SAFETY DATA SHEET

ExxonMobil

CRN 30

SECTION 1: Identification of the substance/mixture and of the company/ undertaking

1.1 Product identifier

Product name : CRN 30

EC number : 265-193-8

REACH Registration number

Registration number
01-2119485585-24-0010

CAS number : Not available.

Product description : Aromatic Hydrocarbon

1.2 Relevant identified uses of the substance or mixture and uses advised against

Intended Use : Chemical feedstock, Fuel oil

Identified uses
Use as a fuel - Consumer Use as a fuel - Professional Use as a fuel - Industrial Use as an intermediate Manufacture of substance Distribution of substance Formulation and (re)packing of substances and mixtures Functional fluids - Industrial

1.3 Details of the supplier of the safety data sheet

Supplier : ExxonMobil Petroleum & Chemical BV
POLDERDIJKWEG
Antwerpen B-2030 Belgium

Supplier General Contact : + 32 2 239 3111

e-mail address of person responsible for this SDS : SDS-CC@exxonmobil.com

SDS Internet Address : www.sds.exxonmobil.com

1.4 Emergency telephone number

National advisory body/ Poison Centre : (+32)70 245 245

24 Hour Emergency Telephone : +32 2 808 32 37 / +1-703-527-3887 (CHEMTREC)

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Product definition : UVCB

Classification according to Regulation (EC) No. 1272/2008 [CLP/GHS]

Skin Irrit. 2, H315
Muta. 1B, H340
Carc. 1B, H350
Aquatic Chronic 2, H411

The product is classified as hazardous according to Regulation (EC) 1272/2008 as amended.

See Section 16 for the full text of the H statements declared above.

SECTION 2: Hazards identification

See Section 11 for more detailed information on health effects and symptoms.

2.2 Label elements

Hazard pictograms :

Signal word : Danger

Hazard statements :
H315 - Causes skin irritation.
H340 - May cause genetic defects.
H350 - May cause cancer.
H411 - Toxic to aquatic life with long lasting effects.

Precautionary statements

Prevention :
P201 - Obtain special instructions before use.
P202 - Do not handle until all safety precautions have been read and understood.
P264 - Wash thoroughly after handling.
P273 - Avoid release to the environment.
P280 - Wear protective gloves, protective clothing, eye protection, face protection, or hearing protection.

Response :
P302 + P352 - IF ON SKIN: Wash with plenty of water.
P308 + P313 - IF exposed or concerned: Get medical advice or attention.
P332 + P313 - If skin irritation occurs: Get medical advice/attention.
P362 + P364 - Take off contaminated clothing and wash it before reuse.
P391 - Collect spillage.

Storage : P405 - Store locked up.

Disposal : P501 - Dispose of contents and container in accordance with all local, regional, national and international regulations.

Contains : residues (petroleum), steam-cracked

Supplemental label elements : Not applicable.

Annex XVII - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles : None.

2.3 Other hazards

Product meets the criteria for PBT or vPvB according to Regulation (EC) No. 1907/2006, Annex XIII :

PBT	P	B	T	vPvB	vP	vB
N/A	N/A	N/A	Yes	N/A	N/A	N/A

Other hazards which do not result in classification : None known.

Nota : This material should not be used for any other purpose than the intended use in Section 1 without expert advice. Health studies have shown that chemical exposure may cause potential human health risks which may vary from person to person.

SECTION 3: Composition/information on ingredients

3.1 Substances : UVCB

Product/ingredient name	Identifiers	% by weight	Classification	Specific Conc. Limits, M-factors and ATEs	Type
residues (petroleum), steam-cracked	REACH #: 01-2119485585-24 EC: 265-193-8 CAS: 64742-90-1	100	Skin Irrit. 2, H315 Muta. 1B, H340 Carc. 1B, H350 Aquatic Chronic 2, H411	-	[1]
naphthalene	REACH #: 01-2119561346-37 EC: 202-049-5 CAS: 91-20-3	4.7	Flam. Sol. 2, H228 Acute Tox. 4, H302 Carc. 2, H351 Aquatic Acute 1, H400 Aquatic Chronic 1, H410	ATE [Oral] = 500 mg/kg M [Acute] = 1 M [Chronic] = 1	[1]
2-methylnaphthalene	REACH #: 01-2120824734-53 EC: 202-078-3 CAS: 91-57-6	3.1	Asp. Tox. 1, H304 Aquatic Chronic 2, H411 **See Section 16 for the full text of the H statements declared above.**	-	[1]

There are no additional ingredients present which, within the current knowledge of the supplier, are classified and contribute to the classification of the substance and hence require reporting in this section.

Type

[1] Constituent

Occupational exposure limits, if available, are listed in Section 8.

SECTION 4: First aid measures

4.1 Description of first aid measures

Eye contact : Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 10 minutes. Get medical attention.

Inhalation : Remove victim to fresh air and keep at rest in a position comfortable for breathing. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Get medical attention. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.

Skin contact : Remove contaminated clothing. Dry wipe exposed skin and cleanse with waterless hand cleaner and follow by washing thoroughly with soap and water. For those providing assistance, avoid further skin contact to yourself or others. Wear impervious gloves. Launder contaminated clothing separately before reuse. Discard contaminated articles that cannot be laundered. For hot product: Immediately immerse in or flush affected area with large amounts of cold water to dissipate heat. Cover with clean cotton sheeting or gauze and get prompt medical attention. If burned by contact with hot material, molten material adhering to skin should be cooled as quickly as possible with water, and see a physician for removal of adhering material and treatment of burn. Wash clothing before reuse. Clean shoes thoroughly before reuse. Continue to rinse for at least 10 minutes. Wash contaminated clothing thoroughly with water before removing it, or wear gloves. Get medical attention.

SECTION 4: First aid measures

Ingestion : Wash out mouth with water. Remove dentures if any. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Get medical attention. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.

Protection of first-aiders : No action shall be taken involving any personal risk or without suitable training. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Wash contaminated clothing thoroughly with water before removing it, or wear gloves.

4.2 Most important symptoms and effects, both acute and delayed

Over-exposure signs/symptoms

Eye contact : Adverse symptoms may include the following:
pain or irritation
watering
redness

Inhalation : No specific data.

Skin contact : Adverse symptoms may include the following:
irritation
redness

Ingestion : No specific data.

4.3 Indication of any immediate medical attention and special treatment needed

Notes to physician : Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.

Specific treatments : No specific treatment.

See toxicological information (Section 11)

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media : Use dry chemical, CO_2, water spray (fog) or foam.

Unsuitable extinguishing media : Do not use water jet.

5.2 Special hazards arising from the substance or mixture

Specific hazards arising from the chemical : Combustible liquid. Runoff to sewer may create fire or explosion hazard. In a fire or if heated, a pressure increase will occur and the container may burst, with the risk of a subsequent explosion. This material is toxic to aquatic life with long lasting effects. Fire water contaminated with this material must be contained and prevented from being discharged to any waterway, sewer or drain.

Hazardous combustion products : Incomplete combustion products, Oxides of carbon, Smoke, Fume

5.3 Advice for firefighters

SECTION 5: Firefighting measures

Special protective actions for fire-fighters : Use standard firefighting procedures and consider the hazards of other involved materials. Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. Move containers from fire area if this can be done without risk. Use water spray to keep fire-exposed containers cool. Assure an extended cooling down period to prevent re-ignition. Prevent run-off from fire control or dilution from entering streams, sewers or drinking water supply. No action shall be taken involving any personal risk or without suitable training.

Special protective equipment for fire-fighters : Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

SECTION 6: Accidental release measures

NOTIFICATION PROCEDURES

In the event of a spill or accidental release, notify relevant authorities in accordance with all applicable regulations.

6.1 Personal precautions, protective equipment and emergency procedures

For non-emergency personnel : No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilt material. Shut off all ignition sources. No flares, smoking or flames in hazard area. Put on appropriate personal protective equipment. Avoid breathing vapour or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate.

For emergency responders : If specialised clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".

6.2 Environmental precautions

: Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air). Water polluting material. May be harmful to the environment if released in large quantities. Collect spillage.

6.3 Methods and material for containment and cleaning up

Small spill : Stop leak if without risk. Move containers from spill area. Use spark-proof tools and explosion-proof equipment. Dilute with water and mop up if water-soluble. Alternatively, or if water-insoluble, absorb with an inert dry material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.

Large spill : Stop leak if without risk. Move containers from spill area. Use spark-proof tools and explosion-proof equipment. Approach the release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Wash spillages into an effluent treatment plant or proceed as follows. Contain and collect spillage with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations (see Section 13). Dispose of via a licensed waste disposal contractor. Contaminated absorbent material may pose the same hazard as the spilt product. Material will sink. Remove material, as much as possible, using mechanical equipment. Note: see Section 1 for emergency contact information and Section 13 for waste disposal.

Water spill and land spill recommendations are based on the most likely spill scenario for this material; however, geographic conditions, wind, temperature, (and in the case of a water spill) wave and current direction and speed may greatly influence the appropriate action to be taken. For this reason, local experts should be consulted. Note: Local regulations may prescribe or limit action to be taken.

6.4 Reference to other sections

: See Section 1 for emergency contact information.
See Section 8 for information on appropriate personal protective equipment.
See Section 13 for additional waste treatment information.

SECTION 7: Handling and storage

The information in this section contains generic advice and guidance. The list of Identified Uses in Section 1 should be consulted for any available use-specific information provided in the Exposure Scenario(s).

7.1 Precautions for safe handling

Protective measures : Thermal burn hazard - contact with hot material may cause thermal burns. Put on appropriate personal protective equipment (see Section 8). Avoid exposure - obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Do not get in eyes or on skin or clothing. Do not ingest. Avoid breathing vapour or mist. Avoid release to the environment. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Do not enter storage areas and confined spaces unless adequately ventilated. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Store and use away from heat, sparks, open flame or any other ignition source. Use explosion-proof electrical (ventilating, lighting and material handling) equipment. Use only non-sparking tools. Empty containers retain product residue and can be hazardous. Do not reuse container.

Advice on general occupational hygiene : Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.

Static Accumulator : This material is a static accumulator. A liquid is typically considered a nonconductive, static accumulator if its conductivity is below 100 pS/m (100x10E-12 Siemens per meter) and is considered a semiconductive, static accumulator if its conductivity is below 10,000 pS/m. Whether a liquid is nonconductive or semiconductive, the precautions are the same. A number of factors, for example liquid temperature, presence of contaminants, anti-static additives and filtration can greatly influence the conductivity of a liquid.

Loading/Unloading Temperature : 70 - 80 °C

Transport Temperature : 70 - 80 °C

Transport Pressure : Ambient

7.2 Conditions for safe storage, including any incompatibilities

Store in accordance with local regulations. Store in a segregated and approved area. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Store locked up. Eliminate all ignition sources. Separate from oxidising materials. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabelled containers. Use appropriate containment to avoid environmental contamination. See Section 10 for incompatible materials before handling or use.

Seveso Directive - Reporting thresholds

Danger criteria

Category	Notification and MAPP threshold	Safety report threshold
E2	200 tonne	500 tonne

Storage Temperature : 70 - 80 °C

Storage Pressure : Ambient

Suitable Containers/ Packing : Barges, Tankers, Tank Trucks, Pipelines

Suitable Materials and Coatings : Carbon Steel, Viton, Stainless Steel, Epoxy Phenolic, zinc

Unsuitable Materials and Coatings : Natural Rubber, butyl rubber

SECTION 7: Handling and storage

7.3 Specific end use(s)

Recommendations : Not available.

Industrial sector specific solutions : Not available.

SECTION 8: Exposure controls/personal protection

The list of Identified Uses in Section 1 should be consulted for any available use-specific information provided in the Exposure Scenario(s).

8.1 Control parameters

Occupational exposure limits

Product/ingredient name	Exposure limit values
residues (petroleum), steam-cracked	**ExxonMobil (COMPANY)** Absorbed through skin. TWA 8 hours: 0.1 mg/m³ (benzene solubles). Form: Total oil mist.
naphthalene	**Limit values (Belgium, 12/2023)** Absorbed through skin. TWA 8 hours: 10 ppm. TWA 8 hours: 53 mg/m³. STEL 15 minutes: 15 ppm. STEL 15 minutes: 80 mg/m³. **EU OEL (Europe, 1/2022)** TWA 8 hours: 10 ppm. TWA 8 hours: 50 mg/m³. **ACGIH TLV (United States, 1/2024)** Absorbed through skin. TWA 8 hours: 10 ppm. TWA 8 hours: 52 mg/m³.
2-methylnaphthalene	**Limit values (Belgium, 12/2023)** Absorbed through skin. TWA 8 hours: 3 mg/m³. TWA 8 hours: 0.5 ppm. **EU OEL (Europe, 10/2019) [Polycyclic aromatic hydrocarbons mixtures]** Absorbed through skin. **ACGIH TLV (United States, 1/2024)** Absorbed through skin. TWA 8 hours: 0.5 ppm. **ExxonMobil (COMPANY)** Absorbed through skin. STEL 15 minutes: 28 mg/m³.

Recommended monitoring procedures : Reference should be made to monitoring standards, such as the following: European Standard EN 689 (Workplace atmospheres - Guidance for the assessment of exposure by inhalation to chemical agents for comparison with limit values and measurement strategy) European Standard EN 14042 (Workplace atmospheres - Guide for the application and use of procedures for the assessment of exposure to chemical and biological agents) European Standard EN 482 (Workplace atmospheres - General requirements for the performance of procedures for the measurement of chemical agents) Reference to national guidance documents for methods for the determination of hazardous substances will also be required.

DNELs/DMELs

Product/ingredient name	Type	Exposure	Value	Population	Effects
residues (petroleum), steam-cracked	DNEL	Long term Dermal	23.4 mg/kg bw/day	Workers	Systemic
	DNEL	Long term Inhalation	3.25 mg/m³	Workers	Systemic
	DNEL	Long term Oral	4.23 mg/kg bw/day	General population	Systemic
	DNEL	Long term Dermal	42.4 mg/kg bw/day	General population	Systemic
	DNEL	Long term Inhalation	14.7 mg/m³	General population	Systemic

PNECs

SECTION 8: Exposure controls/personal protection

No PNECs available

8.2 Exposure controls

Appropriate engineering controls : Use only with adequate ventilation. Use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits. The engineering controls also need to keep gas, vapour or dust concentrations below any lower explosive limits. Use explosion-proof ventilation equipment.

Environmental exposure controls : Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

Individual protection measures

Hygiene measures : Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

Eye/face protection : Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: chemical splash goggles. Face shield.

Skin protection

Hand protection : Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. If product is hot, thermally protective, chemical resistant gloves are recommended. If contact with forearms is likely, wear gauntlet style gloves. Considering the parameters specified by the glove manufacturer, check during use that the gloves are still retaining their protective properties. It should be noted that the time to breakthrough for any glove material may be different for different glove manufacturers. In the case of mixtures, consisting of several substances, the protection time of the gloves cannot be accurately estimated. > 8 hours (breakthrough time): Viton, minimum 0.71 mm thickness or comparable protective barrier material

CEN standards EN 420 and EN 374 provide general requirements and lists of glove types.

Body protection : Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product. If product is hot, thermally protective, chemical resistant apron and long sleeves are recommended.

Other skin protection : Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Respiratory protection : Based on the hazard and potential for exposure, select a respirator that meets the appropriate standard or certification. Respirators must be used according to a respiratory protection program to ensure proper fitting, training, and other important aspects of use. Recommended: organic vapour (Type A) and particulate filter

European Committee for Standardization (CEN) standards EN 136, 140 and 405 provide respirator masks and EN 149 and 143 provide filter recommendations.

Environmental exposure controls : Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

SECTION 9: Physical and chemical properties

Note: Physical and chemical properties are provided for safety, health and environmental considerations only and may not fully represent product specifications. Contact the Supplier for additional information.

The conditions of measurement of all properties are at standard temperature and pressure unless otherwise indicated.

9.1 Information on basic physical and chemical properties

Appearance

Physical state	:	Liquid. [Viscous]
Colour	:	Black
Odour	:	Petroleum/Solvent
Odour threshold	:	Not available.
pH	:	Not applicable.
Melting point/freezing point	:	-63 to 43°C (-81.4 to 109.4°F) [Technical literature]
Boiling point or initial boiling point and boiling range	:	>160°C (>320°F) [In-house method]
Flash point	:	Closed cup: >80°C (>176°F) [ASTM D-93]
Evaporation rate	:	Not applicable.
Flammability	:	Flammable liquids - Category 4
Lower and upper explosion limit	:	Not available.
Vapour pressure	:	5.63 to 38.63 mm Hg [50 °C] [Technical literature]
Relative vapour density	:	Not available.
Relative density	:	0.964 to 1.15 [In-house method]
Density	:	0.964 to 1.11 g/cm³ [20°C (68°F)] [Technical literature]
Solubility in water	:	Negligible
Partition coefficient n-octanol/water (log Pow)	:	3.01 to 6.51 [In-house method] Calculated value
Auto-ignition temperature	:	400°C (752°F) [In-house method]
Decomposition temperature	:	Not available.
Viscosity	:	215 cSt [40 °C] [In-house method]

Particle characteristics

Median particle size	:	Not applicable.

9.2 Other information

Pour point	:	-63 to 43°C [Technical literature]
Hygroscopic	:	No

SECTION 10: Stability and reactivity

10.1 Reactivity	:	No specific test data related to reactivity available for this product or its ingredients.
10.2 Chemical stability	:	The product is stable.
10.3 Possibility of hazardous reactions	:	Under normal conditions of storage and use, hazardous reactions will not occur.
10.4 Conditions to avoid	:	Avoid all possible sources of ignition (spark or flame). Do not pressurise, cut, weld, braze, solder, drill, grind or expose containers to heat or sources of ignition. See Footnote
10.5 Incompatible materials	:	Reactive or incompatible with the following materials:,oxidising materials,See Footnote

SECTION 10: Stability and reactivity

10.6 Hazardous decomposition products : Under normal conditions of storage and use, hazardous decomposition products should not be produced.

SECTION 11: Toxicological information

11.1 Information on hazard classes as defined in Regulation (EC) No 1272/2008

Acute toxicity

Product/ingredient name	Result	Species	Dose	Exposure
residues (petroleum), steam-cracked	LC50 Inhalation Vapour	Rat	>1.6 mg/l	7 hours
	LD50 Dermal	Rabbit	>2000 mg/kg	-
	LD50 Oral	Rat	>2000 mg/kg	-
naphthalene	LC50 Inhalation Vapour	Rat	>0.4 mg/l	4 hours
	LD50 Oral	Mouse	533 mg/kg	-

Conclusion/Summary

Inhalation : Minimally Toxic. Data available. Based on test data for structurally similar materials. Test(s) equivalent or similar to OECD Guideline 403

Dermal : Minimally Toxic. Data available. Based on test data for structurally similar materials. Test(s) equivalent or similar to OECD Guideline 402

Oral : Minimally Toxic. Data available. Based on test data for the material. Test(s) equivalent or similar to OECD Guideline 401

Acute toxicity estimates

Product/ingredient name	Oral (mg/kg)	Dermal (mg/kg)	Inhalation (gases) (ppm)	Inhalation (vapours) (mg/l)	Inhalation (dusts and mists) (mg/l)
naphthalene	500	N/A	N/A	N/A	N/A

Irritation/Corrosion

Conclusion/Summary

Skin : Irritating to the skin. Data available. Based on test data for the material. Test(s) equivalent or similar to OECD Guideline 404

Eyes : May cause mild, short-lasting discomfort to eyes. Data available. Based on test data for the material. Test(s) equivalent or similar to OECD Guideline 405

Respiratory : Negligible hazard at ambient/normal handling temperatures. No end point data for material. Based on test data for structurally similar materials.

Respiratory or skin sensitization

Conclusion/Summary

Skin : Not expected to be a skin sensitizer. Data available. Based on test data for structurally similar materials. Test(s) equivalent or similar to OECD Guideline 406

Respiratory : Not expected to be a respiratory sensitizer. No end point data for material.

Mutagenicity

Conclusion/Summary : May cause genetic defects. Data available. Based on test data for structurally similar materials. Test(s) equivalent or similar to OECD Guideline 471

Carcinogenicity

Conclusion/Summary : May cause cancer. Data available. Based on test data for structurally similar materials. Test(s) equivalent or similar to OECD Guideline 451

Reproductive toxicity

Conclusion/Summary : Not expected to be a reproductive toxicant. Data available. Based on test data for structurally similar materials. Test(s) equivalent or similar to OECD Guideline 414 415 416

Specific target organ toxicity (single exposure)

SECTION 11: Toxicological information

Conclusion/Summary : Not expected to cause organ damage from a single exposure. No end point data for material.

Specific target organ toxicity (repeated exposure)

Product/ingredient name	Category	Target organs
residues (petroleum), steam-cracked	Not applicable.	-

Conclusion/Summary : Not expected to cause organ damage from prolonged or repeated exposure. Data available. Based on test data for structurally similar materials. Test(s) equivalent or similar to OECD Guideline 408 412 413 453

Aspiration hazard

Conclusion/Summary : Not expected to be an aspiration hazard. Based on physico-chemical properties of the material. Data available.

Information on likely routes of exposure : Not available.

11.2 Information on other hazards

11.2.1 Endocrine disrupting properties

No known endocrine disrupting properties that affect human health

11.2.2 Other information

Contains : NAPHTHALENE: Exposure to high concentrations of naphthalene may cause destruction of red blood cells, anemia, and cataracts. Naphthalene caused cancer in laboratory animal studies, but the relevance of these findings to humans is uncertain. Polycyclic Aromatic Compounds (PAC/PNA): Carcinogenic in animal studies. Caused mutations in-vitro. Reproductive and developmental studies resulted in decreased fetal weights, survival and malformations, as well as reduced sperm count in males. Dermal studies resulted in increased mortality, skin irritation, liver, kidney, thymus, bone marrow, blood and lymphoid tissue toxic effects. Possible allergen and/or photoallergen.

Product : Elevated temperatures or mechanical action may form vapours, mists or fumes which may be irritating to the eyes and respiratory tract.

Section 12. Ecological information

The information given is based on data for the material, components of the material, or for similar materials, through the application of bridging principals.

12.1 Toxicity

Product/ingredient name	Duration	Species	Result
residues (petroleum), steam-cracked	48 hours	daphnia - *Daphnia magna*	Acute EL50 4.58 to 9.83 mg/l
	96 hours	Algae - *Pseudokirchneriella subcapitata*	Acute ErL50 2.2 mg/l data for similar materials
	96 hours	Fish - *Brachydanio rerio*	Acute LL50 48 mg/l
	96 hours	Algae - *Pseudokirchneriella subcapitata*	Acute NOEL 0.18 mg/l data for similar materials

Conclusion/Summary

Acute toxicity : Toxic to aquatic life.

Chronic toxicity : Toxic to aquatic life with long lasting effects.

12.2 Persistence and degradability

Section 12. Ecological information

Product/ingredient name	Test	Result	Qualifier	Media
residues (petroleum), steam-cracked	Ready Biodegradability	20 % - 22 days	-	water

Biodegradability : Material -- Expected to be inherently biodegradable

Hydrolysis : Material -- Transformation due to hydrolysis not expected to be significant.

Photolysis : Material -- Transformation due to photolysis not expected to be significant.

Atmospheric Oxidation : Material -- Expected to degrade at a moderate rate in air

12.3 Bioaccumulative potential

Conclusion/Summary : Material -- Has the potential to bioaccumulate.

12.4 Mobility in soil

Mobility : Material -- Low water solubility, expected to sink and migrate into the sediment. Expected to partition to sediment and wastewater solids.

12.5 Results of PBT and vPvB assessment

Product/ingredient name	PBT	P	B	T	vPvB	vP	vB
residues (petroleum), steam-cracked	N/A	N/A	N/A	Yes	N/A	N/A	N/A

12.6 Endocrine disrupting properties

No known endocrine disrupting properties that affect the environment

12.7 Other adverse effects

Other adverse effects : No known significant effects or critical hazards.

SECTION 13: Disposal considerations

The information in this section contains generic advice and guidance. The list of Identified Uses in Section 1 should be consulted for any available use-specific information provided in the Exposure Scenario(s).

13.1 Waste treatment methods

Product

Methods of disposal : The generation of waste should be avoided or minimised wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction.

Hazardous waste : The classification of the product may meet the criteria for a hazardous waste.

The European Waste Catalogue (EWC) code is specific to the waste generating process and waste constituents. Determine the EWC according to the criteria provided in the European Waste Catalogue and the hazardous waste list established by Commission Decision 2000/532/EC, as amended.

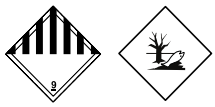
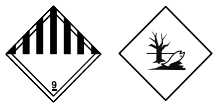
Packaging

Methods of disposal : The generation of waste should be avoided or minimised wherever possible. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible.

SECTION 13: Disposal considerations

Special precautions : Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers. Empty Container Warning (where applicable): Empty containers may contain residue and can be dangerous. Do not attempt to refill or clean containers without proper instructions. Empty drums should be completely drained and safely stored until appropriately reconditioned or disposed. Empty containers should be taken for recycling, recovery, or disposal through suitably qualified or licensed contractor and in accordance with governmental regulations. DO NOT PRESSURISE, CUT, WELD, BRAZE, SOLDER, DRILL, GRIND, OR EXPOSE SUCH CONTAINERS TO HEAT, FLAME, SPARKS, STATIC ELECTRICITY, OR OTHER SOURCES OF IGNITION. THEY MAY EXPLODE AND CAUSE INJURY OR DEATH.

SECTION 14: Transport information

	ADR/RID	ADN	IMDG	IATA
14.1 UN number or ID number	UN3082	UN3082	UN3082	UN3082
14.2 UN proper shipping name	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (residues (petroleum), steam-cracked, naphthalene)	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (residues (petroleum), steam-cracked, naphthalene)	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (residues (petroleum), steam-cracked, naphthalene)	Environmentally hazardous substance, liquid, n.o.s. (residues (petroleum), steam-cracked, naphthalene)
14.3 Transport hazard class(es)	9	9	9	9
Label(s) / Mark(s)				
14.4 Packing group	III	III	III	III
14.5 Environmental hazards	Yes.	Yes.	Yes.	Yes.

Additional information

ADR/RID : This product is not regulated as a dangerous good when transported in sizes of ≤5 L or ≤5 kg, provided the packagings meet the general provisions of 4.1.1.1, 4.1.1.2 and 4.1.1.4 to 4.1.1.8.
Hazard identification number 90
Limited quantity 5 L
Special provisions 274, 335, 601, 375
Tunnel code (-)

ADN : This product is not regulated as a dangerous good when transported in sizes of ≤5 L or ≤5 kg, provided the packagings meet the general provisions of 4.1.1.1, 4.1.1.2 and 4.1.1.4 to 4.1.1.8.
Special provisions 274, 335, 375, 601

CMR, S, N2

IMDG : This product is not regulated as a dangerous good when transported in sizes of ≤5 L or ≤5 kg, provided the packagings meet the general provisions of 4.1.1.1, 4.1.1.2 and 4.1.1.4 to 4.1.1.8.
Emergency schedules F-A, S-F
Special provisions 274, 335, 969

SECTION 14: Transport information

IATA : This product is not regulated as a dangerous good when transported in sizes of ≤5 L or ≤5 kg, provided the packagings meet the general provisions of 5.0.2.4.1, 5.0.2.6.1.1 and 5.0.2.8.
Quantity limitation Passenger and Cargo Aircraft: 450 L. Packaging instructions: 964. Cargo Aircraft Only: 450 L. Packaging instructions: 964. Limited Quantities - Passenger Aircraft: 30 kg. Packaging instructions: Y964.
Special provisions A97, A158, A197, A215

14.6 Special precautions for user : **Transport within user's premises:** always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.

14.7 Maritime transport in bulk according to IMO instruments : Not applicable.

SECTION 15: Regulatory information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

EU Regulation (EC) No. 1907/2006 (REACH)

Annex XIV - List of substances subject to authorisation

Annex XIV

None of the components are listed.

Substances of very high concern

None of the components are listed.

Annex XVII - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles : None.

Other EU regulations

Explosive precursors : Not applicable.

Seveso Directive

This product is controlled under the Seveso Directive.

Danger criteria

Category
E2

National regulations

Book VI carcinogenic agents annex VI.2-1 - VI.2-3

Ingredient name	Status
hydrocarbures polycycliques aromatiques hydrocarbures polycycliques aromatiques hydrocarbures polycycliques aromatiques	Listed Listed Listed

Inventory list

Australia inventory (AIIC) : All components are listed or exempted.

Canada inventory (DSL-NDSL) : All components are listed or exempted.

China inventory (IECSC) : All components are listed or exempted.

Japan inventory (CSCL) : Not determined.

Japan inventory (Industrial Safety and Health Act) : Not determined.

SECTION 15: Regulatory information

New Zealand Inventory of Chemicals (NZIoC) : All components are listed or exempted.

Philippines inventory (PICCS) : All components are listed or exempted.

Korea inventory (KECI) : All components are listed or exempted.

Taiwan Chemical Substances Inventory (TCSI) : All components are listed or exempted.

United States inventory (TSCA 8b) : All components are active or exempted.

15.2 Chemical safety assessment : This product contains substances for which Chemical Safety Assessments are still required.

SECTION 16: Other information

Indicates information that has changed from previously issued version.

Abbreviations and acronyms :
ATE = Acute Toxicity Estimate
CLP = Classification, Labelling and Packaging Regulation [Regulation (EC) No. 1272/2008]
DMEL = Derived Minimal Effect Level
DNEL = Derived No Effect Level
EUH statement = CLP-specific Hazard statement
N/A = Not available
PBT = Persistent, Bioaccumulative and Toxic
PNEC = Predicted No Effect Concentration
RRN = REACH Registration Number
SGG = Segregation Group
vPvB = Very Persistent and Very Bioaccumulative

Procedure used to derive the classification according to Regulation (EC) No. 1272/2008 [CLP/GHS]

Classification	Justification
Skin Irrit. 2, H315	Expert judgment
Muta. 1B, H340	Expert judgment
Carc. 1B, H350	Expert judgment
Aquatic Chronic 2, H411	Expert judgment

Full text of abbreviated H statements

H228	Flammable solid.
H302	Harmful if swallowed.
H304	May be fatal if swallowed and enters airways.
H315	Causes skin irritation.
H340	May cause genetic defects.
H350	May cause cancer.
H351	Suspected of causing cancer.
H400	Very toxic to aquatic life.
H410	Very toxic to aquatic life with long lasting effects.
H411	Toxic to aquatic life with long lasting effects.

Full text of classifications [CLP/GHS]

Acute Tox. 4	ACUTE TOXICITY - Category 4
Aquatic Acute 1	SHORT-TERM (ACUTE) AQUATIC HAZARD - Category 1
Aquatic Chronic 1	LONG-TERM (CHRONIC) AQUATIC HAZARD - Category 1
Aquatic Chronic 2	LONG-TERM (CHRONIC) AQUATIC HAZARD - Category 2
Asp. Tox. 1	ASPIRATION HAZARD - Category 1
Carc. 1B	CARCINOGENICITY - Category 1B
Carc. 2	CARCINOGENICITY - Category 2
Flam. Sol. 2	FLAMMABLE SOLIDS - Category 2
Muta. 1B	GERM CELL MUTAGENICITY - Category 1B
Skin Irrit. 2	SKIN CORROSION/IRRITATION - Category 2

Date of issue/ Date of revision : 3 September 2024

SECTION 16: Other information

Date of previous issue : 4 April 2024

Version : 1.02

Product code : 1167107_13411232

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Annex to the extended Safety Data Sheet (eSDS)

Professional

Identification of the substance or mixture

Product definition : UVCB

Code : 1167107_13411232

Product name : CRN 30 <C>

Section 1 - Title

Short title of the exposure scenario : Use as a fuel - Professional

List of use descriptors :
Identified use name: Use as a fuel - Professional
Process Category: PROC01, PROC02, PROC03, PROC08a, PROC08b, PROC16
Sector of end use: SU22
Subsequent service life relevant for that use: No.
Environmental Release Category: ERC09a, ERC09b

Environmental contributing scenarios : **General exposures -** ERC09a, ERC09b

Health Contributing scenarios :
General measures applicable to all activities - PROC01, PROC02, PROC03, PROC08a, PROC08b, PROC16
Bulk transfers - PROC08b
Drum/batch transfers - PROC08b
Dipping, immersion and pouring - PROC08b
General exposures (closed systems) - PROC01, PROC02
Equipment cleaning and maintenance - PROC08a
Vessel container cleaning - PROC08a
Storage - PROC01
Use as a fuel - PROC03, PROC16

Processes and activities covered by the exposure scenario : Covers the use as a fuel (or fuel additive) and includes activities associated with its transfer, use, equipment maintenance and handling of waste.

Section 2 - Exposure controls

Contributing scenario controlling environmental exposure for 1: General exposures

Product characteristics :
Not biodegradable
Predominantly hydrophobic
Substance is complex UVCB.

Amounts used :
Annual site tonnage (tonnes/year): 8 tonnes/year
Fraction of EU tonnage used in region: 0.1
Fraction of Regional tonnage used locally: 0.0005
Maximum daily site tonnage (kg/day): 21.9 kg/day
Regional use tonnage (tonnes/year): 16 000 tonnes/year

Frequency and duration of use :
Continuous release
Emission days (days per year): 365 days per year

Environment factors not influenced by risk management :
Local freshwater dilution factor: 10
Local marine water dilution factor: 100

Other operational conditions of use affecting environmental exposure :
Release fraction to air from process (initial release prior to RMM): 0.001
Release fraction to soil from process (initial release prior to RMM): 0.00001
Release fraction to wastewater 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.

Technical on-site conditions and measures to reduce or limit discharges, air emissions and releases to soil	:	No secondary wastewater treatment required. Risk from environmental exposure is driven by humans via indirect exposure (primarily ingestion). Treat air emission to provide a typical removal efficiency of: 0 % Treat on-site wastewater (prior to receiving water discharge) to provide the required removal efficiency of: >=0 %
Organisational measures to prevent/limit release from site	:	Not applicable.
Conditions and measures related to municipal sewage treatment plant	:	Assumed domestic sewage treatment plant flow (m³/day): 2 000 m³/day Estimated substance removal from wastewater via municipal sewage treatment: 94.4 % Maximum allowable site tonnage (MSafe) (kg/d): [Assumed domestic sewage treatment plant flow] (kg/day): 320 kg/day Total efficiency of removal from wastewater after onsite and offsite (domestic treatment plant) RMMs: 94.4 %
Conditions and measures related to external treatment of waste for disposal	:	This substance is consumed during use and no waste from the substance is generated.
Conditions and measures related to external recovery of waste	:	This substance is consumed during use and no waste from the substance is generated.

Contributing scenario controlling worker exposure for 2: General measures applicable to all activities

General measures (carcinogens)

Consider technical advances and process upgrades (including automation) for the elimination of releases. Minimise exposure using measures such as closed systems, dedicated facilities and suitable general/local exhaust ventilation. Drain down and flush system prior to equipment break-in or maintenance. Cleaning manufacturing equipment for maintenance purposes Exposure (Potential): Only allow access to authorised persons. Ensure operatives are trained to minimise exposures. Wear suitable coveralls to prevent exposure to the skin. Wear respiratory protection when its use is identified for certain contributing scenarios. Clear up spills immediately and dispose of waste safely. Ensure safe systems of work or equivalent arrangements are in place to manage risks. Ensure control measures are regularly inspected and maintained. Consider the need for risk based health surveillance.

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Covers daily exposures up to 8 hours (unless stated differently)
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented

Contributing scenario controlling worker exposure for 3: Bulk transfers

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Avoid carrying out activities involving exposure for more than 4 hours
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.
Technical conditions and measures at process level (source) to prevent release	:	Clear lines prior to de-coupling. Ensure operation is undertaken outdoors.

Ventilation control measures	:	Ensure material transfers are under containment or extract ventilation. Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour).

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented

Contributing scenario controlling worker exposure for 4: Drum/batch transfers

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Avoid carrying out activities involving exposure for more than 4 hours
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.
Technical conditions and measures at process level (source) to prevent release	:	Use drum pumps or carefully pour from container. Ensure operation is undertaken outdoors.
Ventilation control measures	:	Ensure material transfers are under containment or extract ventilation. Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour).

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented

Contributing scenario controlling worker exposure for 5: Dipping, immersion and pouring

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Avoid carrying out activities involving exposure for more than 4 hours
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.
Technical conditions and measures at process level (source) to prevent release	:	Use drum pumps or carefully pour from container. Ensure operation is undertaken outdoors.
Ventilation control measures	:	Ensure material transfers are under containment or extract ventilation. Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour).

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented

Contributing scenario controlling worker exposure for 6: General exposures (closed systems)

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Avoid carrying out activities involving exposure for more than 1 hour
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.

Technical conditions and measures at process level (source) to prevent release	:	Handle substance within a closed system. Ensure operation is undertaken outdoors.
Ventilation control measures	:	Provide extract ventilation to points where emissions occur. Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour).

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented

Contributing scenario controlling worker exposure for 7: Equipment cleaning and maintenance

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Avoid carrying out activities involving exposure for more than 4 hour
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.
Technical conditions and measures at process level (source) to prevent release	:	Drain down system prior to equipment break-in or maintenance. Retain drain-downs in sealed storage pending disposal or for subsequent recycle. Ensure operation is undertaken outdoors.
Ventilation control measures	:	Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour).
Organisational measures to prevent/limit releases, dispersion and exposure	:	Clear spills immediately.

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented
Respiratory protection	:	Wear a respirator conforming to EN140 with type A filter or better.

Contributing scenario controlling worker exposure for 8: Vessel container cleaning

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Avoid carrying out activities involving exposure for more than 4 hour
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.
Technical conditions and measures at process level (source) to prevent release	:	Drain down system prior to equipment break-in or maintenance. Retain drain-downs in sealed storage pending disposal or for subsequent recycle. Ensure operation is undertaken outdoors.
Ventilation control measures	:	Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour).
Organisational measures to prevent/limit releases, dispersion and exposure	:	Clear spills immediately.

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented
Respiratory protection	:	Wear a respirator conforming to EN140 with type A filter or better.

Contributing scenario controlling worker exposure for 9: Storage

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Covers daily exposures up to 8 hours (unless stated differently)
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.
Technical conditions and measures at process level (source) to prevent release	:	Store substance within a closed system.

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented

Contributing scenario controlling worker exposure for 10: Use as a fuel

Closed systems / Batch process

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Avoid carrying out activities involving exposure for more than 1 hour
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.
Technical conditions and measures at process level (source) to prevent release	:	Handle substance within a closed system. Ensure operation is undertaken outdoors.
Ventilation control measures	:	Provide extract ventilation to points where emissions occur. Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour).

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented

Section 3 - Exposure estimation and reference to its source

Website:	:	Not applicable.

Exposure estimation and reference to its source - Environment: 1: General exposures

Exposure assessment (environment):	:	Hydrocarbon Block Method (Petrorisk)
Exposure estimation and reference to its source	:	Not available.

Exposure estimation and reference to its source - Workers: 2: General measures applicable to all activities

Exposure assessment (human):	:	Not applicable.
Exposure estimation and reference to its source	:	Not applicable.

Exposure estimation and reference to its source - Workers: 3: Bulk transfers

Exposure assessment (human):	:	Not applicable.
Exposure estimation and reference to its source	:	Not applicable.

Exposure estimation and reference to its source - Workers: 4: Drum/batch transfers

Exposure assessment (human): : Not applicable.

Exposure estimation and reference to its source : Not applicable.

Exposure estimation and reference to its source - Workers: 5: Dipping, immersion and pouring

Exposure assessment (human): : Not applicable.

Exposure estimation and reference to its source : Not applicable.

Exposure estimation and reference to its source - Workers: 6: General exposures (closed systems)

Exposure assessment (human): : Not applicable.

Exposure estimation and reference to its source : Not applicable.

Exposure estimation and reference to its source - Workers: 7: Equipment cleaning and maintenance

Exposure assessment (human): : Not applicable.

Exposure estimation and reference to its source : Not applicable.

Exposure estimation and reference to its source - Workers: 8: Vessel container cleaning

Exposure assessment (human): : Not applicable.

Exposure estimation and reference to its source : Not applicable.

Exposure estimation and reference to its source - Workers: 9: Storage

Exposure assessment (human): : Not applicable.

Exposure estimation and reference to its source : Not applicable.

Exposure estimation and reference to its source - Workers: 10: Use as a fuel

Exposure assessment (human): : Not applicable.

Exposure estimation and reference to its source : Not applicable.

Section 4 - Guidance to DU to evaluate whether he works inside the boundaries set by the ES

Environment : Further details on scaling and control technologies are provided in SPERC factsheet. 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.
Required removal efficiency for air can be achieved using on-site technologies, either alone or in combination.
Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination.

Health : Predicted exposures are not expected to exceed the DN(M)EL when the risk management measures/operational conditions outlined in section 2 are implemented.
Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

Additional good practice advice beyond the REACH CSA

Environment : Not available.

Health : Not available.

Annex to the extended Safety Data Sheet (eSDS)

Industrial

Identification of the substance or mixture

Product definition : UVCB

Code : 1167107_13411232

Product name : CRN 30 <C>

Section 1 - Title

Short title of the exposure scenario : Use as a fuel - Industrial

List of use descriptors : **Identified use name:** Use as a fuel - Industrial
Process Category: PROC01, PROC02, PROC03, PROC08a, PROC08b, PROC16
Sector of end use: SU03
Subsequent service life relevant for that use: No.
Environmental Release Category: ERC07

Environmental contributing scenarios : **General exposures -** ERC07

Health Contributing scenarios : **General measures applicable to all activities -** PROC01, PROC02, PROC03, PROC08a, PROC08b, PROC16
Bulk transfers - PROC08b
Drum/batch transfers - PROC08b
General exposures (closed systems) - PROC01, PROC02
Batch process - PROC03
Equipment cleaning and maintenance - PROC08a
Vessel and container cleaning - PROC08a
Storage - PROC01, PROC02
Use as a fuel - PROC03, PROC16
Disposal of wastes - PROC08a

Processes and activities covered by the exposure scenario : Covers the use as a fuel (or fuel additive) and includes activities associated with its transfer, use, equipment maintenance and handling of waste.

Section 2 - Exposure controls

Contributing scenario controlling environmental exposure for 1: General exposures

Product characteristics : Predominantly hydrophobic
Substance is complex UVCB.

Amounts used : Annual site tonnage (tonnes/year): 160 000 tonnes/year
Fraction of EU tonnage used in region: 0.2
Fraction of Regional tonnage used locally: 1.4
Maximum daily site tonnage (kg/day): 530 000 kg/day
Regional use tonnage (tonnes/year): 110 000 tonnes/year

Frequency and duration of use : Continuous release
Emission days (days per year): 300 days per year

Environment factors not influenced by risk management : Local freshwater dilution factor: 10
Local marine water dilution factor: 100

Other operational conditions of use affecting environmental exposure : Release fraction to air from process (initial release prior to RMM): 0.005
Release fraction to soil from process (initial release prior to RMM): 0
Release fraction to wastewater 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.

Technical on-site conditions and measures to reduce or limit discharges, air emissions and releases to soil	:	No secondary wastewater treatment required. Risk from environmental exposure is driven by humans via indirect exposure (primarily inhalation). Treat air emission to provide a typical removal efficiency of: 95 % Treat on-site wastewater (prior to receiving water discharge) to provide the required removal efficiency of: 69.9 %
Organisational measures to prevent/limit release from site	:	Do not apply industrial sludge to natural soils. Prevent discharge of undissolved substance to or recover from onsite wastewater. Sludge should be incinerated, contained or reclaimed.
Conditions and measures related to municipal sewage treatment plant	:	Assumed domestic sewage treatment plant flow (m^3/day): 2 000 m^3/day Estimated substance removal from wastewater via municipal sewage treatment: 94.4 % Maximum allowable site tonnage (MSafe) (kg/d): [Assumed domestic sewage treatment plant flow] (kg/day): 530 000 kg/day Total efficiency of removal from wastewater after onsite and offsite (domestic treatment plant) RMMs: 94.4 %
Conditions and measures related to external treatment of waste for disposal	:	This substance is consumed during use and no waste from the substance is generated.
Conditions and measures related to external recovery of waste	:	This substance is consumed during use and no waste from the substance is generated.

Contributing scenario controlling worker exposure for 2: General measures applicable to all activities

General measures (carcinogens)

Consider technical advances and process upgrades (including automation) for the elimination of releases. Minimise exposure using measures such as closed systems, dedicated facilities and suitable general/local exhaust ventilation. Drain down and flush system prior to equipment break-in or maintenance. Cleaning manufacturing equipment for maintenance purposes. Exposure (Potential): Only allow access to authorised persons. Ensure operatives are trained to minimise exposures. Wear suitable coveralls to prevent exposure to the skin. Wear respiratory protection when its use is identified for certain contributing scenarios. Clear up spills immediately and dispose of waste safely. Ensure safe systems of work or equivalent arrangements are in place to manage risks. Ensure control measures are regularly inspected and maintained. Consider the need for risk based health surveillance.

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Covers daily exposures up to 8 hours (unless stated differently)
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented

Contributing scenario controlling worker exposure for 3: Bulk transfers

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Avoid carrying out activities involving exposure for more than 4 hour
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.
Technical conditions and measures at process level (source) to prevent release	:	Ensure operation is undertaken outdoors.

Ventilation control measures	:	Handle substance within a predominantly closed system provided with extract ventilation. Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour).

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented

Contributing scenario controlling worker exposure for 4: Drum/batch transfers

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Covers daily exposures up to 8 hours (unless stated differently)
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.
Technical conditions and measures at process level (source) to prevent release	:	Use drum pumps. Ensure operation is undertaken outdoors.
Ventilation control measures	:	Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour).

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented

Contributing scenario controlling worker exposure for 5: General exposures (closed systems)

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Covers daily exposures up to 8 hours (unless stated differently)
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.
Technical conditions and measures at process level (source) to prevent release	:	Handle substance within a closed system. Sample via a closed loop or other system to avoid exposure.
Ventilation control measures	:	Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour).

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented

Contributing scenario controlling worker exposure for 6: Batch process

General exposures (closed systems)

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Covers daily exposures up to 8 hours (unless stated differently)
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.

Ventilation control measures	:	Handle substance within a predominantly closed system provided with extract ventilation. Provide a good standard of controlled ventilation (10 to 15 air changes per hour).

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented

Contributing scenario controlling worker exposure for 7: Equipment cleaning and maintenance

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Covers daily exposures up to 8 hours (unless stated differently)
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.
Technical conditions and measures at process level (source) to prevent release	:	Drain down and flush system prior to equipment break-in or maintenance. Retain drain-downs in sealed storage pending disposal or for subsequent recycle. Ensure operation is undertaken outdoors.
Ventilation control measures	:	Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour).
Organisational measures to prevent/limit releases, dispersion and exposure	:	Clear spills immediately.

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented
Respiratory protection	:	Wear a respirator conforming to EN140 with type A filter or better.

Contributing scenario controlling worker exposure for 8: Vessel and container cleaning

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Covers daily exposures up to 8 hours (unless stated differently)
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.
Technical conditions and measures at process level (source) to prevent release	:	Drain down and flush system prior to equipment break-in or maintenance. Retain drain-downs in sealed storage pending disposal or for subsequent recycle.
Ventilation control measures	:	Provide extract ventilation to points where emissions occur.
Organisational measures to prevent/limit releases, dispersion and exposure	:	Clear spills immediately.

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented

Contributing scenario controlling worker exposure for 9: Storage

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Covers daily exposures up to 8 hours (unless stated differently)
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.
Technical conditions and measures at process level (source) to prevent release	:	Sample via a closed loop or other system to avoid exposure. Store substance within a closed system.
Ventilation control measures	:	Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour).

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented

Contributing scenario controlling worker exposure for 10: Use as a fuel

Batch process / Closed systems

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Avoid carrying out activities involving exposure for more than 1 hour
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.
Technical conditions and measures at process level (source) to prevent release	:	Ensure operation is undertaken outdoors.
Ventilation control measures	:	Handle substance within a predominantly closed system provided with extract ventilation. Provide extract ventilation to points where emissions occur. Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour).

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented

Contributing scenario controlling worker exposure for 11: Disposal of wastes

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Avoid carrying out activities involving exposure for more than 1 hour
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.
Technical conditions and measures at process level (source) to prevent release	:	Sample via a closed loop or other system to avoid exposure.

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented

Section 3 - Exposure estimation and reference to its source

Website: : Not applicable.

Exposure estimation and reference to its source - Environment: 1: General exposures

Exposure assessment (environment): : Hydrocarbon Block Method (Petrorisk)

Exposure estimation and reference to its source : ESVOC SPERC 7.12a.v1

Exposure estimation and reference to its source - Workers: 2: General measures applicable to all activities

Exposure assessment (human): : Not applicable.

Exposure estimation and reference to its source : Not applicable.

Exposure estimation and reference to its source - Workers: 3: Bulk transfers

Exposure assessment (human): : Not applicable.

Exposure estimation and reference to its source : Not applicable.

Exposure estimation and reference to its source - Workers: 4: Drum/batch transfers

Exposure assessment (human): : Not applicable.

Exposure estimation and reference to its source : Not applicable.

Exposure estimation and reference to its source - Workers: 5: General exposures (closed systems)

Exposure assessment (human): : Not applicable.

Exposure estimation and reference to its source : Not applicable.

Exposure estimation and reference to its source - Workers: 6: Batch process

Exposure assessment (human): : Not applicable.

Exposure estimation and reference to its source : Not applicable.

Exposure estimation and reference to its source - Workers: 7: Equipment cleaning and maintenance

Exposure assessment (human): : Not applicable.

Exposure estimation and reference to its source : Not applicable.

Exposure estimation and reference to its source - Workers: 8: Vessel and container cleaning

Exposure assessment (human): : Not applicable.

Exposure estimation and reference to its source : Not applicable.

Exposure estimation and reference to its source - Workers: 9: Storage

Exposure assessment (human): : Not applicable.

Exposure estimation and reference to its source : Not applicable.

Exposure estimation and reference to its source - Workers: 10: Use as a fuel

Exposure assessment (human):	:	Not applicable.
Exposure estimation and reference to its source	:	Not applicable.

Exposure estimation and reference to its source - Workers: 11: Disposal of wastes

Exposure assessment (human):	:	Not applicable.
Exposure estimation and reference to its source	:	Not applicable.

Section 4 - Guidance to DU to evaluate whether he works inside the boundaries set by the ES

Environment	:	Further details on scaling and control technologies are provided in SPERC factsheet. 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. Required removal efficiency for air can be achieved using on-site technologies, either alone or in combination. Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination.
Health	:	Predicted exposures are not expected to exceed the DN(M)EL when the risk management measures/operational conditions outlined in section 2 are implemented. Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

Additional good practice advice beyond the REACH CSA

Environment	:	Not available.
Health	:	Not available.

Annex to the extended Safety Data Sheet (eSDS)

Industrial

Identification of the substance or mixture

Product definition : UVCB

Code : 1167107_13411232

Product name : CRN 30 <C>

Section 1 - Title

Short title of the exposure scenario : Use as an intermediate

List of use descriptors : **Identified use name:** Use as an intermediate
Process Category: PROC01, PROC02, PROC03, PROC04, PROC08a, PROC08b, PROC15
Sector of end use: SU03, SU08, SU09
Subsequent service life relevant for that use: No.
Environmental Release Category: ERC06a

Environmental contributing scenarios : **General exposures -** ERC06a

Health Contributing scenarios : **General measures applicable to all activities -** PROC01, PROC02, PROC03, PROC04, PROC08a, PROC08b, PROC15
General exposures (closed systems) - PROC01
With sample collection - PROC02
Batch process - PROC03
General exposures (open systems) - PROC04
Process sampling - PROC08b
Laboratory activities - PROC15
Bulk transfers - PROC08b
Equipment cleaning and maintenance - PROC08a
Storage - PROC02

Processes and activities covered by the exposure scenario : Use of substance as an intermediate (not related to Strictly Controlled Conditions). Includes recycling/recovery, material transfers, storage, sampling, associated laboratory activities, maintenance and loading (including marine vessel/barge, road/rail car and bulk container).

Section 2 - Exposure controls

Contributing scenario controlling environmental exposure for 1: General exposures

Product characteristics : Predominantly hydrophobic
Substance is complex UVCB.

Amounts used : Annual site tonnage (tonnes/year): 15 000 tonnes/year
Fraction of EU tonnage used in region: 0.1
Fraction of Regional tonnage used locally: 0.75
Maximum daily site tonnage (kg/day): 50 000 kg/day
Regional use tonnage (tonnes/year): 20 000 tonnes/year

Frequency and duration of use : Continuous release
Emission days (days per year): 300 days per year

Environment factors not influenced by risk management : Local freshwater dilution factor: 10
Local marine water dilution factor: 100

Other operational conditions of use affecting environmental exposure : Release fraction to air from process (initial release prior to RMM): 0.0005
Release fraction to soil from process (initial release prior to RMM): 0.001
Release fraction to wastewater 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.

Technical on-site conditions and measures to reduce or limit discharges, air emissions and releases to soil	:	If discharging to municipal sewage treatment plant, no on-site wastewater treatment required. Risk from environmental exposure is driven by humans via indirect exposure (primarily ingestion). Treat air emission to provide a typical removal efficiency of: 80 % Treat on-site wastewater (prior to receiving water discharge) to provide the required removal efficiency of: 99.5 %
Organisational measures to prevent/limit release from site	:	Do not apply industrial sludge to natural soils. Prevent discharge of undissolved substance to or recover from onsite wastewater. Sludge should be incinerated, contained or reclaimed.
Conditions and measures related to municipal sewage treatment plant	:	Assumed domestic sewage treatment plant flow (m^3/day): 2 000 m^3/day Estimated substance removal from wastewater via municipal sewage treatment: 94.4 % Maximum allowable site tonnage (MSafe) (kg/d): [Assumed domestic sewage treatment plant flow] (kg/day): 50 000 kg/day Total efficiency of removal from wastewater after onsite and offsite (domestic treatment plant) RMMs: 99.5 %
Conditions and measures related to external treatment of waste for disposal	:	This substance is consumed during use and no waste from the substance is generated.
Conditions and measures related to external recovery of waste	:	This substance is consumed during use and no waste from the substance is generated.

Contributing scenario controlling worker exposure for 2: General measures applicable to all activities

General measures (carcinogens)

Consider technical advances and process upgrades (including automation) for the elimination of releases. Minimise exposure using measures such as closed systems, dedicated facilities and suitable general/local exhaust ventilation. Drain down and flush system prior to equipment break-in or maintenance. Cleaning manufacturing equipment for maintenance purposes. Exposure (Potential): Only allow access to authorised persons. Ensure operatives are trained to minimise exposures. Wear suitable coveralls to prevent exposure to the skin. Wear respiratory protection when its use is identified for certain contributing scenarios. Clear up spills immediately and dispose of waste safely. Ensure safe systems of work or equivalent arrangements are in place to manage risks. Ensure control measures are regularly inspected and maintained. Consider the need for risk based health surveillance.

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Covers daily exposures up to 8 hours (unless stated differently)
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented

Contributing scenario controlling worker exposure for 3: General exposures (closed systems)

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Covers daily exposures up to 8 hours (unless stated differently)
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.
Technical conditions and measures at process level (source) to prevent release	:	Handle substance within a closed system.

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented

Contributing scenario controlling worker exposure for 4: With sample collection

General exposures (closed systems)

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Avoid carrying out activities involving exposure for more than 4 hours
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.
Technical conditions and measures at process level (source) to prevent release	:	Handle substance within a closed system.
Ventilation control measures	:	Provide extract ventilation to points where emissions occur.

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented

Contributing scenario controlling worker exposure for 5: Batch process

General exposures (closed systems) / With sample collection

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Avoid carrying out activities involving exposure for more than 1 hour
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.
Technical conditions and measures at process level (source) to prevent release	:	Ensure operation is undertaken outdoors.
Ventilation control measures	:	Handle substance within a predominantly closed system provided with extract ventilation. Provide extract ventilation to points where emissions occur. Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour).

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented

Contributing scenario controlling worker exposure for 6: General exposures (open systems)

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Avoid carrying out activities involving exposure for more than 4 hours
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.

Technical conditions and measures at process level (source) to prevent release	:	Ensure operation is undertaken outdoors.
Ventilation control measures	:	Provide extract ventilation to points where emissions occur. Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour).

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented

Contributing scenario controlling worker exposure for 7: Process sampling

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Avoid carrying out activities involving exposure for more than 1 hour
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.
Technical conditions and measures at process level (source) to prevent release	:	Sample via a closed loop or other system to avoid exposure. Ensure operation is undertaken outdoors.
Ventilation control measures	:	Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour).

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented

Contributing scenario controlling worker exposure for 8: Laboratory activities

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Covers daily exposures up to 8 hours (unless stated differently)
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.
Technical conditions and measures at process level (source) to prevent release	:	Handle within a fume cupboard or implement suitable equivalent methods to minimise exposure.
Ventilation control measures	:	Provide a good standard of controlled ventilation (10 to 15 air changes per hour).

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented

Contributing scenario controlling worker exposure for 9: Bulk transfers

Open systems / With potential for aerosol generation / Closed systems

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Avoid carrying out activities involving exposure for more than 4 hours
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.

Technical conditions and measures at process level (source) to prevent release	:	Handle substance within a closed system. Ensure operation is undertaken outdoors.
Ventilation control measures	:	Ensure material transfers are under containment or extract ventilation. Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour).

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented

Contributing scenario controlling worker exposure for 10: Equipment cleaning and maintenance

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Covers daily exposures up to 8 hours (unless stated differently)
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.
Technical conditions and measures at process level (source) to prevent release	:	Drain down and flush system prior to equipment break-in or maintenance. Retain drain-downs in sealed storage pending disposal or for subsequent recycle. Ensure operation is undertaken outdoors.
Ventilation control measures	:	Provide extract ventilation to points where emissions occur.
Organisational measures to prevent/limit releases, dispersion and exposure	:	Clear spills immediately.

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented
Respiratory protection	:	Wear a respirator conforming to EN140 with type A filter or better.

Contributing scenario controlling worker exposure for 11: Storage

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Avoid carrying out activities involving exposure for more than 4 hours
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.
Technical conditions and measures at process level (source) to prevent release	:	Sample via a closed loop or other system to avoid exposure. Store substance within a closed system. Ensure operation is undertaken outdoors.
Ventilation control measures	:	Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour).

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented

Section 3 - Exposure estimation and reference to its source

Website:	:	Not applicable.

Exposure estimation and reference to its source - Environment: 1: General exposures

Exposure assessment (environment):	:	Not applicable.
Exposure estimation and reference to its source	:	ESVOC SPERC 6.1a.v1

Exposure estimation and reference to its source - Workers: 2: General measures applicable to all activities

Exposure assessment (human):	:	Not applicable.
Exposure estimation and reference to its source	:	Not applicable.

Exposure estimation and reference to its source - Workers: 3: General exposures (closed systems)

Exposure assessment (human):	:	Not applicable.
Exposure estimation and reference to its source	:	Not applicable.

Exposure estimation and reference to its source - Workers: 4: With sample collection

Exposure assessment (human):	:	Not applicable.
Exposure estimation and reference to its source	:	Not applicable.

Exposure estimation and reference to its source - Workers: 5: Batch process

Exposure assessment (human):	:	Not applicable.
Exposure estimation and reference to its source	:	Not applicable.

Exposure estimation and reference to its source - Workers: 6: General exposures (open systems)

Exposure assessment (human):	:	Not applicable.
Exposure estimation and reference to its source	:	Not applicable.

Exposure estimation and reference to its source - Workers: 7: Process sampling

Exposure assessment (human):	:	Not applicable.
Exposure estimation and reference to its source	:	Not applicable.

Exposure estimation and reference to its source - Workers: 8: Laboratory activities

Exposure assessment (human):	:	Not applicable.
Exposure estimation and reference to its source	:	Not applicable.

Exposure estimation and reference to its source - Workers: 9: Bulk transfers

Exposure assessment (human):	:	Not applicable.
Exposure estimation and reference to its source	:	Not applicable.

Exposure estimation and reference to its source - Workers: 10: Equipment cleaning and maintenance

Exposure assessment (human):	:	Not applicable.
Exposure estimation and reference to its source	:	Not applicable.

Exposure estimation and reference to its source - Workers: 11: Storage

Exposure assessment (human):	:	Not applicable.
Exposure estimation and reference to its source	:	Not applicable.

Section 4 - Guidance to DU to evaluate whether he works inside the boundaries set by the ES

Environment	:	Not applicable.
Health	:	Not applicable.

Additional good practice advice beyond the REACH CSA

Environment	:	Not available.
Health	:	Not available.

Annex to the extended Safety Data Sheet (eSDS)

Industrial

Identification of the substance or mixture

Product definition : UVCB

Code : 1167107_13411232

Product name : CRN 30 <C>

Section 1 - Title

Short title of the exposure scenario : Manufacture of substance

List of use descriptors : **Identified use name:** Manufacture of substance
Process Category: PROC01, PROC02, PROC03, PROC04, PROC08a, PROC08b, PROC15
Sector of end use: SU03, SU08, SU09, SU10
Subsequent service life relevant for that use: No.
Environmental Release Category: ERC01, ERC04

Environmental contributing scenarios : **General exposures -** ERC01, ERC04

Health Contributing scenarios : **General measures applicable to all activities -** PROC01, PROC02, PROC03, PROC04, PROC08a, PROC08b, PROC15
General exposures (closed systems) - PROC01
With sample collection - PROC02
Use in contained batch processes - PROC03
General exposures (open systems) - PROC04
Process sampling - PROC08b
Laboratory activities - PROC15
Bulk transfers - PROC08b
Equipment cleaning and maintenance - PROC08a
Storage - PROC02

Processes and activities covered by the exposure scenario : Manufacture of the substance or use as an intermediate, process chemical or extracting agent. Includes recycling/ recovery, material transfers, storage, maintenance and loading (ncluding marine vessel/barge, road/rail car and bulk container).

Section 2 - Exposure controls

Contributing scenario controlling environmental exposure for 1: General exposures

Product characteristics : Not biodegradable
Predominantly hydrophobic
Substance is complex UVCB.

Amounts used : Annual site tonnage (tonnes/year): 250 000 tonnes/year
Fraction of EU tonnage used in region: 0.25
Fraction of Regional tonnage used locally: 1
Maximum daily site tonnage (kg/day): 830 000 kg/day
Regional use tonnage (tonnes/year): 250 000 tonnes/year

Frequency and duration of use : Continuous release
Emission days (days per year): 300 days per year

Environment factors not influenced by risk management : Local freshwater dilution factor: 40
Local marine water dilution factor: 100

Other operational conditions of use affecting environmental exposure : Release fraction to air from process (initial release prior to RMM): 0.0001
Release fraction to soil from process (initial release prior to RMM): 0.0001
Release fraction to wastewater 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.

Technical on-site conditions and measures to reduce or limit discharges, air emissions and releases to soil	:	If discharging to municipal sewage treatment plant, no on-site wastewater treatment required. Risk from environmental exposure is driven by humans via indirect exposure (primarily inhalation). Treat air emission to provide a typical removal efficiency of 90 % Treat on-site wastewater (prior to receiving water discharge) to provide the required removal efficiency of 98.5 %
Organisational measures to prevent/limit release from site	:	Do not apply industrial sludge to natural soils. Prevent discharge of undissolved substance to or recover from onsite wastewater. Sludge should be incinerated, contained or reclaimed.
Conditions and measures related to municipal sewage treatment plant	:	Assumed domestic sewage treatment plant flow (m^3/day): 10 000 m^3/day Estimated substance removal from wastewater via municipal sewage treatment: 94.4 % Maximum allowable site tonnage (MSafe) (kg/d): [Assumed domestic sewage treatment plant flow] (kg/day): 830 000 kg/day Total efficiency of removal from wastewater after onsite and offsite (domestic treatment plant) RMMs: 98.5 %
Conditions and measures related to external treatment of waste for disposal	:	During manufacturing, no waste of the substance is generated.
Conditions and measures related to external recovery of waste	:	During manufacturing, no waste of the substance is generated.

Contributing scenario controlling worker exposure for 2: General measures applicable to all activities

General measures (carcinogens)

Consider technical advances and process upgrades (including automation) for the elimination of releases. Minimise exposure using measures such as closed systems, dedicated facilities and suitable general/local exhaust ventilation. Drain down and flush system prior to equipment break-in or maintenance. Cleaning manufacturing equipment for maintenance purposes. Exposure (Potential): Only allow access to authorised persons. Ensure operatives are trained to minimise exposures. Wear suitable coveralls to prevent exposure to the skin. Wear respiratory protection when its use is identified for certain contributing scenarios. Clear up spills immediately and dispose of waste safely. Ensure safe systems of work or equivalent arrangements are in place to manage risks. Ensure control measures are regularly inspected and maintained. Consider the need for risk based health surveillance.

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Covers daily exposures up to 8 hours (unless stated differently)
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented

Contributing scenario controlling worker exposure for 3: General exposures (closed systems)

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Covers daily exposures up to 8 hours (unless stated differently)
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.
Technical conditions and measures at process level (source) to prevent release	:	Handle substance within a closed system.

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented

Contributing scenario controlling worker exposure for 4: With sample collection

General exposures (closed systems)

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Avoid carrying out activities involving exposure for more than 4 hours
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.
Technical conditions and measures at process level (source) to prevent release	:	Handle substance within a closed system.
Ventilation control measures	:	Provide extract ventilation to points where emissions occur.

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented

Contributing scenario controlling worker exposure for 5: Use in contained batch processes

General exposures (closed systems)

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Avoid carrying out activities involving exposure for more than 1 hour
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.
Technical conditions and measures at process level (source) to prevent release	:	Ensure operation is undertaken outdoors.
Ventilation control measures	:	Handle substance within a predominantly closed system provided with extract ventilation. Provide extract ventilation to points where emissions occur. Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour).

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented

Contributing scenario controlling worker exposure for 6: General exposures (open systems)

With sample collection / Batch process

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Avoid carrying out activities involving exposure for more than 4 hours
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.

Technical conditions and measures at process level (source) to prevent release	:	Ensure operation is undertaken outdoors.
Ventilation control measures	:	Provide extract ventilation to points where emissions occur. Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour).

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented

Contributing scenario controlling worker exposure for 7: Process sampling

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Avoid carrying out activities involving exposure for more than 1 hour
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.
Technical conditions and measures at process level (source) to prevent release	:	Sample via a closed loop or other system to avoid exposure. Ensure operation is undertaken outdoors.
Ventilation control measures	:	Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour).

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented

Contributing scenario controlling worker exposure for 8: Laboratory activities

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Covers daily exposures up to 8 hours (unless stated differently)
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.
Technical conditions and measures at process level (source) to prevent release	:	Handle within a fume cupboard or implement suitable equivalent methods to minimise exposure.
Ventilation control measures	:	Provide a good standard of controlled ventilation (10 to 15 air changes per hour).

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented

Contributing scenario controlling worker exposure for 9: Bulk transfers

Open systems / Closed systems / With potential for aerosol generation

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Avoid carrying out activities involving exposure for more than 4 hours
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.

Technical conditions and measures at process level (source) to prevent release	:	Handle substance within a closed system. Ensure operation is undertaken outdoors.
Ventilation control measures	:	Ensure material transfers are under containment or extract ventilation. Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour).

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented

Contributing scenario controlling worker exposure for 10: Equipment cleaning and maintenance

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Covers daily exposures up to 8 hours (unless stated differently)
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.
Technical conditions and measures at process level (source) to prevent release	:	Drain down and flush system prior to equipment break-in or maintenance. Retain drain-downs in sealed storage pending disposal or for subsequent recycle. Ensure operation is undertaken outdoors.
Ventilation control measures	:	Provide extract ventilation to points where emissions occur.
Organisational measures to prevent/limit releases, dispersion and exposure	:	Clear spills immediately.

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented
Respiratory protection	:	Wear a respirator conforming to EN140 with type A filter or better.

Contributing scenario controlling worker exposure for 11: Storage

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Avoid carrying out activities involving exposure for more than 4 hours
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.
Technical conditions and measures at process level (source) to prevent release	:	Sample via a closed loop or other system to avoid exposure. Store substance within a closed system. Ensure operation is undertaken outdoors.
Ventilation control measures	:	Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour).

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented

Section 3 - Exposure estimation and reference to its source

Website:	:	Not applicable.

Exposure estimation and reference to its source - Environment: 1: General exposures

Exposure assessment (environment):	:	Hydrocarbon Block Method (Petrorisk)
Exposure estimation and reference to its source	:	ESVOC SPERC 1.1.v1

Exposure estimation and reference to its source - Workers: 2: General measures applicable to all activities

Exposure assessment (human):	:	Not applicable.
Exposure estimation and reference to its source	:	Not applicable.

Exposure estimation and reference to its source - Workers: 3: General exposures (closed systems)

Exposure assessment (human):	:	Not applicable.
Exposure estimation and reference to its source	:	Not applicable.

Exposure estimation and reference to its source - Workers: 4: With sample collection

Exposure assessment (human):	:	Not applicable.
Exposure estimation and reference to its source	:	Not applicable.

Exposure estimation and reference to its source - Workers: 5: Use in contained batch processes

Exposure assessment (human):	:	Not applicable.
Exposure estimation and reference to its source	:	Not applicable.

Exposure estimation and reference to its source - Workers: 6: General exposures (open systems)

Exposure assessment (human):	:	Not applicable.
Exposure estimation and reference to its source	:	Not applicable.

Exposure estimation and reference to its source - Workers: 7: Process sampling

Exposure assessment (human):	:	Not applicable.
Exposure estimation and reference to its source	:	Not applicable.

Exposure estimation and reference to its source - Workers: 8: Laboratory activities

Exposure assessment (human):	:	Not applicable.
Exposure estimation and reference to its source	:	Not applicable.

Exposure estimation and reference to its source - Workers: 9: Bulk transfers

Exposure assessment (human):	:	Not applicable.
Exposure estimation and reference to its source	:	Not applicable.

Exposure estimation and reference to its source - Workers: 10: Equipment cleaning and maintenance

Exposure assessment (human):	:	Not applicable.
Exposure estimation and reference to its source	:	Not applicable.

Exposure estimation and reference to its source - Workers: 11: Storage

Exposure assessment (human):	:	Not applicable.
Exposure estimation and reference to its source	:	Not applicable.

Section 4 - Guidance to DU to evaluate whether he works inside the boundaries set by the ES

Environment	:	Further details on scaling and control technologies are provided in SPERC factsheet. 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. Required removal efficiency for air can be achieved using on-site technologies, either alone or in combination. Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination.
Health	:	Predicted exposures are not expected to exceed the DN(M)EL when the risk management measures/operational conditions outlined in section 2 are implemented. Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

Additional good practice advice beyond the REACH CSA

Environment	:	Not available.
Health	:	Not available.

Annex to the extended Safety Data Sheet (eSDS)

Industrial

Identification of the substance or mixture

Product definition : UVCB

Code : 1167107_13411232

Product name : CRN 30 <C>

Section 1 - Title

Short title of the exposure scenario : Distribution of substance

List of use descriptors : **Identified use name:** Distribution of substance
Process Category: PROC01, PROC02, PROC03, PROC04, PROC08a, PROC08b, PROC09, PROC15
Sector of end use: SU03, SU08, SU09
Subsequent service life relevant for that use: No.
Environmental Release Category: ERC01, ERC02, ERC03, ERC04, ERC05, ERC06a, ERC06b, ERC06c, ERC06d, ERC07

Environmental contributing scenarios : **General exposures -** ERC01, ERC02, ERC03, ERC04, ERC05, ERC06a, ERC06b, ERC06c, ERC06d, ERC07

Health Contributing scenarios : **General measures applicable to all activities -** PROC01, PROC02, PROC03, PROC04, PROC08a, PROC08b, PROC09, PROC15
General exposures (closed systems) - PROC01
With sample collection - PROC02
Use in contained batch processes - PROC03
General exposures (open systems) - PROC04
Process sampling - PROC03
Laboratory activities - PROC15
Bulk transfers - PROC08b
Drum and small package filling - PROC09
Equipment cleaning and maintenance - PROC08a
Storage - PROC02

Processes and activities covered by the exposure scenario : 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 distribution and associated laboratory activities.

Section 2 - Exposure controls

Contributing scenario controlling environmental exposure for 1: General exposures

Product characteristics : Predominantly hydrophobic
Substance is complex UVCB.

Amounts used : Annual site tonnage (tonnes/year): 200 tonnes/year
Fraction of EU tonnage used in region: 0.1
Fraction of Regional tonnage used locally: 0.002
Maximum daily site tonnage (kg/day): 10 000 kg/day
Regional use tonnage (tonnes/year): 100 000 tonnes/year

Frequency and duration of use : Continuous release
Emission days (days per year): 20 days per year

Environment factors not influenced by risk management : Local freshwater dilution factor: 10
Local marine water dilution factor: 100

Other operational conditions of use affecting environmental exposure : Release fraction to air from process (initial release prior to RMM): 0.001
Release fraction to soil from process (initial release prior to RMM): 0.00001
Release fraction to wastewater 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.

Technical on-site conditions and measures to reduce or limit discharges, air emissions and releases to soil	:	No secondary wastewater treatment required. Risk from environmental exposure is driven by humans via indirect exposure (primarily ingestion). Treat air emission to provide a typical removal efficiency of 90 % Treat on-site wastewater (prior to receiving water discharge) to provide the required removal efficiency of 0 %
Organisational measures to prevent/limit release from site	:	Do not apply industrial sludge to natural soils. Prevent discharge of undissolved substance to or recover from onsite wastewater. Sludge should be incinerated, contained or reclaimed.
Conditions and measures related to municipal sewage treatment plant	:	Assumed domestic sewage treatment plant flow (m^3/day): 2 000 m^3/day Estimated substance removal from wastewater via municipal sewage treatment: 94.4 % Maximum allowable site tonnage (MSafe) (kg/d): [Assumed domestic sewage treatment plant flow] (kg/day): 110 000 kg/day Total efficiency of removal from wastewater after onsite and offsite (domestic treatment plant) RMMs: 94.4 %
Conditions and measures related to external treatment of waste for disposal	:	During manufacturing, no waste of the substance is generated.
Conditions and measures related to external recovery of waste	:	During manufacturing, no waste of the substance is generated.

Contributing scenario controlling worker exposure for 2: General measures applicable to all activities

General measures (carcinogens)

Consider technical advances and process upgrades (including automation) for the elimination of releases. Minimise exposure using measures such as closed systems, dedicated facilities and suitable general/local exhaust ventilation. Drain down and flush system prior to equipment break-in or maintenance. Cleaning manufacturing equipment for maintenance purposes. Exposure (Potential): Only allow access to authorised persons. Ensure operatives are trained to minimise exposures. Wear suitable coveralls to prevent exposure to the skin. Wear respiratory protection when its use is identified for certain contributing scenarios. Clear up spills immediately and dispose of waste safely. Ensure safe systems of work or equivalent arrangements are in place to manage risks. Ensure control measures are regularly inspected and maintained. Consider the need for risk based health surveillance.

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Covers daily exposures up to 8 hours (unless stated differently)
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented

Contributing scenario controlling worker exposure for 3: General exposures (closed systems)

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Covers daily exposures up to 8 hours (unless stated differently)
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.
Technical conditions and measures at process level (source) to prevent release	:	Handle substance within a closed system.

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented

Contributing scenario controlling worker exposure for 4: With sample collection

General exposures (closed systems)

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Covers daily exposures up to 8 hours (unless stated differently)
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.
Technical conditions and measures at process level (source) to prevent release	:	Handle substance within a closed system. Ensure operation is undertaken outdoors.
Ventilation control measures	:	Provide extract ventilation to points where emissions occur. Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour).

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented

Contributing scenario controlling worker exposure for 5: Use in contained batch processes

General exposures (closed systems)

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Avoid carrying out activities involving exposure for more than 1 hour
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.
Technical conditions and measures at process level (source) to prevent release	:	Handle substance within a closed system. Ensure operation is undertaken outdoors.
Ventilation control measures	:	Provide extract ventilation to points where emissions occur. Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour).

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented

Contributing scenario controlling worker exposure for 6: General exposures (open systems)

With sample collection / Batch process

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Avoid carrying out activities involving exposure for more than 4 hours
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.
Technical conditions and measures at process level (source) to prevent release	:	Ensure operation is undertaken outdoors.

Ventilation control measures	:	Ensure material transfers are under containment or extract ventilation. Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour).

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented

Contributing scenario controlling worker exposure for 7: Process sampling

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Avoid carrying out activities involving exposure for more than 4 hours
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.
Technical conditions and measures at process level (source) to prevent release	:	Sample via a closed loop or other system to avoid exposure. Handle substance within a closed system. Ensure operation is undertaken outdoors.
Ventilation control measures	:	Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour).

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented

Contributing scenario controlling worker exposure for 8: Laboratory activities

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Covers daily exposures up to 8 hours (unless stated differently)
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.
Technical conditions and measures at process level (source) to prevent release	:	Handle within a fume cupboard or implement suitable equivalent methods to minimise exposure.

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented

Contributing scenario controlling worker exposure for 9: Bulk transfers

Closed systems / Open systems

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Avoid carrying out activities involving exposure for more than 4 hours
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.
Technical conditions and measures at process level (source) to prevent release	:	Ensure operation is undertaken outdoors.
Ventilation control measures	:	Ensure material transfers are under containment or extract ventilation.

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented

Contributing scenario controlling worker exposure for 10: Drum and small package filling

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Covers daily exposures up to 8 hours (unless stated differently)
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.
Ventilation control measures	:	Provide a good standard of controlled ventilation (10 to 15 air changes per hour). Minimise exposure by partial enclosure of the operation or equipment and provide extract ventilation at openings.

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented

Contributing scenario controlling worker exposure for 11: Equipment cleaning and maintenance

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Covers daily exposures up to 8 hours (unless stated differently)
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.
Technical conditions and measures at process level (source) to prevent release	:	Drain down and flush system prior to equipment break-in or maintenance. Retain drain-downs in sealed storage pending disposal or for subsequent recycle.
Organisational measures to prevent/limit releases, dispersion and exposure	:	Clear spills immediately.

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented
Respiratory protection	:	Wear a respirator conforming to EN140 with type A filter or better.

Contributing scenario controlling worker exposure for 12: Storage

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Covers daily exposures up to 8 hours (unless stated differently)
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.
Technical conditions and measures at process level (source) to prevent release	:	Sample via a closed loop or other system to avoid exposure. Store substance within a closed system. Ensure operation is undertaken outdoors.

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented

Section 3 - Exposure estimation and reference to its source

Website:	: Not applicable.

Exposure estimation and reference to its source - Environment: 1: General exposures

Exposure assessment (environment):	: Hydrocarbon Block Method (Petrorisk)
Exposure estimation and reference to its source	: ESVOC SPERC 1.1b.v1

Exposure estimation and reference to its source - Workers: 2: General measures applicable to all activities

Exposure assessment (human):	: Not applicable.
Exposure estimation and reference to its source	: Not applicable.

Exposure estimation and reference to its source - Workers: 3: General exposures (closed systems)

Exposure assessment (human):	: Not applicable.
Exposure estimation and reference to its source	: Not applicable.

Exposure estimation and reference to its source - Workers: 4: With sample collection

Exposure assessment (human):	: Not applicable.
Exposure estimation and reference to its source	: Not applicable.

Exposure estimation and reference to its source - Workers: 5: Use in contained batch processes

Exposure assessment (human):	: Not applicable.
Exposure estimation and reference to its source	: Not applicable.

Exposure estimation and reference to its source - Workers: 6: General exposures (open systems)

Exposure assessment (human):	: Not applicable.
Exposure estimation and reference to its source	: Not applicable.

Exposure estimation and reference to its source - Workers: 7: Process sampling

Exposure assessment (human):	: Not applicable.
Exposure estimation and reference to its source	: Not applicable.

Exposure estimation and reference to its source - Workers: 8: Laboratory activities

Exposure assessment (human):	: Not applicable.
Exposure estimation and reference to its source	: Not applicable.

Exposure estimation and reference to its source - Workers: 9: Bulk transfers

Exposure assessment (human):	: Not applicable.
Exposure estimation and reference to its source	: Not applicable.

Exposure estimation and reference to its source - Workers: 10: Drum and small package filling

Exposure assessment (human):	:	Not applicable.
Exposure estimation and reference to its source	:	Not applicable.

Exposure estimation and reference to its source - Workers: 11: Equipment cleaning and maintenance

Exposure assessment (human):	:	Not applicable.
Exposure estimation and reference to its source	:	Not applicable.

Exposure estimation and reference to its source - Workers: 12: Storage

Exposure assessment (human):	:	Not applicable.
Exposure estimation and reference to its source	:	Not applicable.

Section 4 - Guidance to DU to evaluate whether he works inside the boundaries set by the ES

Environment	:	Further details on scaling and control technologies are provided in SPERC factsheet. 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. Required removal efficiency for air can be achieved using on-site technologies, either alone or in combination. Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination.
Health	:	Predicted exposures are not expected to exceed the DN(M)EL when the risk management measures/operational conditions outlined in section 2 are implemented. Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

Additional good practice advice beyond the REACH CSA

Environment	:	Not available.
Health	:	Not available.

Annex to the extended Safety Data Sheet (eSDS)

Industrial

Identification of the substance or mixture

Product definition : UVCB

Code : 1167107_13411232

Product name : CRN 30 <C>

Section 1 - Title

Short title of the exposure scenario : Formulation and (re)packing of substances and mixtures

List of use descriptors : **Identified use name:** Formulation and (re)packing of substances and mixtures
Process Category: PROC01, PROC02, PROC03, PROC04, PROC05, PROC08a, PROC08b, PROC09, PROC14, PROC15
Sector of end use: SU03, SU10
Subsequent service life relevant for that use: No.
Environmental Release Category: ERC02

Environmental contributing scenarios : **General exposures -** ERC02

Health Contributing scenarios : **General measures applicable to all activities -** PROC01, PROC02, PROC03, PROC04, PROC05, PROC08a, PROC08b, PROC09, PROC14, PROC15
General exposures (closed systems) - PROC01
With sample collection - PROC02
Use in contained batch processes - PROC03
General exposures (open systems) - PROC04
Batch processes at elevated temperatures - PROC03
Process sampling - PROC03
Laboratory activities - PROC15
Bulk transfers - PROC08b
Mixing operations (open systems) - PROC05
Transfer from/pouring from containers - PROC08a
Drum/batch transfers - PROC08b
Production of preparation or articles by tabletting, compression, extrusion or pelletisation - PROC14
Drum and small package filling - PROC09
Equipment cleaning and maintenance - PROC08a
Storage - PROC02

Processes and activities covered by the exposure scenario : Formulation, packing and re-packing of the substance and its mixtures in batch or continuous operations, including storage, materials transfers, mixing, tabletting, compression, pelletisation, extrusion, large and small scale packing, sampling, maintenance and associated laboratory activities.

Section 2 - Exposure controls

Contributing scenario controlling environmental exposure for 1: General exposures

Product characteristics : Predominantly hydrophobic
Substance is complex UVCB.

Amounts used : Annual site tonnage (tonnes/year): 30 000 tonnes/year
Fraction of EU tonnage used in region: 0.1
Fraction of Regional tonnage used locally: 0.375
Maximum daily site tonnage (kg/day): 100 000 kg/day
Regional use tonnage (tonnes/year): 80 000 tonnes/year

Frequency and duration of use : Continuous release
Emission days (days per year): 300 days per year

Environment factors not influenced by risk management : Local freshwater dilution factor: 10
Local marine water dilution factor: 100

Other operational conditions of use affecting environmental exposure	:	Release fraction to air from process (initial release prior to RMM): 0.0001 Release fraction to soil from process (initial release prior to RMM): 0.0001 Release fraction to wastewater 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.
Technical on-site conditions and measures to reduce or limit discharges, air emissions and releases to soil	:	If discharging to municipal sewage treatment plant, no on-site wastewater treatment required. Risk from environmental exposure is driven by humans via indirect exposure (primarily ingestion). Treat air emission to provide a typical removal efficiency of 0 % Treat on-site wastewater (prior to receiving water discharge) to provide the required removal efficiency of 99.7 %
Organisational measures to prevent/limit release from site	:	Do not apply industrial sludge to natural soils. Prevent discharge of undissolved substance to or recover from onsite wastewater. Sludge should be incinerated, contained or reclaimed.
Conditions and measures related to municipal sewage treatment plant	:	Assumed domestic sewage treatment plant flow (m^3/day): 2 000 m^3/day Estimated substance removal from wastewater via municipal sewage treatment: 94.4 % Maximum allowable site tonnage (MSafe) (kg/d): [Assumed domestic sewage treatment plant flow] (kg/day): 100 000 kg/day Total efficiency of removal from wastewater after onsite and offsite (domestic treatment plant) RMMs: 99.7 %
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.

Contributing scenario controlling worker exposure for 2: General measures applicable to all activities

General measures (carcinogens)

Consider technical advances and process upgrades (including automation) for the elimination of releases. Minimise exposure using measures such as closed systems, dedicated facilities and suitable general/local exhaust ventilation. Drain down and flush system prior to equipment break-in or maintenance. Cleaning manufacturing equipment for maintenance purposes. Exposure (Potential): Only allow access to authorised persons. Ensure operatives are trained to minimise exposures. Wear suitable coveralls to prevent exposure to the skin. Wear respiratory protection when its use is identified for certain contributing scenarios. Clear up spills immediately and dispose of waste safely. Ensure safe systems of work or equivalent arrangements are in place to manage risks. Ensure control measures are regularly inspected and maintained. Consider the need for risk based health surveillance.

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Covers daily exposures up to 8 hours (unless stated differently)
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented

Contributing scenario controlling worker exposure for 3: General exposures (closed systems)

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Covers daily exposures up to 8 hours (unless stated differently)
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.
Technical conditions and measures at process level (source) to prevent release	:	Handle substance within a closed system.

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented

Contributing scenario controlling worker exposure for 4: With sample collection

General exposures (closed systems)

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Covers daily exposures up to 8 hours (unless stated differently)
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.
Technical conditions and measures at process level (source) to prevent release	:	Handle substance within a closed system.
Ventilation control measures	:	Provide extract ventilation to points where emissions occur. Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour).

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented

Contributing scenario controlling worker exposure for 5: Use in contained batch processes

General exposures (closed systems)

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Avoid carrying out activities involving exposure for more than 1 hour
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.
Technical conditions and measures at process level (source) to prevent release	:	Handle substance within a closed system. Ensure operation is undertaken outdoors.
Ventilation control measures	:	Provide extract ventilation to points where emissions occur. Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour).

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented

Contributing scenario controlling worker exposure for 6: General exposures (open systems)

With sample collection / Batch process / With potential for aerosol generation

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Avoid carrying out activities involving exposure for more than 4 hours
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.
Technical conditions and measures at process level (source) to prevent release	:	Ensure operation is undertaken outdoors.
Ventilation control measures	:	Provide extract ventilation to points where emissions occur. Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour).

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented

Contributing scenario controlling worker exposure for 7: Batch processes at elevated temperatures

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Avoid carrying out activities involving exposure for more than 15 minutes
Other operational conditions affecting worker exposure	:	Operation is carried out at elevated temperature (> 20°C above ambient temperature)
Technical conditions and measures at process level (source) to prevent release	:	Handle substance within a closed system. Ensure operation is undertaken outdoors.
Ventilation control measures	:	Provide extract ventilation to points where emissions occur. Ensure material transfers are under containment or extract ventilation. Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour).

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented

Contributing scenario controlling worker exposure for 8: Process sampling

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Covers daily exposures up to 8 hours (unless stated differently)
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.
Technical conditions and measures at process level (source) to prevent release	:	Handle substance within a closed system. Sample via a closed loop or other system to avoid exposure. Ensure operation is undertaken outdoors.
Ventilation control measures	:	Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour).

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented

Contributing scenario controlling worker exposure for 9: Laboratory activities

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Covers daily exposures up to 8 hours (unless stated differently)
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.
Ventilation control measures	:	Handle within a fume cupboard or implement suitable equivalent methods to minimise exposure.

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented

Contributing scenario controlling worker exposure for 10: Bulk transfers

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Avoid carrying out activities involving exposure for more than 4 hours
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.
Ventilation control measures	:	Ensure material transfers are under containment or extract ventilation.

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented

Contributing scenario controlling worker exposure for 11: Mixing operations (open systems)

With potential for aerosol generation

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Avoid carrying out activities involving exposure for more than 1 hour
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.
Technical conditions and measures at process level (source) to prevent release	:	Ensure operation is undertaken outdoors.
Ventilation control measures	:	Provide extract ventilation to points where emissions occur. Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour).

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented

Contributing scenario controlling worker exposure for 12: Transfer from/pouring from containers

Manual

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Covers daily exposures up to 8 hours (unless stated differently)
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.
Technical conditions and measures at process level (source) to prevent release	:	Ensure operation is undertaken outdoors.
Ventilation control measures	:	Ensure material transfers are under containment or extract ventilation. Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour).

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented

Contributing scenario controlling worker exposure for 13: Drum/batch transfers

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Avoid carrying out activities involving exposure for more than 4 hours
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.
Technical conditions and measures at process level (source) to prevent release	:	Ensure operation is undertaken outdoors.
Ventilation control measures	:	Ensure material transfers are under containment or extract ventilation. Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour).

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented

Contributing scenario controlling worker exposure for 14: Production of preparation or articles by tabletting, compression, extrusion or pelletisation

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Avoid carrying out activities involving exposure for more than 1 hour
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.
Technical conditions and measures at process level (source) to prevent release	:	Ensure operation is undertaken outdoors.
Ventilation control measures	:	Minimise exposure by partial enclosure of the operation or equipment and provide extract ventilation at openings. Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour).

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented

Contributing scenario controlling worker exposure for 15: Drum and small package filling

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Avoid carrying out activities involving exposure for more than 1 hour
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.
Technical conditions and measures at process level (source) to prevent release	:	Ensure operation is undertaken outdoors.
Ventilation control measures	:	Minimise exposure by partial enclosure of the operation or equipment and provide extract ventilation at openings. Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour).

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented

Contributing scenario controlling worker exposure for 16: Equipment cleaning and maintenance

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Covers daily exposures up to 8 hours (unless stated differently)
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.
Technical conditions and measures at process level (source) to prevent release	:	Drain down and flush system prior to equipment break-in or maintenance. Retain drain-downs in sealed storage pending disposal or for subsequent recycle.
Organisational measures to prevent/limit releases, dispersion and exposure	:	Clear spills immediately.

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented
Personal protection	:	Wear suitable gloves tested to EN374. Wear suitable coveralls to prevent exposure to the skin.
Respiratory protection	:	Wear a respirator conforming to EN140 with type A filter or better.

Contributing scenario controlling worker exposure for 17: Storage

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Covers daily exposures up to 8 hours (unless stated differently)
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.

Technical conditions and measures at process level (source) to prevent release	:	Store substance within a closed system. Ensure operation is undertaken outdoors.
Ventilation control measures	:	Ensure material transfers are under containment or extract ventilation.

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented
Personal protection	:	Wear suitable gloves tested to EN374.

Section 3 - Exposure estimation and reference to its source

Website:	:	Not applicable.

Exposure estimation and reference to its source - Environment: 1: General exposures

Exposure assessment (environment):	:	Hydrocarbon Block Method (Petrorisk)
Exposure estimation and reference to its source	:	ESVOC SPERC 2.2.v1

Exposure estimation and reference to its source - Workers: 2: General measures applicable to all activities

Exposure assessment (human):	:	Not applicable.
Exposure estimation and reference to its source	:	Not applicable.

Exposure estimation and reference to its source - Workers: 3: General exposures (closed systems)

Exposure assessment (human):	:	Not applicable.
Exposure estimation and reference to its source	:	Not applicable.

Exposure estimation and reference to its source - Workers: 4: With sample collection

Exposure assessment (human):	:	Not applicable.
Exposure estimation and reference to its source	:	Not applicable.

Exposure estimation and reference to its source - Workers: 5: Use in contained batch processes

Exposure assessment (human):	:	Not applicable.
Exposure estimation and reference to its source	:	Not applicable.

Exposure estimation and reference to its source - Workers: 6: General exposures (open systems)

Exposure assessment (human):	:	Not applicable.
Exposure estimation and reference to its source	:	Not applicable.

Exposure estimation and reference to its source - Workers: 7: Batch processes at elevated temperatures

Exposure assessment (human):	:	Not applicable.
Exposure estimation and reference to its source	:	Not applicable.

Exposure estimation and reference to its source - Workers: 8: Process sampling

Exposure assessment (human):	:	Not applicable.
Exposure estimation and reference to its source	:	Not applicable.

Exposure estimation and reference to its source - Workers: 9: Laboratory activities

Exposure assessment (human): : Not applicable.

Exposure estimation and reference to its source : Not applicable.

Exposure estimation and reference to its source - Workers: 10: Bulk transfers

Exposure assessment (human): : Not applicable.

Exposure estimation and reference to its source : Not applicable.

Exposure estimation and reference to its source - Workers: 11: Mixing operations (open systems)

Exposure assessment (human): : Not applicable.

Exposure estimation and reference to its source : Not applicable.

Exposure estimation and reference to its source - Workers: 12: Transfer from/pouring from containers

Exposure assessment (human): : Not applicable.

Exposure estimation and reference to its source : Not applicable.

Exposure estimation and reference to its source - Workers: 13: Drum/batch transfers

Exposure assessment (human): : Not applicable.

Exposure estimation and reference to its source : Not applicable.

Exposure estimation and reference to its source - Workers: 14: Production of preparation or articles by tabletting, compression, extrusion or pelletisation

Exposure assessment (human): : Not applicable.

Exposure estimation and reference to its source : Not applicable.

Exposure estimation and reference to its source - Workers: 15: Drum and small package filling

Exposure assessment (human): : Not applicable.

Exposure estimation and reference to its source : Not applicable.

Exposure estimation and reference to its source - Workers: 16: Equipment cleaning and maintenance

Exposure assessment (human): : Not applicable.

Exposure estimation and reference to its source : Not applicable.

Exposure estimation and reference to its source - Workers: 17: Storage

Exposure assessment (human): : Not applicable.

Exposure estimation and reference to its source : Not applicable.

Section 4 - Guidance to DU to evaluate whether he works inside the boundaries set by the ES

Environment	:	Further details on scaling and control technologies are provided in SPERC factsheet. 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. Required removal efficiency for air can be achieved using on-site technologies, either alone or in combination. Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination.
Health	:	Predicted exposures are not expected to exceed the DN(M)EL when the risk management measures/operational conditions outlined in section 2 are implemented. Risk management measures are based on qualitative risk characterisation. Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

Additional good practice advice beyond the REACH CSA

Environment	:	Not available.
Health	:	Not available.

Annex to the extended Safety Data Sheet (eSDS)

Industrial

Identification of the substance or mixture

Product definition : UVCB

Code : 1167107_13411232

Product name : CRN 30 <C>

Section 1 - Title

Short title of the exposure scenario : Functional fluids - Industrial

List of use descriptors : **Identified use name:** Functional fluids - Industrial
Process Category: PROC01, PROC02, PROC03, PROC04, PROC08a, PROC08b, PROC09
Sector of end use: SU03
Subsequent service life relevant for that use: No.
Environmental Release Category: ERC07

Environmental contributing scenarios : **General exposures -** ERC07

Health Contributing scenarios : **General measures applicable to all activities -** PROC01, PROC02, PROC03, PROC04, PROC08a, PROC08b, PROC09
Bulk transfers - PROC01, PROC02, PROC03, PROC04
Drum/batch transfers - PROC08b
Pelletising - PROC09
Filling/preparation of equipment from drums or containers. - PROC08a
General exposures (closed systems) - PROC02
General exposures (open systems) - PROC04
Remanufacture of reject articles - PROC09
Equipment maintenance - PROC08a
Storage - PROC01, PROC02

Processes and activities covered by the exposure scenario : Use as functional fluids e.g. cable oils, transfer oils, coolants, insulators, refrigerants, hydraulic fluids in industrial equipment including maintenance and related material transfers.

Section 2 - Exposure controls

Contributing scenario controlling environmental exposure for 1: General exposures

Product characteristics : Predominantly hydrophobic
Substance is complex UVCB.

Amounts used : Annual site tonnage (tonnes/year): 100 tonnes/year
Fraction of EU tonnage used in region: 0.1
Fraction of Regional tonnage used locally: 1
Maximum daily site tonnage (kg/day): 5 000 kg/day
Regional use tonnage (tonnes/year): 100 tonnes/year

Frequency and duration of use : Continuous release
Emission days (days per year): 20 days per year

Environment factors not influenced by risk management : Local freshwater dilution factor: 10
Local marine water dilution factor: 100

Other operational conditions of use affecting environmental exposure : Release fraction to air from process (initial release prior to RMM): 0.005
Release fraction to soil from process (initial release prior to RMM): 0.001
Release fraction to wastewater from process (initial release prior to RMM): 0.00003

Technical conditions and measures at process level (source) to prevent release : Common practices vary across sites thus conservative process release estimates used.

Technical on-site conditions and measures to reduce or limit discharges, air emissions and releases to soil	:	No secondary wastewater treatment required. Risk from environmental exposure is driven by humans via indirect exposure (primarily inhalation). Treat air emission to provide a typical removal efficiency of: 0 % Treat on-site wastewater (prior to receiving water discharge) to provide the required removal efficiency of : 0 %
Organisational measures to prevent/limit release from site	:	Do not apply industrial sludge to natural soils. Prevent discharge of undissolved substance to or recover from onsite wastewater. Sludge should be incinerated, contained or reclaimed.
Conditions and measures related to municipal sewage treatment plant	:	Assumed domestic sewage treatment plant flow (m^3/day): 2 000 m^3/day Estimated substance removal from wastewater via municipal sewage treatment: 94.4 % Maximum allowable site tonnage (MSafe) (kg/d): [Assumed domestic sewage treatment plant flow] (kg/day): 5 500 kg/day Total efficiency of removal from wastewater after onsite and offsite (domestic treatment plant) RMMs: 94.4 %
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.

Contributing scenario controlling worker exposure for 2: General measures applicable to all activities

General measures (carcinogens)

Consider technical advances and process upgrades (including automation) for the elimination of releases. Minimise exposure using measures such as closed systems, dedicated facilities and suitable general/local exhaust ventilation. Drain down and flush system prior to equipment break-in or maintenance. Cleaning manufacturing equipment for maintenance purposes. Exposure (Potential): Only allow access to authorised persons. Ensure operatives are trained to minimise exposures. Wear suitable coveralls to prevent exposure to the skin. Wear respiratory protection when its use is identified for certain contributing scenarios. Clear up spills immediately and dispose of waste safely. Ensure safe systems of work or equivalent arrangements are in place to manage risks. Ensure control measures are regularly inspected and maintained. Consider the need for risk based health surveillance.

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Covers daily exposures up to 8 hours (unless stated differently)
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented

Contributing scenario controlling worker exposure for 3: Bulk transfers

Closed systems / Batch process

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Avoid carrying out activities involving exposure for more than 1 hour
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.
Technical conditions and measures at process level (source) to prevent release	:	Handle substance within a closed system. Ensure operation is undertaken outdoors.

Ventilation control measures	:	Ensure material transfers are under containment or extract ventilation. Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour).

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented

Contributing scenario controlling worker exposure for 4: Drum/batch transfers

Dedicated facility

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Avoid carrying out activities involving exposure for more than 4 hours
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.
Ventilation control measures	:	Ensure material transfers are under containment or extract ventilation.

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented

Contributing scenario controlling worker exposure for 5: Pelletising

Dedicated facility / Closed systems

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Avoid carrying out activities involving exposure for more than 1 hour
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.
Ventilation control measures	:	Ensure material transfers are under containment or extract ventilation. Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour).

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented

Contributing scenario controlling worker exposure for 6: Filling/preparation of equipment from drums or containers.

Manual

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Avoid carrying out activities involving exposure for more than 1 hour
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.
Ventilation control measures	:	Ensure material transfers are under containment or extract ventilation. Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour).

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented

Contributing scenario controlling worker exposure for 7: General exposures (closed systems)

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Covers daily exposures up to 8 hours (unless stated differently)
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.
Technical conditions and measures at process level (source) to prevent release	:	Handle substance within a closed system.
Ventilation control measures	:	Provide extract ventilation to points where emissions occur. Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour).

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented

Contributing scenario controlling worker exposure for 8: General exposures (open systems)

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Avoid carrying out activities involving exposure for more than 1 hour
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.
Technical conditions and measures at process level (source) to prevent release	:	Use dry-break couplings for material transfer.
Ventilation control measures	:	Provide a good standard of controlled ventilation (10 to 15 air changes per hour). Provide extract ventilation to points where emissions occur.

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented

Contributing scenario controlling worker exposure for 9: Remanufacture of reject articles

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Covers daily exposures up to 8 hours (unless stated differently)
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.
Technical conditions and measures at process level (source) to prevent release	:	Drain down system prior to equipment break-in or maintenance. Retain drain-downs in sealed storage pending disposal or for subsequent recycle.
Ventilation control measures	:	Provide extract ventilation to points where emissions occur. Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour).

Organisational measures to prevent/limit releases, dispersion and exposure	:	Clear spills immediately.
Conditions and measures related to personal protection, hygiene and health evaluation		
Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented

Contributing scenario controlling worker exposure for 10: Equipment maintenance		
Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Covers daily exposures up to 8 hours (unless stated differently)
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.
Technical conditions and measures at process level (source) to prevent release	:	Drain down and flush system prior to equipment break-in or maintenance. Retain drain-downs in sealed storage pending disposal or for subsequent recycle.
Organisational measures to prevent/limit releases, dispersion and exposure	:	Clear spills immediately.
Conditions and measures related to personal protection, hygiene and health evaluation		
Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented
Respiratory protection	:	Wear a respirator conforming to EN140 with type A filter or better.

Contributing scenario controlling worker exposure for 11: Storage		
Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Covers daily exposures up to 8 hours (unless stated differently)
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.
Technical conditions and measures at process level (source) to prevent release	:	Sample via a closed loop or other system to avoid exposure. Store substance within a closed system.
Conditions and measures related to personal protection, hygiene and health evaluation		
Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented

Section 3 - Exposure estimation and reference to its source

Website:	:	Not applicable.

Exposure estimation and reference to its source - Environment: 1: General exposures		
Exposure assessment (environment):	:	Hydrocarbon Block Method (Petrorisk)
Exposure estimation and reference to its source	:	ESVOC SPERC 7.13a.v1

Exposure estimation and reference to its source - Workers: 2: General measures applicable to all activities

Exposure assessment (human): : Not applicable.

Exposure estimation and reference to its source : Not applicable.

Exposure estimation and reference to its source - Workers: 3: Bulk transfers

Exposure assessment (human): : Not applicable.

Exposure estimation and reference to its source : Not applicable.

Exposure estimation and reference to its source - Workers: 4: Drum/batch transfers

Exposure assessment (human): : Not applicable.

Exposure estimation and reference to its source : Not applicable.

Exposure estimation and reference to its source - Workers: 5: Pelletising

Exposure assessment (human): : Not applicable.

Exposure estimation and reference to its source : Not applicable.

Exposure estimation and reference to its source - Workers: 6: Filling/preparation of equipment from drums or containers.

Exposure assessment (human): : Not applicable.

Exposure estimation and reference to its source : Not applicable.

Exposure estimation and reference to its source - Workers: 7: General exposures (closed systems)

Exposure assessment (human): : Not applicable.

Exposure estimation and reference to its source : Not applicable.

Exposure estimation and reference to its source - Workers: 8: General exposures (open systems)

Exposure assessment (human): : Not applicable.

Exposure estimation and reference to its source : Not applicable.

Exposure estimation and reference to its source - Workers: 9: Remanufacture of reject articles

Exposure assessment (human): : Not applicable.

Exposure estimation and reference to its source : Not applicable.

Exposure estimation and reference to its source - Workers: 10: Equipment maintenance

Exposure assessment (human): : Not applicable.

Exposure estimation and reference to its source : Not applicable.

Exposure estimation and reference to its source - Workers: 11: Storage

Exposure assessment (human): : Not applicable.

Exposure estimation and reference to its source : Not applicable.

Section 4 - Guidance to DU to evaluate whether he works inside the boundaries set by the ES

Environment	:	Further details on scaling and control technologies are provided in SPERC factsheet. 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. Required removal efficiency for air can be achieved using on-site technologies, either alone or in combination. Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination.
Health	:	Predicted exposures are not expected to exceed the DN(M)EL when the risk management measures/operational conditions outlined in section 2 are implemented. Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

Additional good practice advice beyond the REACH CSA

Environment	:	Not available.
Health	:	Not available.

Annex to the extended Safety Data Sheet (eSDS)

Consumer

Identification of the substance or mixture

Product definition : UVCB

Code : 1167107_13411232

Product name : CRN 30 <C>

Section 1 - Title

Short title of the exposure scenario : Use as a fuel - Consumer

List of use descriptors : **Identified use name:** Use as a fuel - Consumer
Sector of end use: SU21
Subsequent service life relevant for that use: No.
Environmental Release Category: ERC09a, ERC09b
Market sector by type of chemical product: PC13

Environmental contributing scenarios : **General exposures -** ERC09a, ERC09b

Health Contributing scenarios : **Liquid: automotive refuelling -** PC13
Liquid: Scooter refuelling - PC13
Liquid: garden equipment - use - PC13
Liquid: garden equipment - refuelling - PC13
Liquid: lamp oil - PC13

Processes and activities covered by the exposure scenario : Covers consumer uses in liquid fuels.

Section 2 - Exposure controls

Contributing scenario controlling environmental exposure for 1: General exposures

Product characteristics : Predominantly hydrophobic
Substance is complex UVCB.

Amounts used : Annual site tonnage (tonnes/year): 4 tonnes/year
Fraction of EU tonnage used in region: 0.1
Fraction of Regional tonnage used locally: 0.0005
Maximum daily site tonnage (kg/day): 10.9 kg/day
Regional use tonnage (tonnes/year): 8 000 tonnes/year

Frequency and duration of use : Continuous release
Emission days (days per year): 365 days per year

Environment factors not influenced by risk management : Local freshwater dilution factor: 10
Local marine water dilution factor: 100

Other operational conditions of use affecting environmental exposure : Release fraction to air from wide dispersive use (regional only): 0.001
Release fraction to soil from wide dispersive use (regional only): 0.00001
Release fraction to wastewater from wide dispersive use: 0.00001

Conditions and measures related to municipal sewage treatment plant : Assumed domestic sewage treatment plant flow: 2 000 m³/day
Estimated substance removal from wastewater via municipal sewage treatment: 94.4 %
Maximum allowable site tonnage (MSafe) (kg/d): [Assumed domestic sewage treatment plant flow]: 160 kg/day
Total efficiency of removal from wastewater after onsite and offsite (domestic treatment plant) RMMs: 94.4 %

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.

Contributing scenario controlling consumer exposure for 2: Liquid: automotive refuelling

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers concentrations up to 95 %
Amounts used	:	Covers skin contact area up to (cm^2): 210 cm^2 For each use event, covers use amounts up to (g): 37 500 g Covers use in room size of (m^3): 100 m^3
Frequency and duration of use/exposure	:	Covers use up to: 1 times per day Covers use up to: 52 days per year Covers outdoor use.: 0.6 ach (air changes per hour) Covers exposure up to: 0.05 hour(s)
Other given operational conditions affecting consumers exposure	:	Covers use at ambient temperatures.

Conditions and measures related to personal protection and hygiene

Advice on general occupational hygiene	:	Not applicable.

Contributing scenario controlling consumer exposure for 3: Liquid: Scooter refuelling

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers concentrations up to 95 %
Amounts used	:	Covers skin contact area up to (cm^2): 210 cm^2 For each use event, covers use amounts up to (g): 3 750 g Covers use in room size of (m^3): 100 m^3
Frequency and duration of use/exposure	:	Covers use up to: 1 times per day Covers use up to: 52 days per year Covers outdoor use. 0.6 ach (air changes per hour) Covers exposure up to: 0.03 hour(s)
Other given operational conditions affecting consumers exposure	:	Covers use at ambient temperatures.

Conditions and measures related to personal protection and hygiene

Advice on general occupational hygiene	:	Not applicable.

Contributing scenario controlling consumer exposure for 4: Liquid: garden equipment - use

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers concentrations up to: 100 %
Amounts used	:	For each use event, covers use amounts up to (g): 750 g Covers use in room size of (m^3): 100 m^3
Frequency and duration of use/exposure	:	Covers use up to: 1 times per day Covers use up to: 26 days per year Covers exposure up to: 2 hour(s) Covers outdoor use. 0.6 ach (air changes per hour)
Other given operational conditions affecting consumers exposure	:	Covers use at ambient temperatures.

Conditions and measures related to personal protection and hygiene

Advice on general occupational hygiene	:	Not applicable.

Contributing scenario controlling consumer exposure for 5: Liquid: garden equipment - refuelling

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers concentrations up to: 50 %
Amounts used	:	Covers skin contact area up to (cm^2): 420 cm^2 For each use event, covers use amounts up to (g): 750 g Covers use in room size of (m^3): 34 m^3
Frequency and duration of use/exposure	:	Covers use up to: 1 times per day Covers use up to: 26 days per year Covers use in a one car garage (34 m^3) under typical ventilation. 1.5 ach (air changes per hour) Covers exposure up to: 0.03 hour(s)
Other given operational conditions affecting consumers exposure	:	Covers use at ambient temperatures.

Conditions and measures related to personal protection and hygiene

Advice on general occupational hygiene	:	Not applicable.

Contributing scenario controlling consumer exposure for 6: Liquid: lamp oil

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers concentrations up to: 100 %
Amounts used	:	Covers skin contact area up to (cm^2): 210 cm^2 For each use event, covers use amounts up to (g): 100 g Covers use in room size of (m^3): 20 m^3
Frequency and duration of use/exposure	:	Covers use up to: 1 times per day Covers use up to: 52 days per year Covers exposure up to: 0.01 hour(s) Covers use under typical household ventilation.
Other given operational conditions affecting consumers exposure	:	Covers use at ambient temperatures.

Conditions and measures related to personal protection and hygiene

Advice on general occupational hygiene	:	Not applicable.

Section 3 - Exposure estimation and reference to its source

Website:	:	Not applicable.

Exposure estimation and reference to its source - Environment: 1: General exposures

Exposure assessment (environment):	:	Hydrocarbon Block Method (Petrorisk)
Exposure estimation and reference to its source	:	ESVOC SPERC 9.12c.v1

Exposure estimation and reference to its source - Consumers: 2: Liquid: automotive refuelling

Exposure assessment (human):	:	Not applicable.
Exposure estimation and reference to its source	:	Not applicable.

Exposure estimation and reference to its source - Consumers: 3: Liquid: Scooter refuelling

Exposure assessment (human):	:	Not applicable.
Exposure estimation and reference to its source	:	Not applicable.

Exposure estimation and reference to its source - Consumers: 4: Liquid: garden equipment - use

Exposure assessment (human):	:	Not applicable.
Exposure estimation and reference to its source	:	Not applicable.

Exposure estimation and reference to its source - Consumers: 5: Liquid: garden equipment - refuelling

Exposure assessment (human):	:	Not applicable.
Exposure estimation and reference to its source	:	Not applicable.

Exposure estimation and reference to its source - Consumers: 6: Liquid: lamp oil

Exposure assessment (human):	:	Not applicable.
Exposure estimation and reference to its source	:	Not applicable.

Section 4 - Guidance to DU to evaluate whether he works inside the boundaries set by the ES

Environment	:	Further details on scaling and control technologies are provided in SPERC factsheet. 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. Required removal efficiency for air can be achieved using on-site technologies, either alone or in combination. Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination.
Health	:	Predicted exposures are not expected to exceed the applicable consumer reference values when the operational conditions/risk management measures given in section 2 are implemented. Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

Additional good practice advice beyond the REACH CSA

Environment	:	Not available.
Health	:	Not available.

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