organisation 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 (kg/d)	1.8e5
Assumed domestic sewage treatment plant flow (m^3/d)	2000
Conditions and measures related to external treatment of waste for disposal	
External treatment and disposal of waste should comply with applicable regulations [ETW3].	
Conditions and measures related to external recovery of waste	
External recovery and recycling of waste should comply with applicable regulations [ERW1].	
Additional information on the basis for the allocation of the indentified OCs and RMMs is contained in PETRORISK file.	
Section 3 Exposure Estimation	
3.1. Health	
See Appendix 2.	
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	
4.1. Health	
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.	
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].	

9.5.2. Exposure Estimation

9.5.2.1. Human Health

See Appendix 2.

9.5.2.2. Environment

See *PETRORISK file in IUCLID section 13* – "LocalCSR" worksheet

9.6. Uses of Straight Run Gas Oil (Xn; R20, Xn; R65, R66, N; R51/53) in Coatings – Professional

9.6.1. Exposure Scenario

Section 1 Exposure Scenario Title Straight Run Gas Oil (Xn; R20, Xn; R65, R66, N; R51/53)	
Title	
Uses in Coatings – Professional	
Use Descriptor	
Sector(s) of Use	22
Process Categories	1, 2, 3, 4, 5, 8a, 8b, 10, 11, 13, 15, 19 *Further information on the mapping and allocation of PROC codes is contained in Table 9.1*
Environmental Release Categories	8a, 8d
Specific Environmental Release Category	ESVOC SpERC 8.3b.v1
Processes, tasks, 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.	
Assessment Method	
See Section 3.	
Section 2 Operational conditions and risk management measures	
Section 2.1 Control of worker exposure	
Product characteristics	
Physical form of product	Liquid
Vapour pressure (kPa)	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/exposure	Covers daily exposures up to 8 hours (unless stated differently) G2
Other Operational Conditions affecting 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.
Specific Risk Management Measures and Operating Conditions	
See Appendix 3.	
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)	1.2e3
Fraction of Regional tonnage used locally	0.0005
Annual site tonnage (tonnes/year)	6.2e-1
Maximum daily site tonnage (kg/day)	1.7e0
Frequency and duration of use	
Continuous release [FD2].	
Emission days (days/year)	365
Environmental factors not influenced by risk management	
Local freshwater dilution factor	10
Local marine water dilution factor	100

Other given operational conditions affecting environmental exposure	
Release fraction to air from wide dispersive use (regional use only)	0.98
Release fraction to wastewater wide dispersive use	0.01
Release fraction to soil from wide dispersive use (regional use only)	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 sediment [TCR1b]. 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
If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of ≥ (%)	0
Organisation 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 (kg/d)	4.1e2
Assumed domestic sewage treatment plant flow (m^3/d)	2000
Conditions and measures related to external treatment of waste for disposal	
External treatment and disposal of waste should comply with applicable regulations [ETW3].	
Conditions and measures related to external recovery of waste	
External recovery and recycling of waste should comply with applicable regulations [ERW1].	
Additional information on the basis for the allocation of the indentified OCs and RMMs is contained in PETRORISK file.	
Section 3 Exposure Estimation	
3.1. Health	
See Appendix 2.	
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	
4.1. Health	
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.	
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].	

9.6.2. Exposure Estimation

9.6.2.1. Human Health

See Appendix 2.

9.6.2.2. Environment

See *PETRORISK file in IUCLID section 13* – "LocalCSR" worksheet

9.7. Use of Straight Run Gas Oil (Xn; R20, Xn; R65, R66, N; R51/53) in Cleaning Agents – Industrial

9.7.1. Exposure Scenario

Section 1 Exposure Scenario Title Straight Run Gas Oil (Xn; R20, Xn; R65, R66, N; R51/53)	
Title	
Use in Cleaning Agents	
Use Descriptor	
Sector(s) of Use	3
Process Categories	1, 2, 3, 4, 7, 8a, 8b, 10, 13 *Further information on the mapping and allocation of PROC codes is contained in Table 9.1*
Environmental Release Categories	4
Specific Environmental Release Category	ESVOC SpERC 4.4a.v1
Processes, tasks, 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.	
Assessment Method	
See Section 3.	
Section 2 Operational conditions and risk management measures	
Section 2.1 Control of worker exposure	
Product characteristics	
Physical form of product	Liquid
Vapour pressure (kPa)	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/exposure	Covers daily exposures up to 8 hours (unless stated differently) G2
Other Operational Conditions affecting 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.
Specific Risk Management Measures and Operating Conditions	
See Appendix 3.	
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)	1.4e1
Fraction of Regional tonnage used locally	1
Annual site tonnage (tonnes/year)	1.4e1
Maximum daily site tonnage (kg/day)	7.1e2
Frequency and duration of use	
Continuous release [FD2].	
Emission days (days/year)	20
Environmental factors not influenced by risk management	
Local freshwater dilution factor	10
Local marine water dilution factor	100

Other given 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 by freshwater [TCR1a]. No wastewater treatment required [TCR6]. Prevent discharge of undissolved substance to or recover from onsite wastewater [TCR14].	
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
If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of ≥ (%)	0
Organisation 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 (kg/d)	2.5e5
Assumed domestic sewage treatment plant flow (m^3/d)	2000
Conditions and measures related to external treatment of waste for disposal	
External treatment and disposal of waste should comply with applicable regulations [ETW3].	
Conditions and measures related to external recovery of waste	
External recovery and recycling of waste should comply with applicable regulations [ERW1].	
Additional information on the basis for the allocation of the indentified OCs and RMMs is contained in PETRORISK file.	
Section 3 Exposure Estimation	
3.1. Health	
See Appendix 2.	
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	
4.1. Health	
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.	
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].	

9.7.2. Exposure Estimation

9.7.2.1. Human Health

See Appendix 2.

9.7.2.2. Environment

See *PETRORISK file in IUCLID section 13* – "LocalCSR" worksheet

9.8. Use of Straight Run Gas Oil (Xn; R20, Xn; R65, R66, N; R51/53) in Cleaning Agents – Professional

9.8.1. Exposure Scenario

Section 1 Exposure Scenario Title Straight Run Gas Oil (Xn; R20, Xn; R65, R66, N; R51/53)	
Title	
Use in Cleaning Agents	
Use Descriptor	
Sector(s) of Use	22
Process Categories	1, 2, 3, 4, 8a, 8b, 10, 11, 13 *Further information on the mapping and allocation of PROC codes is contained in Table 9.1*
Environmental Release Categories	8a, 8d
Specific Environmental Release Category	ESVOC SpERC 8.4b.v1
Processes, tasks, 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).	
Assessment Method	
See Section 3.	
Section 2 Operational conditions and risk management measures	
Section 2.1 Control of worker exposure	
Product characteristics	
Physical form of product	Liquid
Vapour pressure (kPa)	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/exposure	Covers daily exposures up to 8 hours (unless stated differently) G2
Other Operational Conditions affecting 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.
Specific Risk Management Measures and Operating Conditions	
See Appendix 3.	
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)	1.4e1
Fraction of Regional tonnage used locally	1
Annual site tonnage (tonnes/year)	7.1e-3
Maximum daily site tonnage (kg/day)	1.9e-2
Frequency and duration of use	
Continuous release [FD2].	
Emission days (days/year)	365
Environmental factors not influenced by risk management	
Local freshwater dilution factor	10
Local marine water dilution factor	100
Other given operational conditions affecting environmental exposure	

Release fraction to air from wide dispersive use (regional use only)	0.02
Release fraction to wastewater wide dispersive use	0.000001
Release fraction to soil from wide dispersive use (regional use only)	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
If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of ≥ (%)	0
Organisation 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 (kg/d)	6.8e0
Assumed domestic sewage treatment plant flow (m^3/d)	2000
Conditions and measures related to external treatment of waste for disposal	
External treatment and disposal of waste should comply with applicable regulations [ETW3].	
Conditions and measures related to external recovery of waste	
External recovery and recycling of waste should comply with applicable regulations [ERW1].	
Additional information on the basis for the allocation of the indentified OCs and RMMs is contained in PETRORISK file.	
Section 3 Exposure Estimation	
3.1. Health	
See Appendix 2.	
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	
4.1. Health	
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.	
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].	

9.8.2. Exposure Estimation

9.8.2.1. Human Health

See Appendix 2.

9.8.2.2. Environment

See *PETRORISK file in IUCLID section 13* – "LocalCSR" worksheet

9.9. Use of Straight Run Gas Oil (Xn; R20, Xn; R65, R66, N; R51/53) in Oil and Gas Field Drilling and Production Operations – Industrial

9.9.1. Exposure Scenario

Section 1 Exposure Scenario Title Straight Run Gas Oil (Xn; R20, Xn; R65, R66, N; R51/53)	
Title	
Use in Oil and Gas Field Drilling and Production Operations	
Use Descriptor	
Sector(s) of Use	3
Process Categories	1, 2, 3, 4, 8a, 8b *Further information on the mapping and allocation of PROC codes is contained in Table 9.1*
Environmental Release Categories	4
Specific Environmental Release Category	Qualitative assessment
Processes, tasks, activities covered	
Oil field well drilling and production operations (including drilling muds and well cleaning) including material transfers, on-site formulation, well head operations, shaker room activities and related maintenance.	
Assessment Method	
See Section 3.	
Section 2 Operational conditions and risk management measures	
Section 2.1 Control of worker exposure	
Product characteristics	
Physical form of product	Liquid
Vapour pressure (kPa)	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/exposure	Covers daily exposures up to 8 hours (unless stated differently) G2
Other Operational Conditions affecting 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.
Specific Risk Management Measures and Operating Conditions	
See Appendix 3.	
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]	2.26E+04
Fraction of Regional tonnage used locally [A3]	Not Applicable
Annual site tonnage (tonnes/year) [A5]	Not Applicable
Maximum daily site tonnage (kg/day) [A4]	Not Applicable
Frequency and duration of use	
Emission days (days/year) [FD4]	Not Applicable
Environmental factors not influenced by risk management	
Local marine water dilution factor [EF2]	Not Applicable
Other given operational conditions affecting environmental exposure	

Release fraction to air from process (initial release prior to RMM) [OOC4]	Not Applicable
Release fraction to wastewater from process (initial release prior to RMM) [OOC5]	Not Applicable
Technical conditions and measures at process level (source) to prevent release	
Discharge to aquatic environment is restricted (see Section 4.2).	
Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil	
Not Applicable	
Treat air emission to provide a typical removal efficiency of (%) [TCR7]	Not Applicable
Treat onsite wastewater (prior to receiving water discharge) to provide the required removal efficiency ≥ (%)	Not Applicable
If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of ≥ (%)	Not Applicable
Organisation measures to prevent/limit release from site	
Prevent environmental discharge consistent with regulatory requirements.	
Conditions and measures related to municipal sewage treatment plant	
Estimated substance removal from wastewater via domestic sewage treatment (%)	Not Applicable
Total efficiency of removal from wastewater after onsite and offsite (domestic treatment plant) RMMs (%)	Not Applicable
Maximum allowable site tonnage (M_{Safe}) based on domestic sewage treatment release (kg/d)	Not Applicable
Assumed domestic sewage treatment plant flow (m^3/d)	Not Applicable
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.	
Conditions and measures related to external recovery of waste	
External recovery and recycling of waste should comply with applicable local and/or national regulations.	
Section 3 Exposure Estimation	
3.1. Health	
See Appendix 2.	
3.2. Environment	
Quantitative exposure and risk assessment not possible due to lack of emissions to aquatic environment. Qualitative approach used to conclude safe use.	
Section 4 Guidance to check compliance with the Exposure Scenario	
4.1. Health	
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.	
4.2. Environment	
Discharge to aquatic environment is restricted by law and industry prohibits release.1 1OSPAR Commission 2009. Discharges, Spills and Emissions from Offshore Oil and Gas Installations in 2007, including the assessment of data reported in 2006 and 2007.	

9.9.2. Exposure Estimation

9.9.2.1. Human Health

See Appendix 2.

9.9.2.2. Environment

See *PETRORISK file in IUCLID section 13* – "LocalCSR" worksheet

9.10. Use of Straight Run Gas Oil (Xn; R20, Xn; R65, R66, N; R51/53) in Oil and Gas Field Drilling and Production Operations – Professional

9.10.1. Exposure Scenario

Section 1 Exposure Scenario Title Straight Run Gas Oil (Xn; R20, Xn; R65, R66, N; R51/53)	
Title	
Use in Oil and Gas Field Drilling and Production Operations	
Use Descriptor	
Sector(s) of Use	22
Process Categories	1, 2, 3, 4, 8a, 8b *Further information on the mapping and allocation of PROC codes is contained in Table 9.1*
Environmental Release Categories	8D
Specific Environmental Release Category	Qualitative assessment
Processes, tasks, 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.	
Assessment Method	
See Section 3.	
Section 2 Operational conditions and risk management measures	
Section 2.1 Control of worker exposure	
Product characteristics	
Physical form of product	Liquid
Vapour pressure (kPa)	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/exposure	Covers daily exposures up to 8 hours (unless stated differently) G2
Other Operational Conditions affecting 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.
Specific Risk Management Measures and Operating Conditions	
See Appendix 3.	
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]	2.26E+04
Fraction of Regional tonnage used locally [A3]	Not Applicable
Annual site tonnage (tonnes/year) [A5]	Not Applicable
Maximum daily site tonnage (kg/day) [A4]	Not Applicable
Frequency and duration of use	
Emission days (days/year) [FD4]	Not Applicable
Environmental factors not influenced by risk management	
Local marine water dilution factor [EF2]	Not Applicable
Other given operational conditions affecting environmental exposure	

Release fraction to air from process (initial release prior to RMM) [OOC4]	Not Applicable
Release fraction to wastewater from process (initial release prior to RMM) [OOC5]	Not Applicable
Technical conditions and measures at process level (source) to prevent release	
Discharge to aquatic environment is restricted (see Section 4.2).	
Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil	
Not Applicable	
Treat air emission to provide a typical removal efficiency of (%) [TCR7]	Not Applicable
Treat onsite wastewater (prior to receiving water discharge) to provide the required removal efficiency ≥ (%)	Not Applicable
If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of ≥ (%)	Not Applicable
Organisation measures to prevent/limit release from site	
Prevent environmental discharge consistent with regulatory requirements.	
Conditions and measures related to municipal sewage treatment plant	
Estimated substance removal from wastewater via domestic sewage treatment (%)	Not Applicable
Total efficiency of removal from wastewater after onsite and offsite (domestic treatment plant) RMMs (%)	Not Applicable
Maximum allowable site tonnage (M_{Safe}) based on domestic sewage treatment release (kg/d)	Not Applicable
Assumed domestic sewage treatment plant flow (m^3/d)	Not Applicable
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.	
Conditions and measures related to external recovery of waste	
External recovery and recycling of waste should comply with applicable local and/or national regulations.	
Section 3 Exposure Estimation	
3.1. Health	
See Appendix 2.	
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	
4.1. Health	
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.	
4.2. Environment	
Discharge to aquatic environment is restricted by law and industry prohibits release.1 1OSPAR Commission 2009. Discharges, Spills and Emissions from Offshore Oil and Gas Installations in 2007, including the assessment of data reported in 2006 and 2007.	

9.10.2. Exposure Estimation

9.10.2.1. Human Health

See Appendix 2.

9.10.2.2. Environment

See *PETRORISK file in IUCLID section 13* – "LocalCSR" worksheet

9.11. Use of Straight Run Gas Oil (Xn; R20, Xn; R65, R66, N; R51/53) in Lubricants – Industrial

9.11.1. Exposure Scenario

Section 1 Exposure Scenario Title Straight Run Gas Oil (Xn; R20, Xn; R65, R66, N; R51/53)	
Title	
Lubricants	
Use Descriptor	
Sector(s) of Use	3
Process Categories	1, 2, 3, 4, 7, 8a, 8b, 9, 10, 13, 17, 18 *Further information on the mapping and allocation of PROC codes is contained in Table 9.1*
Environmental Release Categories	4, 7
Specific Environmental Release Category	ESVOC SpERC 4.6a.v1
Processes, tasks, activities covered	
Covers the use of formulated lubricants in closed and open systems including material transfers, operation of machinery/engines and similar articles, reworking on reject articles, equipment maintenance and disposal of wastes.	
Assessment Method	
See Section 3.	
Section 2 Operational conditions and risk management measures	
Section 2.1 Control of worker exposure	
Product characteristics	
Physical form of product	Liquid
Vapour pressure (kPa)	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/exposure	Covers daily exposures up to 8 hours (unless stated differently) G2
Other Operational Conditions affecting 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.
Specific Risk Management Measures and Operating Conditions	
See Appendix 3.	
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)	3.8e3
Fraction of Regional tonnage used locally	0.026
Annual site tonnage (tonnes/year)	1.0e2
Maximum daily site tonnage (kg/day)	5.0e3
Frequency and duration of use	
Continuous release [FD2].	
Emission days (days/year)	20
Environmental factors not influenced by risk management	
Local freshwater dilution factor	10

Local marine water dilution factor	100
Other given 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]. Prevent discharge of undissolved substance to or recover from onsite wastewater [TCR14].	
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
If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of ≥ (%)	0
Organisation 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 (kg/d)	1.3e6
Assumed domestic sewage treatment plant flow (m^3/d)	2000
Conditions and measures related to external treatment of waste for disposal	
External treatment and disposal of waste should comply with applicable regulations [ETW3].	
Conditions and measures related to external recovery of waste	
External recovery and recycling of waste should comply with applicable regulations [ERW1].	
Additional information on the basis for the allocation of the indentified OCs and RMMs is contained in PETRORISK file.	
Section 3 Exposure Estimation	
3.1. Health	
See Appendix 2.	
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	
4.1. Health	
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.	
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].	

9.11.2. Exposure Estimation

9.11.2.1. Human Health

See Appendix 2.

9.11.2.2. Environment

See *PETRORISK file in IUCLID section 13* – "LocalCSR" worksheet

9.12. Use of Straight Run Gas Oil (Xn; R20, Xn; R65, R66, N; R51/53) in Lubricants – Professional: Low Environmental Release

9.12.1. Exposure Scenario

Section 1 Exposure Scenario Title Straight Run Gas Oil (Xn; R20, Xn; R65, R66, N; R51/53)	
Title	
Lubricants – Professional: Low Environmental Release	
Use Descriptor	
Sector(s) of Use	22
Process Categories	1, 2, 3, 4, 8a, 8b, 9, 10, 11, 13, 17, 18, 20 *Further information on the mapping and allocation of PROC codes is contained in Table 9.1*
Environmental Release Categories	9a, 9b
Specific Environmental Release Category	ESVOC SpERC 9.6b.v1
Processes, tasks, activities covered	
Covers the use of formulated lubricants in closed and open systems including material transfers, operation of engines and similar articles, reworking on reject articles, equipment maintenance and disposal of waste oil.	
Assessment Method	
See Section 3.	
Section 2 Operational conditions and risk management measures	
Section 2.1 Control of worker exposure	
Product characteristics	
Physical form of product	Liquid
Vapour pressure (kPa)	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/exposure	Covers daily exposures up to 8 hours (unless stated differently) G2
Other Operational Conditions affecting 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.
Specific Risk Management Measures and Operating Conditions	
See Appendix 3.	
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)	3.5e1
Fraction of Regional tonnage used locally	0.0005
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 factor	10
Local marine water dilution factor	100
Other given operational conditions affecting environmental exposure	

Release fraction to air from wide dispersive use (regional use only)	0.01
Release fraction to wastewater wide dispersive use	0.01
Release fraction to soil from wide dispersive use (regional use only)	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 sediment [TCR1b]. 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
If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of ≥ (%)	0
Organisation 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 (kg/d)	1.7e1
Assumed domestic sewage treatment plant flow (m^3/d)	2000
Conditions and measures related to external treatment of waste for disposal	
External treatment and disposal of waste should comply with applicable regulations [ETW3].	
Conditions and measures related to external recovery of waste	
External recovery and recycling of waste should comply with applicable regulations [ERW1].	
Additional information on the basis for the allocation of the indentified OCs and RMMs is contained in PETRORISK file.	
Section 3 Exposure Estimation	
3.1. Health	
See Appendix 2.	
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	
4.1. Health	
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.	
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].	

9.12.2. Exposure Estimation

9.12.2.1. Human Health

See Appendix 2.

9.12.2.2. Environment

See *PETRORISK file in IUCLID section 13* – "LocalCSR" worksheet

9.13. Use of Straight Run Gas Oil (Xn; R20, Xn; R65, R66, N; R51/53) in Lubricants – Professional: High Environmental Release

9.13.1. Exposure Scenario

Section 1 Exposure Scenario Title Straight Run Gas Oil (Xn; R20, Xn; R65, R66, N; R51/53)	
Title	
Lubricants – Professional: High Environmental Release	
Use Descriptor	
Sector(s) of Use	22
Process Categories	1, 2, 3, 4, 8a, 8b, 9, 10, 11, 13, 17, 18, 20 *Further information on the mapping and allocation of PROC codes is contained in Table 9.1*
Environmental Release Categories	8a, 8d
Specific Environmental Release Category	ESVOC SpERC 8.6c.v1
Processes, tasks, activities covered	
Covers the use of formulated lubricants in closed and open systems including material transfers, operation of engines and similar articles, reworking on reject articles, equipment maintenance and disposal of waste oil.	
Assessment Method	
See Section 3.	
Section 2 Operational conditions and risk management measures	
Section 2.1 Control of worker exposure	
Product characteristics	
Physical form of product	Liquid
Vapour pressure (kPa)	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/exposure	Covers daily exposures up to 8 hours (unless stated differently) G2
Other Operational Conditions affecting 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.
Specific Risk Management Measures and Operating Conditions	
See Appendix 3.	
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)	3.5e1
Fraction of Regional tonnage used locally	0.0005
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 factor	10

Local marine water dilution factor	100
Other given operational conditions affecting environmental exposure	
Release fraction to air from wide dispersive use (regional use only)	1.5e-1
Release fraction to wastewater wide dispersive use	0.05
Release fraction to soil from wide dispersive use (regional use only)	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
If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of ≥ (%)	0
Organisation 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 (kg/d)	1.6e1
Assumed domestic sewage treatment plant flow (m^3/d)	2000
Conditions and measures related to external treatment of waste for disposal	
External treatment and disposal of waste should comply with applicable regulations [ETW3].	
Conditions and measures related to external recovery of waste	
External recovery and recycling of waste should comply with applicable regulations [ERW1].	
Additional information on the basis for the allocation of the indentified OCs and RMMs is contained in PETRORISK file.	
Section 3 Exposure Estimation	
3.1. Health	
See Appendix 2.	
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	
4.1. Health	
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.	
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].	

9.13.2. Exposure Estimation

9.13.2.1. Human Health

See Appendix 2.

9.13.2.2. Environment

See *PETRORISK file in IUCLID section 13* – "LocalCSR" worksheet

9.14. Use of Straight Run Gas Oil (Xn; R20, Xn; R65, R66, N; R51/53) in Metal Working Fluids/Rolling Oils – Industrial

9.14.1. Exposure Scenario

Section 1 Exposure Scenario Title Straight Run Gas Oil (Xn; R20, Xn; R65, R66, N; R51/53)	
Title	
Use in Metal Working Fluids/Rolling Oils	
Use Descriptor	
Sector(s) of Use	3
Process Categories	1, 2, 3, 4, 5, 7, 8a, 8b, 9, 10, 13, 17 *Further information on the mapping and allocation of PROC codes is contained in Table 9.1*
Environmental Release Categories	4
Specific Environmental Release Category	ESVOC SpERC 4.7a.v1
Processes, tasks, 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.	
Assessment Method	
See Section 3.	
Section 2 Operational conditions and risk management measures	
Section 2.1 Control of worker exposure	
Product characteristics	
Physical form of product	Liquid
Vapour pressure (kPa)	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/exposure	Covers daily exposures up to 8 hours (unless stated differently) G2
Other Operational Conditions affecting 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.
Specific Risk Management Measures and Operating Conditions	
See Appendix 3.	
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)	6.7e3
Fraction of Regional tonnage used locally	0.015
Annual site tonnage (tonnes/year)	1.0e2
Maximum daily site tonnage (kg/day)	5.0e3
Frequency and duration of use	
Continuous release [FD2].	
Emission days (days/year)	20
Environmental factors not influenced by risk management	
Local freshwater dilution factor	10
Local marine water dilution factor	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 sediment [TCR1b]. No wastewater treatment required [TCR6]. Prevent discharge of undissolved substance to or recover from onsite wastewater [TCR14].	
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
If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of ≥ (%)	0
Organisation 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 (kg/d)	1.3e6
Assumed domestic sewage treatment plant flow (m^3/d)	2000
Conditions and measures related to external treatment of waste for disposal	
External treatment and disposal of waste should comply with applicable regulations [ETW3].	
Conditions and measures related to external recovery of waste	
External recovery and recycling of waste should comply with applicable regulations [ERW1].	
Additional information on the basis for the allocation of the indentified OCs and RMMs is contained in PETRORISK file.	
Section 3 Exposure Estimation	
3.1. Health	
See Appendix 2.	
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	
4.1. Health	
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.	
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].	

9.14.2. Exposure Estimation

9.14.2.1. Human Health

See Appendix 2.

9.14.2.2. Environment

See *PETRORISK file in IUCLID section 13* – "LocalCSR" worksheet

9.15. Use of Straight Run Gas Oil (Xn; R20, Xn; R65, R66, N; R51/53) in Metal Working Fluids/Rolling Oils – Professional

9.15.1. Exposure Scenario

Section 1 Exposure Scenario Title Straight Run Gas Oil (Xn; R20, Xn; R65, R66, N; R51/53)	
Title	
Use in Metal working fluids / rolling oils – Professional	
Use Descriptor	
Sector(s) of Use	22
Process Categories	1, 2, 3, 5, 8a, 8b, 9, 10, 11, 13, 17 *Further information on the mapping and allocation of PROC codes is contained in Table 9.1*
Environmental Release Categories	8a, 8d
Specific Environmental Release Category	ESVOC SpERC 8.7c.v1
Processes, tasks, 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.	
Assessment Method	
See Section 3.	
Section 2 Operational conditions and risk management measures	
Section 2.1 Control of worker exposure	
Product characteristics	
Physical form of product	Liquid
Vapour pressure (kPa)	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/exposure	Covers daily exposures up to 8 hours (unless stated differently) G2
Other Operational Conditions affecting 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.
Specific Risk Management Measures and Operating Conditions	
See Appendix 3.	
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)	5.1e2
Fraction of Regional tonnage used locally	0.0005
Annual site tonnage (tonnes/year)	2.6e-1
Maximum daily site tonnage (kg/day)	7.0e-1
Frequency and duration of use	
Continuous release [FD2].	
Emission days (days/year)	365
Environmental factors not influenced by risk management	
Local freshwater dilution factor	10
Local marine water dilution factor	100
Other given operational conditions affecting environmental exposure	

Release fraction to air from wide dispersive use (regional use only)	1.5e-1
Release fraction to wastewater wide dispersive use	0.05
Release fraction to soil from wide dispersive use (regional use only)	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
If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of ≥ (%)	0
Organisation 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 (kg/d)	1.3e2
Assumed domestic sewage treatment plant flow (m^3/d)	2000
Conditions and measures related to external treatment of waste for disposal	
External treatment and disposal of waste should comply with applicable regulations [ETW3].	
Conditions and measures related to external recovery of waste	
External recovery and recycling of waste should comply with applicable regulations [ERW1].	
Additional information on the basis for the allocation of the indentified OCs and RMMs is contained in PETRORISK file.	
Section 3 Exposure Estimation	
3.1. Health	
See Appendix 2.	
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	
4.1. Health	
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.	
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].	

9.15.2. Exposure Estimation

9.15.2.1. Human Health

See Appendix 2.

9.15.2.2. Environment

See *PETRORISK file in IUCLID section 13* – "LocalCSR" worksheet

9.16. Use of Straight Run Gas Oil (Xn; R20, Xn; R65, R66, N; R51/53) as Release Agents or Binders – Industrial

9.16.1. Exposure Scenario

Section 1 Exposure Scenario Title Straight Run Gas Oil (Xn; R20, Xn; R65, R66, N; R51/53)		
Title		
Use as Release Agents or Binders		
Use Descriptor		
Sector(s) of Use	3	
Process Categories	1, 2, 3, 4, 6, 7, 8b, 10, 13, 14 *Further information on the mapping and allocation of PROC codes is contained in Table 9.1*	
Environmental Release Categories	4	
Specific Environmental Release Category	ESVOC SpERC 4.10a.v1	
Processes, tasks, activities covered		
Covers the use as binders and release agents including material transfers, mixing, application (including spraying and brushing), mould forming and casting, and handling of waste.		
Assessment Method		
See Section 3.		
Section 2 Operational conditions and risk management measures		
Section 2.1 Control of worker exposure		
Product characteristics		
Physical form of product	Liquid	
Vapour pressure (kPa)	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/exposure	Covers daily exposures up to 8 hours (unless stated differently) G2	
Other Operational Conditions affecting 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.	
Specific Risk Management Measures and Operating Conditions		
See Appendix 3.		
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)		3.3e3
Fraction of Regional tonnage used locally		0.77
Annual site tonnage (tonnes/year)		2.5e3
Maximum daily site tonnage (kg/day)		2.5e4
Frequency and duration of use		
Continuous release [FD2].		
Emission days (days/year)		100
Environmental factors not influenced by risk management		
Local freshwater dilution factor		10
Local marine water dilution factor		100
Other given 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 by humans via indirect exposure (primarily inhalation) [TCR1k]. No wastewater treatment required [TCR6]. Prevent discharge of undissolved substance to or recover from onsite wastewater [TCR14].	
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
If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of ≥ (%)	0
Organisation 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 (kg/d)	2.9e5
Assumed domestic sewage treatment plant flow (m^3/d)	2000
Conditions and measures related to external treatment of waste for disposal	
External treatment and disposal of waste should comply with applicable regulations [ETW3].	
Conditions and measures related to external recovery of waste	
External recovery and recycling of waste should comply with applicable regulations [ERW1].	
Additional information on the basis for the allocation of the indentified OCs and RMMs is contained in PETRORISK file.	
Section 3 Exposure Estimation	
3.1. Health	
See Appendix 2.	
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	
4.1. Health	
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.	
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].	

9.16.2. Exposure Estimation

9.16.2.1. Human Health

See Appendix 2.

9.16.2.2. Environment

See *PETRORISK file in IUCLID section 13* – "LocalCSR" worksheet

9.17. Use of Straight Run Gas Oil (Xn; R20, Xn; R65, R66, N; R51/53) in Release Agents or Binders – Professional

9.17.1. Exposure Scenario

Section 1 Exposure Scenario Title Straight Run Gas Oil (Xn; R20, Xn; R65, R66, N; R51/53)	
Title	
Use as Release Agents or Binders	
Use Descriptor	
Sector(s) of Use	22
Process Categories	1, 2, 3, 4, 6, 8a, 8b, 10, 11, 14 *Further information on the mapping and allocation of PROC codes is contained in Table 9.1*
Environmental Release Categories	8a, 8d
Specific Environmental Release Category	ESVOC SpERC 8.10b.v1
Processes, tasks, activities covered	
Covers the use as binders and release agents including material transfers, mixing, application by spraying, brushing, and handling of waste.	
Assessment Method	
See Section 3.	
Section 2 Operational conditions and risk management measures	
Section 2.1 Control of worker exposure	
Product characteristics	
Physical form of product	Liquid
Vapour pressure (kPa)	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/exposure	Covers daily exposures up to 8 hours (unless stated differently) G2
Other Operational Conditions affecting 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.
Specific Risk Management Measures and Operating Conditions	
See Appendix 3.	
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)	4.9e2
Fraction of Regional tonnage used locally	0.0005
Annual site tonnage (tonnes/year)	2.4e-1
Maximum daily site tonnage (kg/day)	6.7e-1
Frequency and duration of use	
Continuous release [FD2].	
Emission days (days/year)	365
Environmental factors not influenced by risk management	
Local freshwater dilution factor	10
Local marine water dilution factor	100
Other given operational conditions affecting environmental exposure	

Release fraction to air from wide dispersive use (regional use only)	0.95
Release fraction to wastewater wide dispersive use	0.025
Release fraction to soil from wide dispersive use (regional use only)	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 sediment [TCR1b]. 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
If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of ≥ (%)	0
Organisation 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 (kg/d)	1.6e2
Assumed domestic sewage treatment plant flow (m^3/d)	2000
Conditions and measures related to external treatment of waste for disposal	
External treatment and disposal of waste should comply with applicable regulations [ETW3].	
Conditions and measures related to external recovery of waste	
External recovery and recycling of waste should comply with applicable regulations [ERW1].	
Additional information on the basis for the allocation of the indentified OCs and RMMs is contained in PETRORISK file.	
Section 3 Exposure Estimation	
3.1. Health	
See Appendix 2.	
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	
4.1. Health	
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.	
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].	

9.17.2. Exposure Estimation

9.17.2.1. Human Health
See Appendix 2.

9.17.2.2. Environment
See *PETRORISK file in IUCLID section 13* – "LocalCSR" worksheet

9.18. Use of Straight Run Gas Oil (Xn; R20, Xn; R65, R66, N; R51/53) as a Fuel – Industrial

9.18.1. Exposure Scenario

Section 1 Exposure Scenario Title Straight Run Gas Oil (Xn; R20, Xn; R65, R66, N; R51/53)	
Title	
Use as a Fuel	
Use Descriptor	
Sector(s) of Use	3
Process Categories	1, 2, 3, 8a, 8b, 16 *Further information on the mapping and allocation of PROC codes is contained in Table 9.1*
Environmental Release Categories	7
Specific Environmental Release Category	ESVOC SpERC 7.12a.v1
Processes, tasks, 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.	
Assessment Method	
See Section 3.	
Section 2 Operational conditions and risk management measures	
Section 2.1 Control of worker exposure	
Product characteristics	
Physical form of product	Liquid
Vapour pressure (kPa)	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/exposure	Covers daily exposures up to 8 hours (unless stated differently) G2
Other Operational Conditions affecting 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.
Specific Risk Management Measures and Operating Conditions	
See Appendix 3.	
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)	5.2e5
Fraction of Regional tonnage used locally	1
Annual site tonnage (tonnes/year)	5.2e5
Maximum daily site tonnage (kg/day)	1.7e6
Frequency and duration of use	
Continuous release [FD2].	
Emission days (days/year)	300
Environmental factors not influenced by risk management	
Local freshwater dilution factor	10
Local marine water dilution factor	100
Other given 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]. If discharging to domestic sewage treatment plant, no onsite wastewater treatment required [TCR9]. Onsite wastewater treatment required [TCR13]	
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 ≥ (%)	95.7
If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of ≥ (%)	28.1
Organisation 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 (%)	95.7
Maximum allowable site tonnage (M_{Safe}) based on release following total wastewater treatment removal (kg/d)	1.7e6
Assumed domestic sewage treatment plant flow (m^3/d)	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	
External recovery and recycling of waste should comply with applicable regulations [ERW1].	
Additional information on the basis for the allocation of the indentified OCs and RMMs is contained in PETRORISK file.	
Section 3 Exposure Estimation	
3.1. Health	
See Appendix 2.	
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	
4.1. Health	
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.	
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].	

9.18.2. Exposure Estimation

9.18.2.1. Human Health

See Appendix 2.

9.18.2.2. Environment

See *PETRORISK file in IUCLID section 13* – "LocalCSR" worksheet

9.19. Use of Straight Run Gas Oil (Xn; R20, Xn; R65, R66, N; R51/53) as a Fuel – Professional

9.19.1. Exposure Scenario

Section 1 Exposure Scenario Title Straight Run Gas Oil (Xn; R20, Xn; R65, R66, N; R51/53)		
Title		
Use as a Fuel		
Use Descriptor		
Sector(s) of Use	22	
Process Categories	1, 2, 3, 8a, 8b, 16 *Further information on the mapping and allocation of PROC codes is contained in Table 9.1*	
Environmental Release Categories	9a, 9b	
Specific Environmental Release Category	ESVOC SpERC 9.12b.v1	
Processes, tasks, 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.		
Assessment Method		
See Section 3.		
Section 2 Operational conditions and risk management measures		
Section 2.1 Control of worker exposure		
Product characteristics		
Physical form of product	Liquid	
Vapour pressure (kPa)	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/exposure	Covers daily exposures up to 8 hours (unless stated differently) G2	
Other Operational Conditions affecting 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.	
Specific Risk Management Measures and Operating Conditions		
See Appendix 3.		
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)		1.0e5
Fraction of Regional tonnage used locally		0.0005
Annual site tonnage (tonnes/year)		5.1e1
Maximum daily site tonnage (kg/day)		1.4e2
Frequency and duration of use		
Continuous release [FD2].		
Emission days (days/year)		365
Environmental factors not influenced by risk management		
Local freshwater dilution factor		10
Local marine water dilution factor		100
Other given operational conditions affecting environmental exposure		

Release fraction to air from wide dispersive use (regional use only)	1.0e-4
Release fraction to wastewater wide dispersive use	0.00001
Release fraction to soil from wide dispersive use (regional use only)	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
If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of ≥ (%)	0
Organisation 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 (kg/d)	4.7e4
Assumed domestic sewage treatment plant flow (m^3/d)	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	
External recovery and recycling of waste should comply with applicable regulations [ERW1].	
Additional information on the basis for the allocation of the indentified OCs and RMMs is contained in PETRORISK file.	
Section 3 Exposure Estimation	
3.1. Health	
See Appendix 2.	
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	
4.1. Health	
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.	
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].	

9.19.2. Exposure Estimation

9.19.2.1. Human Health

See Appendix 2.

9.19.2.2. Environment

See *PETRORISK file in IUCLID section 13* – "LocalCSR" worksheet

9.20. Use of Straight Run Gas Oil (Xn; R20, Xn; R65, R66, N; R51/53) as a Fuel – Consumer

9.20.1. Exposure Scenario

Section 1 Exposure Scenario Title Straight Run Gas Oil (Xn; R20, Xn; R65, R66, N; R51/53)	
Title	
Use as a Fuel	
Use Descriptor	
Sector(s) of Use	21
Product Categories	13 *Further information on the mapping and allocation of PC codes is contained in Table 9.1*
Environmental Release Categories	9a, 9b
Specific Environmental Release Category	ESVOC SpERC 9.12c.v1
Processes, tasks, activities covered	
Covers consumer uses in fuels	
Assessment Method	
See Section 3.	
Section 2 Operational conditions and risk management measures	
Section 2.1 Control of consumer exposure	
Product characteristics	
Physical form of product	Liquid
Vapour pressure (kPa)	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/exposure	Covers daily exposures up to 8 hours (unless stated differently) G2
Other Operational Conditions affecting 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.
Specific Risk Management Measures and Operating Conditions	
See Appendix 3.	
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)	6.4e4
Fraction of Regional tonnage used locally	0.0005
Annual site tonnage (tonnes/year)	3.2e1
Maximum daily site tonnage (kg/day)	8.7e1
Frequency and duration of use	
Continuous release [FD2].	
Emission days (days/year)	365
Environmental factors not influenced by risk management	
Local freshwater dilution factor	10
Local marine water dilution factor	100
Other given operational conditions affecting environmental exposure	

Release fraction to air from wide dispersive use (regional use only)	1.0e-4
Release fraction to wastewater wide dispersive use	0.00001
Release fraction to soil from wide dispersive use (regional use only)	0.00001
Conditions and measures related to municipal sewage treatment plant	
Risk from environmental exposure is driven by freshwater [STP7a].	
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 (kg/d)	3.0e4
Assumed domestic sewage treatment plant flow (m^3/d)	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	
External recovery and recycling of waste should comply with applicable regulations [ERW1].	
Additional information on the basis for the allocation of the indentified OCs and RMMs is contained in PETRORISK file.	
Section 3 Exposure Estimation	
3.1. Health	
See Appendix 2.	
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	
4.1. Health	
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.	
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].	

9.20.2. Exposure Estimation

9.20.2.1. Human Health

See Appendix 2.

9.20.2.2. Environment

See *PETRORISK file in IUCLID section 13* – "LocalCSR" worksheet

9.21. Use of Straight Run Gas Oil (Xn; R20, Xn; R65, R66, N; R51/53) in Explosives Manufacture and Use - Professional

9.21.1. Exposure Scenario

Section 1 Exposure Scenario Title Straight Run Gas Oil (Xn; R20, Xn; R65, R66, N; R51/53)		
Title		
Explosives Manufacture and Use		
Use Descriptor		
Sector(s) of Use	22	
Process Categories	1, 3, 5, 8a, 8b *Further information on the mapping and allocation of PROC codes is contained in Table 9.1*	
Environmental Release Categories	8e	
Specific Environmental Release Category	Not Applicable	
Processes, tasks, activities covered		
Covers exposures arising from the manufacture and use of slurry explosives (including materials transfer, mixing and charging) and equipment cleaning		
Assessment Method		
See Section 3.		
Section 2 Operational conditions and risk management measures		
Section 2.1 Control of worker exposure		
Product characteristics		
Physical form of product	Liquid	
Vapour pressure (kPa)	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/exposure	Covers daily exposures up to 8 hours (unless stated differently) G2	
Other Operational Conditions affecting 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.	
Specific Risk Management Measures and Operating Conditions		
See Appendix 3.		
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)		6.8e2
Fraction of Regional tonnage used locally		0.0005
Annual site tonnage (tonnes/year)		3.4e-1
Maximum daily site tonnage (kg/day)		9.3e-1
Frequency and duration of use		
Continuous release [FD2].		
Emission days (days/year)		365
Environmental factors not influenced by risk management		
Local freshwater dilution factor		10
Local marine water dilution factor		100
Other given operational conditions affecting environmental exposure		

Release fraction to air from wide dispersive use (regional use only)	0.001
Release fraction to wastewater wide dispersive use	0.02
Release fraction to soil from wide dispersive use (regional use only)	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 sediment [TCR1b]. 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
If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of ≥ (%)	0
Organisation 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 (kg/d)	2.2e2
Assumed domestic sewage treatment plant flow (m^3/d)	2000
Conditions and measures related to external treatment of waste for disposal	
External treatment and disposal of waste should comply with applicable regulations [ETW3].	
Conditions and measures related to external recovery of waste	
External recovery and recycling of waste should comply with applicable regulations [ERW1].	
Additional information on the basis for the allocation of the indentified OCs and RMMs is contained in PETRORISK file.	
Section 3 Exposure Estimation	
3.1. Health	
See Appendix 2.	
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	
4.1. Health	
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.	
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].	

9.21.2. Exposure Estimation

9.21.2.1. Human Health

See Appendix 2.

9.21.2.2. Environment

See *PETRORISK file in IUCLID section 13* – "LocalCSR" worksheet

9.22. Use of Straight Run Gas Oil (Xn; R20, Xn; R65, R66, N; R51/53) in Functional Fluids – Industrial

9.22.1. Exposure Scenario

Section 1 Exposure Scenario Title Straight Run Gas Oil (Xn; R20, Xn; R65, R66, N; R51/53)		
Title		
Use as Functional Fluids		
Use Descriptor		
Sector(s) of Use	3	
Process Categories	1, 2, 3, 4, 8a, 8b, 9 *Further information on the mapping and allocation of PROC codes is contained in Table 9.1*	
Environmental Release Categories	7	
Specific Environmental Release Category	ESVOC SpERC 7.13a.v1	
Processes, tasks, 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.		
Assessment Method		
See Section 3.		
Section 2 Operational conditions and risk management measures		
Section 2.1 Control of worker exposure		
Product characteristics		
Physical form of product	Liquid	
Vapour pressure (kPa)	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/exposure	Covers daily exposures up to 8 hours (unless stated differently) G2	
Other Operational Conditions affecting 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.	
Specific Risk Management Measures and Operating Conditions		
See Appendix 3.		
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)		4.2e1
Fraction of Regional tonnage used locally		0.24
Annual site tonnage (tonnes/year)		1.0e1
Maximum daily site tonnage (kg/day)		5.0e2
Frequency and duration of use		
Continuous release [FD2].		
Emission days (days/year)		20
Environmental factors not influenced by risk management		
Local freshwater dilution factor		10
Local marine water dilution factor		100
Other given 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]. Prevent discharge of undissolved substance to or recover from onsite wastewater [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 ≥ (%)	0
If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of ≥ (%)	0
Organisation 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 (kg/d)	1.7e5
Assumed domestic sewage treatment plant flow (m^3/d)	2000
Conditions and measures related to external treatment of waste for disposal	
External treatment and disposal of waste should comply with applicable regulations [ETW3].	
Conditions and measures related to external recovery of waste	
External recovery and recycling of waste should comply with applicable regulations [ERW1].	
Additional information on the basis for the allocation of the indentified OCs and RMMs is contained in PETRORISK file.	
Section 3 Exposure Estimation	
3.1. Health	
See Appendix 2.	
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	
4.1. Health	
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.	
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].	

9.22.2. Exposure Estimation

9.22.2.1. Human Health
See Appendix 2.

9.22.2.2. Environment
See *PETRORISK file in IUCLID section 13* – "LocalCSR" worksheet

9.23. Use of Straight Run Gas Oil (Xn; R20, Xn; R65, R66, N; R51/53) in Functional Fluids – Professional

9.23.1. Exposure Scenario

Section 1 Exposure Scenario Title Straight Run Gas Oil (Xn; R20, Xn; R65, R66, N; R51/53)	
Title	
Use as Functional Fluids	
Use Descriptor	
Sector(s) of Use	22
Process Categories	1, 2, 3, 8a, 9, 20 *Further information on the mapping and allocation of PROC codes is contained in Table 9.1*
Environmental Release Categories	9a, 9b
Specific Environmental Release Category	ESVOC SpERC 9.13b.v1
Processes, tasks, 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.	
Assessment Method	
See Section 3.	
Section 2 Operational conditions and risk management measures	
Section 2.1 Control of worker exposure	
Product characteristics	
Physical form of product	Liquid
Vapour pressure (kPa)	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/exposure	Covers daily exposures up to 8 hours (unless stated differently) G2
Other Operational Conditions affecting 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.
Specific Risk Management Measures and Operating Conditions	
See Appendix 3.	
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)	4.3e1
Fraction of Regional tonnage used locally	0.0005
Annual site tonnage (tonnes/year)	2.1e-2
Maximum daily site tonnage (kg/day)	5.9e-2
Frequency and duration of use	
Continuous release [FD2].	
Emission days (days/year)	365
Environmental factors not influenced by risk management	
Local freshwater dilution factor	10
Local marine water dilution factor	100
Other given operational conditions affecting environmental exposure	

Release fraction to air from wide dispersive use (regional use only)	0.05
Release fraction to wastewater wide dispersive use	0.025
Release fraction to soil from wide dispersive use (regional use only)	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
If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of ≥ (%)	0
Organisation 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 (kg/d)	2.0e1
Assumed domestic sewage treatment plant flow (m^3/d)	2000
Conditions and measures related to external treatment of waste for disposal	
External treatment and disposal of waste should comply with applicable regulations [ETW3].	
Conditions and measures related to external recovery of waste	
External recovery and recycling of waste should comply with applicable regulations [ERW1].	
Additional information on the basis for the allocation of the indentified OCs and RMMs is contained in PETRORISK file.	
Section 3 Exposure Estimation	
3.1. Health	
See Appendix 2.	
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	
4.1. Health	
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.	
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].	

9.23.2. Exposure Estimation

9.23.2.1. Human Health

See Appendix 2.

9.23.2.2. Environment

See *PETRORISK file in IUCLID section 13* – "LocalCSR" worksheet

9.24. Use of Straight Run Gas Oil (Xn; R20, Xn; R65, R66, N; R51/53) in Road and Construction Applications – Professional

9.24.1. Exposure Scenario

Section 1 Exposure Scenario Title Straight Run Gas Oil (Xn; R20, Xn; R65, R66, N; R51/53)		
Title		
Use in Road and Construction Applications		
Use Descriptor		
Sector(s) of Use	22	
Process Categories	8a, 8b, 9, 10, 11, 13 *Further information on the mapping and allocation of PROC codes is contained in Table 9.1*	
Environmental Release Categories	8d, 8f	
Specific Environmental Release Category	ESVOC SpERC 8.15.v1	
Processes, tasks, 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.		
Assessment Method		
See Section 3.		
Section 2 Operational conditions and risk management measures		
Section 2.1 Control of worker exposure		
Product characteristics		
Physical form of product	Liquid	
Vapour pressure (kPa)	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/exposure	Covers daily exposures up to 8 hours (unless stated differently) G2	
Other Operational Conditions affecting 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.	
Specific Risk Management Measures and Operating Conditions		
See Appendix 3.		
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)		3.6e3
Fraction of Regional tonnage used locally		0.0005
Annual site tonnage (tonnes/year)		1.8
Maximum daily site tonnage (kg/day)		4.9
Frequency and duration of use		
Continuous release [FD2].		
Emission days (days/year)		365
Environmental factors not influenced by risk management		
Local freshwater dilution factor		10
Local marine water dilution factor		100
Other given operational conditions affecting environmental exposure		

Release fraction to air from wide dispersive use (regional use only)	0.95
Release fraction to wastewater wide dispersive use	0.01
Release fraction to soil from wide dispersive use (regional use only)	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 sediment [TCR1b]. 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
If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of ≥ (%)	0
Organisation 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 (kg/d)	7.3e2
Assumed domestic sewage treatment plant flow (m^3/d)	2000
Conditions and measures related to external treatment of waste for disposal	
External treatment and disposal of waste should comply with applicable regulations [ETW3].	
Conditions and measures related to external recovery of waste	
External recovery and recycling of waste should comply with applicable regulations [ERW1].	
Additional information on the basis for the allocation of the indentified OCs and RMMs is contained in PETRORISK file.	
Section 3 Exposure Estimation	
3.1. Health	
See Appendix 2.	
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	
4.1. Health	
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.	
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].	

9.24.2. Exposure Estimation

9.24.2.1. Human Health

See Appendix 2.

9.24.2.2. Environment

See *PETRORISK file in IUCLID section 13* – "LocalCSR" worksheet

9.25. Use of Straight Run Gas Oil (Xn; R20, Xn; R65, R66, N; R51/53) in Rubber Production and Processing Applications – Industrial

9.25.1. Exposure Scenario

Section 1 Exposure Scenario Title Straight Run Gas Oil (Xn; R20, Xn; R65, R66, N; R51/53)	
Title	
Rubber Production and Processing	
Use Descriptor	
Sector(s) of Use	3, 10, 11
Process Categories	1, 2, 3, 4, 5, 6, 7, 8a, 8b, 9, 13, 14, 15, 21 *Further information on the mapping and allocation of PROC codes is contained in Table 9.1*
Environmental Release Categories	1, 4, 6d
Specific Environmental Release Category	ESVOC SpERC 4.19.v1
Processes, tasks, activities covered	
Manufacture of tyres and general rubber articles, including processing of raw (uncured) rubber, handling and mixing of rubber additives, calendaring, vulcanising, cooling and finishing as well as maintenance.	
Assessment Method	
See Section 3.	
Section 2 Operational conditions and risk management measures	
Section 2.1 Control of worker exposure	
Product characteristics	
Physical form of product	Liquid
Vapour pressure (kPa)	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/exposure	Covers daily exposures up to 8 hours (unless stated differently) G2
Other Operational Conditions affecting exposure	Operation is carried out at elevated temperature (> 20°C above ambient temperature). OC7. Assumes a good basic standard of occupational hygiene is implemented G1.
Specific Risk Management Measures and Operating Conditions	
See Appendix 3.	
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)	2.8e1
Fraction of Regional tonnage used locally	1
Annual site tonnage (tonnes/year)	2.8e1
Maximum daily site tonnage (kg/day)	1.4e3
Frequency and duration of use	
Continuous release [FD2].	
Emission days (days/year)	20
Environmental factors not influenced by risk management	
Local freshwater dilution factor	10

Local marine water dilution factor	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)	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
If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of ≥ (%)	0
Organisation 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 (kg/d)	2.3e5
Assumed domestic sewage treatment plant flow (m^3/d)	2000
Conditions and measures related to external treatment of waste for disposal	
External treatment and disposal of waste should comply with applicable regulations [ETW3].	
Conditions and measures related to external recovery of waste	
External recovery and recycling of waste should comply with applicable regulations [ERW1].	
Additional information on the basis for the allocation of the indentified OCs and RMMs is contained in PETRORISK file.	
Section 3 Exposure Estimation	
3.1. Health	
See Appendix 2.	
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	
4.1. Health	
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.	
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].	

9.25.2. Exposure Estimation

9.25.2.1. Human Health
See Appendix 2.

9.25.2.2. Environment
See *PETRORISK file in IUCLID section 13* – "LocalCSR" worksheet

9.26. Other Consumer Uses of Straight Run Gas Oil (Xn; R20, Xn; R65, R66, N; R51/53) – Consumer

9.26.1. Exposure Scenario

Section 1 Exposure Scenario Title Straight Run Gas Oil (Xn; R20, Xn; R65, R66, N; R51/53)	
Title	
Other Consumer Uses	
Use Descriptor	
Sector(s) of Use	21
Product Categories	28, 39 *Further information on the mapping and allocation of PC codes is contained in Table 9.1*
Environmental Release Categories	8a, 8d
Specific Environmental Release Category	ESVOC SpERC 8.16.v1
Processes, tasks, activities covered	
Consumer uses not covered in consumer examples listed above e.g. use as a carrier in cosmetics/personal care products, perfumes and fragrances. Note: For cosmetic and personal care products, risk assessment only required for the environment under REACH as human health is covered by alternative legislation.	
Assessment Method	
See Section 3.	
Section 2 Operational conditions and risk management measures	
Section 2.1 Control of consumer exposure	
Product characteristics	
Physical form of product	Liquid
Vapour pressure (kPa)	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/exposure	Covers daily exposures up to 8 hours (unless stated differently) G2
Other Operational Conditions affecting 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.
Specific Risk Management Measures and Operating Conditions	
See Appendix 3.	
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)	1.1e3
Fraction of Regional tonnage used locally	0.0005
Annual site tonnage (tonnes/year)	5.5e-1
Maximum daily site tonnage (kg/day)	1.5
Frequency and duration of use	
Continuous release [FD2].	
Emission days (days/year)	365
Environmental factors not influenced by risk management	
Local freshwater dilution factor	10
Local marine water dilution factor	100

Other given operational conditions affecting environmental exposure	
Release fraction to air from wide dispersive use (regional use only)	0.95
Release fraction to wastewater wide dispersive use	0.025
Release fraction to soil from wide dispersive use (regional use only)	0.025
Conditions and measures related to municipal sewage treatment plant	
Risk from environmental exposure is driven by freshwater sediment [STP7b].	
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 (kg/d)	2.6e2
Assumed domestic sewage treatment plant flow (m^3/d)	2000
Conditions and measures related to external treatment of waste for disposal	
External treatment and disposal of waste should comply with applicable regulations [ETW3].	
Conditions and measures related to external recovery of waste	
External recovery and recycling of waste should comply with applicable regulations [ERW1].	
Additional information on the basis for the allocation of the indentified OCs and RMMs is contained in PETRORISK file.	
Section 3 Exposure Estimation	
3.1. Health	
See Appendix 2.	
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	
4.1. Health	
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.	
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].	

9.26.2. Exposure Estimation

9.26.2.1. Human Health

See Appendix 2.

9.26.2.2. Environment

See *PETRORISK file in IUCLID section 13* – "LocalCSR" worksheet

9.27. Regional Environment Exposure Estimation

See PETRORISK file in IUCLID Section 13 – "RegionalCSR" worksheet

10. RISK CHARACTERISATION

10.1. Manufacture of Straight Run Gas Oil (Xn; R20, Xn; R65, R66, N; R51/53) – Industrial

10.1.1. Human Health
See Appendix 3.

10.1.2. Environment
See PETRORISK file in IUCLID section 13 – "LocalCSR" worksheet

10.2. Use of Straight Run Gas Oil (Xn; R20, Xn; R65, R66, N; R51/53) as Intermediate – Industrial

10.2.1. Human Health
See Appendix 3.

10.2.2. Environment
See PETRORISK file in IUCLID section 13 – "LocalCSR" worksheet

10.3. Distribution of Straight Run Gas Oil (Xn; R20, Xn; R65, R66, N; R51/53) – Industrial

10.3.1. Human Health
See Appendix 3.

10.3.2. Environment
See PETRORISK file in IUCLID section 13 – "LocalCSR" worksheet

10.4. Formulation & (Re)packing of Straight Run Gas Oil (Xn; R20, Xn; R65, R66, N; R51/53) – Industrial

10.4.1. Human Health
See Appendix 3.

10.4.2. Environment
See PETRORISK file in IUCLID section 13 – "LocalCSR" worksheet

10.5. Uses of Straight Run Gas Oil (Xn; R20, Xn; R65, R66, N; R51/53) in Coatings – Industrial

10.5.1. Human Health
See Appendix 3.

10.5.2. Environment
See PETRORISK file in IUCLID section 13 – "LocalCSR" worksheet

10.6. Uses of Straight Run Gas Oil (Xn; R20, Xn; R65, R66, N;

R51/53) in Coatings – Professional

10.6.1. Human Health
See Appendix 3.

10.6.2. Environment
See PETRORISK file in IUCLID section 13 – "LocalCSR" worksheet

10.7. Use of Straight Run Gas Oil (Xn; R20, Xn; R65, R66, N; R51/53) in Cleaning Agents – Industrial

10.7.1. Human Health
See Appendix 3.

10.7.2. Environment
See PETRORISK file in IUCLID section 13 – "LocalCSR" worksheet

10.8. Use of Straight Run Gas Oil (Xn; R20, Xn; R65, R66, N; R51/53) in Cleaning Agents – Professional

10.8.1. Human Health
See Appendix 3.

10.8.2. Environment
See PETRORISK file in IUCLID section 13 – "LocalCSR" worksheet

10.9. Use of Straight Run Gas Oil (Xn; R20, Xn; R65, R66, N; R51/53) in Oil and Gas Field Drilling and Production Operations – Industrial

10.9.1. Human Health
See Appendix 3.

10.9.2. Environment
See PETRORISK file in IUCLID section 13 – "LocalCSR" worksheet

10.10. Use of Straight Run Gas Oil (Xn; R20, Xn; R65, R66, N; R51/53) in Oil and Gas Field Drilling and Production Operations – Professional

10.10.1. Human Health
See Appendix 3.

10.10.2. Environment
See PETRORISK file in IUCLID section 13 – "LocalCSR" worksheet

10.11. Use of Straight Run Gas Oil (Xn; R20, Xn; R65, R66, N; R51/53) in Lubricants – Industrial

10.11.1. Human Health
See Appendix 3.

10.11.2. Environment
See PETRORISK file in IUCLID section 13 – "LocalCSR" worksheet

10.12. Use of Straight Run Gas Oil (Xn; R20, Xn; R65, R66, N; R51/53) in Lubricants – Professional: Low Environmental Release

10.12.1. Human Health
See Appendix 3.

10.12.2. Environment
See PETRORISK file in IUCLID section 13 – "LocalCSR" worksheet

10.13. Use of Straight Run Gas Oil (Xn; R20, Xn; R65, R66, N; R51/53) in Lubricants – Professional: High Environmental Release

10.13.1. Human Health
See Appendix 3.

10.13.2. Environment
See PETRORISK file in IUCLID section 13 – "LocalCSR" worksheet

10.14. Use of Straight Run Gas Oil (Xn; R20, Xn; R65, R66, N; R51/53) in Metal Working Fluids/Rolling Oils – Industrial

10.14.1. Human Health
See Appendix 3.

10.14.2. Environment
See PETRORISK file in IUCLID section 13 – "LocalCSR" worksheet

10.15. Use of Straight Run Gas Oil (Xn; R20, Xn; R65, R66, N; R51/53) in Metal Working Fluids/Rolling Oils – Professional:

10.15.1. Human Health
See Appendix 3.

10.15.2. Environment
See PETRORISK file in IUCLID section 13 – "LocalCSR" worksheet

10.16. Use of Straight Run Gas Oil (Xn; R20, Xn; R65, R66, N; R51/53) as Release Agents or Binders – Industrial

10.16.1. Human Health
See Appendix 3.

10.16.2. Environment

See PETRORISK file in IUCLID section 13 – "LocalCSR" worksheet

10.17. Use of Straight Run Gas Oil (Xn; R20, Xn; R65, R66, N; R51/53) as Release Agents or Binders – Professional

10.17.1. Human Health
See Appendix 3.

10.17.2. Environment
See PETRORISK file in IUCLID section 13 – "LocalCSR" worksheet

10.18. Use of Straight Run Gas Oil (Xn; R20, Xn; R65, R66, N; R51/53) as a Fuel – Industrial

10.18.1. Human Health
See Appendix 3.

10.18.2. Environment
See PETRORISK file in IUCLID section 13 – "LocalCSR" worksheet

10.19. Use of Straight Run Gas Oil (Xn; R20, Xn; R65, R66, N; R51/53) as a Fuel – Professional

10.19.1. Human Health
See Appendix 3.

10.19.2. Environment
See PETRORISK file in IUCLID section 13 – "LocalCSR" worksheet

10.20. Use of Straight Run Gas Oil (Xn; R20, Xn; R65, R66, N; R51/53) as a Fuel – Consumer

10.20.1. Human Health
See Appendix 3.

10.20.2. Environment
See PETRORISK file in IUCLID section 13 – "LocalCSR" worksheet

10.21. Use of Straight Run Gas Oil (Xn; R20, Xn; R65, R66, N; R51/53) in Explosives Manufacture and Use – Professional

10.21.1. Human Health
See Appendix 3.

10.21.2. Environment
See PETRORISK file in IUCLID section 13 – "LocalCSR" worksheet

10.22. Use of Straight Run Gas Oil (Xn; R20, Xn; R65, R66, N; R51/53) in Functional Fluids – Industrial

10.22.1. Human Health
See Appendix 3.

10.22.2. Environment
See PETRORISK file in IUCLID section 13 – "LocalCSR" worksheet

10.23. Use of Straight Run Gas Oil (Xn; R20, Xn; R65, R66, N; R51/53) in Functional Fluids – Professional

10.23.1. Human Health
See Appendix 3.

10.23.2. Environment
See PETRORISK file in IUCLID section 13 – "LocalCSR" worksheet

10.24. Use of Straight Run Gas Oil (Xn; R20, Xn; R65, R66, N; R51/53) in Road and Construction Applications – Professional

10.24.1. Human Health
See Appendix 3.

10.24.2. Environment
See PETRORISK file in IUCLID section 13 – "LocalCSR" worksheet

10.25. Use of Straight Run Gas Oil (Xn; R20, Xn; R65, R66, N; R51/53) in Rubber Production and Processing – Industrial

10.25.1. Human Health
See Appendix 3.

10.25.2. Environment
See PETRORISK file in IUCLID section 13 – "LocalCSR" worksheet

10.26. Other Consumer Uses of Straight Run Gas Oil (Xn; R20, Xn; R65, R66, N; R51/53) – Consumer

10.26.1. Human Health
See Appendix 3.

10.26.2. Environment
See PETRORISK file in IUCLID section 13 – "LocalCSR" worksheet

10.27. Overall exposure (combined for all relevant emission/release sources)

10.27.1. Human health (combined for all exposure routes)
See Appendix 2. & 3.

10.27.2. Environment (combined for all exposure routes)
Combined exposures can be calculated with information provided on the individual exposure

scenarios presented in section 9. However, it is unclear how to define risk management measures resulting from this analysis.

10.28. Regional Environment

See PETRORISK file in IUCLID Section 13 – "RegionalCSR" worksheet

APPENDIX 2: Qualitative Exposure Estimation

Qualitative Exposure Estimation for R20 substances

There is a difference of at least a factor of 30 between the short-term (when expressed over 15 minutes) and the long term DNELs (when expressed over 8 hours)), i.e. the long-term DNEL is lower by at least 30x. In these circumstances a quantitative assessment of short-term exposure assessment has not be undertaken based on the following rationale:

- For any single short term (ST) event to adversely influence the implementation of the long term (LT) reference value (DNEL when available) in the CSA, then the single ST exposure must be ~30x greater than the LT DNEL. Where the ST exposure might be repeated during the course of an activity, then the contribution made by the ST exposures to the LT average would clearly be greater. Hence, provided daily average exposures are controlled to within the LT reference value, then this will also account for any potential risks arising from ST exposure.

Qualitative Exposure Estimation for R65 substances

'Aspiration' means the entry of a liquid substance directly into the trachea and lower respiratory tract. Aspiration of hydrocarbon substances can result in severe acute effects such as chemical pneumonitis, varying degrees of pulmonary injury or death. This property relates to the potential for low viscosity material to spread quickly into the deep lung and cause severe pulmonary tissue damage. Classification of a hydrocarbon substance for aspiration hazard is made on the basis of reliable human evidence or on the basis of physical properties.

The R65 risk phrase (Harmful: may cause lung damage if swallowed) relates to potential for aspiration, a non-quantifiable hazard determined by physico-chemical properties (i.e. viscosity) that can occur during ingestion and also if it is vomited following ingestion. A DNEL cannot be derived. This general qualitative CSA approach aims to reduce/avoid contact or incidents with the substance. However, implementation of risk management measures (RMMs) and operational conditions (OCs) need to be proportional to the degree of concern for the health hazard presented by the substance. Exposures should be controlled to at least the levels that represent an acceptable level of risk such that the implementation of the chosen RMMs will ensure that the likelihood of an event occurring due to the substance hazard is negligible, and the risk is considered to be controlled to a level of no concern.

There are no routine anticipated exposures by ingestion related to any supported uses of the substance. The risk arising from aspiration hazard is solely related to the physico-chemical properties of the substance. The risk can therefore be controlled by implementing risk management measures tailored to this specific risk. For any substance, classified as R65, these measures should be communicated via the safety data sheet by use of the following phrase:

- Do not ingest. If swallowed then seek immediate medical assistance.

Furthermore it should be noted that where the substance is sold for use in lamp oils and grill lighters by the general public (Consumers), then these must be visibly, legibly and indelibly marked as follows, in accordance with REACH Annex XVII update of 1.4.2010:

- Keep lamps filled with this liquid out of the reach of children.

Just a sip of lamp oil – or even sucking the wick of lamps may lead to life threatening lung damage.

Qualitative Exposure Estimation for R66 substances

For substances and preparations that do not meet the criteria for R38 but which may cause concern as a result of skin dryness, flaking or cracking, the risk phrase R66 (Repeated exposure may cause skin dryness or cracking) shall be used. Decisions for applying this phrase are derived either from practical observation after normal handling and use or from other relevant information used to predict effects on the skin.

The R66 risk phrase is generally applied to petroleum substances and solvents that have the capacity

to extract lipids from the skin and that are not classified as skin irritant. R66 does not relate to a classifiable endpoint, and there is no standardized test method to quantify the effect. Thus, a DNEL cannot be derived.
Note that R66 is an “additional” risk phrase which means that it shall be applied only to substances or preparations that are already classified whilst assignment of the risk phrase R66 does not, in itself, have any impact on the formal classification of the substance.

This general qualitative CSA approach aims to reduce/avoid contact or incidents with the substance. However, implementation of risk management measures (RMMs) and operational conditions (OCs) need to be proportional to the degree of concern for the health hazard presented by the substance. Exposures should be controlled to at least the levels that represent an acceptable level of risk such that the implementation of the chosen RMMs will ensure that the likelihood of an event occurring due to the substance hazard is negligible, and the risk is considered to be controlled to a level of no concern.

For skin defatting a qualitative risk characterisation has been conducted. Handling and storage risk management measures that are generally identified for skin defatting risks are outlined in Appendix 3.b. A review of these RMMs indicates that if the user complies with the following generic statement, risks due to skin defatting are considered to be controlled. For any substance, classified as R66, these measures should be communicated via the safety data sheet by use of the following phrase:

- PPE20: If repeated and/or prolonged skin exposure to the substance is likely, then wear suitable gloves tested to EN374 and provide employee skin care programmes

APPENDIX 3: Qualitative Risk Characterisation

Qualitative Risk Characterisation for R20 substances

A quantitative assessment of short term exposure has not been undertaken as there is a difference of at least a factor of 30 between the short term (when expressed over 15 minutes) and the long term DNEL (when expressed over 8 hours) DNELs.

Qualitative Risk Characterisation for R65 substances

The implementation of relevant RMMs will ensure that the likelihood of an event occurring due to the aspiration hazard of the substance is negligible and the risk is considered to be controlled to a level of no concern.
For aspiration hazard a qualitative risk characterisation has been conducted consistent with the considerations and risk management measures identified in the Table below.

Hazard	Material	Risk / Hazard Phrase	Examples of Relevant S Phrases and P Statements	Components of the Qualitative Risk Assessment
Aspiration Toxicity (R65)	• Liquid	R65 / H304	Response: • (S2): Keep out of the reach of children (for dangerous products sold to the general public must include this safety phrase) • S62: If swallowed, do not induce vomiting: seek medical advice immediately and show this container or label • P102: Keep out of reach of children. • P301 + P310: IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician. • P331: Do NOT induce vomiting. Storage: • P405: Store locked up. Disposal: • P501 : Dispose of contents/container to.... in accordance with local/regional/ national/international regulations (to be specified)	**Worker** • Do not ingest • Implementation of basic standards of occupational hygiene • Avoid splashes and spills • Avoidance of contact with contaminated tools and objects • Management/supervision to check that the RMMs in place are being used correctly and OCs followed • Training for staff on good practice • Good standard of personal hygiene **Consumer** Do not ingest For lamp oils and grill lighters, follow the provisions of REACH – Annex XVII, including: - Marketing in black opaque containers not exceeding 1 litre - Labelling with specific safe use instruction

For any substance, classified as R65, these risk management measures should be communicated via the safety data sheet by use of the following phrase:

- Do not ingest. If swallowed then seek immediate medical assistance.

Qualitative Risk Characterisation for R66 substances

The implementation of relevant RMMs will ensure that the likelihood of an event occurring due to the substance hazard of skin defatting is negligible and the risk is considered to be controlled to a level of no concern.
For skin defatting a qualitative risk characterisation has been conducted consistent with the considerations and risk management measures identified in the Table below.

Hazard	Material	Risk / Hazard Phrase	Examples of Relevant S Phrases and P Statements	Components of the Qualitative Risk Assessment
Skin defatting (R66)	• Liquid	R66 / EUH066 Repeated exposure may cause skin dryness or cracking	No designated S and P phrases are assigned, though the following phrase may be appropriate: S24 Avoid contact with skin Response: • P280: Wear protective gloves/protective clothing/eye protection/face protection. • P281: Use personal protective equipment as required.	• Implementation of basic standards of occupational hygiene; • Avoid repeated and/or prolonged skin contact with product; • Wear gloves (tested to EN374) if hand contamination likely, wash off any skin contamination promptly; • Avoid splashes and spills; • Avoidance of contact with contaminated tools and objects; • Clean up contamination/spills; • Regular cleaning of equipment and work area; • Management/supervision to check that the RMMs in place are being used correctly and OCs followed; • Training for staff on good practice to prevent / minimise exposures and to report any skin effects that may develop; • Good standard of personal hygiene.

For any substance, classified as R66, these measures should be communicated via the safety data sheet by use of the following phrase:

- PPE20: If repeated and/or prolonged skin exposure to the substance is likely, then wear suitable gloves tested to EN374 and provide employee skin care programmes