SAFETY DATA SHEET

Ferric chloride solution

Issued: 30/07/2014
Revision No: 1

1. IDENTIFICATION OF THE SUBSTANCE / PREPARATION AND OF THE COMPANY / UNDERTAKING

Product identifier:

Product name: Ferric chloride solution

Synonyms, Trade Names: Iron (III) chloride solution

REACH Registration number: 01-2119497998-05

CAS-No.: 7705-08-0

EC No.: 231-729-4

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

Identified uses: Agrochemical uses Treatment of waste water. Intermediate Treatment of drinking water, has received approval by the European Committee for Standardisation. Use of iron salts in biogas production Use in adhesives and sealants Use of selected iron salts in land remediation applications Laboratory agent

Uses advised against: No specific uses advised against are identified.

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2. HAZARDS IDENTIFICATION

Classification of the substance or mixture:

Classification (EC 1272/2008): Physical and Chemical Hazards Met. Corr. 1 - H290
Human health Acute Tox. 4 - H302;Skin Irrit. 2 - H315;Eye Dam. 1 - H318
Environment Not classified.

Classification (1999/45/EEC): Xn;R22. Xi;R38, R41.

The Full Text for all R-Phrases and Hazard Statements are Displayed in Section 16.

Label elements:

EC No.: 231-729-4

Contains: Iron (III) chloride

Label In Accordance With (EC) No. 1272/2008

[cont…]

Signal Word: Danger

Hazard Statements: H290 May be corrosive to metals.
H302 Harmful if swallowed.
H315 Causes skin irritation.
H318 Causes serious eye damage.

Precautionary Statements: P280 Wear protective gloves/protective clothing/eye protection/face protection.
P302+352 IF ON SKIN: Wash with plenty of soap and water.
P305+351+338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P362 Take off contaminated clothing and wash before reuse.

Supplementary Precautionary Statements: P301+312 IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell.
P332+313 If skin irritation occurs: Get medical advice/attention.
P390 Absorb spillage to prevent material damage.
P406 Store in corrosive resistant/… container with a resistant inner liner.

Other hazards:

3. COMPOSITION / INFORMATION ON INGREDIENTS

Mixtures:

HYDROCHLORIC ACID ...%	1-5%		
CAS-No.:	7647-01-0	**EC No.:**	231-595-7
Classification (EC 1272/2008)	Classification (67/548/EEC)		
Skin Corr. 1B - H314	C;R34		
STOT SE 3 - H335	Xi;R37		

Iron (II) chloride	0.1 - 1.0%		
CAS-No.:		**EC No.:**	
Classification (EC 1272/2008)	Classification (67/548/EEC)		
Acute Tox. 4 - H302	Xn;R22.		
Eye Dam. 1 - H318	Xi;R41.		

Iron (III) chloride	40-60%		
CAS-No.:	7705-08-0	**EC No.:**	
Classification (EC 1272/2008)	Classification (67/548/EEC)		
Acute Tox. 4 - H302	Xn;R22.		
Skin Irrit. 2 - H315	Xi;R38,R41.		
Eye Dam. 1 - H318			

[cont…]

NICKEL DICHLORIDE	< 100 ppm		
CAS-No.:	7718-54-9	**EC No.:**	231-743-0

Classification (EC 1272/2008)	Classification (67/548/EEC)
Acute Tox. 3 - H301	Carc. Cat. 1;R49
Acute Tox. 3 - H331	Muta. Cat. 3;R68
Skin Irrit. 2 - H315	Repr. Cat. 2;R61
Resp. Sens. 1 - H334	T;R23/25,R48/23
Skin Sens. 1 - H317	Xi;R38
Muta. 2 - H341	R42/43
Carc. 1A - H350i	N;R50/53
Repr. 1B - H360D	
STOT RE 1 - H372	
Aquatic Acute 1 - H400	
Aquatic Chronic 1 - H410	

The Full Text for all R-Phrases and Hazard Statements are Displayed in Section 16.

REACH Registration number:	01-2119497998-05
CAS-No.:	7705-08-0
EC No.:	231-729-4

4. FIRST AID MEASURES

Description of first aid measures:

Inhalation:	Remove victim immediately from source of exposure.
Ingestion:	Rinse mouth thoroughly. Get medical attention. Show this safety data sheet
Skin contact:	Remove contaminated clothing immediately and wash skin with soap and water.
Eye contact:	Rinse with water. Contact physician if discomfort continues.

Most important symptoms and effects, both acute and delayed:

General information: Symptoms of over exposure may include nausea, abdominal pain and dizziness. No long term effects from over exposure.

Indication of any immediate medical attention and special treatment needed: In case of ingestion, induced vomiting is not considered necessary.

5. FIRE-FIGHTING MEASURES

Extinguishing media: Use fire-extinguishing media appropriate for surrounding materials. Carbon dioxide or dry powder. Water spray. Larger fires: Alcohol resistant foam. Do not use water jet as an extinguisher, as this will spread the fire.

Unsuitable extinguishing media: Water jet.

Special hazards arising from the substance or mixture:

Hazardous combustion products: May give off toxic fumes in a fire.

Advice for firefighters:

[cont…]

Protective equipment for fire-fighters: Self-contained breathing apparatus and full protective clothing must be worn in case of fire.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures: Avoid inhalation of spray mist and contact with skin and eyes. Provide adequate ventilation.

Environmental precautions: Do not allow to enter drains, sewers or watercourses. Spillages or uncontrolled discharges into watercourses must be IMMEDIATELY alerted to the Environmental Agency or other appropriate regulatory body.

Methods and material for containment and cleaning up: Collect in containers and seal securely. Avoid generation and spreading of dust. Dampen spillage with water. Containers with collected spillage must be properly labelled with correct contents and hazard symbol. Dispose of via a licensed hazardous waste contractor. Wash contaminated area with water.

Reference to other sections: For personal protection, see section 8. For waste disposal, see section 13.

7. HANDLING AND STORAGE

Precautions for safe handling: Avoid forming spray/aerosol mists. Provide good ventilation.

Conditions for safe storage, including any incompatibilities: Store in vessels suitable for substances of low pH (plastic vessels, or rubber-lined tanks). Store away from: Alkalis.

Storage Class: Corrosive storage.

Specific end use(s): Specific Exposure Scenarios (not including those listed in section 1) should be discussed with the manufacturer

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Control parameters

Name	STD	TWA - 8 Hrs		STEL - 15 Min		Notes
HYDROCHLORIC ACID ...%	WEL	1 ppm	2 mg/m3	5 ppm	8 mg/m3	
Iron (II) chloride	WEL		1 mg/m3		2 mg/m3	
Iron (III) chloride	WEL	0.15 ppm	1 mg/m3	0.3 ppm	2 mg/m3	
NICKEL DICHLORIDE	WEL		0.1 mg/m3			

WEL = Workplace Exposure Limit.

DNEL

Dermal	Short Term	Systemic Effects	40	mg/kg/day
Inhalation.	Short Term	Systemic Effects	104	mg/m3
Dermal	Short Term	Local Effects	1	mg/cm2
Inhalation.	Short Term	Local Effects	104	mg/m3
Dermal	Long Term	Systemic Effects	1.67	mg/kg/day

[cont…]

Inhalation.	Long Term	Systemic Effects	4.3	mg/m3
Dermal	Long Term	Local Effects	1	mg/cm2
Inhalation.	Long Term	Local Effects	26	mg/m3

PNEC

Freshwater	0.001	mg/l
STP	1	mg/l

Iron (III) chloride (CAS: 7705-08-0)

Ingredient Comments

WEL = Workplace Exposure Limits

Exposure controls:

Respiratory equipment: If mists are formed, a respirator must be worn. In case of inadequate ventilation or risk of inhalation of dust, use suitable respiratory equipment with particle filter (type P2).

Hand protection: Use protective gloves. Use protective gloves made of: Neoprene. Glove manufacturers' specifications should always be checked first.

Eye protection: Wear approved safety goggles.

Other Protection: Wear protective work clothing.

Hygiene measures: When using do not eat, drink or smoke. Promptly remove any clothing that becomes contaminated. Wash hands at the end of each work shift and before eating, smoking and using the toilet. Keep away from foodstuffs, beverages and feed.

9. PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

Appearance: Liquid

Colour: Yellow.

Odour: Slight odour. Ester.

Solubility: Soluble in water.

Initial boiling point and boiling range (°C): >150'C

Melting point (°C): < -20'C

Bulk Density: 1.43 kg/m3

Vapour pressure: 8 Pa 25'C

Evaporation rate: Lower than water

pH-Value, Conc. Solution: ~ 1.0

Viscosity: About 10 mPas 20

Solubility Value (G/100G H2O@20°C): 158 @ 20'C

Decomposition temperature (°C): >240'C

Odour Threshold, Lower: Not known.

Odour Threshold, Upper: Not known.

Auto Ignition Temperature (°C): >240'C

Partition Coefficient: log Kow

(N-Octanol/Water): 1.9

Explosive under influence of flame.: Not considered to be explosive.

Will not support combustion

Not considered to be oxidising

[cont…]

Other information: Mol. Weight 162.21

10. STABILITY AND REACTIVITY

Reactivity: No specific reactivity hazards associated with this product.

Chemical stability: Stable under normal temperature conditions and recommended use. If diluted to <~1% in water, ferric hydroxide is formed and flocculates out. In the event of release to the aquatic environment, this process counteracts the potential hazards of the substance, and does not add significantly to the ubiquitous iron in the environment.

Possibility of hazardous reactions: There are no hazardous reactions if handled and stored according to prescribed conditions.

Hazardous Polymerisation: Will not polymerise.

Conditions to avoid: Avoid excessive heat for prolonged periods of time.

Incompatible materials:

Materials To Avoid: Strong oxidising substances.

Hazardous decomposition products: None under normal conditions.

11. TOXICOLOGICAL INFORMATION

Information on toxicological effects:

Acute toxicity: Acute Toxicity (Oral LD50)
300 mg/kg Rat
ATE (Dermal)
2000 mg/kg

Skin Corrosion/Irritation: Irritating.

Serious eye damage/irritation: Moderately Irritating.

Respiratory or skin sensitisation: Not sensitising to skin

Germ cell mutagenicity: Negative.

Carcinogenicity: This substance has no evidence of carcinogenic properties.

Reproductive Toxicity: Does not contain any substances known to be toxic to reproduction.

Specific target organ toxicity - single exposure: Not classified as a specific target organ toxicant after a single exposure.

Specific target organ toxicity - repeated exposure: STOT - Repeated exposure
Dose Level: 500 mg/kg Oral Rat

Target Organs: Liver
Reversible transient effects

Aspiration hazard: No risk of aspiration

Toxicokinetics: Slowly absorbed by ingestion. Poorly absorbed through the skin. Will not accumulate in the body. Metabolism is expected with no known hazardous metabolites.

[cont…]

12. ECOLOGICAL INFORMATION

Toxicity:

Acute Toxicity – Fish: LC50 6.8 mg/l Onchorhynchus mykiss (Rainbow trout)

Acute Toxicity - Aquatic Invertebrates: EC50 0.98 mg/l Daphnia magna

Acute Toxicity - Aquatic Plants: IC50 2.8 mg/l Freshwater algae

Acute Toxicity – Microorganisms: NOEC >1000 mg/l

Persistence and degradability:

Degradability: The product is biodegradable. 55% over 28 days, with no plateaux reached

Bioaccumulative potential: Will not bio-accumulate.
Partition coefficient
log Kow 1.9

Mobility in soil:

Mobility: The product has poor water-solubility. Mobility is expected to be low.

Results of PBT and vPvB assessment: The PBT and vPvB criteria in Annex XIII of the REACH Regulation do not apply.

Other adverse effects: Not available.

13. DISPOSAL CONSIDERATIONS

General information: Must be disposed of as hazardous chemical waste. Do not allow product to reach the sewage system.

Waste treatment methods:

14. TRANSPORT INFORMATION

UN number: UN No. (ADR/RID/ADN) 2582
UN No. (IMDG) 2582
UN No. (ICAO) 2582

UN proper shipping name: Proper Shipping Name FERRIC CHLORIDE SOLUTION
Proper Shipping Name FERRIC CHLORIDE, SOLUTION

Transport hazard class(es):

ADR/RID/ADN Class: 8

ADR/RID/ADN Class: Class 8: Corrosive substances.

ADR Label No.: 8

IMDG Class: 8

ICAO Class/Division: 8

[cont…]

Transport Labels:

Packing group:

ADR/RID/ADN Packing group: III

IMDG Packing group: III

ICAO Packing group: III

Environmental hazards:

Special precautions for user:

EMS: F-A, S-B

Emergency Action Code: 2X

Hazard No. (ADR): 80

Tunnel Restriction Code : (E)

Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code:

15. REGULATORY INFORMATION

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

EU Legislation: This product has been approved as a chemical used for the treatment of drinking water, under the appropriate BS EN Standard (see Sales Specification), and so it is also approved by the British Drinking Water Inspectorate.

Chemical Safety Assessment: A chemical safety assessment has been carried out.

Note: The regulatory information given above only indicates the principal regulations specifically Applicable to the product described in the safety data sheet. The user's attention is drawn to the possible existence of additional provisions which complete these regulations. Refer to all applicable national, international and local regulations or provisions.

16. OTHER INFORMATION

General information: Some sedimentation can occur in this product. Even after filtering, slow sedimentation will occur. To avoid problems caused by this sedimentation, storage tanks should be cleaned every 1 to 2 years.

Legal disclaimer: The information contained in this SDS does not constitute a risk assessment, and should not replace the user's own assessment of risks as required by other health and safety legislation. This advice is given by Nexchem Ltd who accept no legal liability for it except otherwise provided by law. The information contained herein is based on the present state of our knowledge and is intended to describe our products from the point of view of safety requirements. It should not therefore be construed as guaranteeing specific properties.

[cont…]

Risk Phrases In Full:

R34 Causes burns.
R22 Harmful if swallowed.
R37 Irritating to respiratory system.
R38 Irritating to skin.
R49 May cause cancer by inhalation.
R61 May cause harm to the unborn child.
R42/43 May cause sensitisation by inhalation and skin contact.
R68 Possible risk of irreversible effects.
R41 Risk of serious damage to eyes.
R23/25 Toxic by inhalation and if swallowed.
R48/23 Toxic: danger of serious damage to health by prolonged exposure through inhalation.
R50/53 Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Hazard Statements In Full:

H290 May be corrosive to metals.
H301 Toxic if swallowed.
H302 Harmful if swallowed.
H314 Causes severe skin burns and eye damage.
H315 Causes skin irritation.
H317 May cause an allergic skin reaction.
H318 Causes serious eye damage.
H331 Toxic if inhaled.
H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled.
H335 May cause respiratory irritation.
H341 Suspected of causing genetic defects.
H350i May cause cancer by inhalation.
H360D May damage the unborn child.
H372 Causes damage to organs <<Organs>> through prolonged or repeated exposure.
H400 Very toxic to aquatic life.
H410 Very toxic to aquatic life with long lasting effects.

Safety Data Sheet

Safety Data Sheet according to Regulation (EC) No. 1907/2006 (REACH)

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

1.1. Product identifier

Substance name:	**Fuels, diesel**
Code:	**817652**
Unique Formula Identifier (UFI):	**X4MS-CM5S-AK77-AVAX**
MARPOL Annex I Category:	Fuels, Including Ship's Bunkers
REACH Registration Number:	01-2119484664-27-0221
Issue date:	18-Nov-2020

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

Relevant identified uses:	Fuel
Uses advised against:	Uses other than those covered by the exposure scenarios appended to this Safety Data Sheet are not supported.

1.3. Details of the supplier of the safety data sheet

Manufacturer/Supplier:	Phillips 66 CS Limited 7th Floor 200-202 Aldersgate Street London EC1A 4HD UK
SDS Information:	URL: www.Phillips66.com/SDS Email: ESDS@P66.com

1.4. Emergency telephone number

CHEMTREC Global +1 703 527 3887
CHEMTREC Germany 0800-181-7059
CHEMTREC France +(33)-975181407
CHEMTREC Spain 900-868538
CHEMTREC UK +(44)-870-8200418
CHEMTREC Denmark +(45)-69918573
CHEMTREC Sweden (Stockholm) +(46)-852503403
CHEMTREC Netherlands +(31)-858880596

SECTION 2: Hazard identification

2.1. Classification of the substance or mixture

CLP Classification (EC No 1272/2008)
H226 - Flammable liquids -- Category 3
H304 -- Aspiration Hazard -- Category 1
H315 -- Skin corrosion/irritation -- Category 2
H332 -- Acute toxicity, Inhalation -- Category 4
H351 -- Carcinogenicity -- Category 2
H373 -- Specific target organ toxicity (repeated exposure) -- Category 2 (Immune system/Liver/bone)
H411 -- Hazardous to the aquatic environment, chronic toxicity -- Category 2

2.2. Label elements

DANGER

H226 - Flammable liquid and vapour
H304 - May be fatal if swallowed and enters airways
H315 - Causes skin irritation
H332 - Harmful if inhaled
H351 - Suspected of causing cancer
H373 - May cause damage to organs through prolonged or repeated exposure
H411 - Toxic to aquatic life with long lasting effects
P210 - Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking
P260 - Do not breathe dust/fume/gas/mist/vapours/spray
P273 - Avoid release to the environment
P280 - Wear protective gloves/protective clothing/eye protection/face protection
P301 + P310 - IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician
P331 - Do NOT induce vomiting

2.3. Other hazards

Electrostatic charge may be generated during pumping and other operations
Does not meet the criteria for persistent, bioaccumulative and toxic (PBT) or very persistent, very bioaccumulative (vPvB) substances.

SECTION 3: Composition/information on ingredients

3.1. Substances

Chemical Name	CASRN	EINECS	REACH Registration No	Concentration[1]	Classification[2]
Fuels, diesel	68334-30-5	269-822-7	01-2119484664-27	0-100	Flam. Liq. 3, H226 Asp. Tox. 1, H304 Skin Irrit. 2, H315 Acute Tox. 4, H332 Carc. 2, H351 STOT RE 2, H373 Aquatic Chronic 2, H411
Kerosine, petroleum	8008-20-6	232-366-4	01-2119485517-27	0-18	Flam. Liq. 3, H226 Asp. Tox. 1, H304 Skin Irrit. 2, H315 STOT SE 3, H336 Aquatic Chronic 2, H411
Aromatic hydrocarbons, distillation residues, naphthalene-rich	98072-36-7	308-487-4	01-2119480164-41	<10	Acute Tox. 4, H302 Asp. Tox. 1, H304 Skin Irrit. 2, H315 Eye Irrit. 2, H319 Carc. 2, H351 Muta. 1B, H340 Aquatic Acute 1, H400 Aquatic Chronic 1, H410
Naphthalene, 1,2,3,4-tetrahydro-	119-64-2	204-340-2	Not applicable	<5	Eye Irrit. 2, H319 Skin Irrit. 2, H315 Aquatic Chronic 2, H411
Naphthalene	91-20-3	202-049-5	-	<2.5	Acute Tox. 4, H302 Carc. 2, H351 Aquatic Acute 1, H400 Aquatic Chronic 1, H410

[1] All concentrations are percent by weight unless ingredient is a gas. Gas concentrations are in percent by volume.
[2] Regulation EC 1272/2008.
See Section 11 for more information.

Total Sulphur: < 0.1 wt%

SECTION 4: First aid measures

4.1. Description of first aid measures

Eye Contact: If irritation or redness develops from exposure, flush eyes with clean water. If symptoms persist, seek medical attention.

Skin Contact: Remove contaminated shoes and clothing, and flush affected area(s) with large amounts of water. If skin surface is damaged, apply a clean dressing and seek medical attention. If skin surface is not damaged, cleanse affected area(s) thoroughly by washing with mild soap and water or a waterless hand cleaner. If irritation or redness develops, seek medical attention. Wash contaminated clothing before reuse. If product is injected into or under the skin, or into any part of the body, regardless of the appearance of the wound or its size, the individual should be evaluated immediately by a physician. (see Note to Physician)

Inhalation: If respiratory symptoms or other symptoms of exposure develop, move victim away from source of exposure and into fresh air in a position comfortable for breathing. If symptoms persist, seek immediate medical attention. If victim is not breathing, clear airway and immediately begin artificial respiration. If breathing difficulties develop, oxygen should be administered by qualified personnel. Seek immediate medical attention.

Ingestion: Aspiration hazard: Do not induce vomiting or give anything by mouth because this material can enter the lungs and cause severe lung damage. If victim is drowsy or unconscious and vomiting, place on the left side with the head down. If possible, do not leave victim unattended and observe closely for adequacy of breathing. Seek medical attention.

4.2. Most important symptoms and effects, both acute and delayed

While significant vapour concentrations are not likely, high concentrations can cause minor respiratory irritation, headache, drowsiness, dizziness, loss of coordination, disorientation and fatigue. Ingestion can cause irritation of the digestive tract, nausea, diarrhea, and vomiting. Prolonged or repeated contact may dry skin and cause irritation.

4.3. Indication of any immediate medical attention and special treatment needed

Notes to Physician: When using high-pressure equipment, injection of product under the skin can occur. In this case, the casualty should be sent immediately to the hospital. Do not wait for symptoms to develop. High-pressure hydrocarbon injection injuries may produce substantial necrosis of underlying tissue despite an innocuous appearing external wound. These injuries often require extensive emergency surgical debridement and all injuries should be evaluated by a specialist in order to assess the extent of injury. Early surgical treatment within the first few hours may significantly reduce the ultimate extent of injury.

SECTION 5: Firefighting measures

5.1. Extinguishing media

Dry chemical, carbon dioxide, or foam is recommended. Water spray is recommended to cool or protect exposed materials or structures. Carbon dioxide can displace oxygen. Use caution when applying carbon dioxide in confined spaces. Simultaneous use of foam and water on the same surface is to be avoided as water destroys the foam. Water may be ineffective for extinguishment, unless used under favorable conditions by experienced fire fighters.

5.2. Special hazards arising from the substance or mixture

Unusual Fire & Explosion Hazards: Flammable. This material can be ignited by heat, sparks, flames, or other sources of ignition (e.g., static electricity, pilot lights, mechanical/electrical equipment, and electronic devices such as cell phones, computers, calculators, and pagers which have not been certified as intrinsically safe) Vapours may travel considerable distances to a source of ignition where they can ignite, flash back, or explode. May create vapour/air explosion hazard indoors, in confined spaces, outdoors, or in sewers. This product will float and can be reignited on surface water. Vapours are heavier than air and can accumulate in low areas. If container is not properly cooled, it can rupture in the heat of a fire.

Hazardous Combustion Products: Combustion may yield smoke, carbon monoxide, and other products of incomplete combustion. Oxides of nitrogen and sulphur may also be formed.

5.3. Special protective actions for fire-fighters

For fires beyond the initial stage, emergency responders in the immediate hazard area should wear protective clothing. When

the potential chemical hazard is unknown, in enclosed or confined spaces, a self contained breathing apparatus should be worn. In addition, wear other appropriate protective equipment as conditions warrant (see Section 8). Isolate the hazard area and deny entry to unnecessary and unprotected personnel. Stop spill/release if it can be done safely. Move undamaged containers from immediate hazard area if it can be done safely. Water spray may be useful in minimizing or dispersing vapours and to protect personnel. Avoid spreading burning liquid with water used for cooling purposes. Cool equipment exposed to fire with water, if it can be done safely.

See Section 9 for Flammable Properties including Flash Point and Flammable (Explosive) Limits

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Flammable. Spillages of liquid product will create a fire hazard and may form an explosive atmosphere. Keep all sources of ignition and hot metal surfaces away from spill/release if safe to do so. The use of explosion-proof electrical equipment is recommended. Stay upwind and away from spill/release. Avoid direct contact with material. For large spillages, notify persons down wind of the spill/release, isolate immediate hazard area and keep unauthorised personnel out. Wear appropriate protective equipment, including respiratory protection, as conditions warrant (see Section 8). See Sections 2 and 7 for additional information on hazards and precautionary measures.

6.2. Environmental precautions

Stop and contain spill/release if it can be done safely. Prevent spilled material from entering sewers, storm drains, other unauthorised drainage systems, and natural waterways. Use foam on spills to minimise vapours Use water sparingly to minimize environmental contamination and reduce disposal requirements. If spill occurs on water notify appropriate authorities and advise shipping of any hazard.

6.3. Methods and material for containment and cleaning up

Notify relevant authorities in accordance with all applicable regulations. Immediate cleanup of any spill is recommended. Dike far ahead of spill for later recovery or disposal. Absorb spill with inert material such as sand or vermiculite, and place in suitable container for disposal. If spilled on water remove with appropriate methods (e.g. skimming, booms or absorbents). In case of soil contamination, remove contaminated soil for remediation or disposal, in accordance with local regulations.

Recommended measures are based on the most likely spillage scenarios for this material; however local conditions and regulations may influence or limit the choice of appropriate actions to be taken.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Take precautionary measures against static discharge. Use non-sparking tools. Do not breathe vapour or mist. Use only outdoors or in a well-ventilated area. Wash thoroughly after handling. Wear protective gloves/protective clothing/eye protection/face protection. Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Use good personal hygiene practices and wear appropriate personal protective equipment (see section 8).

Flammable. May vaporize easily at ambient temperatures. The vapour is heavier than air and may create an explosive mixture of vapor and air. Beware of accumulation in confined spaces and low lying areas. Open container slowly to relieve any pressure. Electrostatic charge may accumulate and create a hazardous condition when handling or processing this material. To avoid fire or explosion, dissipate static electricity during transfer by grounding and bonding containers and equipment before transferring material. The use of explosion-proof electrical equipment is recommended and may be required (see appropriate fire codes for specific bonding/grounding requirements). Do not enter confined spaces such as tanks or pits without following proper entry procedures. Do not wear contaminated clothing or shoes. Keep contaminated clothing away from sources of ignition such as sparks or open flames.

High pressure injection of hydrocarbon fuels, hydraulic oils or greases under the skin may have serious consequences even though no symptoms or injury may be apparent. This can happen accidentally when using high pressure equipment such as high pressure grease guns, fuel injection apparatus or from pinhole leaks in tubing of high pressure hydraulic oil equipment.

For use as a motor fuel only. Do not use as a solvent due to its flammable and potentially toxic properties. Siphoning by mouth can result in lung aspiration which can be harmful or fatal.
The use of hydrocarbon fuel in an area without adequate ventilation may result in hazardous levels of incomplete combustion products (e.g. carbon monoxide, oxides of sulphur and nitrogen, benzene and other hydrocarbons) and/or dangerously low

oxygen levels.

Diesel engine exhaust contains hazardous combustion products and has been identified as a cancer hazard. Exposure should be minimized to reduce potential risk.

7.2. Conditions for safe storage, including any incompatibilities

Keep container(s) tightly closed and properly labeled. Use and store this material in cool, dry, well-ventilated areas away from heat, direct sunlight, hot metal surfaces, and all sources of ignition. Store only in approved containers. Post area "No Smoking or Open Flame." Keep away from any incompatible material (see Section 10). Protect container(s) against physical damage.

"Empty" containers retain residue and may be dangerous. Do not pressurize, cut, weld, braze, solder, drill, grind, or expose such containers to heat, flame, sparks, or other sources of ignition. They may explode and cause injury or death. "Empty" drums should be completely drained, properly bunged, and promptly shipped to the supplier or a drum reconditioner. All containers should be disposed of in an environmentally safe manner and in accordance with governmental regulations. Before working on or in tanks which contain or have contained this material, refer to appropriate guidance pertaining to cleaning, repairing, welding, or other contemplated operations. Outdoor or detached storage is preferred. Indoor storage should meet Country or Committee standards and appropriate fire codes.

7.3. Specific end use(s)

Refer to supplemental exposure scenarios if attached.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Occupational Exposure Limits:

Chemical Name	ACGIH	Ireland	United Kingdom	Phillips 66
Fuels, diesel	TWA-8hr: 100 mg/m^3 inhalable fraction and vapor Skin	TWA-8hr: 100 mg/m^3 STEL: 300 mg/m^3	---	TWA-8hr: 100 mg/m^3 Skin
Kerosine, petroleum	TWA-8hr: 200 mg/m^3 total hydrocarbon vapor Kerosene/Jet fuels Skin	Skin	---	TWA-8hr: 200 mg/m^3 TWA-8hr: 28 ppm Skin
Naphthalene	TWA-8hr: 10 ppm Skin	TWA-8hr: 10 ppm TWA-8hr: 50 mg/m^3 STEL: 30 ppm STEL: 150 mg/m^3	---	TWA-8hr: 10 ppm Skin

STEL = Short Term Exposure Limit (15 minutes); TWA = Time Weighted Average (8 hours); --- = No Occupational Exposure Limit. Local regulations may be more stringent than regional or national requirements.

Biological Limit Values:

Chemical Name	ACGIH	European Union	United Kingdom
Naphthalene	1-Naphthol with hydrolysis plus 2-Naphthol with hydrolysis in : , end of shift (nonquantitative, nonspecific)	---	---

--- = No Biological Limit Value. Local regulations may be more stringent than regional or national requirements

Relevant DNEL and PNEC:

Worker Derived No-Effect Level (DNEL)
Inhalation: 68.3 mg/m^3
Dermal: 2.9 mg/kgbw/day

Consumer Derived No-Effect Level (DNEL)
Inhalation: 20 mg/m^3
Dermal: 1.3 mg/kgbw/day
Ingestion: Not applicable

Environmental Predicted No-Effect Concentration (PNEC): No information available

8.2. Exposure controls

Engineering controls: If current ventilation practices are not adequate to maintain airborne concentrations below the established exposure limits, additional engineering controls may be required.

Eye/Face Protection: The use of eye protection that meets or exceeds EN 166 is recommended to protect against potential eye contact, irritation, or injury. Depending on conditions of use, close fitting eye protection and a face shield may be necessary.

Skin/Hand Protection: The use of gloves impervious to the specific material handled that comply with EN 374 is advised to prevent skin contact. Users should check with manufacturers to confirm the breakthrough performance of their products. Depending on exposure and use conditions, additional protection may be necessary to prevent skin contact including use of items such as chemical resistant boots, aprons, arm covers, hoods, coveralls, or encapsulated suits. Suggested protective materials: Nitrile rubber

Respiratory Protection: Where there is potential for airborne exposure above the exposure limit an approved air purifying respirator equipped with Type A, organic gases and vapour filters (as specified by the manufacturer) may be used.

A respiratory protection programme that follows recommendations for the selection, use, care and maintenance of respiratory protective devices in EN 529:2005 should be followed whenever workplace conditions warrant a respirator's use. Air purifying respirators provide limited protection and cannot be used in atmospheres that exceed the maximum use concentration (as directed by regulation or the manufacturer's instructions), in oxygen deficient (less than 19.5 percent oxygen) situations, or under conditions that are immediately dangerous to life and health.

Other Protective Equipment: Eye wash and quick-drench shower facilities should be available in the work area. Thoroughly clean shoes and wash contaminated clothing before reuse.

Environmental Exposure Controls: Refer to Sections 6, 7, 12 and 13.

Suggestions provided in this section for exposure control and specific types of protective equipment are based on readily available information. Users should consult with the specific manufacturer to confirm the performance of their protective equipment. Specific situations may require consultation with industrial hygiene, safety, or engineering professionals.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Data represent typical values and are not intended to be specifications. N/A = Not Applicable; N/D = Not Determined

Appearance:	Clear to amber
Physical form of product:	Liquid
Odour:	Diesel fuel
Odour threshold:	N/D
pH:	N/A
Melting / freezing point:	N/D
Initial boiling point and boiling range:	356 - 734 °F / 180 - 390 °C
Flash point:	> 131 °F / > 55 °C
Method:	CC (closed cup)
Evaporation Rate (nBuAc=1):	N/D
Flammability (solid, gas):	N/A
Upper Explosive Limits (vol % in air):	5.0
Lower Explosive Limits (vol % in air):	0.5
Vapour pressure:	<0.3 kPa @20°C
Vapour density:	>1 (air = 1)
Relative density:	0.85 @ 60ºF (15.6ºC) (water = 1)
Solubility(ies):	Negligible
Partition coefficient n-octanol /water (log KOW):	N/D
Autoignition temperature:	250 °C
Decomposition temperature:	N/D
Viscosity:	4.8 mm²/s @ 20°C; 1.5-5.5 mm²/s @ 40°C
Explosive properties:	N/D
Oxidising properties:	N/D

9.2. Other information

Other information

Pour point:	-11.2 °F / -24 °C
Bulk Density::	N/D

SECTION 10: Stability and reactivity

10.1. Reactivity Not chemically reactive.

10.2. Chemical stability Stable under normal ambient and anticipated conditions of use.

10.3. Possibility of hazardous reactions Hazardous reactions not anticipated.

10.4. Conditions to avoid Avoid high temperatures and all sources of ignition. Prevent vapour accumulation.

10.5. Incompatible materials Avoid contact with strong oxidizing agents and strong reducing agents.

10.6. Hazardous decomposition products Not anticipated under normal conditions of use.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Substance / Mixture

Acute Toxicity	Hazard	Additional Information	LC50/LD50 Data
Inhalation	Harmful if inhaled		> 4.1 mg/L (mist, estimated) (rat)
Dermal	Unlikely to be harmful		>2 g/kg (Estimated) (rabbit)
Oral	Unlikely to be harmful		>5 g/kg (Estimated) (rat)

Likely Routes of Exposure: Inhalation, eye contact, skin contact

Aspiration Hazard: May be fatal if swallowed and enters airways.

Skin Corrosion/Irritation: Causes skin irritation. Repeated exposure may cause skin dryness or cracking.

Serious Eye Damage/Irritation: Causes mild eye irritation.

Skin Sensitisation: Not expected to be a skin sensitizer.

Respiratory Sensitisation: No information available on the mixture, however none of the components have been classified for respiratory sensitisation (or are below the concentration threshold for classification).

Specific Target Organ Toxicity (Single Exposure): No information available on the mixture, however none of the components have been classified for target organ toxicity (or are below the concentration threshold for classification).

Specific Target Organ Toxicity (Repeated Exposure): May cause damage to organs through prolonged or repeated exposure.
Carcinogenicity: Suspected of causing cancer. Based on component information.

Germ Cell Mutagenicity: No information available on the mixture, however none of the components have been classified for germ cell mutagenicity (or are below the concentration threshold for classification). Based on component information.

Reproductive Toxicity: Not expected to cause reproductive toxicity.
Other Comments: Diesel engine exhaust has been classified by the International Agency for Research on Cancer (IARC) and National Toxicology Programme (NTP) as a carcinogen.

11.2 Information on Hazardous Components

Fuels, diesel

Carcinogenicity: Repeated application of residual aromatic extracts to mouse skin resulted in an increased incidence of skin tumours. They have been identified as a carcinogen by IARC.
Target Organ(s): Repeated dermal application of petroleum gas oils for 90 days resulted in decreased liver, thymus, and spleen weights, and altered bone marrow function. Microscopic alterations included liver hypertrophy and necrosis, decreased hematopoesis and lymphocyte depletion.
Target organs, tissues and biological systems: Immune system, Liver, bone

Kerosine, petroleum

Target organs, tissues and biological systems: Central Nervous System (CNS)
Reproductive Toxicity: Hydrodesulphurized kerosene applied to the skin of female rats at 494, 330, or 165 mg/kg daily for 7 consecutive weeks (premating, mating, and gestation), or for 8 consecutive weeks in males did not result in systemic, reproductive, or developmental toxicity.

Naphthalene

Carcinogenicity: Naphthalene has been evaluated in two year inhalation studies in both rats and mice. The US National Toxicology Programme (NTP) concluded that there is clear evidence of carcinogenicity in male and female rats based on increased incidences of respiratory epithelial adenomas and olfactory epithelial neuroblastomas of the nose. NTP found some evidence of carcinogenicity in female mice (alveolar adenomas) and no evidence of carcinogenicity in male mice. Naphthalene has been identified as a carcinogen by IARC and NTP.

SECTION 12: Ecological information

12.1. Toxicity

Experimental studies of gas oils show that acute aquatic toxicity values are typically in the range 2-20 mg/L. These values are consistent with the predicted aquatic toxicity of these substances based on their hydrocarbon compositions. They should be regarded as toxic to aquatic organisms, with the potential to cause long term adverse effects in the aquatic environment.

12.2. Persistence and degradability

Gas oils are complex combinations of individual hydrocarbon species. Based on the known or expected properties of individual constituents, category members are not predicted to be readily biodegradable. Some hydrocarbon constituents of gas oils are predicted to meet the criteria for persistence; on the other hand, some components can be easily degraded by microorganisms under aerobic conditions.

Persistence per IOPC Fund definition: Non-Persistent

12.3. Bioaccumulative potential

Gas oil components have measured or calculated Log Kow values in the range of 3.9 to 6 which indicates a high potential to bioaccumulate. Lower molecular weight compounds are readily metabolized and the actual bioaccumulation potential of higher molecular weight compounds is limited by the low water solubility and large molecular size.

12.4. Mobility in soil

Releases to water will result in a hydrocarbon film floating and spreading on the surface. For the lighter components, volatilisation is an important loss process and reduces the hazard to aquatic organisms. In air, the hydrocarbon vapours react readily with hydroxyl radicals with half-lives of less than one day. Photoxidation on the water surface is also a significant loss process particularly for polycyclic aromatic compounds. In water, the majority of components will be adsorbed on sediment. Adsorption is the most predominant physical process on release to soil. Adsorbed hydrocarbons will slowly degrade in both water and soil.

12.5. Results of PBT and vPvB assessment

Not a PBT or vPvB substance.

12.6. Other adverse effects

None anticipated.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

European Waste Code: 13 07 01* fuel oil and diesel

This material, if discarded as produced, would be considered as hazardous waste pursuant to Directive 2008/98/EC on

hazardous waste, and subject to the provisions of that Directive unless Article 1(5) of that Directive applies.
This code has been assigned based upon the most common uses for this material and may not reflect contaminants resulting from actual use. Waste generators/producers are responsible for assessing the actual process used when generating the waste and it's contaminants in order to assign the proper waste disposal code.

Disposal must be in accordance with Directive 2008/98/EC and other applicable national or regional provisions, and based upon material characteristics at time of disposal. For incineration of waste, follow Directive 2000/76/EC. For landfill of waste, follow Directive 1999/31/EC. Product is suitable for burning in an enclosed controlled burner for fuel value if >5000 BTU, or disposal by supervised incineration at very high temperatures to prevent formation of undesirable combustion products. Follow Directive 2000/76/EC.

Empty Containers: Container contents should be completely used and containers emptied prior to discard. Empty drums should be properly sealed and promptly returned to a drum reconditioner. All containers should be disposed of in an environmentally safe manner and in accordance with applicable regulations.

SECTION 14: Transport information

14.1. UN number
UN1202

14.2. UN proper shipping name
Diesel fuel

14.3. Transport hazard class(es)
3; (N2, F)

14.4. Packing group
III

14.5. Environmental hazards
Marine pollutant - Environmentally Hazardous

14.6. Special precautions for user
If transported in bulk by marine vessel in international waters, product is being carried under the scope of MARPOL Annex I.

14.7. Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code
Not applicable

SECTION 15: Regulatory information

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

EC 1272/2008 - Classification, labelling and packaging of substances and mixtures
EN166:2002 Eye Protection
EN 529:2005 Respiratory Protective devices
BS EN 374-1:2003 Protective gloves against chemicals and micro-organisms
Occupational Exposure Limits, Technical Rules for Dangerous Substances
Occupational Exposure Limits, Health and Safety Authority
Workplace Exposure Limits, EH40/2005, Control of Substances Hazardous to Health
Federal Water Act on the Classification of Substances Hazardous to Waters
Directive 2008/98/EC (Waste Framework Directive)
Directive 2000/76/EC on incineration of waste
Directive 1999/31/EC on landfill of waste

Export Rating: NLR (No Licence Required)

15.2. Chemical safety assessment

A chemical safety assessment has been carried out for the substance/mixture.

SECTION 16: Other information

Issue date	18-Nov-2020
Status:	FINAL
Previous Issue Date:	19-Aug-2020
Revised Sections or Basis for Revision:	Unique Formula Identifier (UFI) Toxicological (Section 11) Format change
Safety Data Sheet Number:	**817652**
Language:	BE

List of Relevant Hazard Statements:
H226 - Flammable liquid and vapour
H302 - Harmful if swallowed
H304 - May be fatal if swallowed and enters airways
H315 - Causes skin irritation
H319 - Causes serious eye irritation
H332 - Harmful if inhaled
H336 - May cause drowsiness or dizziness
H340 - May cause genetic defects
H351 - Suspected of causing cancer
H373 - May cause damage to organs through prolonged or repeated exposure
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

Regulatory Basis of Classification	
CLP Classification (EC No 1272/2008)	Regulatory Basis
H226 - Flammable liquids -- Category 3	Based on component information.
H304 -- Aspiration Hazard -- Category 1	Based on component information.
H315 -- Skin corrosion/irritation -- Category 2	Based on component information.
H332 -- Acute toxicity, Inhalation -- Category 4	Based on component information.
H351 -- Carcinogenicity -- Category 2	Based on component information.
H373 -- Specific target organ toxicity (repeated exposure) -- Category 2 (Immune system/Liver/bone)	Based on component information.
H411 -- Hazardous to the aquatic environment, chronic toxicity -- Category 2	Based on component information.

Guide to Abbreviations:
ACGIH = American Conference of Governmental Industrial Hygienists; ADR = Agreement on Dangerous Goods by Road; BMGV = Biological Monitoring Guidance Value; CASRN = Chemical Abstracts Service Registry Number; CEILING = Ceiling Limit; EINECS - European Inventory of Existing Commercial Chemical Substances; EPA = [US] Environmental Protection Agency; Germany-TRGS = Technical Rules for Dangerous Substances; IARC = International Agency for Research on Cancer; ICAO/IATA = International Civil Aviation Organisation / International Air Transport Association; INSHT = National Institute for Health and Safety at Work; IMDG = International Maritime Dangerous Goods; Irland-HSA = Ireland's National Health and Safety Authority; LEL = Lower Explosive Limit; MARPOL = Marine Pollution; N/A = Not Applicable; N/D = Not Determined; NTP = [US] National Toxicology Programme; PBT = Persistent, Bioaccumulative and Toxic; RID = Regulations Concerning the International Transport of Dangerous Goods by Rail; STEL = Short Term Exposure Limit; TLV = Threshold Limit Value; TRGS 903 = Technical rules for hazardous substances; TWA = Time Weighted Average; UEL = Upper Explosive Limit; UK-EH40 = United Kingdom EH40/2005 OEL; vPvB = very Persistent, very Bioaccumulative

Disclaimer of Expressed and implied Warranties:
The information presented in this Safety Data Sheet is based on data believed to be accurate as of the date this Safety Data Sheet was prepared. HOWEVER, NO WARRANTY OF MERCHANTABILITY, FITNESS FOR ANY PARTICULAR PURPOSE, OR ANY OTHER WARRANTY IS EXPRESSED OR IS TO BE IMPLIED REGARDING THE ACCURACY OR COMPLETENESS OF THE INFORMATION PROVIDED ABOVE, THE RESULTS TO BE OBTAINED FROM THE USE OF THIS INFORMATION OR THE PRODUCT, THE SAFETY OF THIS PRODUCT, OR THE HAZARDS RELATED TO ITS USE. No responsibility is assumed for any damage or injury resulting from abnormal use or from any failure to adhere to recommended practices. The information provided above, and the product, are furnished on the condition that the person receiving them shall make their own determination as to the suitability of the product for their particular purpose and on the condition that they assume the risk of their use. In addition, no authorisation is given nor implied to practice any patented invention without a licence.

1. Manufacture of substance - Industrial

Section 1 Exposure Scenario Vacuum or Hydrocracked Gas Oils and Distillate Fuels	
Title	Manufacture of substance
Use Descriptor	
Sector(s) of use	3, 8, 9
Process category(ies)	1, 2, 3, 4, 8a, 8b, 15
Environmental release category(ies)	1, 4
Specific Environmental Release Category	ESVOC SpERC 1.1.v1
Processes, tasks, activities covered	
Manufacture of the substance or use as a process chemical or extraction agent. Includes recycling/recovery, material transfers, storage, maintenance and loading (including marine vessel/barge, road/rail car and bulk container), sampling and associated laboratory activities.	
Section 2 Operational conditions and risk management measures	
2.1 Control of worker exposure	
Product characteristics	
Physical form of product	Liquid, vapour pressure < 0.5 kPa at STP
Concentration of substance in product	Covers percentage substance in the product up to 100 % (unless stated differently).
Frequency and duration of use	Covers daily exposures up to 8 hours (unless stated differently)
Other operational conditions affecting exposure	Operation is carried out at elevated temperature (>20°C above ambient temperature). Assumes a good basic standard of occupational hygiene is implemented.

Contributing Scenarios / Product Category	**Specific Risk Management Measures & Operating Conditions**
General measures applicable to all activities	Control any potential exposure using measures such as contained or enclosed systems, properly designed and maintained facilities and a good standard of general ventilation. Drain down systems and transfer lines prior to breaking containment. Drain down and flush equipment where possible prior to maintenance.Where there is potential for exposure: Ensure relevant staff are informed of the nature of exposure and aware of basic actions to minimise exposures; ensure suitable personal protective equipment is available; clear up spills and dispose of waste in accordance with regulatory requirements; monitor effectiveness of control measures; consider the need for health surveillance; identify and implement corrective actions.
General measures (skin irritants)	Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent / minimise exposures and to report any skin problems that may develop.
General exposures (closed systems)	Handle substance within a closed system
General exposures (open systems)	Wear suitable gloves tested to EN374.
Process sampling	No other specific measures identified
bulk closed loading and unloading	Handle substance within a closed system Wear suitable gloves tested to EN374.
bulk open loading and unloading	Wear suitable gloves tested to EN374.
Equipment cleaning and maintenance	Drain down system prior to equipment break-in or

	maintenance Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.
Laboratory activities	No other specific measures identified
Bulk product storage	Store substance within a closed system

Vacuum or Hydrocracked Gas Oils and Distillate Fuels exhibits acute inhalation toxicity and is classified R20 (Harmful by inhalation) accordingly. The available data for this adverse effect do not provide quantitative dose-response information, but there exists toxicity data appropriate to allow a qualitative risk characterisation; please see section 2 of the SDS for the necessary / additional RMMs. Vacuum or Hydrocracked Gas Oils and Distillate Fuels exhibits irritation to the skin and is classified R38 (Irritating to skin) accordingly. The available data for this adverse effect do not provide quantitative dose-response information, but there exists toxicity data appropriate to allow a qualitative risk characterisation; please see section 2 of the SDS for the necessary RMMs. Vacuum or Hydrocracked Gas Oils and Distillate Fuels is classified R65 (Harmful: may cause lung damage if swallowed). The available data for this adverse effect do not provide quantitative dose-response information for a D(M)NEL to be derived. Instead, the toxicity data triggers a qualitative risk characterisation and the RMMs in section 2 of the SDS aims to define the appropriate RMMs necessary to protect from this adverse effect. There is limited evidence of carcinogenic effects in Vacuum or Hydrocracked Gas Oils and Distillate Fuels and it is classified R40 (May cause cancer) accordingly. The available data for this adverse effect do not provide quantitative dose-response information for a D(M)NEL to be derived. Instead, the toxicity data triggers a qualitative risk characterisation and the RMMs in section 2 of the SDS aim to define the appropriate RMMs necessary to protect from these adverse effects.

2.2 Control of environmental exposure

Product characteristics
Substance is complex UVCB. Predominantly hydrophobic.

Amounts used	
Fraction of EU tonnage used in region	0.1
Regional use tonnage (tonnes/year)	2.8e7
Fraction of regional tonnage used locally	0.021

Frequency and duration of use
Continuous release.

Emission days (days/year)	300
Environmental 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)	1.0e-2
Release fraction to wastewater from process (initial release prior to RMM)	3.0e-5
Release fraction to soil from process (initial release prior to RMM)	0.0001

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

Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil
Risk from environmental exposure is driven by freshwater sediment. Prevent discharge of undissolved substance to or recover from onsite wastewater.

Treat air emission to provide a typical removal efficiency of (%):	90
Treat onsite wastewater (prior to receiving water discharge) to provide the required removal efficiency >= (%):	90.3
If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of >= (%):	0

Organisation measures to prevent/limit release from site
Prevent discharge of undissolved substance to or recover from onsite wastewater. Do not apply industrial sludge to natural soils. Sludge should be incinerated, contained or reclaimed.

Conditions and measures related to municipal sewage treatment plant

Estimated substance removal from wastewater via domestic sewage treatment (%):	94.1
Total efficiency of removal from wastewater after onsite and offsite (domestic treatment plant) RMMs (%):	94.1
Maximum allowable site tonnage (Msafe) based on release following total wastewater treatment removal (kg/d):	3.3e6
Assumed domestic sewage treatment plant flow (m^3/d):	10000

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.

Section 3 Exposure Estimation

3.1 Health

The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.
3.2 Environment
The Hydrocarbon Block Method has been used to calculate environmental exposure with the Petrorisk model.
Section 4 Guidance to check compliance with the Exposure Scenario
4.1 Health
Predicted exposures are not expected to exceed the DN(M)EL when the risk management measures/operational conditions outlined in section 2 are implemented. Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels. Available hazard data does not enable the derivation of a DNEL for dermal irritant effects. Available hazard data does not support the need for a DNEL to be established for other health effects. Risk management measures are based on qualitative risk characterization.
4.2 Environment
Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures. Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination. Required removal efficiency for air can be achieved using on-site technologies, either alone or in combination. Further details on scaling and control technologies are provided in SpERC factsheet (https://cefic.org/app/uploads/2019/01/SPERCs-Specific-Envirnonmental-Release-Classes-REACHImpl-ES-CSA-CSR.pdf). Scaled local assessments for EU refineries have been performed using site-specific data and are attached in PETRORISK file – “Site-Specific Production” worksheet.

2. Use of substance as an intermediate - Industrial

Section 1 Exposure Scenario Vacuum or Hydrocracked Gas Oils and Distillate Fuels	
Title	Use as an intermediate
Use Descriptor	
Sector(s) of use	3, 8, 9
Process category(ies)	1, 2, 3, 4, 8a, 8b, 15
Environmental release category(ies)	6a
Specific Environmental Release Category	ESVOC SpERC 6.1a.v1
Processes, tasks, activities covered	
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 Operational conditions and risk management measures	
2.1 Control of worker exposure	
Product characteristics	
Physical form of product	Liquid, vapour pressure < 0.5 kPa at STP
Concentration of substance in product	Covers percentage substance in the product up to 100 % (unless stated differently).
Frequency and duration of use	Covers daily exposures up to 8 hours (unless stated differently)
Other operational conditions affecting exposure	Operation is carried out at elevated temperature (>20°C above ambient temperature). Assumes a good basic standard of occupational hygiene is implemented.

Contributing Scenarios / Product Category	**Specific Risk Management Measures & Operating Conditions**
General measures applicable to all activities	Control any potential exposure using measures such as contained or enclosed systems, properly designed and maintained facilities and a good standard of general ventilation. Drain down systems and transfer lines prior to breaking containment. Drain down and flush equipment where possible prior to maintenance.Where there is potential for exposure: Ensure relevant staff are informed of the nature of exposure and aware of basic actions to minimise exposures; ensure suitable personal protective equipment is available; clear up spills and dispose of waste in accordance with regulatory requirements; monitor effectiveness of control measures; consider the need for health surveillance; identify and implement corrective actions.
General measures (skin irritants)	Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to

	EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent / minimise exposures and to report any skin problems that may develop.
General exposures (closed systems)	Handle substance within a closed system
General exposures (open systems)	Wear suitable gloves tested to EN374.
Process sampling	No other specific measures identified
bulk closed loading and unloading	Handle substance within a closed system Wear suitable gloves tested to EN374.
bulk open loading and unloading	Wear suitable gloves tested to EN374.
Equipment cleaning and maintenance	No other specific measures identified
Laboratory activities	No other specific measures identified
Bulk product storage	Store substance within a closed system

Vacuum or Hydrocracked Gas Oils and Distillate Fuels exhibits acute inhalation toxicity and is classified R20 (Harmful by inhalation) accordingly. The available data for this adverse effect do not provide quantitative dose-response information, but there exists toxicity data appropriate to allow a qualitative risk characterisation; please see section 2 of the SDS for the necessary / additional RMMs. Vacuum or Hydrocracked Gas Oils and Distillate Fuels exhibits irritation to the skin and is classified R38 (Irritating to skin) accordingly. The available data for this adverse effect do not provide quantitative dose-response information, but there exists toxicity data appropriate to allow a qualitative risk characterisation; please see section 2 of the SDS for the necessary RMMs. Vacuum or Hydrocracked Gas Oils and Distillate Fuels is classified R65 (Harmful: may cause lung damage if swallowed). The available data for this adverse effect do not provide quantitative dose-response information for a D(M)NEL to be derived. Instead, the toxicity data triggers a qualitative risk characterisation and the RMMs in section 2 of the SDS aims to define the appropriate RMMs necessary to protect from this adverse effect. There is limited evidence of carcinogenic effects in Vacuum or Hydrocracked Gas Oils and Distillate Fuels and it is classified R40 (May cause cancer) accordingly. The available data for this adverse effect do not provide quantitative dose-response information for a D(M)NEL to be derived. Instead, the toxicity data triggers a qualitative risk characterisation and the RMMs in section 2 of the SDS aim to define the appropriate RMMs necessary to protect from these adverse effects.

2.2 Control of environmental exposure

Product characteristics
Substance is complex UVCB. Predominantly hydrophobic.

Amounts used	
Fraction of EU tonnage used in region	0.1
Regional use tonnage (tonnes/year)	3.5e5
Fraction of regional tonnage used locally	0.043

Frequency and duration of use
Continuous release.

Emission days (days/year)	300
Environmental 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)	1.0e-3
Release fraction to wastewater from process (initial release prior to RMM)	3.0e-5
Release fraction to soil from process (initial release prior to RMM)	0.001

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

Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil
Risk from environmental exposure is driven by freshwater sediment. Prevent discharge of undissolved substance to or recover from onsite wastewater.

Treat air emission to provide a typical removal efficiency of (%):	80
Treat onsite wastewater (prior to receiving water discharge) to provide the required removal efficiency >= (%):	51.7
If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of >= (%):	0

Organisation measures to prevent/limit release from site
Prevent discharge of undissolved substance to or recover from onsite wastewater. Do not apply industrial sludge to natural soils. Sludge should be incinerated, contained or reclaimed.

Conditions and measures related to municipal sewage treatment plant

Estimated substance removal from wastewater via domestic sewage treatment (%):	94.1
Total efficiency of removal from wastewater after onsite and offsite (domestic treatment	94.1

plant) RMMs (%):	
Maximum allowable site tonnage (Msafe) based on release following total wastewater treatment removal (kg/d):	4.1e5
Assumed domestic sewage treatment plant flow (m³/d):	2000
Conditions and measures related to external treatment of waste for disposal	
This substance is consumed during use and no waste of the substance is generated.	
Conditions and measures related to external recovery of waste	
This substance is consumed during use and no waste of the substance is generated.	
Section 3 Exposure Estimation	
3.1 Health	
The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.	
3.2 Environment	
The Hydrocarbon Block Method has been used to calculate environmental exposure with the Petrorisk model.	
Section 4 Guidance to check compliance with the Exposure Scenario	
4.1 Health	
Predicted exposures are not expected to exceed the DN(M)EL when the risk management measures/operational conditions outlined in section 2 are implemented. Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels. Available hazard data does not enable the derivation of a DNEL for dermal irritant effects. Available hazard data does not support the need for a DNEL to be established for other health effects. Risk management measures are based on qualitative risk characterization.	
4.2 Environment	
Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures. Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination. Required removal efficiency for air can be achieved using on-site technologies, either alone or in combination. Further details on scaling and control technologies are provided in SpERC factsheet (https://cefic.org/app/uploads/2019/01/SPERCs-Specific-Envirnonmental-Release-Classes-REACHImpl-ES-CSA-CSR.pdf).	

3. Distribution of substance - Industrial

Section 1 Exposure Scenario Vacuum or Hydrocracked Gas Oils and Distillate Fuels	
Title	Distribution of substance
Use Descriptor	
Sector(s) of use	3
Process category(ies)	1, 2, 3, 4, 8a, 8b, 9, 15
Environmental release category(ies)	1, 2, 3, 4, 5, 6a, 6b, 6c, 6d, 7
Specific Environmental Release Category	ESVOC SpERC 1.1b.v1
Processes, tasks, activities covered	
Loading (including marine vessel/barge, rail/road car and IBC loading) and repacking (including drums and small packs) of substance, including its sampling, storage, unloading distribution and associated laboratory activities.	
Section 2 Operational conditions and risk management measures	
2.1 Control of worker exposure	
Product characteristics	
Physical form of product	Liquid, vapour pressure < 0.5 kPa at STP
Concentration of substance in product	Covers percentage substance in the product up to 100 % (unless stated differently).
Frequency and duration of use	Covers daily exposures up to 8 hours (unless stated differently)
Other operational conditions affecting exposure	Assumes use at not more than 20°C above ambient temperature, unless stated differently. Assumes a good basic standard of occupational hygiene is implemented.

Contributing Scenarios / Product Category	**Specific Risk Management Measures & Operating Conditions**
General measures applicable to all activities	Control any potential exposure using measures such as contained or enclosed systems, properly designed and maintained facilities and a good standard of general ventilation. Drain down systems and transfer lines prior to breaking containment. Drain down and flush equipment where possible prior to maintenance.Where there is potential for exposure: Ensure relevant staff are informed of the nature of exposure and aware of basic actions to

	minimise exposures; ensure suitable personal protective equipment is available; clear up spills and dispose of waste in accordance with regulatory requirements; monitor effectiveness of control measures; consider the need for health surveillance; identify and implement corrective actions.
General measures (skin irritants)	Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent / minimise exposures and to report any skin problems that may develop.
General exposures (closed systems)	Handle substance within a closed system
General exposures (open systems)	Wear suitable gloves tested to EN374.
Process sampling	No other specific measures identified
Laboratory activities	No other specific measures identified
bulk closed loading and unloading	Handle substance within a closed system Wear suitable gloves tested to EN374.
bulk open loading and unloading	Wear suitable gloves tested to EN374.
Drum and small package filling	Wear suitable gloves tested to EN374.
Equipment cleaning and maintenance	Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.
Storage	Store substance within a closed system

Vacuum or Hydrocracked Gas Oils and Distillate Fuels exhibits acute inhalation toxicity and is classified R20 (Harmful by inhalation) accordingly. The available data for this adverse effect do not provide quantitative dose-response information, but there exists toxicity data appropriate to allow a qualitative risk characterisation; please see section 2 of the SDS for the necessary / additional RMMs. Vacuum or Hydrocracked Gas Oils and Distillate Fuels exhibits irritation to the skin and is classified R38 (Irritating to skin) accordingly. The available data for this adverse effect do not provide quantitative dose-response information, but there exists toxicity data appropriate to allow a qualitative risk characterisation; please see section 2 of the SDS for the necessary RMMs. Vacuum or Hydrocracked Gas Oils and Distillate Fuels is classified R65 (Harmful: may cause lung damage if swallowed). The available data for this adverse effect do not provide quantitative dose-response information for a D(M)NEL to be derived. Instead, the toxicity data triggers a qualitative risk characterisation and the RMMs in section 2 of the SDS aims to define the appropriate RMMs necessary to protect from this adverse effect. There is limited evidence of carcinogenic effects in Vacuum or Hydrocracked Gas Oils and Distillate Fuels and it is classified R40 (May cause cancer) accordingly. The available data for this adverse effect do not provide quantitative dose-response information for a D(M)NEL to be derived. Instead, the toxicity data triggers a qualitative risk characterisation and the RMMs in section 2 of the SDS aim to define the appropriate RMMs necessary to protect from these adverse effects.

2.2 Control of environmental exposure

Product characteristics
Substance is complex UVCB. Predominantly hydrophobic.

Amounts used	
Fraction of EU tonnage used in region	0.1
Regional use tonnage (tonnes/year)	2.8e7
Fraction of regional tonnage used locally	0.002

Frequency and duration of use
Continuous release.

Emission days (days/year)	300
Environmental 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)	1.0e-3
Release fraction to wastewater from process (initial release prior to RMM)	1.0e-6
Release fraction to soil from process (initial release prior to RMM)	0.00001

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

Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil
Risk from environmental exposure is driven by freshwater sediment. Prevent discharge of undissolved substance to or recover from onsite wastewater.

Treat air emission to provide a typical removal efficiency of (%):	90
Treat onsite wastewater (prior to receiving water discharge) to provide the required removal efficiency >= (%):	9.6

If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of >= (%):	0
Organisation measures to prevent/limit release from site Prevent discharge of undissolved substance to or recover from onsite wastewater. Do not apply industrial sludge to natural soils. Sludge should be incinerated, contained or reclaimed.	
Conditions and measures related to municipal sewage treatment plant	
Estimated substance removal from wastewater via domestic sewage treatment (%):	94.1
Total efficiency of removal from wastewater after onsite and offsite (domestic treatment plant) RMMs (%):	94.1
Maximum allowable site tonnage (Msafe) based on release following total wastewater treatment removal (kg/d):	4.1e5
Assumed domestic sewage treatment plant flow (m^3/d):	2000
Conditions and measures related to external treatment of waste for disposal	
This substance is consumed during use and no waste of the substance is generated.	
Conditions and measures related to external recovery of waste	
This substance is consumed during use and no waste of the substance is generated.	
Section 3 Exposure Estimation	
3.1 Health	
The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.	
3.2 Environment	
The Hydrocarbon Block Method has been used to calculate environmental exposure with the Petrorisk model.	
Section 4 Guidance to check compliance with the Exposure Scenario	
4.1 Health	
Predicted exposures are not expected to exceed the DN(M)EL when the risk management measures/operational conditions outlined in section 2 are implemented. Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels. Available hazard data does not enable the derivation of a DNEL for dermal irritant effects. Available hazard data does not support the need for a DNEL to be established for other health effects. Risk management measures are based on qualitative risk characterization.	
4.2 Environment	
Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures. Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination. Required removal efficiency for air can be achieved using on-site technologies, either alone or in combination. Further details on scaling and control technologies are provided in SpERC factsheet (https://cefic.org/app/uploads/2019/01/SPERCs-Specific-Envirnonmental-Release-Classes-REACHImpl-ES-CSA-CSR.pdf).	

4. Formulation & (Re)packing of substance - Industrial

Section 1 Exposure Scenario Vacuum or Hydrocracked Gas Oils and Distillate Fuels	
Title	Formulation & (re)packing of substances and mixtures
Use Descriptor	
Sector(s) of use	3, 10
Process category(ies)	1, 2, 3, 4, 5, 8a, 8b, 9, 14, 15
Environmental release category(ies)	2
Specific Environmental Release Category	ESVOC SpERC 2.2.v1
Processes, tasks, activities covered	
Formulation, packing and re-packing of the substance and its mixtures in batch or continuous operations, including storage, materials transfers, mixing, tableting, compression, pelletisation, extrusion, large and small scale packing, sampling, maintenance and associated laboratory activities.	
Section 2 Operational conditions and risk management measures	
2.1 Control of worker exposure	
Product characteristics	
Physical form of product	Liquid, vapour pressure < 0.5 kPa at STP
Concentration of substance in product	Covers percentage substance in the product up to 100 % (unless stated differently).
Frequency and duration of use	Covers daily exposures up to 8 hours (unless stated differently)
Other operational conditions affecting exposure	Assumes use at not more than 20°C above ambient temperature, unless stated differently. Assumes a good basic standard of occupational hygiene is implemented.

Contributing Scenarios / Product Category	Specific Risk Management Measures & Operating Conditions
General measures applicable to all activities	Control any potential exposure using measures such as contained or enclosed systems, properly designed and maintained facilities and a good standard of general ventilation. Drain down systems and transfer lines prior to breaking containment. Drain down and flush equipment where possible prior to maintenance.Where there is potential for exposure: Ensure relevant staff are informed of the nature of exposure and aware of basic actions to minimise exposures; ensure suitable personal protective equipment is available; clear up spills and dispose of waste in accordance with regulatory requirements; monitor effectiveness of control measures; consider the need for health surveillance; identify and implement corrective actions.
General measures (skin irritants)	Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent / minimise exposures and to report any skin problems that may develop.
General exposures (closed systems)	Handle substance within a closed system
General exposures (open systems)	Wear suitable gloves tested to EN374.
Process sampling	No other specific measures identified
Drum/batch transfers	Use drum pumps or carefully pour from container Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.
Bulk transfers	Handle substance within a closed system Wear suitable gloves tested to EN374.
Mixing operations (open systems)	Provide extract ventilation to points where emissions occur Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.
Production or preparation or articles by tabletting, compression, extrusion or pelletisation	Wear suitable gloves tested to EN374.
Drum/batch transfers	Wear suitable gloves tested to EN374.
Laboratory activities	No other specific measures identified
Equipment cleaning and maintenance	Drain down system prior to equipment break-in or maintenance Wear suitable gloves tested to EN374.
Storage	Store substance within a closed system

Vacuum or Hydrocracked Gas Oils and Distillate Fuels exhibits acute inhalation toxicity and is classified R20 (Harmful by inhalation) accordingly. The available data for this adverse effect do not provide quantitative dose-response information, but there exists toxicity data appropriate to allow a qualitative risk characterisation; please see section 2 of the SDS for the necessary / additional RMMs. Vacuum or Hydrocracked Gas Oils and Distillate Fuels exhibits irritation to the skin and is classified R38 (Irritating to skin) accordingly. The available data for this adverse effect do not provide quantitative dose-response information, but there exists toxicity data appropriate to allow a qualitative risk characterisation; please see section 2 of the SDS for the necessary RMMs. Vacuum or Hydrocracked Gas Oils and Distillate Fuels is classified R65 (Harmful: may cause lung damage if swallowed). The available data for this adverse effect do not provide quantitative dose-response information for a D(M)NEL to be derived. Instead, the toxicity data triggers a qualitative risk characterisation and the RMMs in section 2 of the SDS aims to define the appropriate RMMs necessary to protect from this adverse effect. There is limited evidence of carcinogenic effects in Vacuum or Hydrocracked Gas Oils and Distillate Fuels and it is classified R40 (May cause cancer) accordingly. The available data for this adverse effect do not provide quantitative dose-response information for a D(M)NEL to be derived. Instead, the toxicity data triggers a qualitative risk characterisation and the RMMs in section 2 of the SDS aim to define the appropriate RMMs necessary to protect from these adverse effects.

2.2 Control of environmental exposure

Product characteristics

Substance is complex UVCB. Predominantly hydrophobic.

Amounts used

Fraction of EU tonnage used in region	0.1
Regional use tonnage (tonnes/year)	2.8e7
Fraction of regional tonnage used locally	0.0011

Frequency and duration of use

Continuous release.	
Emission days (days/year)	300
Environmental 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)	1.0e-2
Release fraction to wastewater from process (initial release prior to RMM)	2.0e-5
Release fraction to soil from process (initial release prior to RMM)	0.0001
Technical conditions and measures at process level (source) to prevent release Common practices vary across sites thus conservative process release estimates used.	
Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil Risk from environmental exposure is driven by freshwater sediment. Prevent discharge of undissolved substance to or recover from onsite wastewater.	
Treat air emission to provide a typical removal efficiency of (%):	0
Treat onsite wastewater (prior to receiving water discharge) to provide the required removal efficiency >= (%):	60.0
If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of >= (%):	0
Organisation measures to prevent/limit release from site Prevent discharge of undissolved substance to or recover from onsite wastewater. Do not apply industrial sludge to natural soils. Sludge should be incinerated, contained or reclaimed.	
Conditions and measures related to municipal sewage treatment plant	
Estimated substance removal from wastewater via domestic sewage treatment (%):	91.1
Total efficiency of removal from wastewater after onsite and offsite (domestic treatment plant) RMMs (%):	94.1
Maximum allowable site tonnage (Msafe) based on release following total wastewater treatment removal (kg/d):	6.8e5
Assumed domestic sewage treatment plant flow (m^3/d):	2000
Conditions and measures related to external treatment of waste for disposal	
External treatment and disposal of waste should comply with applicable local and/or national regulations.	
Conditions and measures related to external recovery of waste	
External recovery and recycling of waste should comply with applicable local and/or national regulations.	
Section 3 Exposure Estimation	
3.1 Health	
The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.	
3.2 Environment	
The Hydrocarbon Block Method has been used to calculate environmental exposure with the Petrorisk model.	
Section 4 Guidance to check compliance with the Exposure Scenario	
4.1 Health	
Predicted exposures are not expected to exceed the DN(M)EL when the risk management measures/operational conditions outlined in section 2 are implemented. Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels. Available hazard data does not enable the derivation of a DNEL for dermal irritant effects. Available hazard data does not support the need for a DNEL to be established for other health effects. Risk management measures are based on qualitative risk characterization.	
4.2 Environment	
Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures. Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination. Required removal efficiency for air can be achieved using on-site technologies, either alone or in combination. Further details on scaling and control technologies are provided in SpERC factsheet (https://cefic.org/app/uploads/2019/01/SPERCs-Specific-Envirnonmental-Release-Classes-REACHImpl-ES-CSA-CSR.pdf).	

5. Use of substance in Metal working fluids / rolling oils - Industrial

Section 1 Exposure Scenario Vacuum or Hydrocracked Gas Oils and Distillate Fuels	
Title	Metal working fluids / rolling oils
Use Descriptor	
Sector(s) of use	3
Process category(ies)	1, 2, 3, 4, 5, 7, 8a, 8b, 9, 10, 13, 17

Environmental release category(ies)	4
Specific Environmental Release Category	ESVOC SpERC 4.7a.v1
Processes, tasks, activities covered	
Covers the use in formulated MWFs/rolling oils including transfer operations, rolling and annealing activities, cutting/machining activities, automated and manual application of corrosion protections (including brushing, dipping and spraying), equipment maintenance, draining and disposal of waste oils.	
Section 2 Operational conditions and risk management measures	
2.1 Control of worker exposure	
Product characteristics	
Physical form of product	Liquid, vapour pressure < 0.5 kPa at STP
Concentration of substance in product	Covers percentage substance in the product up to 100 % (unless stated differently).
Frequency and duration of use	Covers daily exposures up to 8 hours (unless stated differently)
Other operational conditions affecting exposure	Assumes use at not more than 20°C above ambient temperature, unless stated differently. Assumes a good basic standard of occupational hygiene is implemented.

Contributing Scenarios / Product Category	**Specific Risk Management Measures & Operating Conditions**
General measures applicable to all activities	Control any potential exposure using measures such as contained or enclosed systems, properly designed and maintained facilities and a good standard of general ventilation. Drain down systems and transfer lines prior to breaking containment. Drain down and flush equipment where possible prior to maintenance.Where there is potential for exposure: Ensure relevant staff are informed of the nature of exposure and aware of basic actions to minimise exposures; ensure suitable personal protective equipment is available; clear up spills and dispose of waste in accordance with regulatory requirements; monitor effectiveness of control measures; consider the need for health surveillance; identify and implement corrective actions.
General measures (skin irritants)	Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent / minimise exposures and to report any skin problems that may develop.
General exposures (closed systems)	Handle substance within a closed system
General exposures (open systems)	Provide extract ventilation to points where emissions occur
Bulk transfers	Handle substance within a closed system Wear suitable gloves tested to EN374.
Filling / preparation of equipment from drums or containers	Wear suitable gloves tested to EN374.
Process sampling	No other specific measures identified
Metal machining operations	Minimise exposure by partial enclosure of the operation or equipment and provide extract ventilation at openings.
Treatment by dipping and pouring	Wear suitable gloves tested to EN374.
Spraying	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) Wear suitable gloves (tested to EN374), coverall and eye protection.
Manual Roller, spreader, flow application	Wear chemically resistant gloves (tested to EN374) in combination with specific activity training.
Automated metal rolling/forming	Handle substance within a predominantly closed system provided with extract ventilation
Semi-automated metal rolling/forming	Provide extract ventilation to points where emissions occur
Equipment cleaning and maintenance	Drain down and flush system prior to equipment break-in or maintenance Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.
Storage	Store substance within a closed system

Vacuum or Hydrocracked Gas Oils and Distillate Fuels exhibits acute inhalation toxicity and is classified R20 (Harmful by inhalation) accordingly. The available data for this adverse effect do not provide quantitative dose-response information, but there exists toxicity data appropriate to allow a qualitative risk characterisation; please see section 2 of the SDS for the necessary / additional RMMs. Vacuum or Hydrocracked Gas Oils and Distillate Fuels exhibits irritation to the skin and is classified R38 (Irritating to skin) accordingly. The available data for this adverse effect do not provide quantitative dose-response information, but there exists toxicity data appropriate to allow a qualitative risk characterisation; please see section 2 of the SDS for the necessary RMMs. Vacuum or Hydrocracked Gas Oils and Distillate Fuels is classified R65 (Harmful: may cause lung damage if swallowed). The available data for this adverse effect do not provide quantitative dose-response information for a D(M)NEL to be derived. Instead, the toxicity data triggers a qualitative risk characterisation and the RMMs in section 2 of the SDS aims to define the appropriate RMMs necessary to protect from this adverse effect. There is limited evidence of carcinogenic effects in Vacuum or Hydrocracked Gas Oils and Distillate Fuels and it is classified R40 (May cause cancer) accordingly. The available data for this adverse effect do not provide quantitative dose-response information for a D(M)NEL to be derived. Instead, the toxicity data triggers a qualitative risk characterisation and the RMMs in section 2 of the SDS aim to define the appropriate RMMs necessary to protect from these adverse effects.

2.2 Control of environmental exposure

Product characteristics
Substance is complex UVCB. Predominantly hydrophobic.

Amounts used	
Fraction of EU tonnage used in region	0.1
Regional use tonnage (tonnes/year)	1.0e4
Fraction of regional tonnage used locally	0.01

Frequency and duration of use
Continuous release.

Emission days (days/year)	20
Environmental 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)	0.02
Release fraction to wastewater from process (initial release prior to RMM)	3.0e-6
Release fraction to soil from process (initial release prior to RMM)	0

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

Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil
Risk from environmental exposure is driven by freshwater sediment. If discharging to domestic sewage treatment plant, no onsite wastewater treatment required.

Treat air emission to provide a typical removal efficiency of (%):	70
Treat onsite wastewater (prior to receiving water discharge) to provide the required removal efficiency >= (%):	8.3
If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of >= (%):	0

Organisation measures to prevent/limit release from site
Prevent discharge of undissolved substance to or recover from onsite wastewater. Do not apply industrial sludge to natural soils. Sludge should be incinerated, contained or reclaimed.

Conditions and measures related to municipal sewage treatment plant

Estimated substance removal from wastewater via domestic sewage treatment (%):	94.1
Total efficiency of removal from wastewater after onsite and offsite (domestic treatment plant) RMMs (%):	94.1
Maximum allowable site tonnage (Msafe) based on release following total wastewater treatment removal (kg/d):	7.8e4
Assumed domestic sewage treatment plant flow (m^3/d):	2000

Conditions and measures related to external treatment of waste for disposal
External treatment and disposal of waste should comply with applicable local and/or national regulations.

Conditions and measures related to external recovery of waste
External recovery and recycling of waste should comply with applicable local and/or national regulations.

Section 3 Exposure Estimation

3.1 Health
The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.

3.2 Environment
The Hydrocarbon Block Method has been used to calculate environmental exposure with the Petrorisk model.

Section 4 Guidance to check compliance with the Exposure Scenario

4.1 Health
Predicted exposures are not expected to exceed the DN(M)EL when the risk management measures/operational conditions outlined in section 2 are implemented. Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels. Available hazard data does not enable the derivation of a DNEL for dermal irritant effects. Available hazard data does not support the need for a DNEL to be established for other health effects. Risk management measures are based on qualitative risk characterization.
4.2 Environment
Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures. Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination. Required removal efficiency for air can be achieved using on-site technologies, either alone or in combination. Further details on scaling and control technologies are provided in SpERC factsheet (https://cefic.org/app/uploads/2019/01/SPERCs-Specific-Envirnonmental-Release-Classes-REACHImpl-ES-CSA-CSR.pdf).

6. Use of substance as Release agents or binders - Industrial

Section 1 Exposure Scenario Vacuum or Hydrocracked Gas Oils and Distillate Fuels	
Title	Use as binders and release agents
Use Descriptor	
Sector(s) of use	3
Process category(ies)	1, 2, 3, 4, 6, 7, 8b, 10, 13, 14
Environmental release category(ies)	4
Specific Environmental Release Category	ESVOC SpERC 4.10a.v1
Processes, tasks, activities covered	
Covers the use as binders and release agents including material transfers, mixing, application (including spraying and brushing), mold forming and casting, and handling of waste.	
Section 2 Operational conditions and risk management measures	
2.1 Control of worker exposure	
Product characteristics	
Physical form of product	Liquid, vapour pressure < 0.5 kPa at STP
Concentration of substance in product	Covers percentage substance in the product up to 100 % (unless stated differently).
Frequency and duration of use	Covers daily exposures up to 8 hours (unless stated differently)
Other operational conditions affecting exposure	Assumes use at not more than 20°C above ambient temperature, unless stated differently. Assumes a good basic standard of occupational hygiene is implemented.

Contributing Scenarios / Product Category	**Specific Risk Management Measures & Operating Conditions**
General measures applicable to all activities	Control any potential exposure using measures such as contained or enclosed systems, properly designed and maintained facilities and a good standard of general ventilation. Drain down systems and transfer lines prior to breaking containment. Drain down and flush equipment where possible prior to maintenance.Where there is potential for exposure: Ensure relevant staff are informed of the nature of exposure and aware of basic actions to minimise exposures; ensure suitable personal protective equipment is available; clear up spills and dispose of waste in accordance with regulatory requirements; monitor effectiveness of control measures; consider the need for health surveillance; identify and implement corrective actions.
General measures (skin irritants)	Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent / minimise exposures and to report any skin problems that may develop. Other skin protection measures such as impervious suits and face shields may be required during high dispersion activities which are

	likely to lead to substantial aerosol release, e.g. spraying
Bulk transfers	Handle substance within a closed system
Drum/batch transfers	Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.
Mixing operations (closed systems)	No other specific measures identified
Mixing operations (open systems)	Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.
Mould forming	Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.
Casting operations (open systems)	Minimise exposure by partial enclosure of the operation or equipment and provide extract ventilation at openings. Wear suitable gloves tested to EN374.
Machine Spraying	Minimise exposure by extracted full enclosure for the operation or equipment. Wear suitable gloves tested to EN374.
Manual Spraying	Wear a full face respirator conforming to EN140 with Type A/P2 filter or better. Wear suitable gloves (tested to EN374), coverall and eye protection. Ensure operatives are trained to minimise exposures.
Manual Roller, spreader, flow application	Wear chemically resistant gloves (tested to EN374) in combination with specific activity training.
Equipment cleaning and maintenance	Drain down system prior to equipment break-in or maintenance Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.
Storage	Store substance within a closed system

Vacuum or Hydrocracked Gas Oils and Distillate Fuels exhibits acute inhalation toxicity and is classified R20 (Harmful by inhalation) accordingly. The available data for this adverse effect do not provide quantitative dose-response information, but there exists toxicity data appropriate to allow a qualitative risk characterisation; please see section 2 of the SDS for the necessary / additional RMMs. Vacuum or Hydrocracked Gas Oils and Distillate Fuels exhibits irritation to the skin and is classified R38 (Irritating to skin) accordingly. The available data for this adverse effect do not provide quantitative dose-response information, but there exists toxicity data appropriate to allow a qualitative risk characterisation; please see section 2 of the SDS for the necessary RMMs. Vacuum or Hydrocracked Gas Oils and Distillate Fuels is classified R65 (Harmful: may cause lung damage if swallowed). The available data for this adverse effect do not provide quantitative dose-response information for a D(M)NEL to be derived. Instead, the toxicity data triggers a qualitative risk characterisation and the RMMs in section 2 of the SDS aims to define the appropriate RMMs necessary to protect from this adverse effect. There is limited evidence of carcinogenic effects in Vacuum or Hydrocracked Gas Oils and Distillate Fuels and it is classified R40 (May cause cancer) accordingly. The available data for this adverse effect do not provide quantitative dose-response information for a D(M)NEL to be derived. Instead, the toxicity data triggers a qualitative risk characterisation and the RMMs in section 2 of the SDS aim to define the appropriate RMMs necessary to protect from these adverse effects.

2.2 Control of environmental exposure

Product characteristics
Substance is complex UVCB. Predominantly hydrophobic.

Amounts used	
Fraction of EU tonnage used in region	0.1
Regional use tonnage (tonnes/year)	1.4e4
Fraction of regional tonnage used locally	0.18

Frequency and duration of use
Continuous release.

Emission days (days/year)	100
Environmental 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)	1.0
Release fraction to wastewater from process (initial release prior to RMM)	3.0e-7
Release fraction to soil from process (initial release prior to RMM)	0

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

Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil
Risk from environmental exposure is driven by freshwater sediment. If discharging to domestic sewage treatment plant, no onsite wastewater treatment required.

Treat air emission to provide a typical removal efficiency of (%):	80
Treat onsite wastewater (prior to receiving water discharge) to provide the required removal	59.2

efficiency >= (%):	
If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of >= (%):	0
Organisation measures to prevent/limit release from site Prevent discharge of undissolved substance to or recover from onsite wastewater. Do not apply industrial sludge to natural soils. Sludge should be incinerated, contained or reclaimed.	
Conditions and measures related to municipal sewage treatment plant	
Estimated substance removal from wastewater via domestic sewage treatment (%):	94.1
Total efficiency of removal from wastewater after onsite and offsite (domestic treatment plant) RMMs (%):	94.1
Maximum allowable site tonnage (Msafe) based on release following total wastewater treatment removal (kg/d):	1.7e5
Assumed domestic sewage treatment plant flow (m³/d):	2000
Conditions and measures related to external treatment of waste for disposal	
External treatment and disposal of waste should comply with applicable local and/or national regulations.	
Conditions and measures related to external recovery of waste	
External recovery and recycling of waste should comply with applicable local and/or national regulations.	
Section 3 Exposure Estimation	
3.1 Health	
The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.	
3.2 Environment	
The Hydrocarbon Block Method has been used to calculate environmental exposure with the Petrorisk model.	
Section 4 Guidance to check compliance with the Exposure Scenario	
4.1 Health	
Predicted exposures are not expected to exceed the DN(M)EL when the risk management measures/operational conditions outlined in section 2 are implemented. Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels. Available hazard data does not enable the derivation of a DNEL for dermal irritant effects. Available hazard data does not support the need for a DNEL to be established for other health effects. Risk management measures are based on qualitative risk characterization.	
4.2 Environment	
Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures. Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination. Required removal efficiency for air can be achieved using on-site technologies, either alone or in combination. Further details on scaling and control technologies are provided in SpERC factsheet (https://cefic.org/app/uploads/2019/01/SPERCs-Specific-Envirnonmental-Release-Classes-REACHImpl-ES-CSA-CSR.pdf).	

7. Use of substance as Release agents or binders - Professional

Section 1 Exposure Scenario Vacuum or Hydrocracked Gas Oils and Distillate Fuels	
Title	Use as binders and release agents
Use Descriptor	
Sector(s) of use	22
Process category(ies)	1, 2, 3, 4, 6, 8a, 8b, 10, 11, 14
Environmental release category(ies)	8a, 8d
Specific Environmental Release Category	ESVOC SpERC 8.10b.v1
Processes, tasks, activities covered	
Covers the use as binders and release agents including material transfers, mixing, application by spraying, brushing, and handling of waste.	
Section 2 Operational conditions and risk management measures	
2.1 Control of worker exposure	
Product characteristics	
Physical form of product	Liquid, vapour pressure < 0.5 kPa at STP
Concentration of substance in product	Covers percentage substance in the product up to 100 % (unless stated differently).
Frequency and duration of use	Covers daily exposures up to 8 hours (unless stated differently)
Other operational conditions affecting exposure	Assumes use at not more than 20°C above ambient temperature, unless stated differently. Assumes a good basic standard of occupational hygiene is implemented.

Contributing Scenarios / Product Category	Specific Risk Management Measures & Operating Conditions
General measures applicable to all activities	Control any potential exposure using measures such as contained or enclosed systems, properly designed and maintained facilities and a good standard of general ventilation. Drain down systems and transfer lines prior to breaking containment. Drain down and flush equipment where possible prior to maintenance.Where there is potential for exposure: Ensure relevant staff are informed of the nature of exposure and aware of basic actions to minimise exposures; ensure suitable personal protective equipment is available; clear up spills and dispose of waste in accordance with regulatory requirements; monitor effectiveness of control measures; consider the need for health surveillance; identify and implement corrective actions.
General measures (skin irritants)	Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent / minimise exposures and to report any skin problems that may develop. Other skin protection measures such as impervious suits and face shields may be required during high dispersion activities which are likely to lead to substantial aerosol release, e.g. spraying
Material transfers (closed systems)	No other specific measures identified
Drum/batch transfers	Wear suitable gloves tested to EN374.
Mixing operations (closed systems)	No other specific measures identified
Mixing operations (open systems)	Wear suitable gloves tested to EN374.
Mould forming	Provide extract ventilation to points where emissions occur Wear suitable gloves tested to EN374.
Casting operations with local exhaust ventilation	Provide extract ventilation to points where emissions occur Wear suitable gloves tested to EN374.
Casting operations without local exhaust ventilation	Wear a respirator conforming to EN140 with Type A/P2 filter or better. Wear suitable gloves (tested to EN374), coverall and eye protection.
Spraying Manual without local exhaust ventilation	Carry out in a vented booth or extracted enclosure Wear suitable gloves (tested to EN374), coverall and eye protection. Ensure operatives are trained to minimise exposures.
Spraying Manual without local exhaust ventilation	Wear a full face respirator conforming to EN140 with Type A/P2 filter or better. Wear suitable gloves (tested to EN374), coverall and eye protection. Ensure operatives are trained to minimise exposures.
Manual Roller, spreader, flow application	Wear chemically resistant gloves (tested to EN374) in combination with specific activity training.
Equipment cleaning and maintenance	Drain down system prior to equipment break-in or maintenance Wear chemically resistant gloves (tested to EN374) in combination with ‘basic’ employee training.
Storage	Store substance within a closed system
Vacuum or Hydrocracked Gas Oils and Distillate Fuels exhibits acute inhalation toxicity and is classified R20 (Harmful by inhalation) accordingly. The available data for this adverse effect do not provide quantitative dose-response information, but there exists toxicity data appropriate to allow a qualitative risk characterisation; please see section 2 of the SDS for the necessary / additional RMMs. Vacuum or Hydrocracked Gas Oils and Distillate Fuels exhibits irritation to the skin and is classified R38 (Irritating to skin) accordingly. The available data for this adverse effect do not provide quantitative dose-response information, but there exists toxicity data appropriate to allow a qualitative risk characterisation; please see section 2 of the SDS for the necessary RMMs. Vacuum or Hydrocracked Gas Oils and Distillate Fuels is classified R65 (Harmful: may cause lung damage if swallowed). The available data for this adverse effect do not provide quantitative dose-response information for a D(M)NEL to be derived. Instead, the toxicity data triggers a qualitative risk characterisation and the RMMs in section 2 of the SDS aims to define the appropriate RMMs necessary to protect from this adverse effect. There is limited evidence of carcinogenic effects in Vacuum or Hydrocracked Gas Oils and Distillate Fuels and it is classified R40 (May cause cancer) accordingly. The available data for this adverse effect do not provide quantitative dose-response information for a D(M)NEL to be derived. Instead, the toxicity data triggers a qualitative risk characterisation and the RMMs in section 2 of the SDS aim to define the appropriate RMMs necessary to	

protect from these adverse effects.	
2.2 Control of environmental exposure	
Product characteristics Substance is complex UVCB. Predominantly hydrophobic.	
Amounts used	
Fraction of EU tonnage used in region	0.1
Regional use tonnage (tonnes/year)	2.9e3
Fraction of regional tonnage used locally	0.0005
Frequency and duration of use Continuous release.	
Emission days (days/year)	365
Environmental 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)	0.95
Release fraction to wastewater from process (initial release prior to RMM)	0.025
Release fraction to soil from process (initial release prior to RMM)	0.025
Technical conditions and measures at process level (source) to prevent release Common practices vary across sites thus conservative process release estimates used.	
Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil Risk from environmental exposure is driven by freshwater sediment. If discharging to domestic sewage treatment plant, no onsite wastewater treatment required.	
Treat air emission to provide a typical removal efficiency of (%):	N/A
Treat onsite wastewater (prior to receiving water discharge) to provide the required removal efficiency >= (%):	8.3
If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of >= (%):	0
Organisation measures to prevent/limit release from site Do not apply industrial sludge to natural soils. Sludge should be incinerated, contained or reclaimed.	
Conditions and measures related to municipal sewage treatment plant	
Estimated substance removal from wastewater via domestic sewage treatment (%):	94.1
Total efficiency of removal from wastewater after onsite and offsite (domestic treatment plant) RMMs (%):	94.1
Maximum allowable site tonnage (Msafe) based on release following total wastewater treatment removal (kg/d):	6.2e1
Assumed domestic sewage treatment plant flow (m^3/d):	2000
Conditions and measures related to external treatment of waste for disposal	
External treatment and disposal of waste should comply with applicable local and/or national regulations.	
Conditions and measures related to external recovery of waste	
External recovery and recycling of waste should comply with applicable local and/or national regulations.	
Section 3 Exposure Estimation	
3.1 Health	
The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.	
3.2 Environment	
The Hydrocarbon Block Method has been used to calculate environmental exposure with the Petrorisk model.	
Section 4 Guidance to check compliance with the Exposure Scenario	
4.1 Health	
Predicted exposures are not expected to exceed the DN(M)EL when the risk management measures/operational conditions outlined in section 2 are implemented. Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels. Available hazard data does not enable the derivation of a DNEL for dermal irritant effects. Available hazard data does not support the need for a DNEL to be established for other health effects. Risk management measures are based on qualitative risk characterization.	
4.2 Environment	
Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures. Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination. Required removal efficiency for air can be achieved using on-site technologies, either alone or in combination. Further details on scaling and control technologies are provided in SpERC factsheet (https://cefic.org/app/uploads/2019/01/SPERCs-Specific-Envirnonmental-Release-Classes-REACHImpl-ES-CSA-CSR.pdf).	

8. Use of substance as a Fuel - Industrial

Section 1 Exposure Scenario Vacuum or Hydrocracked Gas Oils and Distillate Fuels	
Title	Use as a fuel
Use Descriptor	
Sector(s) of use	3
Process category(ies)	1, 2, 3, 8a, 8b, 16
Environmental release category(ies)	7
Specific Environmental Release Category	ESVOC SpERC 7.12a.v1
Processes, tasks, activities covered	
Covers the use as a fuel (or fuel additive) and includes activities associated with its transfer, use, equipment maintenance and handling of waste.	
Section 2 Operational conditions and risk management measures	
2.1 Control of worker exposure	
Product characteristics	
Physical form of product	Liquid, vapour pressure < 0.5 kPa at STP
Concentration of substance in product	Covers percentage substance in the product up to 100 % (unless stated differently).
Frequency and duration of use	Covers daily exposures up to 8 hours (unless stated differently)
Other operational conditions affecting exposure	Assumes use at not more than 20°C above ambient temperature, unless stated differently. Assumes a good basic standard of occupational hygiene is implemented.

Contributing Scenarios / Product Category	**Specific Risk Management Measures & Operating Conditions**
General measures applicable to all activities	Control any potential exposure using measures such as contained or enclosed systems, properly designed and maintained facilities and a good standard of general ventilation. Drain down systems and transfer lines prior to breaking containment. Drain down and flush equipment where possible prior to maintenance.Where there is potential for exposure: Ensure relevant staff are informed of the nature of exposure and aware of basic actions to minimise exposures; ensure suitable personal protective equipment is available; clear up spills and dispose of waste in accordance with regulatory requirements; monitor effectiveness of control measures; consider the need for health surveillance; identify and implement corrective actions.
General measures (skin irritants)	Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent / minimise exposures and to report any skin problems that may develop.
Bulk transfers	Wear suitable gloves tested to EN374.
Drum/batch transfers	Wear suitable gloves tested to EN374.
Use as a fuel (closed systems)	No other specific measures identified
Equipment cleaning and maintenance	Drain down system prior to equipment break-in or maintenance Wear chemically resistant gloves (tested to EN374) in combination with ‘basic’ employee training.
Storage	Store substance within a closed system

Vacuum or Hydrocracked Gas Oils and Distillate Fuels exhibits acute inhalation toxicity and is classified R20 (Harmful by inhalation) accordingly. The available data for this adverse effect do not provide quantitative dose-response information, but there exists toxicity data appropriate to allow a qualitative risk characterisation; please see section 2 of the SDS for the necessary / additional RMMs. Vacuum or Hydrocracked Gas Oils and Distillate Fuels exhibits irritation to the skin and is classified R38 (Irritating to skin) accordingly. The available data for this adverse effect do not provide quantitative dose-response information, but there exists toxicity data appropriate to allow a qualitative risk characterisation; please see section 2 of the SDS for the necessary RMMs. Vacuum or Hydrocracked Gas Oils and Distillate Fuels is classified R65 (Harmful: may cause lung damage if swallowed). The available data for this adverse effect do not provide quantitative dose-response information for a D(M)NEL to be derived.

Instead, the toxicity data triggers a qualitative risk characterisation and the RMMs in section 2 of the SDS aims to define the appropriate RMMs necessary to protect from this adverse effect. There is limited evidence of carcinogenic effects in Vacuum or Hydrocracked Gas Oils and Distillate Fuels and it is classified R40 (May cause cancer) accordingly. The available data for this adverse effect do not provide quantitative dose-response information for a D(M)NEL to be derived. Instead, the toxicity data triggers a qualitative risk characterisation and the RMMs in section 2 of the SDS aim to define the appropriate RMMs necessary to protect from these adverse effects.	
2.2 Control of environmental exposure	
Product characteristics Substance is complex UVCB. Predominantly hydrophobic.	
Amounts used	
Fraction of EU tonnage used in region	0.1
Regional use tonnage (tonnes/year)	4.5e6
Fraction of regional tonnage used locally	0.34
Frequency and duration of use Continuous release.	
Emission days (days/year)	300
Environmental 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)	5.0e-3
Release fraction to wastewater from process (initial release prior to RMM)	0.00001
Release fraction to soil from process (initial release prior to RMM)	0
Technical conditions and measures at process level (source) to prevent release Common practices vary across sites thus conservative process release estimates used.	
Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil Risk from environmental exposure is driven by freshwater sediment. If discharging to domestic sewage treatment plant, no onsite wastewater treatment required.	
Treat air emission to provide a typical removal efficiency of (%):	95
Treat onsite wastewater (prior to receiving water discharge) to provide the required removal efficiency >= (%):	97.7
If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of >= (%):	60.4
Organisation measures to prevent/limit release from site Prevent discharge of undissolved substance to or recover from onsite wastewater. Do not apply industrial sludge to natural soils. Sludge should be incinerated, contained or reclaimed.	
Conditions and measures related to municipal sewage treatment plant	
Estimated substance removal from wastewater via domestic sewage treatment (%):	94.1
Total efficiency of removal from wastewater after onsite and offsite (domestic treatment plant) RMMs (%):	97.7
Maximum allowable site tonnage (Msafe) based on release following total wastewater treatment removal (kg/d):	5.5e6
Assumed domestic sewage treatment plant flow (m^3/d):	2000
Conditions and measures related to external treatment of waste for disposal	
Combustion emissions considered in regional exposure assessment.	
Conditions and measures related to external recovery of waste	
External recovery and recycling of waste should comply with applicable local and/or national regulations.	
Section 3 Exposure Estimation	
3.1 Health	
The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.	
3.2 Environment	
The Hydrocarbon Block Method has been used to calculate environmental exposure with the Petrorisk model.	
Section 4 Guidance to check compliance with the Exposure Scenario	
4.1 Health	
Predicted exposures are not expected to exceed the DN(M)EL when the risk management measures/operational conditions outlined in section 2 are implemented. Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels. Available hazard data does not enable the derivation of a DNEL for dermal irritant effects. Available hazard data does not support the need for a DNEL to be established for other health effects. Risk management measures are based on qualitative risk characterization.	
4.2 Environment	
Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to	

define appropriate site-specific risk management measures. Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination. Required removal efficiency for air can be achieved using on-site technologies, either alone or in combination. Further details on scaling and control technologies are provided in SpERC factsheet (https://cefic.org/app/uploads/2019/01/SPERCs-Specific-Envirnonmental-Release-Classes-REACHImpl-ES-CSA-CSR.pdf).

9. Use of substance as a Fuel - Professional

Section 1 Exposure Scenario Vacuum or Hydrocracked Gas Oils and Distillate Fuels	
Title	Use as a fuel
Use Descriptor	
Sector(s) of use	22
Process category(ies)	1, 2, 3, 8a, 8b, 16
Environmental release category(ies)	9a, 9b
Specific Environmental Release Category	ESVOC SpERC 9.12b.v1
Processes, tasks, activities covered	
Covers the use as a fuel (or fuel additive) and includes activities associated with its transfer, use, equipment maintenance and handling of waste.	
Section 2 Operational conditions and risk management measures	
2.1 Control of worker exposure	
Product characteristics	
Physical form of product	Liquid, vapour pressure < 0.5 kPa at STP
Concentration of substance in product	Covers percentage substance in the product up to 100 % (unless stated differently).
Frequency and duration of use	Covers daily exposures up to 8 hours (unless stated differently)
Other operational conditions affecting exposure	Assumes use at not more than 20°C above ambient temperature, unless stated differently. Assumes a good basic standard of occupational hygiene is implemented.

Contributing Scenarios / Product Category	**Specific Risk Management Measures & Operating Conditions**
General measures applicable to all activities	Control any potential exposure using measures such as contained or enclosed systems, properly designed and maintained facilities and a good standard of general ventilation. Drain down systems and transfer lines prior to breaking containment. Drain down and flush equipment where possible prior to maintenance.Where there is potential for exposure: Ensure relevant staff are informed of the nature of exposure and aware of basic actions to minimise exposures; ensure suitable personal protective equipment is available; clear up spills and dispose of waste in accordance with regulatory requirements; monitor effectiveness of control measures; consider the need for health surveillance; identify and implement corrective actions.
General measures (skin irritants)	Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent / minimise exposures and to report any skin problems that may develop.
Bulk transfers	Wear suitable gloves tested to EN374.
Drum/batch transfers	Use drum pumps or carefully pour from container Wear suitable gloves tested to EN374.
Refuelling	Wear suitable gloves tested to EN374.
Use as a fuel (closed systems)	Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour) or Ensure operation is undertaken outdoors
Equipment cleaning and maintenance	Drain down system prior to equipment break-in or maintenance Wear chemically resistant gloves (tested to EN374) in combination with ‘basic’ employee training.

Storage	Store substance within a closed system

Vacuum or Hydrocracked Gas Oils and Distillate Fuels exhibits acute inhalation toxicity and is classified R20 (Harmful by inhalation) accordingly. The available data for this adverse effect do not provide quantitative dose-response information, but there exists toxicity data appropriate to allow a qualitative risk characterisation; please see section 2 of the SDS for the necessary / additional RMMs. Vacuum or Hydrocracked Gas Oils and Distillate Fuels exhibits irritation to the skin and is classified R38 (Irritating to skin) accordingly. The available data for this adverse effect do not provide quantitative dose-response information, but there exists toxicity data appropriate to allow a qualitative risk characterisation; please see section 2 of the SDS for the necessary RMMs. Vacuum or Hydrocracked Gas Oils and Distillate Fuels is classified R65 (Harmful: may cause lung damage if swallowed). The available data for this adverse effect do not provide quantitative dose-response information for a D(M)NEL to be derived. Instead, the toxicity data triggers a qualitative risk characterisation and the RMMs in section 2 of the SDS aims to define the appropriate RMMs necessary to protect from this adverse effect. There is limited evidence of carcinogenic effects in Vacuum or Hydrocracked Gas Oils and Distillate Fuels and it is classified R40 (May cause cancer) accordingly. The available data for this adverse effect do not provide quantitative dose-response information for a D(M)NEL to be derived. Instead, the toxicity data triggers a qualitative risk characterisation and the RMMs in section 2 of the SDS aim to define the appropriate RMMs necessary to protect from these adverse effects.

2.2 Control of environmental exposure

Product characteristics
Substance is complex UVCB. Predominantly hydrophobic.

Amounts used

Fraction of EU tonnage used in region	0.1
Regional use tonnage (tonnes/year)	6.7e6
Fraction of regional tonnage used locally	0.0005

Frequency and duration of use
Continuous release.

Emission days (days/year)	365

Environmental 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)	1.0e-4
Release fraction to wastewater from process (initial release prior to RMM)	0.00001
Release fraction to soil from process (initial release prior to RMM)	0.00001

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

Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil
Risk from environmental exposure is driven by freshwater sediment. If discharging to domestic sewage treatment plant, no onsite wastewater treatment required.

Treat air emission to provide a typical removal efficiency of (%):	N/A
Treat onsite wastewater (prior to receiving water discharge) to provide the required removal efficiency >= (%):	8.3
If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of >= (%):	0

Organisation measures to prevent/limit release from site
Prevent discharge of undissolved substance to or recover from onsite wastewater. Do not apply industrial sludge to natural soils. Sludge should be incinerated, contained or reclaimed.

Conditions and measures related to municipal sewage treatment plant

Total efficiency of removal from wastewater after onsite and offsite (domestic treatment plant) RMMs (%):	94.1
Maximum allowable site tonnage (Msafe) based on release following total wastewater treatment removal (kg/d):	1.4e5
Assumed domestic sewage treatment plant flow (m^3/d):	2000

Conditions and measures related to external treatment of waste for disposal
Combustion emissions limited by required exhaust emission controls. Combustion emissions considered in regional exposure assessment.

Conditions and measures related to external recovery of waste
External recovery and recycling of waste should comply with applicable local and/or national regulations.

Section 3 Exposure Estimation

3.1 Health
The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.

3.2 Environment
The Hydrocarbon Block Method has been used to calculate environmental exposure with the Petrorisk model.

Section 4 Guidance to check compliance with the Exposure Scenario
4.1 Health
Predicted exposures are not expected to exceed the DN(M)EL when the risk management measures/operational conditions outlined in section 2 are implemented. Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels. Available hazard data does not enable the derivation of a DNEL for dermal irritant effects. Available hazard data does not support the need for a DNEL to be established for other health effects. Risk management measures are based on qualitative risk characterization.
4.2 Environment
Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures. Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination. Required removal efficiency for air can be achieved using on-site technologies, either alone or in combination. Further details on scaling and control technologies are provided in SpERC factsheet (https://cefic.org/app/uploads/2019/01/SPERCs-Specific-Envirnonmental-Release-Classes-REACHImpl-ES-CSA-CSR.pdf).

10. Use of substance as a Fuel - Consumer

Section 1 Exposure Scenario Vacuum or Hydrocracked Gas Oils and Distillate Fuels	
Title	Use as a fuel
Use Descriptor	
Sector(s) of use	21
Product category(ies)	13
Environmental release category(ies)	9a, 9b
Specific Environmental Release Category	ESVOC SpERC 9.12c.v1
Processes, tasks, activities covered	
Covers consumer uses in liquid fuels.	
Section 2 Operational conditions and risk management measures	
2.1 Control of consumer exposure	
Product characteristics	
Physical form of product	Liquid, vapour pressure > 10 Pa at STP
Concentration of substance in product	Covers percentage substance in the product up to 100 % (unless stated differently).
Frequency and duration of use	For each use event, covers use amounts up to (g): 37500 Covers skin contact area up to (cm2): 420
Other operational conditions affecting exposure	Covers use up to (times/day of use): 0.143. Covers exposure up to (hours/event): 2 hours per event.

Contributing Scenarios / Product Category	**Specific Risk Management Measures & Operating Conditions**
Liquid: Automotive Refuelling	Covers concentrations up to (%): 100%. Covers use up to (days/year): 52. Covers use up to (times/day of use): 1. Covers skin contact area up to (cm2): 210.00. For each use event, covers use amounts up to (g): 37500. Covers use in room size of (m^3): 100. Covers exposure up to (hours/event): 0.05. Covers outdoor use No specific risk management measure identified beyond those operational conditions stated
Liquid Garden Equipment - Use	Covers concentrations up to (%): 100%. Covers use up to (days/year): 26. Covers use up to (times/day of use): 1. For each use event, covers use amounts up to (g): 750. Covers outdoor use Covers use in room size of (m^3): 100. Covers exposure up to (hours/event): 2.00. No specific risk management measure identified beyond those operational conditions stated
Liquid: garden equipment - refuelling	Covers concentrations up to (%): 100%. Covers use up to (days/year): 26. Covers use up to (times/day of use): 1. Covers skin contact area up to (cm2): 420.00. For each use event, covers use amounts up to (g): 750. Covers use in a one car garage (34 m^3) under typical ventilation. Covers use in room size of (m^3): 34. Covers exposure up to (hours/event): 0.03. No specific risk management measure identified beyond those operational conditions

	stated
Vacuum or Hydrocracked Gas Oils and Distillate Fuels exhibits acute inhalation toxicity and is classified R20 (Harmful by inhalation) accordingly. The available data for this adverse effect do not provide quantitative dose-response information, but there exists toxicity data appropriate to allow a qualitative risk characterisation; please see section 2 of the SDS for the necessary / additional RMMs. Vacuum or Hydrocracked Gas Oils and Distillate Fuels exhibits irritation to the skin and is classified R38 (Irritating to skin) accordingly. The available data for this adverse effect do not provide quantitative dose-response information, but there exists toxicity data appropriate to allow a qualitative risk characterisation; please see section 2 of the SDS for the necessary RMMs. Vacuum or Hydrocracked Gas Oils and Distillate Fuels is classified R65 (Harmful: may cause lung damage if swallowed). The available data for this adverse effect do not provide quantitative dose-response information for a D(M)NEL to be derived. Instead, the toxicity data triggers a qualitative risk characterisation and the RMMs in section 2 of the SDS aims to define the appropriate RMMs necessary to protect from this adverse effect. There is limited evidence of carcinogenic effects in Vacuum or Hydrocracked Gas Oils and Distillate Fuels and it is classified R40 (May cause cancer) accordingly. The available data for this adverse effect do not provide quantitative dose-response information for a D(M)NEL to be derived. Instead, the toxicity data triggers a qualitative risk characterisation and the RMMs in section 2 of the SDS aim to define the appropriate RMMs necessary to protect from these adverse effects.	
2.2 Control of environmental exposure	
Product characteristics Substance is complex UVCB. Predominantly hydrophobic.	
Amounts used	
Fraction of EU tonnage used in region	0.1
Regional use tonnage (tonnes/year)	1.6e7
Fraction of regional tonnage used locally	0.0005
Frequency and duration of use Continuous release.	
Emission days (days/year)	365
Environmental 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	
Conditions and measures related to municipal sewage treatment plant	
Estimated substance removal from wastewater via domestic sewage treatment (%):	94.1
Maximum allowable site tonnage (Msafe) based on release following total wastewater treatment removal (kg/d):	3.5e5
Assumed domestic sewage treatment plant flow (m^3/d):	2000
Conditions and measures related to external treatment of waste for disposal	
Combustion emissions limited by required exhaust emission controls. Combustion emissions considered in regional exposure assessment.	
Conditions and measures related to external recovery of waste	
External recovery and recycling of waste should comply with applicable local and/or national regulations.	
Section 3 Exposure Estimation	
3.1 Health	
The ECETOC TRA tool has been used to estimate consumer exposures, consistent with the content of ECETOC report #107 and the Chapter R15 of the IR&CSA TGD. Where exposure determinants differ to these sources, then they are indicated.	
3.2 Environment	
The Hydrocarbon Block Method has been used to calculate environmental exposure with the Petrorisk model.	
Section 4 Guidance to check compliance with the Exposure Scenario	
4.1 Health	
Predicted exposures are not expected to exceed the DN(M)EL when the risk management measures/operational conditions outlined in section 2 are implemented. Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.	
4.2 Environment	
Further details on scaling and control technologies are provided in SpERC factsheet (https://cefic.org/app/uploads/2019/01/SPERCs-Specific-Envirnonmental-Release-Classes-REACHImpl-ES-CSA-CSR.pdf).	

SECTION 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

1.1 Product identifier

Commercial Product Name
SUPERFLOC C-494

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

Use of the Substance/Mixture

Flocculating agent

Recommended restrictions on use

-

1.3 Details of the supplier of the safety data sheet

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1.4 Emergency telephone number

Carechem 24 International: +44 (0) 1235 239 670

SECTION 2: HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

Classification according to Regulation (EU) 1272/2008(CLP)
Not a hazardous substance or mixture according to Regulation (EC) No. 1272/2008.;

2.2 Label elements

Labelling (REGULATION (EC) No 1272/2008)

Hazard statements	:	Not a hazardous substance or mixture according to Regulation (EC) No. 1272/2008.
	EUH210	Safety data sheet available on request.

2.3 Other hazards

Advice; Forms slippery/greasy layers with water.
Potential environmental effects; This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.2 Mixtures

Chemical nature of the mixture: Cationic Polyacrylamide.

CAS/EU number/REACH Registration Number	Chemical name of the substance	Concentration	Classification according to Regulation (EU) 1272/2008(CLP)
124-04-9 204-673-3 01-2119457561-38	Adipic acid	0 - 5 %	Eye Irrit. Category 2,H319
77-92-9 201-069-1 01-2119457026-42	Citric acid	0 - 9.9 %	Eye Irrit. Category 2,H319

The total combined concentration of Adipic acid and Citric acid does not exceed 9.9%.

Further information

For the full text of the H-Statements mentioned in this Section, see Section 16.

SECTION 4: FIRST AID MEASURES

4.1 Description of first aid measures

General advice

Show this safety data sheet to the doctor in attendance.

Inhalation

No hazards which require special first aid measures. Move to fresh air.

Skin contact

Wash off with soap and water.

Eye contact

Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. If possible use lukewarm water.

Ingestion

Consult a physician. Do not induce vomiting without medical advice. Never give anything by mouth to an unconscious person.

4.2 Most important symptoms and effects, both acute and delayed

Symptoms	:	No information available.

4.3 Indication of any immediate medical attention and special treatment needed

Treatment	:	Symptomatic treatment.

SECTION 5: FIREFIGHTING MEASURES

5.1 Extinguishing media

Extinguishing media	:	Water spray Carbon dioxide (CO2) Dry chemical Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.
Unsuitable extinguishing media	:	none

5.2 Special hazards arising from the substance or mixture

Dust may form explosive mixture in air. Forms slippery/greasy layers with water.

5.3 Advice for firefighters

Wear self-contained breathing apparatus and protective suit.

5.4 Specific methods

Avoid dust accumulation.

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures

For personal protection see SDS section 8.

6.2 Environmental precautions

Try to prevent the material from entering drains or water courses.

6.3 Methods and materials for containment and cleaning up

Product becomes slippery when it is wet. Sweep up and shovel into suitable containers for disposal. After cleaning, flush away traces with water. Prevent product from entering drains.

6.4 Reference to other sections

Local authorities should be advised if significant spillages cannot be contained.

SECTION 7: HANDLING AND STORAGE

7.1 Precautions for safe handling

Avoid dust formation. For personal protection see SDS section 8.

7.2 Conditions for safe storage, including any incompatibilities

Store in original container. Store at room temperature. Protect from moisture. The product is hygroscopic.
Materials to avoid:
Strong oxidizing agents

To avoid product degradation and equipment corrosion, do not use iron, copper or aluminium containers or equipment.
Storage stability:

Storage temperature	4 - 32 °C
Other data	Stable under recommended storage conditions.
Other data	Reason: integrity

7.3 Specific end use(s)

Not listed

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

Contains no substances with occupational exposure limit values.

PNEC : No data available

8.2 Exposure controls

8.2.1 Appropriate engineering controls

Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and immediately after handling the product. Do not breathe vapours/dust. Ensure that eyewash stations and safety showers are close to the workstation location.
Ensure adequate ventilation.

Wash hands before breaks and immediately after handling the product.

8.2.2 Individual protection measures, such as personal protective equipment

Hand protection

Glove material: Nitrile rubber

Please observe the instructions regarding permeability and breakthrough time which are provided by the supplier of the gloves. Also take into consideration the specific local conditions under which the product is used, such as the danger of cuts, abrasion, and the contact time.

Eye protection

Safety glasses

Skin and body protection

Protective clothing.

Respiratory protection

In case of insufficient ventilation wear suitable respiratory equipment. (filter P2)

8.2.3 Environmental exposure controls

Should not be released into the environment.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

General Information (appearance, odour)

Physical state	solid, powder
Colour	white
Odour	odourless

Important health safety and environmental information

pH	3 - 5 (0.5 %) (as aqueous solution)
Melting point/range	No data available
Boiling point/boiling range	

	Not applicable
Flash point	Not applicable
Evaporation rate	Not applicable
Explosive properties:	
Lower explosion limit	No data available
Upper explosion limit	No data available
Vapour pressure	Not applicable
Relative vapour density	Not applicable
Bulk density	700 - 800 kg/m³
Solubility(ies):	
Water solubility	Limited by viscosity.
Partition coefficient: n-octanol/water	Not applicable
Auto-ignition temperature	200 °C
Thermal decomposition	200 °C
Viscosity:	
Viscosity, dynamic	Not applicable
Oxidizing	The substance or mixture is not classified as oxidizing.
Saturation in air (% vol.)	Not applicable
Volatile organic content (VOC)	Not applicable

9.2 Other data

Surface tension	Not applicable

SECTION 10: STABILITY AND REACTIVITY

10.1 Reactivity

No data available

10.2 Chemical stability

Stable under normal conditions.

10.3 Possibility of hazardous reactions

Hazardous reactions : Hazardous polymerisation does not occur.

10.4 Conditions to avoid

Conditions to avoid	:	Avoid dust formation.

10.5 Incompatible materials

Materials to avoid	:	Strong oxidizing agents
	:	To avoid product degradation and equipment corrosion, do not use iron, copper or aluminium containers or equipment.

10.6 Hazardous decomposition products

Hazardous decomposition products	:	Ammonia Carbon oxides (COx) Nitrogen oxides (NOx) hydrogen chloride (HCl)
Thermal decomposition	:	200 °C

SECTION 11: TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity

The acute toxicological results displayed may not be the results of actual testing of this material but based on a similar tested material.
LD50/Oral/Rat: > 5,000 mg/kg
Remarks:estimated
LC50/Inhalation/4 h/Rat: > 20 mg/l
Remarks: estimated

LD50/Dermal/Rabbit: > 10,000 mg/kg
Remarks: estimated

Irritation and corrosion

Skin:
No skin irritation

Eyes:
No eye irritation

Sensitisation

Not sensitizing.

Long term toxicity

Repeated dose toxicity

Remarks: No data available

Carcinogenicity

Based on available data, the classification criteria are not met.

Mutagenicity

Based on available data, the classification criteria are not met.

Reproductive toxicity

Based on available data, the classification criteria are not met.

STOT - single exposure

The substance or mixture is not classified as specific target organ toxicant, single exposure.

STOT - repeated exposure

The substance or mixture is not classified as specific target organ toxicant, repeated exposure.

Aspiration toxicity No aspiration toxicity classification

SECTION 12: ECOLOGICAL INFORMATION

12.1 Toxicity

Aquatic toxicity

–

This material is not classified as dangerous for the environment. The effects on aquatic organisms are due to an external (non-systemic) mode of action and are significantly reduced (by a factor of 7-20) within 30 minutes due to the binding of the product to dissolved organic carbon and inorganic sorbents such as clays and silts. Ecotoxicological information provided is based on a structurally or compositionally similar

product.

LC50/96 h/Branchydanio rerio (zebra fish)/Acute toxicity/OECD Test Guideline 203: > 1 - 10 mg/l
Remarks: fresh water
EC50/48 h/Daphnia magna (Water flea)/Immobilization/OECD Test Guideline 202: > 10 - 100 mg/l
/algae/Acute toxicity/OECD Test Guideline 201:
Due to the cationicity of the polymer, test is not appropriate.

Toxicity to other organisms

No data available

12.2 Persistence and degradability

Biological degradability:

Remarks: Ecotoxicological information provided is based on a structurally or compositionally similar product.

CO2 Evolution Test/OECD Test Guideline 301B/28 d: < 70 %

The polymeric ingredient is not readily biodegradable, but degradable by hydrolysis.

12.3 Bioaccumulative potential

Bioaccumulation is unlikely. Because of the high molecular weight of the polymer diffusion through biological membranes is very small.
Partition coefficient: n-octanol/water: Not applicable

12.4.Mobility in soil

Mobility

Water solubility: Limited by viscosity.
Surface tension: Not applicable

12.5. Results of PBT and vPvB assessment

This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

12.6 Other adverse effects

No information available.

SECTION 13: DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Product Recycling, recovery and reuse of materials is recommended if permitted by regulations.If recycling is not practicable, dispose of in compliance with local regulations.Incineration is recommended.

Contaminated packaging Dirty package must be disposed of in the same way as the product itself.

SECTION 14: TRANSPORT INFORMATION

14.1 UN number

Land transport

Not classified as dangerous in the meaning of transport regulations.

Sea transport

Not classified as dangerous in the meaning of transport regulations.

Air transport

Not classified as dangerous in the meaning of transport regulations.

14.8 Special precautions for user

No data available

SECTION 15: REGULATORY INFORMATION

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

Other regulations : None.

Notification status

: All components of this product are included in the United States TSCA Chemical Inventory or are not required to be listed on the United States TSCA Chemical Inventory.

:

: All components of this product are included in the European Inventory of Existing Chemical Substances (EINECS) or are not required to be listed on EINECS.
: All components of this product are included in the Canada Domestic Substance List (DSL) or are not required to be listed on the Canada Domestic Substance List (DSL).
: All components of this product are included on the Japanese (ENCS) inventory or are not required to be listed on the Japanese (ENCS) inventory.
: All components of this product are included in the Australian Inventory of Chemical Substances (AICS) or are not required to be listed on the Australian Inventory of Chemical Substances (AICS).
: All components of this product are included in the Korean (ECL) inventory or are not required to be listed on the Korean (ECL) inventory.
: All components of this product are included on the Philippine (PICCS) inventory or are not required to be listed on the Philippine (PICCS) inventory.
: All components of this product are included on the Chinese inventory or are not required to be listed on the Chinese inventory.
: All components of this product are included on the Taiwan Toxic Chemical Substances Control Act Inventory.
: All components of this product are included in the New Zealand inventory (NZIoC) or are not required to be listed on the New Zealand inventory(NZIoC).

15.2 Chemical Safety Assessment

A Chemical Safety Assessment is not required for this mixture.

SECTION 16: OTHER INFORMATION

Full text of H-Statements referred to under section 3.

H319 Causes serious eye irritation.
H319 Causes serious eye irritation.

Training advice

Read the safety data sheet before using the product.

Further information

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

Sources of key data used to compile the Safety Data Sheet

Regulations, databases, literature, own tests.

Additions, Deletions, Revisions

Relevant changes have been marked with vertical lines.

SECTION 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

1.1 Product identifier

Commercial Product Name
SUPERFLOC C-496HMW

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

Use of the Substance/Mixture

Water treatment chemical

Recommended restrictions on use

-

1.3 Details of the supplier of the safety data sheet

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Carechem 24 International: +82 (0)234 798 401

SECTION 2: HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

Classification according to Regulation (EU) 1272/2008(CLP)
Not a hazardous substance or mixture according to Regulation (EC) No. 1272/2008.;

2.2 Label elements

Labelling (REGULATION (EC) No 1272/2008)

Hazard statements	:	Not a hazardous substance or mixture according to Regulation (EC) No. 1272/2008.
	EUH210	Safety data sheet available on request.

2.3 Other hazards

Advice; Forms slippery/greasy layers with water.
Potential environmental effects; This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.2 Mixtures

Chemical nature of the mixture: Cationic polyacrylamide.

CAS/EU number/REACH Registration Number	Chemical name of the substance	Concentration	Classification according to Regulation (EU) 1272/2008(CLP)
124-04-9 204-673-3 01-2119457561-38	Adipic acid	0 - 5 %	Eye Irrit. Category 2,H319
77-92-9 201-069-1 01-2119457026-42	Citric acid	0 - 9.9 %	Eye Irrit. Category 2,H319

The total combined concentration of Adipic acid and Citric acid does not exceed 9.9%.

Further information

For the full text of the H-Statements mentioned in this Section, see Section 16.

SECTION 4: FIRST AID MEASURES

4.1 Description of first aid measures

General advice

Show this safety data sheet to the doctor in attendance.

Inhalation

Remove to fresh air. If there is difficulty in breathing, medical advice is required. If breathing is irregular or stopped, administer artificial respiration.

Skin contact

Wash off immediately with soap and plenty of water.

Eye contact

Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes.

Ingestion

Rinse mouth with water. Call a physician immediately. Do NOT induce vomiting. Never give anything by mouth to an unconscious person.

4.2 Most important symptoms and effects, both acute and delayed

Symptoms	:	No information available.

4.3 Indication of any immediate medical attention and special treatment needed

Treatment	:	Symptomatic treatment.

SECTION 5: FIREFIGHTING MEASURES

5.1 Extinguishing media

Extinguishing media	:	Water spray Dry chemical Carbon dioxide (CO2)
Unsuitable extinguishing media	:	Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

5.2 Special hazards arising from the substance or mixture

Dust can form an explosive mixture in air.

5.3 Advice for firefighters

Wear self-contained breathing apparatus and protective suit.

5.4 Specific methods

Avoid dust accumulation. Forms slippery/greasy layers with water.

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures

For personal protection see SDS section 8.

6.2 Environmental precautions

Try to prevent the material from entering drains or water courses.

6.3 Methods and materials for containment and cleaning up

Product becomes slippery when it is wet. Take up mechanically and collect into suitable containers for disposal. Flush away traces with water. Prevent product from entering drains. Dispose of in compliance with local and national regulations.

SECTION 7: HANDLING AND STORAGE

7.1 Precautions for safe handling

For personal protection see SDS section 8. The product is hygroscopic. Protect from moisture.

7.2 Conditions for safe storage, including any incompatibilities

Store in original container.
Keep tightly closed in a dry and cool place.

Materials for packaging

Unsuitable material: To avoid product degradation and equipment corrosion, do not use iron, copper or aluminium containers or equipment.

Materials to avoid:

Strong oxidizing agents

Storage stability:

Storage temperature	4 - 32 °C
Other data	Stable under recommended storage conditions.

7.3 Specific end use(s)

Not listed

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

Contains no substances with occupational exposure limit values.

PNEC : No data available

8.2 Exposure controls

8.2.1 Appropriate engineering controls

Handle in accordance with good industrial hygiene and safety practice. Avoid contact with skin, eyes and clothing. Wash hands before breaks and immediately after handling the product. Ensure that eyewash stations and safety showers are close to the workstation location. Avoid dust formation. Ensure adequate ventilation.

Ensure adequate ventilation.

8.2.2 Individual protection measures, such as personal protective equipment
Hand protection

Glove material: Nitrile rubber, Permeability tests are not available for this product.Please observe the instructions regarding permeability and breakthrough time which are provided by the supplier of the gloves. Also take into consideration the specific local conditions under which the product is used, such as the danger of cuts, abrasion, and the contact time.

Eye protection

Safety goggles

Skin and body protection

Protective clothing.

Respiratory protection

In case of inadequate ventilation wear respiratory protection. (filter ABEK-P2)

8.2.3 Environmental exposure controls

Local authorities should be advised if significant spillages cannot be contained.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

General Information (appearance, odour)

Physical state	solid, crystalline, powder
Colour	off-white
Odour	odourless

Important health safety and environmental information

pH	3 - 5 (0.5 %) (as aqueous solution)
Melting point/range	No data available
Boiling point/boiling range	Not applicable
Flash point	Not applicable
Evaporation rate	Not applicable
Explosive properties:	

Lower explosion limit	No data available
Upper explosion limit	No data available
Vapour pressure	Not applicable
Relative vapour density	Not applicable
Bulk density	650 - 850 kg/m³
Solubility(ies):	
Water solubility	Limited by viscosity.
Partition coefficient: n-octanol/water	Not applicable
Auto-ignition temperature	200 °C
Thermal decomposition	> 200 °C
Oxidizing	The substance or mixture is not classified as oxidizing.
Saturation in air (% vol.)	Not applicable
Volatile organic content (VOC)	Not applicable

9.2 Other data

Surface tension	Not applicable

SECTION 10: STABILITY AND REACTIVITY

10.1 Reactivity

No data available

10.2 Chemical stability

Stable under normal conditions.

10.3 Possibility of hazardous reactions

Hazardous reactions : Hazardous polymerisation does not occur.

10.4 Conditions to avoid

Conditions to avoid : Avoid contact with alkaline materials which will degrade the polymer.
Protect from moisture.

10.5 Incompatible materials

Materials to avoid : Strong oxidizing agents

10.6 Hazardous decomposition products

Hazardous decomposition products	:	Ammonia Carbon oxides Nitrogen oxides (NOx) hydrogen chloride (HCl)
Thermal decomposition	:	>200 °C

SECTION 11: TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity

The toxicological data has been taken from products of similar composition.
LD50/Oral/Rat: > 5,000 mg/kg
Remarks:estimated
LC50/Inhalation/4 h/Rat: > 20 mg/l
Remarks: estimated

LD50/Dermal/Rabbit: > 2,000 mg/kg
Remarks: estimated

Irritation and corrosion

Skin:
No skin irritation

Eyes:
No eye irritation

Sensitisation

Not sensitizing.

Long term toxicity

Repeated dose toxicity

Remarks: No data available

Carcinogenicity

Based on available data, the classification criteria are not met.

Mutagenicity

Based on available data, the classification criteria are not met.

Reproductive toxicity

Based on available data, the classification criteria are not met.

STOT - single exposure

The substance or mixture is not classified as specific target organ toxicant, single exposure.

STOT - repeated exposure

The substance or mixture is not classified as specific target organ toxicant, repeated exposure.

Aspiration toxicity No aspiration toxicity classification

SECTION 12: ECOLOGICAL INFORMATION

12.1 Toxicity

Aquatic toxicity

–

Remarks: This material is not classified as dangerous for the environment., Ecotoxicological information provided is based on a structurally or compositionally similar product., The effects on aquatic organisms are due to an external (non-systemic) mode of action and are significantly reduced (by a factor of 7-20) within 30 minutes due to the binding of the product to dissolved organic carbon and inorganic sorbents such as clays and silts.

LC50/96 h/Branchydanio rerio (zebra fish)/Acute toxicity/OECD Test Guideline 203: > 1 - 10 mg/l
EC50/48 h/Daphnia magna (Water flea)/Immobilization/OECD Test Guideline 202: > 10 - 100 mg/l
/algae/Growth inhibition/OECD Test Guideline 201:
Remarks: Due to the cationicity of the polymer, test is not appropriate.

Toxicity to other organisms

No data available

12.2 Persistence and degradability

Biological degradability:
CO2 Evolution Test/OECD Test Guideline 301B/28 d: < 70 %

The polymeric ingredient is not readily biodegradable, but degradable by hydrolysis.

12.3 Bioaccumulative potential

Bioaccumulation is unlikely. Because of the high molecular weight of the polymer diffusion through biological membranes is very small.
Partition coefficient: n-octanol/water: Not applicable

12.4.Mobility in soil

Mobility

Water solubility: Limited by viscosity.
Surface tension: Not applicable

12.5. Results of PBT and vPvB assessment

This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

12.6 Other adverse effects

No information available.

SECTION 13: DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Product	Recycling, recovery and reuse of materials is recommended if permitted by regulations.Incineration is recommended. Where possible recycling is preferred to disposal or incineration.
Contaminated packaging	Where possible recycling is preferred to disposal or incineration. Must be disposed of in accordance with local and national regulations.

SECTION 14: TRANSPORT INFORMATION

14.1 UN number

Land transport

Not classified as dangerous in the meaning of transport regulations.

Sea transport

Not classified as dangerous in the meaning of transport regulations.

Air transport

Not classified as dangerous in the meaning of transport regulations.

14.8 Special precautions for user

None known.

SECTION 15: REGULATORY INFORMATION

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

Other regulations : None.

Notification status

:
: All components of this product are included in the European Inventory of Existing Chemical Substances (EINECS) or are not required to be listed on EINECS.
: All components of this product are included in the United States TSCA Chemical Inventory or are not required to be listed on the United States TSCA Chemical Inventory.
: All components of this product are included in the Canada Domestic Substance List (DSL) or are not required to be listed on the Canada Domestic Substance List (DSL).
: All components of this product are included in the Australian Inventory of Chemical Substances (AICS) or are not required to be listed on the Australian Inventory of Chemical Substances (AICS).
: All components of this product are included on the Chinese inventory or are not required to be listed on the Chinese inventory.
: All components of this product are included on the Japanese (ENCS) inventory or are not required to be listed on the Japanese (ENCS) inventory.
: All components of this product are included in the Korean

(ECL) inventory or are not required to be listed on the Korean (ECL) inventory.

: All components of this product are included on the Philippine (PICCS) inventory or are not required to be listed on the Philippine (PICCS) inventory.

: All components of this product are included in the New Zealand inventory (NZIoC) or are not required to be listed on the New Zealand inventory(NZIoC).

: All components of this product are included on the Taiwan Toxic Chemical Substances Control Act Inventory.

15.2 Chemical Safety Assessment

A Chemical Safety Assessment is not required for this mixture.

SECTION 16: OTHER INFORMATION

Full text of H-Statements referred to under section 3.

H319 Causes serious eye irritation.

H319 Causes serious eye irritation.

Training advice

Read the safety data sheet before using the product.

Further information

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

Sources of key data used to compile the Safety Data Sheet

Regulations, databases, literature, own tests.

Additions, Deletions, Revisions

Relevant changes have been marked with vertical lines.

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Singleton Birch

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REACH Regulation EC 1907/2006,

Regulation (EC) 1272/2008 and Regulation (EC) 453/2010

1 IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY

1.1 Product identifier

Substance name:	Hydrated lime, Calcium dihydroxide
Synonyms:	Slaked lime, Air slaked lime, Building lime, Fat lime, Chemical lime, Finishing lime, Mason's lime, Calcium dihydroxide, Calcium hydroxide, Calcium hydrate, Lime, Lime water
Chemical name and formula:	Calcium dihydroxide – $Ca(OH)_2$
Trade name:	Ultralime® Hydrated Lime
CAS:	1305-62-0
EINECS:	215-137-3
Molecular Weight:	74.09 g/mol
REACH Registration number:	01-2119475151-45-0019

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

Please check the identified uses in table 1 of the Appendix of this SDS.

Uses advise against:	There are no uses advised against.

1.3 Details of the supplier of the safety data sheet

Name:	Singleton Birch Limited
Address:	Melton Ross Quarries, Barnetby, North Lincolnshire DN38 6AE
Phone N°:	+44(0)1652 686000
Fax N°:	+44(0)1652 686081
E-mail of competent person responsible for SDS in the MS or in the EU:	kb@singletonbirch.co.uk; jt@singletonbirch.co.uk

1.4 Emergency telephone number

European Emergency N°:	112
National centre for Prevention & Treatment of Intoxications N°:	National Chemicals Emergency Centre (NCEC) +44 (0) 870 190 6621
Emergency telephone at the company	+44(0)1652 686000 (24 hours)
Available outside office hours:	Yes

2 HAZARDS IDENTIFICATION

2.1 Classification of the substance

2.1.1 Classification according to Regulation (EC) 1272/2008

STOT Single Exp. 3, Route of exposure: Inhalation
Skin Irritation 2
Eye Damage 1

Singleton Birch Limited, Melton Ross Quarries, Barnetby | Tel: 01652 686000 Fax: 01652 686080 | Registered Number 9433 England Established 1815

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2.1.2 Classification according to Directive 67/548/EEC

Xi – irritant

2.2 Label elements

2.2.1 Labelling according to Regulation (EC) 1272/2008

Signal word: Danger

Hazard pictogram:

Hazard statements:

H315:	Causes skin irritation
H318:	Causes serious eye damage
H335:	May cause respiratory irritation

Precautionary statements:

P102:	Keep out of reach of children
P280:	Wear protective gloves/protective clothing/eye protection/face protection
P305+P351+P310:	IF IN EYES: Rinse cautiously with water for several minutes. Immediately call a POISON CENTRE or doctor/physician
P302+P352:	IF ON SKIN: Wash with plenty of water
P261:	Avoid breathing dust/spray
P304+P340:	IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing
P501:	Dispose of contents/container in accordance with local, regional, national and international regulation – use a registered hazardous waste carrier/licence holder, and/or contact the manufacturer

2.2.2 Labelling according to Directive 67/548/EEC

Indication of danger: Xi irritant

Hazard pictogram:

Risk phrases:

R37:	Irritating to respiratory system
R38:	Irritating to skin
R41:	Risk of serious damage to eyes

Singleton Birch Limited.
Mellon Ross Quarries, Barnetby,
Tel: 01652 686000
Fax: 01652 686080
Registered Number 9433 England
Established 1815

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Safety phrases:

S2: Keep out of the reach of children
S25: Avoid contact with eyes
S26: In case of contact with eyes, rinse immediately with plenty of water and seek medical advice
S37: Wear suitable gloves
S39: Wear eye/face protection

2.3 Other hazards

The substance does not meet the criteria for PBT or vPvB substance.
No other hazards identified.

3 COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

Main constituent

Name:	Calcium dihydroxide
CAS:	1305-62-0
EINECS:	215-137-3

Impurities

No impurities relevant for classification and labelling.

4 FIRST AID MEASURES

4.1 Description of first aid measures

General advice

No known delayed effects. Consult a physician for all exposures except for minor instances.

Following inhalation

Move source of dust or move person to fresh air. Obtain medical attention immediately.

Following skin contact

Carefully and gently brush the contaminated body surfaces in order to remove all traces of product. Wash affected area immediately with plenty of water. Remove contaminated clothing. If necessary seek medical advice.

Following eye contact

Rinse eyes immediately with plenty of water and seek medical advice.

Following ingestion

Clean mouth with water and drink afterwards plenty of water. Do **NOT** induce vomiting. Obtain medical attention.

4.2 Most important symptoms and effects, both acute and delayed

Calcium dihydroxide is not acutely toxic via the oral, dermal, or inhalation route. The substance is classified as irritating to skin and the respiratory tract, and entails a risk of serious damage to the eye. There is no concern for adverse systemic effects because local effects (pH-effect) are the major health hazard.

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4.3 Indication of any immediate medical attention and special treatment needed
Follow the advises given in section 4.1

5 FIREFIGHTING MEASURES

5.1 Extinguishing media

5.1.1 Suitable extinguishing media
Suitable extinguishing media: The product is not combustible. Use a dry powder, foam or CO_2 fire extinguisher to extinguish the surrounding fire. Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

5.1.2 Unsuitable extinguishing media
Do not use water

5.2 Special hazards arising from the substance or mixture
None

5.3 Advice for fire fighters
Avoid generation of dust. Use breathing apparatus. Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

6 ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures

6.1.1 For non-emergency personnel
Ensure adequate ventilation.
Keep dust levels to a minimum.
Keep unprotected persons away.
Avoid contact with skin, eyes, and clothing – wear suitable protective equipment (see section 8).
Avoid inhalation of dust – ensure that sufficient ventilation or suitable respiratory protective equipment is used, wear suitable protective equipment (see section 8)

6.1.2 For emergency responders
Keep dust levels to a minimum.
Ensure adequate ventilation.
Keep unprotected persons away.
Avoid contact with skin, eyes, and clothing – wear suitable protective equipment (see section 8).
Avoid inhalation of dust – ensure that sufficient ventilation or suitable respiratory protective equipment is used, wear suitable protective equipment (see section 8)

6.2 Environmental precautions
Contain the spillage. Keep the material dry if possible. Cover area if possible to avoid unnecessary dust hazard. Avoid uncontrolled spills to watercourses and drains (pH increase). Any large spillage into watercourses must be alerted to the Environment Agency or other regulatory body.

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6.3 Methods and material for containment and cleaning up

In all cases avoid dust formation.
Keep the material dry if possible.
Pick up the product mechanically in a dry way.
Use vacuum suction unit, or shovel into bags.

6.4 Reference to other sections

For more information on exposure controls/personal protection or disposal considerations, please check section 8 and 13 and the Annex of this safety data sheet.

7 HANDLING AND STORAGE

7.1 Precautions for safe handling

7.1.1 Protective measures

Avoid contact with skin and eyes. Wear protective equipment (refer to section 8 of this safety data sheet). Do not wear contact lenses when handling this product. It is also advisable to have individual pocket eyewash. Keep dust levels to a minimum. Minimize dust generation. Enclose dust sources, use exhaust ventilation (dust collector at handling points). Handling systems should preferably be enclosed. When handling bags usual precautions should be paid to the risks outlined in the Council Directive 90/269/EEC.

7.1.2 Advice on general occupational hygiene

Avoid inhalation or ingestion and contact with skin and eyes. General occupational hygiene measures are required to ensure safe handling of the substance. These measures involve good personal and housekeeping practices (i.e. regular cleaning with suitable cleaning devices), no drinking, eating and smoking at the workplace. Shower and change clothes at end of work shift. Do not wear contaminated clothing at home.

7.2 Conditions for safe storage, including any incompatibilities

The substance should be stored under dry conditions. Any contact with air and moisture should be avoided. Bulk storage should be in purpose – designed silos. Keep away from acids, significant quantities of paper, straw, and nitro compounds. Keep out of reach of children. Do not use aluminium for transport or storage if there is a risk of contact with water.

7.3 Specific end use(s)

Please check the identified uses in table 1 of the Appendix of this SDS.
For more information please see the relevant exposure scenario, available via your supplier/given in the Appendix, and check section 2.1: Control of worker exposure.

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8 EXPOSURE CONTROLS / PERSONAL PROTECTION

8.1 Control parameters

SCOEL recommendation (SCOEL/SUM/137 February 2008; see Section 16.6):
Workplace Exposure Limit (WEL), 8 h TWA: 5 mg/m³
Occupational Exposure Limit (OEL), 8h TWA: 1 mg/m³ respirable dust of calcium oxide
Short-term exposure limit (STEL), 15 min: 4 mg/m³ respirable dust of calcium oxide
PNEC aqua = 490 µg/l
PNEC soil/groundwater = 1080 mg/l

8.2 Exposure controls

To control potential exposures, generation of dust should be avoided. Further, appropriate protective equipment is recommended. Eye protection equipment (e.g. goggles or visors) must be worn, unless potential contact with the eye can be excluded by the nature and type of application (i.e. closed process). Additionally, face protection, protective clothing and safety shoes are required to be worn as appropriate.
Please check the relevant exposure scenario, given in the Appendix/available via your supplier.

8.2.1 Appropriate engineering controls

If user operations generate dust, use process enclosures, local exhaust ventilation, or other engineering controls to keep airborne dust levels below recommended exposure limits.

8.2.2 Individual protection measures, such as personal protective equipment

8.2.2.1 Eye/face protection

Do not wear contact lenses. For powders, tight fitting goggles with side shields, or wide vision full goggles. It is also advisable to have individual pocket eyewash.

8.2.2.2 Skin protection

Since calcium dihydroxide is classified as irritating to skin, dermal exposure has to be minimised as far as technically feasible. The use of protective gloves (nitrile), protective standard working clothes fully covering skin, full length trousers, long sleeved overalls, with close fittings at openings and shoes resistant to caustics and avoiding dust penetration are required to be worn.

8.2.2.3 Respiratory protection

Local ventilation to keep levels below established threshold values is recommended. A suitable particle filter mask is recommended, depending on the expected exposure levels - please check the relevant exposure scenario, given in the Appendix/available via your supplier.

8.2.2.4 Thermal hazards

The substance does not represent a thermal hazard, thus special consideration is not required.

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8.2.3 Environmental exposure controls

All ventilation systems should be filtered before discharge to atmosphere.
Avoid releasing to the environment.
Contain the spillage. Any large spillage into watercourses must be alerted to the regulatory authority responsible for environmental protection or other regulatory body.
For detailed explanations of the risk management measures that adequately control exposure of the environment to the substance please check the relevant exposure scenario, available via your supplier.
For further detailed information, please check the Appendix of this SDS.

9 PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

Appearance:	White or off white (beige) fine powder
Odour:	odourless
Odour threshold:	not applicable
pH:	12.4 (saturated solution at 20 °C)
Melting point:	> 450 °C (study result, EU A.1 method)
Boiling point:	not applicable (solid with a melting point > 450 °C)
Flash point:	not applicable (solid with a melting point > 450 °C)
Evaporation rate:	not applicable (solid with a melting point > 450 °C)
Flammability:	non flammable (study result, EU A.10 method)
Explosive limits:	non explosive (void of any chemical structures commonly associated with explosive properties)
Vapour pressure:	not applicable (solid with a melting point > 450 °C)
Vapour density:	not applicable
Relative density:	2.24 (study result, EU A.3 method)
Solubility in water:	1844.9 mg/L (study results, EU A.6 method)
Partition coefficient:	not applicable (inorganic substance)
Auto ignition temperature:	no relative self-ignition temperature below 400 °C (study result, EU A.16 method)
Decomposition temperature:	When heated above 580°C, calcium dihydroxide decomposes to produce calcium oxide (CaO) and water (H_2O)
Viscosity:	not applicable (solid with a melting point > 450 °C)
Oxidising properties:	no oxidising properties (Based on the chemical structure, the substance does not contain a surplus of oxygen or any structural groups known to be correlated with a tendency to react exothermally with combustible material)

9.2 Other information

Not available

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10 STABILITY AND REACTIVITY

10.1 Reactivity

In aqueous media $Ca(OH)_2$ dissociates resulting in the formation of calcium cations and hydroxyl anions (when below the limit of water solubility).

10.2 Chemical stability

Under normal conditions of use and storage, calcium dihydroxide is stable.

10.3 Possibility of hazardous reactions

Calcium dihydroxide reacts exothermically with acids. When heated above 580 °C, calcium dihydroxide decomposes to produce calcium oxide (CaO) and water (H2O): Ca(OH)2→CaO + H2O. Calcium oxide reacts with water and generates heat. This may cause risk to flammable material.

10.4 Conditions to avoid

Minimise exposure to air and moisture to avoid degradation.

10.5 Incompatible materials

Calcium dihydroxide reacts exothermically with acids to form salts. Calcium dihydroxide reacts with aluminium and brass in the presence of moisture leading to the production of hydrogen.

$Ca(OH)_2 + 2\ Al + 6\ H_2O \rightarrow Ca[Al(OH)_4]_2 + 3\ H_2$

10.6 Hazardous decomposition products

None

Further information: calcium dihydroxide reacts with carbon dioxide to form calcium carbonate, which is a common material in nature.

11 TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Calcium dihydroxide is classified as irritating to skin and the respiratory tract and it entails a risk of serious damage to the eye. The occupational exposure limit for the prevention of local sensory irritation and decrease of lung function parameters as critical effects is OEL (8 h) = 1 mg/m³ respirable dust.

Toxicity endpoints	Outcome of the effects assessment
Absorption	The primary health effect of calcium dihydroxide is local irritation due to a pH shift. Therefore, absorption is not a relevant parameter for the effects assessment.

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Toxicity endpoints	Outcome of the effects assessment
Acute toxicity	Calcium dihydroxide is not acutely toxic. Oral LD_{50}> 2000 mg/kg bw (OECD 425, rat) Dermal LD_{50}> 2500 mg/kg bw (calcium dihydroxide, OECD 402, rabbit) Inhalation no data available Classification for acute toxicity is not warranted. For irritating effects to the respiratory tract see below.
Irritation / corrosion	Eye Irritation: Calcium dihydroxide entails a risk of serious damage to the eye (eye irritation studies (*in vivo*, rabbit). Skin Irritation: Calcium dihydroxide is irritating to skin (*in vivo*, rabbit). Respiratory Irritation: From human data it is concluded that $Ca(OH)_2$ is irritating to the respiratory tract. Based on experimental results, calcium dihydroxide requires classification as irritating to skin [R38, irritating to skin; Skin Irrit 2 (H315 – Causes skin irritation)] and as severely irritating to the eye [R41, Risk of serious damage to eye; Eye Damage 1 (H318 - Causes serious eye damage)]. As summarised and evaluated in the SCOEL recommendation (Anonymous, 2008), based on human data calcium dihydroxide is classified as irritating to the respiratory system [R37, Irritating to respiratory system; STOT SE 3 (H335 – May cause respiratory irritation)].
Sensitisation	No data available. Calcium dihydroxide is considered not to be a skin sensitiser, based on the nature of the effect (pH shift) and the essential requirement of calcium for human nutrition. Classification for sensitisation is not warranted.
Repeated dose toxicity	Toxicity of calcium via the oral route is addressed by upper intake levels (UL) for adults determined by the Scientific Committee on Food (SCF), being UL = 2500 mg/d, corresponding to 36 mg/kg bw/d (70 kg person) for calcium. Toxicity of $Ca(OH)_2$ via the dermal route is not considered as relevant in view of the anticipated insignificant absorption through skin and due to local irritation as the primary health effect (pH shift). Toxicity of $Ca(OH)_2$ via inhalation (local effect, irritation of mucous membranes) is addressed by an 8-h TWA determined by the Scientific Committee on Occupational Exposure Limits (SCOEL) of 1 mg/m³ respirable dust (see Section 8.1). Therefore, classification of $Ca(OH)_2$ for toxicity upon prolonged exposure is not required.
Mutagenicity	Bacterial reverse mutation assay (Ames test, OECD 471): Negative In view of the omnipresence and essentiality of Ca and of the physiological non-relevance of any pH shift induced by lime in aqueous media, lime is obviously void of any genotoxic potential. Classification for genotoxicity is not warranted.

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Toxicity endpoints	Outcome of the effects assessment
Carcinogenicity	Calcium (administered as Ca-lactate) is not carcinogenic (experimental result, rat). The pH effect of calcium oxide does not give rise to a carcinogenic risk. Human epidemiological data support lack of any carcinogenic potential of calcium oxide. Classification for carcinogenicity is not warranted.
Toxicity for reproduction	Calcium (administered as Ca-carbonate) is not toxic to reproduction (experimental result, mouse). The pH effect does not give rise to a reproductive risk. Human epidemiological data support lack of any potential for reproductive toxicity of calcium dihydroxide. Both in animal studies and human clinical studies on various calcium salts no reproductive or developmental effects were detected. Also see the Scientific Committee on Food (Section 16.6). Thus, calcium dihydroxide is not toxic for reproduction and/or development. Classification for reproductive toxicity according to regulation (EC) 1272/2008 is not required.

12 ECOLOGICAL INFORMATION

12.1 Toxicity

12.1.1 Acute/Prolonged toxicity to fish

LC_{50} (96h) for freshwater fish: 50.6 mg/l
LC_{50} (96h) for marine water fish: 457 mg/l

12.1.2 Acute/Prolonged toxicity to aquatic invertebrates

EC_{50} (48h) for freshwater invertebrates: 49.1 mg/l
LC_{50} (96h) for marine water invertebrates: 158 mg/l

12.1.3 Acute/Prolonged toxicity to aquatic plants

EC_{50} (72h) for freshwater algae: 184.57 mg/l
NOEC (72h) for freshwater algae: 48 mg/l

12.1.4 Toxicity to micro-organisms e.g. bacteria

At high concentration, through the rise of temperature and pH, calcium dihydroxide is used for disinfection of sewage sludges

12.1.5 Chronic toxicity to aquatic organisms

NOEC (14d) for marine water invertebrates: 32 mg/l

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12.1.6 Toxicity to soil dwelling organisms
EC_{10}/LC_{10} or NOEC for soil macro organisms: 2000 mg/kg soil dw
EC_{10}/LC_{10} or NOEC for soil micro organisms: 12000 mg/kg soil dw

12.1.7 Toxicity to terrestrial plants
NOEC (21d) for terrestrial plants: 1080 mg/kg

12.1.8 General effect
Acute pH-effect. Although this product is useful to correct water acidity, an excess of more than 1 g/l may be harmful to aquatic life. pH-value of > 12 will rapidly decrease as result of dilution and carbonation

12.2 Persistence and degradability
Not relevant for inorganic substances

12.3 Bioaccumulative potential
Not relevant for inorganic substances

12.4 Mobility in soil
Calcium dihydroxide which is sparingly soluble, and present a low mobility in most soils

12.5 Results of PBT and vPvB assessment
Not relevant for inorganic substances

12.6 Other adverse effects
No other adverse effects are identified

13 DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods
Disposal of calcium dihydroxide should be in accordance with local and national legislation.
Processing, use or contamination of this product may change the waste management options.
Dispose of container and unused contents in accordance with applicable member state and local requirements.
The used packing is only meant for packing this product; it should not be reused for other purposes.
After usage, empty the packing completely.

14 TRANSPORT INFORMATION

Calcium dihydroxide is not classified as hazardous for transport (ADR (Road), RID (Rail), IMDG / GGVSea (Sea).

14.1 UN-Number
Not regulated

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14.2 UN proper shipping name
Not regulated

14.3 Transport hazard class
Not regulated

14.4 Packing group
Not regulated

14.5 Environmental hazards
None

14.6 Special precautions for user
Avoid any release of dust during transportation, by using air-tight tanks

14.7 Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code
Not regulated.

15 REGULATORY INFORMATION

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

Authorisations:	Not required
Restrictions on use:	None
Other EU regulations:	Calcium dihydroxide is not a SEVESO substance, not an ozone depleting substance and not a persistent organic pollutant.
National regulations:	Water endangering class 1 (Germany)

15.2 Chemical safety assessment
A chemical safety assessment has been carried out for this substance.

16 OTHER INFORMATION

Data are based on our latest knowledge but do not constitute a guarantee for any specific product features and do not establish a legally valid contractual relationship.

16.1 Hazard Statements
H315: Causes skin irritation
H318: Causes serious eye damage
H335: May cause respiratory irritation

16.2 Precautionary Statements

P102:	Keep out of reach of children
P280:	Wear protective gloves/protective clothing/eye protection/face protection
P305+P351:	IF IN EYES: Rinse cautiously with water for several minutes
P310:	Immediately call a POISON CENTRE or doctor/physician

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P302+P352: IF ON SKIN: Wash with plenty of soap and water
P261: Avoid breathing dust/fume/gas/mist/vapours/spray
P304+P340: IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing
P501: Dispose of contents/container in accordance with local/regional/national/international regulation - use a registered hazardous waste carrier/licence holder, and/or contact the manufacturer

16.3 Risk Phrases
R37: Irritating to respiratory system
R38: Irritating to skin
R41: Risk of serious damage to eyes

16.4 Safety Phrases
S2: Keep out of the reach of children
S25: Avoid contact with eyes
S26: In case of contact with eyes, rinse immediately with plenty of water and seek medical advice
S37: Wear suitable gloves
S39: Wear eye/face protection

16.5 Abbreviations
EC_{50}: median effective concentration
LC_{50}: median lethal concentration
LD_{50}: median lethal dose
NOEC: no observable effect concentration
WEL: workplace exposure limit
OEL: occupational exposure limit
PBT: persistent, bioaccumulative, toxic chemical
PNEC: predicted no-effect concentration
STEL: short-term exposure limit
TWA: time weighted average
vPvB: very persistent, very bioaccumulative chemical
EULA: European Lime Association

16.6 Key literature references
Anonymous, 2006: Tolerable upper intake levels for vitamins and minerals Scientific Committee on Food, European Food Safety Authority, ISBN: 92-9199-014-0 [SCF document]
Anonymous, 2008: Recommendation from the Scientific Committee on Occupational Exposure Limits (SCOEL) for calcium oxide (CaO) and calcium dihydroxide ($Ca(OH)_2$), European Commission, DG Employment, Social Affairs and Equal Opportunities, SCOEL/SUM/137 February 2008

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16.7 Revision

SDS revised in accordance with EULA SDS format

Disclaimer

This safety data sheet (SDS) is based on the legal provisions of the REACH Regulation (EC 1907/2006; article 31 and Annex II), as amended. Its contents are intended as a guide to the appropriate precautionary handling of the material. It is the responsibility of recipients of this SDS to ensure that the information contained therein is properly read and understood by all people who may use, handle, dispose or in any way come in contact with the product. Information and instructions provided in this SDS are based on the current state of scientific and technical knowledge at the date of issue indicated. It should not be construed as any guarantee of technical performance, suitability for particular applications, and does not establish a legally valid contractual relationship. This version of the SDS supersedes all previous versions.

ANNEX

Addition of exposure Scenarios as applicable - Please see Appendix SD30A SDS – Hydrate Lime Range.

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Revision Date 16/02/2015
Revision 10
Supersedes date 24/05/13

SAFETY DATA SHEET
Caustic Soda (Sodium Hydroxide Solution), 5 - 51%

SECTION 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

1.1. Product identifier

Product name	Caustic Soda (Sodium Hydroxide Solution), 5 - 51%
Synonyms, Trade Names	Caustic Soda Liquor, Sodium Hydroxide Solution, Lye
REACH Registration number	01-2119457892-27
CAS-No.	1310-73-2
EC No.	215-185-5

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

Identified uses	Treatment of drinking water, has received approval by the European Committee for Standardisation. Treatment of waste water. Raw material. Neutralising agent. pH regulating agent Manufacture of substances. Absorbant for gases and liquids Manufacturing soaps Washing and cleaning products

1.3. Details of the supplier of the safety data sheet

Supplier

Industrial Chemicals Limited
Hogg Lane
Grays
Essex
RM17 5DU
United Kingdom
T:+44 (0)1375 389000
F:+44 (0)1375 389110
sds@icgl.co.uk

1.4. Emergency telephone number

+44 (0)1865 407333 (24-hour)

SECTION 2: HAZARDS IDENTIFICATION

2.1. Classification of the substance or mixture

Classification (EC 1272/2008)

Physical and Chemical Hazards	Met. Corr. 1 - H290
Human health	Skin Corr. 1A - H314;Eye Dam. 1 - H318
Environment	Not classified.

Classification (1999/45/EEC) C;R35.

The Full Text for all R-Phrases and Hazard Statements are Displayed in Section 16.

Human health

Corrosive. Prolonged contact causes serious eye and tissue damage.

Environment

Substantial amounts of the product may lead to a local change in acidity in small water systems which may have adverse effects on aquatic organisms.

2.2. Label elements

EC No.	215-185-5
Contains	SODIUM HYDROXIDE

Label In Accordance With (EC) No. 1272/2008

Caustic Soda (Sodium Hydroxide Solution), 5 - 51%

Signal Word	Danger	
Hazard Statements		
	H290	May be corrosive to metals.
	H314	Causes severe skin burns and eye damage.
	H318	Causes serious eye damage.
Supplementary Precautionary Statements		
	P234	Keep only in original container.
	P280	Wear protective gloves/protective clothing/eye protection/face protection.
	P260	Do not breathe vapour/spray.
	P264	Wash contaminated skin thoroughly after handling.
	P321	Specific treatment (see medical advice on this label).
	P301+330+331	IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
	P303+361+353	IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.
	P304+340	IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
	P305+351+338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
	P310	Immediately call a POISON CENTER or doctor/physician.
	P363	Wash contaminated clothing before reuse.
	P390	Absorb spillage to prevent material damage.
	P405	Store locked up.
	P406	Store in corrosive resistant/… container with a resistant inner liner.
	P501	Dispose of contents/container to …

2.3. Other hazards

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.2. Mixtures

SODIUM HYDROXIDE	**40-60%**
CAS-No.: 1310-73-2 **EC No.: 215-185-5**	
Classification (EC 1272/2008) Met. Corr. 1 - H290 Skin Corr. 1A - H314 Eye Dam. 1 - H318	Classification (67/548/EEC) C;R35

The Full Text for all R-Phrases and Hazard Statements are Displayed in Section 16.

REACH Registration number 01-2119457892-27

CAS-No. 1310-73-2

EC No. 215-185-5

Composition Comments

Mercury (Rayon) grade contains a low level of mercury, typically less than 0.1 ppm. Diaphragm grade contains up to 1.3% sodium chloride, which increases the density of the solution.

SECTION 4: FIRST AID MEASURES

4.1. Description of first aid measures

General information

Get medical attention immediately! CAUTION! First aid personnel must be aware of own risk during rescue!

Inhalation

Rinse nose, mouth, and throat with running water.

Ingestion

Do not induce vomiting. If confined to the mouth, rinse mouth thoroughly and ensure water is not swallowed. If swallowed, drink plenty of water. If substance has been swallowed, give water or milk to drink immediately. Get medical attention immediately!

Skin contact

Remove contaminated clothes and rinse skin thoroughly with water. Get medical attention immediately!

Eye contact

Promptly wash eyes with plenty of water while lifting the eye lids. Continue to rinse for at least 15 minutes.

4.2. Most important symptoms and effects, both acute and delayed

General information

Strong corrosive action on all body tissue, causing burns and frequently deep ulceration, and ultimately scarring.

Inhalation

Mist/droplets are irritating to the respiratory tract, and will cause a burning sensation in the throat, coughing, and breathing difficulties. Pulmonary oedema (excessive liquid in the lungs) can occur after inhalation of higher amounts.

Ingestion

Causes severe damage to gastrointestinal tract. Can cause perforation and scarring.

Skin contact

Burning pain and severe corrosive skin damage. Causes burns, deep ulceration, and scarring. Frequent contact with lower concentrations may cause eczema.

Eye contact

Corrosive to eyes. May cause severe corneal damage, reduced vision, or even blindness.

4.3. Indication of any immediate medical attention and special treatment needed

SECTION 5: FIREFIGHTING MEASURES

5.1. Extinguishing media

Extinguishing media

The product is non-combustible. Use fire-extinguishing media appropriate for surrounding materials.

5.2. Special hazards arising from the substance or mixture

Hazardous combustion products

Contact with some metals can liberate flammable hydrogen gas.

5.3. Advice for firefighters

Protective equipment for fire-fighters

Self contained breathing apparatus and full protective clothing must be worn in case of fire.

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1. Personal precautions, protective equipment and emergency procedures

Wear protective clothing as described in Section 8 of this safety data sheet. In case of spills, beware of slippery floors and surfaces.

6.2. Environmental precautions

Do not discharge into drains, water courses or onto the ground. Contain spillages with sand, earth or any suitable adsorbent material. Release to rivers will cause a strong increase in pH, resulting in death to aquatic organisms. Spillages or uncontrolled discharges into watercourses must be IMMEDIATELY alerted to the Environmental Agency or other appropriate regulatory body.

6.3. Methods and material for containment and cleaning up

Small Spillages: Neutralise with weak acid and wash away with water. Alternately, drench spill with water and wash away. Large Spillages: Isolate and pump into a tank. Dispose of via a licensed hazardous waste contractor. Keep people and animals away from contaminated areas.

6.4. Reference to other sections

SECTION 7: HANDLING AND STORAGE

7.1. Precautions for safe handling

Following prolonged storage in metal tanks, a black sludge will collect at the bottom of the tank. This will contain iron, sodium carbonate, and when Mercury (Rayon) grade is stored, mercury. Test the atmosphere in the tank for oxygen and mercury vapour before entering. Appropriate care must be taken when removing and handling this sludge, including control of atmospheric levels. Handle with care as an alkaline material. Take care when diluting with water (heat generation). Avoid contact with skin and eyes. Avoid generation of sprays or mists.

7.2. Conditions for safe storage, including any incompatibilities

Store in vessels of mild steel. Keep away from acids and other chemicals that react with this product. Build-up of white metal carbonate crystals may occur if tank is open to air.

7.3. Specific end use(s)

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1. Control parameters

Name	STD	TWA - 8 Hrs		STEL - 15 Min		Notes
SODIUM HYDROXIDE	WEL				2 mg/m3	

WEL = Workplace Exposure Limit.

8.2. Exposure controls

Protective equipment

Engineering measures

Provide adequate ventilation, including appropriate local extraction, to ensure that the defined occupational exposure limit is not exceeded.

Respiratory equipment

If ventilation is insufficient, suitable respiratory protection must be provided.

Hand protection

Wear protective gloves. Rubber or plastic.

Eye protection

Goggles/face shield are recommended.

Other Protection

Chemical suit and boots if handling large quantities.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1. Information on basic physical and chemical properties

Appearance	Colourless liquid.
Odour	Odourless.
Solubility	Miscible with water
Initial boiling point and boiling range (°C)	142
	For 50% Membrane grade
Melting point (°C)	12
	For 50% Membrane grade
Relative density	1525 20
	For 50% Membrane grade
Viscosity	78 cP 20
	For 50% Membrane grade

9.2. Other information

Caustic Soda (Sodium Hydroxide Solution), 5 - 51%

SECTION 10: STABILITY AND REACTIVITY

10.1. Reactivity

10.2. Chemical stability

10.3. Possibility of hazardous reactions

10.4. Conditions to avoid

Vessels should not be open to air; substance absorbs water and carbon dioxide. In extreme cases, the carbonate can form white floating crystals. Do not store adjacent to incompatible materials, such as acids and amphoteric metals eg aluminium, magnesium, zinc, tin and bronze - may release hydrogen gas.

10.5. Incompatible materials

Materials To Avoid

Reaction with ammonium compounds releases ammonia. May react violently with acrolein, acrylnitrice, and allyl alcohol. Heating with trichloroethylene will form explosive mixtures of dichloroacetylene. Some plastics, leather and textiles are destroyed on contact. Mixture with water or acids will release large quantities of heat.

10.6. Hazardous decomposition products

Thermally stable to boiling point; does not decompose. Precipitation of metal hydroxide crystals can occur below 12C.

SECTION 11: TOXICOLOGICAL INFORMATION

11.1. Information on toxicological effects

General information

Strong corrosive action on all body tissue, causing burns and frequently deep ulceration, with ultimate scarring.

Inhalation

Mist/droplets are corrosive to the respiratory tract, and will cause a burning sensation in the throat, coughing and breathing difficulties. Pulmonary oedema (excessive liquid in lungs) can occur after inhalation of higher amounts.

Ingestion

If ingested will cause severe damage to gastrointestinal tract. Can cause perforation and scarring.

Skin contact

Corrosive to body tissue, causing burns, deep ulceration, and scarring. Frequent contact with lower concentrations may cause eczema.

Eye contact

Vapour or spray may cause eye damage, impaired sight or blindness.

SECTION 12: ECOLOGICAL INFORMATION

Ecotoxicity

Spillage will cause localised damage to animals and plants on the ground. Do not allow release into controlled waters; resulting high pH will affect aquatic life forms. If allowed to enter drains will damage effluent treatment organisms. Neutralisation and dilution will greatly reduce these effects. Product is chemically degradable into sodium carbonate.

12.1. Toxicity

LC 50, 96 Hrs, Fish mg/l	45.4

12.2. Persistence and degradability

12.3. Bioaccumulative potential

12.4. Mobility in soil

12.5. Results of PBT and vPvB assessment

12.6. Other adverse effects

Caustic Soda (Sodium Hydroxide Solution), 5 - 51%

SECTION 13: DISPOSAL CONSIDERATIONS

13.1. Waste treatment methods

Neutralise with dilute acid and wash away with large amounts of water. Confirm disposal procedures with environmental engineer and local regulations.

SECTION 14: TRANSPORT INFORMATION

14.1. UN number

UN No. (ADR/RID/ADN) 1824

14.2. UN proper shipping name

Proper Shipping Name SODIUM HYDROXIDE SOLUTION

14.3. Transport hazard class(es)

ADR/RID/ADN Class Class 8: Corrosive substances.

Transport Labels

14.4. Packing group

ADR/RID/ADN Packing group II

IMDG Packing group II

ICAO Packing group II

14.5. Environmental hazards

14.6. Special precautions for user

Hazard No. (ADR) 80

14.7. Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code

SECTION 15: REGULATORY INFORMATION

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

15.2. Chemical Safety Assessment

No chemical safety assessment has been carried out.

SECTION 16: OTHER INFORMATION

General information

The material must only be loaded and unloaded from tankers by trained personnel, such as those with a Hazchem certificate.

Sodium hydroxide solution is used as a chemical for the treatment of drinking water, as approved by the European Committee for Standardisation under EN 896:2005.

This data sheet was prepared in accordance with EC 1907/2006 concerning REACH.

Revision Comments

Updated Section(s) 1,

Issued By D.Kelly

Caustic Soda (Sodium Hydroxide Solution), 5 - 51%

Revision Date	16/02/2015
Revision	10
Supersedes date	24/05/13

Risk Phrases In Full

R35	Causes severe burns.

Hazard Statements In Full

H318	Causes serious eye damage.
H314	Causes severe skin burns and eye damage.
H290	May be corrosive to metals.

Disclaimer

This information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process. Such information is, to the best of the company's knowledge and belief, accurate and reliable as of the date indicated. However, no warranty guarantee or representation is made to its accuracy, reliability or completeness. It is the user's responsibility to satisfy himself as to the suitability of such information for his own particular use.

SAFETY DATA SHEET

In accordance with REACH Regulation EC No.1907/2006

1. Identification of the substance/preparation and company

Product name: Cobra Atom Sea Breeze
Company name: Cobra Hydro Uk Ltd.

Company address: Unit 51
Romsey Industrial Estate
Greatbridge Road
Romsey
Hampshire SO51 0HR
Contact name: Mark/Mandy
E-Mail address: info@cobrahydrouk.co.uk
Emergency phone: 01794 522 672
Fax: 01794 522 647

2. Hazards identification

General: A low risk product (99.9625 % Water) that in normal industrial use is not classed as irritant. As a confidential mixture of fragrance ingredients, vegetable surfactant and water it is unlikely to cause any safety hazards in normal use at these low dilutions.
Hazard symbols: None.
Risk phrases: None.
Environment: When spilled in large quantities (>1,000 ltrs), can temporarily contaminate soil, ground and surface water.

3. Composition/information on ingredients

Chemical identification: Fragrance composition: multi component mixture of aromatic materials.
CAS number: Not applicable, product is a mixture.
EC number: Not applicable, product is a mixture.

Total hydrocarbon content: 0.0082341%

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REGISTRATION NUMBER 181908
Achilles serving the procurement professional

SAFETY DATA SHEET

In accordance with REACH Regulation EC No.1907/2006

Product: Cobra Atom Sea Breeze

Revision:2
Issue date: 15/01/2010

Version: 2 (24/09/10)

4. First-aid measures

Inhalation:	In enclosed areas or where excessive inhalation has taken place remove from exposure site to fresh air, keep at rest, and obtain medical attention if required.
Eye exposure:	Flush immediately with water for at least 15 minutes. Contact physician if any symptoms persist.
Skin exposure:	Small amounts are unlikely to cause any irritation. If excessive contact is made remove contaminated clothes. Wash thoroughly with soap and water. Contact physician if any irritation persists.
Ingestion:	Rinse mouth with water and obtain medical attention.
Others:	Risk and Safety phrases (section 15) into consideration.

5. Fire-fighting measures

Extinguishing media: Not Flammable

6. Accidental release measures

Personal precautions: Avoid excessive inhalation and regular contact with skin and eyes.

Spillage: Provide adequate ventilation. Avoid excessive inhalation of vapours if product is hot. Product is easily further diluted in water.

.

Environmental precautions: Keep excessive amounts away from drains, surface and ground water and soil.

7. Handling and storage

Handling:	Apply according to good manufacturing and industrial hygiene practices with proper ventilation. Do not drink, eat or smoke while handling product. Respect good personal hygiene.
Storage:	Store in a cool, dry and ventilated area. Keep air contact to a minimum.
Fire protection:	Product is water based-non flammable.

8. Exposure controls/personal protection

Respiratory protection: Avoid excessive inhalation of concentrated vapours.

Eye protection:	Wear safety glasses.
Skin protection:	Avoid excessive skin contact. Use rubber or protective gloves as needed.

9. Physical and chemical properties

Appearance:	Clear/ slightly hazy liquid
Odour:	Lemon
Boiling point:	Not determined
Flash point:	> 100
Relative density @ 20°C:	0.998
Refractive index @ 20°C:	Not determined

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SAFETY DATA SHEET

In accordance with REACH Regulation EC No.1907/2006

Product: Cobra Atom Sea Breeze

Revision:2
Issue date: 15/01/2010
Page)2
Version: 2 (24/09/10)

10. Stability and reactivity

Reactivity: Presents no significant reactivity hazard, by itself or in contact with water. Avoid contact with strong acids, alkali or oxidizing agents.

Decomposition: Carbon Dioxide.

11. Toxicological information

Based on the ingredients in this composition and their concentrations, this product is classified as: Safe when used as directed. The aromatic ingredients contained within this product are standard aroma chemicals used within the fragrance industry.

12. Ecological information

General: This material is unlikely to accumulate in the environment and environmental problems under normal use conditions are unexpected.

13. Disposal considerations

Dispose of according to local regulations. Avoid disposing large amounts into drainage systems and into the environment.

14. Transport information

UN Id:
Proper Shipping Name:
Packing Group:
Class:
Sub Risk:

15. Regulatory information

Classification Packaging / Labeling
Hazard symbols: None.
Risk phrases: None.
Safety phrases: None.

16. Other information

Concentration % Limits (*):
(*) These are the maximum percent concentrations that this material can be used in a non-hazardous product without the indicated risk being applicable to that product. The information in this leaflet is to the best of our knowledge true and accurate but all data, instructions, recommendations and/or suggestions are made without guarantee.

24th September 2010

SAFETY DATA SHEET

According to Regulation (EC) No. 453/2010

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

1.1. Product identifier

Product name:	**FLOFOAM™ S 15**
Type of product:	Mixture

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

Identified uses:	Processing aid for industrial applications.
Uses advised against:	All non-professional uses.

1.3. Details of the supplier of the safety data sheet

Company:	SNF SAS ZAC de Milieux Andrézieux - 42163 France
Telephone:	+33 (0)4 77 36 86 00
Telefax:	+33 (0)4 77 36 87 18
E-mail address:	sds@snf.fr

1.4. Emergency telephone number

24-hour emergency number:	+33 (0)4 77 86 87 25
National Poison Information Service:	NHS Direct: 0845 4647 or 111 (24/24, 7/7); Scotland: NHS 24 - 08454 24 24 24 (24/24, 7/7)

SECTION 2. Hazards identification

2.1. Classification of the substance or mixture

Classification according to Directive 1999/45/EC:	Not classified.

2.2. Label elements

Labelling according to Directive 1999/45/EC:

Symbol(s):	None.
Indication of danger:	None.
Risk phrase(s):	None.

Safety phrase(s): None.

Additional elements: None.

2.3. Other hazards

Spills produce extremely slippery surfaces.

PBT and vPvB assessment:
Does not fulfil the criteria according to Annex XIII of REACH.

SECTION 3. Composition/information on ingredients

3.1 Substances
This product is not a substance.

3.2 Mixtures
This product is a mixture.

Hazardous components
Contains no reportable hazardous substances.

SECTION 4. First aid measures

4.1. Description of first aid measures

Inhalation:
If inhaled, remove to fresh air. Get medical attention if symptoms appear.

Skin contact:
Remove soaked clothing immediately and wash affected skin with soap and water.

Eye contact:
In case of eye contact, remove contact lens and rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Get prompt medical attention.

Ingestion:
Do NOT induce vomiting. Rinse mouth. Call a physician immediately.

4.2. Most important symptoms and effects, both acute and delayed

None reasonably foreseeable.

4.3. Indication of any immediate medical attention and special treatment needed.

None reasonably foreseeable.

SECTION 5. Fire-fighting measures

5.1. Extinguishing media

Suitable extinguishing media:
Carbon dioxide (CO_2). Water spray. Foam. Dry powder.

Unsuitable extinguishing media:
High volume water jet.

5.2. Special hazards arising from the substance or mixture

Hazardous decomposition products:
Thermal decomposition may produce: nitrogen oxides (NOx), carbon oxides (COx).

5.3. Advice for fire-fighters

Protective measures:
Wear full protective clothing and self-contained breathing apparatus.

Other information:
Do not allow run-off from fire fighting to enter drains or water courses. Collect contaminated fire extinguishing water separately. This must not be discharged into drains.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Personal precautions:
Spills produce extremely slippery surfaces.

Protective equipment:
Wear suitable protective clothing, gloves and eye/face protection.

Emergency procedures:
Keep people away from spill/leak.

6.2. Environmental precautions

As with all chemical products, do not flush into surface water. Try to prevent the material from entering drains or water courses. If the product contaminates rivers and lakes or drains inform respective authorities.

6.3. Methods and material for containment and cleaning up

Use a non-combustable material like vermiculite, sand or earth to soak up the product and place into a container for later disposal.

Small spills:
Soak up with inert absorbent material.

Large spills:
Soak up with inert absorbent material. Prevent product from entering drains.

Residues:
Keep in suitable, closed containers for disposal.

6.4. Reference to other sections

Section 7 - Handling and Storage, Section 8 - Exposure Controls/ Personal Protection, Section 13 - Disposal considerations.

SECTION 7. Handling and storage

7.1. Precautions for safe handling

Use personal protective equipment. Wash hands before eating, drinking, or smoking. Wash hands before breaks and at the end of workday. Wash contaminated clothing before reuse.

7.2. Conditions for safe storage, including any incompatibilities.

Keep in a dry, cool and well-ventilated place. Keep away from sources of ignition - No smoking. Incompatible with oxidizing agents.

7.3. Specific end use(s)

None.

SECTION 8. Exposure controls/personal protection

8.1. Control parameters

National occupational exposure limits:
None.

Derived No and Minimum Effect Levels (DNELs/DMELs)
None.

Predicted no-effect concentrations (PNECs)
None.

8.2. Exposure controls

Appropriate engineering controls:

Ensure adequate ventilation.

Individual protection measures, such as personal protective equipment:

a) Eye/face protection:
Safety glasses with side-shields.

b) Skin protection:
Protective suit.

i) Hand protection:
For prolonged or repeated contact use protective gloves.

c) Respiratory protection:
No personal respiratory protective equipment normally required. Use with adequate ventilation. Do not breathe vapor or mist.

d) Additional advice:
Wash hands before breaks and at the end of workday. Wash hands before eating, drinking, or smoking. Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Handle in accordance with good industrial hygiene and safety practice.

Environmental exposure controls:

Do not allow uncontrolled discharge of product into the environment.

SECTION 9. Physical and chemical properties

9.1. Information on basic physical and chemical properties

a) Appearance: Viscous liquid.

b) Odour:	Slight.
c) Odour Threshold:	No data available.
d) pH:	No data available.
e) Melting point/freezing point:	No data available.
f) Initial boiling point and boiling range:	No data available.
g) Flash point:	> 100°C
h) Evaporation rate:	No data available.
i) Flammability (solid, gas):	Not applicable.
j) Upper/lower flammability or explosive limits:	No data available.
k) Vapour pressure:	No data available.
l) Vapour density:	No data available.
m) Relative density:	0.9 - 1.1
n) Solubility(ies):	Insoluble in water.
o) Partition coefficient:	No data available.
p) Autoignition temperature:	No data available.
q) Decomposition temperature:	No data available.
r) Viscosity:	See Technical Bulletin.
s) Explosive properties:	No data available.
t) Oxidizing properties:	No data available.

9.2. Other information

None.

SECTION 10. Stability and reactivity

10.1. Reactivity

Stable at normal conditions.

10.2. Chemical stability

Stable under normal conditions.

10.3. Possibility of hazardous reactions

No dangerous reaction known under conditions of normal use. Hazardous polymerisation does not occur.

10.4. Conditions to avoid

Avoid extremes of temperature. Incompatible with oxidizing agents.

10.5. Incompatible materials

Incompatible with oxidizing agents.

10.6. Hazardous decomposition products

Thermal decomposition may produce: nitrogen oxides (NOx), carbon oxides (COx).

SECTION 11. Toxicological information

11.1. Information on toxicological effects

Information on the product as supplied:

Acute oral toxicity:	LD50/oral/rat > 2000 mg/kg
Acute dermal toxicity:	LD50/dermal/rat > 2000 mg/kg
Acute inhalation toxicity:	The product is not expected to be toxic by inhalation.
Skin corrosion/irritation:	No skin irritation.
Serious eye damage/eye irritation:	Not irritating.
Respiratory/skin sensitisation:	Not sensitizing.
Mutagenicity:	Not mutagenic.
Carcinogenicity:	Not carcinogenic.
Reproductive toxicity:	Not toxic for reproduction.
STOT - single exposure:	No known effects.
STOT - repeated exposure:	No known effects.
Aspiration hazard:	No hazards resulting from the material as supplied.

SECTION 12. Ecological information

12.1. Toxicity

Information on the product as supplied:

Acute toxicity to fish:	No data available.
Acute toxicity to invertebrates:	No data available.
Acute toxicity to algae:	No data available.
Chronic toxicity to fish:	No data available.
Chronic toxicity to invertebrates:	No data available.
Toxicity to microorganisms:	No data available.
Effects on terrestrial organisms:	No data available.

Sediment toxicity: No data available.

12.2. Persistence and degradability

Information on the product as supplied:

Degradation: No data available.

Hydrolysis: No data available.

Photolysis: No data available.

12.3. Bioaccumulative potential

Information on the product as supplied:

No data available.

Partition co-efficient (Log Pow): No data available.

Bioconcentration factor (BCF): No data available.

12.4. Mobility in soil

Information on the product as supplied:

No data available.

12.5. Results of PBT and vPvB assessment

PBT assessment:
Does not fulfill the criteria according to Annex XIII of REACH.

vPvB assessment:
Does not fulfill the criteria according to Annex XIII of REACH.

12.6. Other adverse effects

None known.

SECTION 13. Disposal considerations

13.1. Waste treatment methods

Waste from residues / unused products:

Dispose of in accordance with local regulations.

Contaminated packaging:

Dispose of in accordance with local regulations.

Recycling:

Reuse or recycle container after thorough cleaning.

SECTION 14. Transport information

SECTION 14. Transport information

Land transport (ADR/RID)

Not classified as dangerous in the meaning of transport regulations.

Sea transport (IMDG)

Not classified as dangerous in the meaning of transport regulations.

Air transport (IATA)

Not classified as dangerous in the meaning of transport regulations.

SECTION 15. Regulatory information

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

All components of this product have been registered or pre-registered with the European Chemicals Agency or are exempt from registration.

15.2. Chemical safety assessment

A Chemical Safety Assessment for this product has been carried out by the person responsible for producing this Safety Data Sheet. All relevant information used to conduct this assessment are included in this Safety Data Sheet as well any as any resulting Risk Reduction Measures.

SECTION 16. Other information

This data sheet contains changes from the previous version in section(s):

SECTION 1. Identification of the substance/mixture and of the company/undertaking, SECTION 2. Hazards identification, SECTION 3. Composition/information on ingredients, SECTION 4. First aid measures, SECTION 5. Fire-fighting measures, SECTION 6. Accidental release measures, SECTION 7. Handling and storage, SECTION 8. Exposure controls/personal protection, SECTION 9. Physical and chemical properties, SECTION 10. Stability and reactivity, SECTION 11. Toxicological information, SECTION 12. Ecological information, SECTION 13. Disposal considerations, SECTION 14. Transport information, SECTION 15. Regulatory information, SECTION 16. Other Information.

Key or legend to abbreviations and acronyms used in the safety data sheet:

None.

Training advice:
Do not handle until all safety precautions have been read and understood

This MSDS was prepared in accordance with the following:

Regulation (EU) No. 453/2010
Regulation (EC) No. 1907/2006
Regulation (EC) No. 1272/2008

Revision Number: 14.01

DEFM001

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

ANNEX(ES)

This product is not hazardous as supplied and does not contain:

- hazardous components which require REACH registration; or,
- demonstrate relevant effects which would require a chemical safety assessment; or,
- are present at concentrations above their cut-off value.

Therefore, according to Regulation (EC) No 1907/2006, Article 31, paragraph 7, an Exposure Scenario is not required as an annex to the Safety Data Sheet.

POLY-STRIP

Safety Data Sheet

according to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2015/830
Issue date: 11/10/2021 Revision date: 3/19/2021 Version: 1.4

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

1.1. Product identifier

Product form	:	Mixture
Trade name	:	POLY-STRIP
Product code	:	08039
Type of product	:	Detergent

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

1.2.1. Relevant identified uses

Main use category	:	Professional use
Use of the substance/mixture	:	Cleaning/washing agents and additives
Function or use category	:	Cleaning/washing agents and additives

1.2.2. Uses advised against

No additional information available

1.3. Details of the supplier of the safety data sheet

CHEMICAL INDUSTRIAL SERVICES t/a CIS Chemicals
VERNON HOUSE
40 NEW NORTH ROAD
HD1 5LS HUDDERSFIELD - UNITED KINGDOM
T 0845 259 1178 - F 0845 299 1018
sales@cischemicals.co.uk - www.cischemicals.co.uk

1.4. Emergency telephone number

Emergency number	:	0845 259 1178 NORMAL OFFICE HOURS

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

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

Skin corrosion/irritation, Category 2	H315
Serious eye damage/eye irritation, Category 1	H318

Full text of H statements : see section 16

Adverse physicochemical, human health and environmental effects

Causes skin irritation. Causes serious eye damage.

2.2. Label elements

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

Hazard pictograms (CLP) :

GHS05

Signal word (CLP)	:	Danger
Contains	:	SODIUM METASILICATE PENTAHYDRATE; 2-aminoethanol; ethanolamine; COCAMIDOPROPYL BETAINE
Hazard statements (CLP)	:	H315 - Causes skin irritation. H318 - Causes serious eye damage.
Precautionary statements (CLP)	:	P264 - Wash hands thoroughly after handling. P280 - Wear eye protection.

P305+P351+P338+P310 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a doctor.
P321 - Specific treatment (see supplemental first aid instruction on this label).

2.3. Other hazards

No additional information available

SECTION 3: Composition/information on ingredients

3.1. Substances

Not applicable

3.2. Mixtures

Name	Product identifier	%	Classification according to Regulation (EC) No. 1272/2008 [CLP]
2-butoxyethanol; ethyleneglycol monobutyl ether; butyl cellosolve	CAS-No.: 111-76-2 EC-No.: 203-905-0 EC Index-No.: 603-014-00-0 REACH-no: 01-2119475108-36	≥ 5 – < 10	Acute Tox. 4 (Inhalation), H332 Acute Tox. 4 (Dermal), H312 Acute Tox. 4 (Oral), H302 Eye Irrit. 2, H319 Skin Irrit. 2, H315
SODIUM METASILICATE PENTAHYDRATE	CAS-No.: 6834-92-0 EC-No.: 229-912-9 EC Index-No.: 014-010-00-8 REACH-no: 01-2119449811-37	≥ 0.5 – < 5	Skin Corr. 1B, H314 STOT SE 3, H335
2-aminoethanol; ethanolamine	CAS-No.: 141-43-5 EC-No.: 205-483-3 EC Index-No.: 603-030-00-8 REACH-no: 01-2119486455-28	≥ 0.5 – < 5	Acute Tox. 4 (Inhalation), H332 Acute Tox. 4 (Dermal), H312 Acute Tox. 4 (Oral), H302 Skin Corr. 1B, H314
COCAMIDOPROPYL BETAINE	EC-No.: 931-296-8 REACH-no: 01-2119488533-XXXX	≥ 0.5 – < 5	Acute Tox. 4 (Oral), H302 Eye Dam. 1, H318 Aquatic Chronic 3, H412

Specific concentration limits: see section 16
Full text of H-statements: see section 16

SECTION 4: First aid measures

4.1. Description of first aid measures

First-aid measures general : Call a physician immediately.
First-aid measures after inhalation : Remove person to fresh air and keep comfortable for breathing.
First-aid measures after skin contact : Wash skin with plenty of water. Take off contaminated clothing. If skin irritation occurs: Get medical advice/attention.
First-aid measures after eye contact : Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Call a physician immediately.
First-aid measures after ingestion : Call a poison center or a doctor if you feel unwell.

4.2. Most important symptoms and effects, both acute and delayed

Symptoms/effects after skin contact : Irritation.
Symptoms/effects after eye contact : Serious damage to eyes.
Symptoms/effects after ingestion : Burns.

4.3. Indication of any immediate medical attention and special treatment needed

Treat symptomatically.

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media : Water spray. Dry powder. Foam. Carbon dioxide.

5.2. Special hazards arising from the substance or mixture

Hazardous decomposition products in case of fire : Toxic fumes may be released.

5.3. Advice for firefighters

Protection during firefighting : Do not attempt to take action without suitable protective equipment. Self-contained breathing apparatus. Complete protective clothing.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

6.1.1. For non-emergency personnel

Emergency procedures : Ventilate spillage area. Avoid contact with skin and eyes.

6.1.2. For emergency responders

Protective equipment : Do not attempt to take action without suitable protective equipment. For further information refer to section 8: "Exposure controls/personal protection".

6.2. Environmental precautions

Avoid release to the environment.

6.3. Methods and material for containment and cleaning up

Methods for cleaning up : Take up liquid spill into absorbent material.
Other information : Dispose of materials or solid residues at an authorized site.

6.4. Reference to other sections

For further information refer to section 13.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Precautions for safe handling : Ensure good ventilation of the work station. Avoid contact with skin and eyes. Wear personal protective equipment.
Hygiene measures : Wash contaminated clothing before reuse. Do not eat, drink or smoke when using this product. Always wash hands after handling the product.

7.2. Conditions for safe storage, including any incompatibilities

Storage conditions : Store in a well-ventilated place. Keep cool.

7.3. Specific end use(s)

No additional information available

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

8.1.1. National occupational exposure and biological limit values

2-aminoethanol; ethanolamine (141-43-5)	
United Kingdom - Occupational Exposure Limits	
Local name	2-Aminoethanol
WEL TWA (OEL TWA) [1]	2.5 mg/m³
WEL TWA (OEL TWA) [2]	1 ppm
WEL STEL (OEL STEL)	7.6 mg/m³
WEL STEL (OEL STEL) [ppm]	3 ppm
Remark (WEL)	Sk (Can be absorbed through the skin. The assigned substances are those for which there are concerns that dermal absorption will lead to systemic toxicity)
Regulatory reference	EH40/2005 (Fourth edition, 2020). HSE

8.1.2. Recommended monitoring procedures

No additional information available

8.1.3. Air contaminants formed

No additional information available

8.1.4. DNEL and PNEC

No additional information available

8.1.5. Control banding

No additional information available

8.2. Exposure controls

8.2.1. Appropriate engineering controls

Appropriate engineering controls:
Ensure good ventilation of the work station.

8.2.2. Personal protection equipment

Personal protective equipment symbol(s):

8.2.2.1. Eye and face protection

Eye protection:
Safety glasses

Eye protection			
Type	**Field of application**	**Characteristics**	**Standard**
Safety glasses, Safety goggles	Droplet	clear, Direct-ventilated, Plastic, With side shields	

8.2.2.2. Skin protection

Skin and body protection:
Wear suitable protective clothing

Hand protection:
Protective gloves

8.2.2.3. Respiratory protection

Respiratory protection:
In case of insufficient ventilation, wear suitable respiratory equipment

8.2.2.4. Thermal hazards

No additional information available

8.2.3. Environmental exposure controls

Environmental exposure controls:
Avoid release to the environment.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	:	Liquid
Colour	:	No data available
Odour	:	No data available
Odour threshold	:	No data available
pH	:	No data available
Relative evaporation rate (butylacetate=1)	:	No data available
Melting point	:	Not applicable
Freezing point	:	No data available
Boiling point	:	No data available
Flash point	:	No data available
Auto-ignition temperature	:	No data available
Decomposition temperature	:	No data available
Flammability (solid, gas)	:	Not applicable
Vapour pressure	:	No data available
Relative vapour density at 20 °C	:	No data available
Relative density	:	No data available
Density	:	1.05 – 1.08
Solubility	:	No data available
Partition coefficient n-octanol/water (Log Pow)	:	No data available
Viscosity, kinematic	:	No data available
Viscosity, dynamic	:	No data available
Explosive properties	:	No data available
Oxidising properties	:	No data available
Explosive limits	:	No data available

9.2. Other information

No additional information available

SECTION 10: Stability and reactivity

10.1. Reactivity

The product is non-reactive under normal conditions of use, storage and transport.

10.2. Chemical stability

Stable under normal conditions.

10.3. Possibility of hazardous reactions

No dangerous reactions known under normal conditions of use.

10.4. Conditions to avoid

None under recommended storage and handling conditions (see section 7).

10.5. Incompatible materials

No additional information available

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 toxicological effects

Acute toxicity (oral) : Not classified
Acute toxicity (dermal) : Not classified
Acute toxicity (inhalation) : Not classified

2-aminoethanol; ethanolamine (141-43-5)	
LD50 oral rat	1089 mg/kg
LD50 dermal rabbit	2504 mg/kg

COCAMIDOPROPYL BETAINE	
LD50 oral rat	2000 mg/kg

Skin corrosion/irritation : Causes skin irritation.
Serious eye damage/irritation : Causes serious eye damage.
Respiratory or skin sensitisation : Not classified
Germ cell mutagenicity : Not classified
Carcinogenicity : Not classified
Reproductive toxicity : Not classified
STOT-single exposure : Not classified

SODIUM METASILICATE PENTAHYDRATE (6834-92-0)	
STOT-single exposure	May cause respiratory irritation.

STOT-repeated exposure : Not classified
Aspiration hazard : Not classified

SECTION 12: Ecological information

12.1. Toxicity

Ecology - general : The product is not considered harmful to aquatic organisms nor to cause long-term adverse effects in the environment.
Hazardous to the aquatic environment, short-term (acute) : Not classified
Hazardous to the aquatic environment, long-term (chronic) : Not classified
Not rapidly degradable

2-aminoethanol; ethanolamine (141-43-5)	
LC50 - Fish [1]	349 mg/l Cyprinus carpio
LC50 - Fish [2]	170 mg/l Carassius auratus
EC50 - Crustacea [1]	65 mg/l Daphina magna

12.2. Persistence and degradability

No additional information available

12.3. Bioaccumulative potential

No additional information available

12.4. Mobility in soil

No additional information available

12.5. Results of PBT and vPvB assessment

No additional information available

12.6. Other adverse effects

No additional information available

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Waste treatment methods : Dispose of contents/container in accordance with licensed collector's sorting instructions.

SECTION 14: Transport information

In accordance with ADR / IMDG / IATA / ADN / RID

ADR	IMDG	IATA	ADN	RID
14.1. UN number				
Not regulated	Not regulated	Not regulated	Not regulated	Not regulated
14.2. UN proper shipping name				
Not regulated	Not regulated	Not regulated	Not regulated	Not regulated
14.3. Transport hazard class(es)				
Not regulated	Not regulated	Not regulated	Not regulated	Not regulated
14.4. Packing group				
Not regulated	Not regulated	Not regulated	Not regulated	Not regulated
14.5. Environmental hazards				
Not regulated	Not regulated	Not regulated	Not regulated	Not regulated
No supplementary information available				

14.6. Special precautions for user

Overland transport
Not regulated

Transport by sea
Not regulated

Air transport
Not regulated

Inland waterway transport
Not regulated

Rail transport
Not regulated

14.7. Transport in bulk according to Annex II of Marpol and the IBC Code

Not applicable

SECTION 15: Regulatory information

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

15.1.1. EU-Regulations

Contains no REACH substances with Annex XVII restrictions
Contains no substance on the REACH candidate list
Contains no REACH Annex XIV substances
Contains no substance subject to Regulation (EU) No 649/2012 of the European Parliament and of the Council of 4 July 2012 concerning the export and import of hazardous chemicals.
Contains no substance subject to Regulation (EU) No 2019/1021 of the European Parliament and of the Council of 20 June 2019 on persistent organic pollutants

Detergent Regulation (648/2004/EC): Ingredient data sheet		
Component	**CAS-No.**	**%**
2-butoxyethanol; ethyleneglycol monobutyl ether; butyl cellosolve	111-76-2	1 - 10%
disodium metasilicate	6834-92-0	1 - 10%
2-aminoethanol; ethanolamine	141-43-5	1 - 10%
COCAMIDOPROPYL BETAINE		1 - 10%
propan-2-ol; isopropyl alcohol; isopropanol	67-63-0	0.1 - 1%
WATER	7732-18-5	0.1 - 1%

15.1.2. National regulations

No additional information available

15.2. Chemical safety assessment

No chemical safety assessment has been carried out

SECTION 16: Other information

Abbreviations and acronyms	
ADN	European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways
ADR	European Agreement concerning the International Carriage of Dangerous Goods by Road
ATE	Acute Toxicity Estimate
BCF	Bioconcentration factor
BLV	Biological limit value
BOD	Biochemical oxygen demand (BOD)
COD	Chemical oxygen demand (COD)
DMEL	Derived Minimal Effect level
DNEL	Derived-No Effect Level
EC-No.	European Community number
EC50	Median effective concentration
EN	European Standard
IARC	International Agency for Research on Cancer
IATA	International Air Transport Association
IMDG	International Maritime Dangerous Goods
LC50	Median lethal concentration

Abbreviations and acronyms	
LD50	Median lethal dose
LOAEL	Lowest Observed Adverse Effect Level
NOAEC	No-Observed Adverse Effect Concentration
NOAEL	No-Observed Adverse Effect Level
NOEC	No-Observed Effect Concentration
OECD	Organisation for Economic Co-operation and Development
OEL	Occupational Exposure Limit
PBT	Persistent Bioaccumulative Toxic
PNEC	Predicted No-Effect Concentration
RID	Regulations concerning the International Carriage of Dangerous Goods by Rail
SDS	Safety Data Sheet
STP	Sewage treatment plant
ThOD	Theoretical oxygen demand (ThOD)
TLM	Median Tolerance Limit
VOC	Volatile Organic Compounds
CAS-No.	Chemical Abstract Service number
N.O.S.	Not Otherwise Specified
vPvB	Very Persistent and Very Bioaccumulative
ED	Endocrine disrupting properties

Full text of H- and EUH-statements	
Acute Tox. 4 (Dermal)	Acute toxicity (dermal), Category 4
Acute Tox. 4 (Inhalation)	Acute toxicity (inhal.), Category 4
Acute Tox. 4 (Oral)	Acute toxicity (oral), Category 4
Aquatic Chronic 3	Hazardous to the aquatic environment — Chronic Hazard, Category 3
Eye Dam. 1	Serious eye damage/eye irritation, Category 1
Eye Irrit. 2	Serious eye damage/eye irritation, Category 2
Skin Corr. 1B	Skin corrosion/irritation, Category 1, Sub-Category 1B
Skin Irrit. 2	Skin corrosion/irritation, Category 2
STOT SE 3	Specific target organ toxicity — Single exposure, Category 3, Respiratory tract irritation
H302	Harmful if swallowed.
H312	Harmful in contact with skin.
H314	Causes severe skin burns and eye damage.
H315	Causes skin irritation.
H318	Causes serious eye damage.
H319	Causes serious eye irritation.
H332	Harmful if inhaled.
H335	May cause respiratory irritation.
H412	Harmful to aquatic life with long lasting effects.

Name	Product identifier	Specific concentration limits
2-aminoethanol; ethanolamine	CAS-No.: 141-43-5 EC-No.: 205-483-3 EC Index-No.: 603-030-00-8 REACH-no: 01-2119486455-28	(5 ≤C ≤ 100) STOT SE 3, H335
COCAMIDOPROPYL BETAINE	EC-No.: 931-296-8 REACH-no: 01-2119488533-XXXX	(4 ≤C < 10) Eye Irrit. 2, H319 (10 ≤C < 100) Eye Dam. 1, H318

Safety Data Sheet (SDS), EU

This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product.

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Registered No: 1460346 (England).

SAFETY DATA SHEET

OG GREASE -TUFLUBE PLUS

Compilation date: 04/09/2014

Revision No: 1

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

1.1. Product identifier

Product name: OG GREASE - TUFLUBE PLUS

Product code: PC 1112

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

Use of substance / mixture: PC24: Lubricants, greases, release products.

1.3. Details of the supplier of the safety data sheet

Company name: Wymark Ltd

Runnings Road

Kingsditch Industrial Estate

Cheltenham

Gloucestershire

United Kingdom

Tel: +44 (0)1242 520966

Email: info@wymark.co.uk

1.4. Emergency telephone number

Emergency tel: +44 (0)1242 520966

(office hours only)

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Registered No: 1460346 (England).

Section 2: Hazards identification

2.1. Classification of the substance or mixture

Classification under CLP: Eye Irrit. 2: H319

Most important adverse effects: Causes serious eye irritation.

2.2. Label elements

Label elements:

Hazard statements: H319: Causes serious eye irritation.

Hazard pictograms: GHS07: Exclamation mark

Signal words: Warning

Precautionary statements: P264: Wash hands thoroughly after handling.

P280: Wear protective gloves/protective clothing/eye protection/face protection.

P305+351+338: IF IN EYES: Rinse cautiously with water for several minutes. Remove

contact lenses, if present and easy to do. Continue rinsing.

P337+313: If eye irritation persists: Get medical advice/attention.

2.3. Other hazards

PBT: This product is not identified as a PBT/vPvB substance.

Section 3: Composition/information on ingredients

3.2. Mixtures

Hazardous ingredients:

PHOSPHORODITHIOIC ACID, MIXED O,O-BIS(2-ETHYLHEXYLAND ISO-BU AND ISO-PR) ESTERS, ZINC SALTS

EINECS CAS PBT / WEL CLP Classification Percent

288-917-4 85940-28-9 - Skin Irrit. 2: H315; Eye Dam. 1: H318;

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Aquatic Chronic 2: H411

1-10%

Section 4: First aid measures

4.1. Description of first aid measures

Skin contact: Wash immediately with plenty of soap and water.

Eye contact: Bathe the eye with running water for 15 minutes.

Ingestion: Wash out mouth with water. Do not induce vomiting. Consult a doctor.

Inhalation: Not applicable.

4.2. Most important symptoms and effects, both acute and delayed

Skin contact: There may be mild irritation at the site of contact.

Eye contact: There may be irritation and redness.

Ingestion: There may be irritation of the throat.

Inhalation: Not applicable.

Delayed / immediate effects: Continuous skin contact may cause skin sensitivity and dermatitis

4.3. Indication of any immediate medical attention and special treatment needed

Immediate / special treatment: Not applicable.

Section 5: Fire-fighting measures

5.1. Extinguishing media

Extinguishing media: Suitable extinguishing media for the surrounding fire should be used. Use water spray to cool containers. Carbon dioxide.

5.2. Special hazards arising from the substance or mixture

Exposure hazards: In combustion emits toxic fumes of carbon dioxide / carbon monoxide.

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5.3. Advice for fire-fighters

Advice for fire-fighters: Wear self-contained breathing apparatus. Wear protective clothing to prevent contact with skin and eyes.

Section 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Personal precautions: Refer to section 8 of SDS for personal protection details. Turn leaking containers leakside

up to prevent the escape of liquid.

6.2. Environmental precautions

Environmental precautions: Do not discharge into drains or rivers. Contain the spillage using bunding.

6.3. Methods and material for containment and cleaning up

Clean-up procedures: Absorb into dry earth or sand. Transfer to a closable, labelled salvage container for disposal by an appropriate method.

6.4. Reference to other sections

Reference to other sections: Refer to section 8 of SDS.

Section 7: Handling and storage

7.1. Precautions for safe handling

Handling requirements: Avoid direct contact with the substance.

7.2. Conditions for safe storage, including any incompatibilities

Storage conditions: Store in a cool, well ventilated area. Keep away from sources of ignition. Keep container tightly closed.

Suitable packaging: Not applicable.

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7.3. Specific end use(s)

Specific end use(s): PC24: Lubricants, greases, release products.

Section 8: Exposure controls/personal protection

8.1. Control parameters

Workplace exposure limits: No data available.

DNEL/PNEC Values

DNEL / PNEC No data available.

8.2. Exposure controls

Engineering measures: Not applicable.

Respiratory protection: Respiratory protection not required.

Hand protection: Protective gloves.

Eye protection: Safety glasses.

Skin protection: Protective clothing.

Environmental: No special requirement.

Section 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

State: Grease

Colour: Black

Odour: Odourless

Solubility in water: Insoluble

Melting point/range°C: >150 **Flash point°C:** >150

Autoflammability°C: >200 **Relative density:** 1.00

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9.2. Other information

Other information: Not applicable.

Section 10: Stability and reactivity

10.1. Reactivity

Reactivity: Stable under recommended transport or storage conditions.

10.2. Chemical stability

Chemical stability: Stable under normal conditions.

10.3. Possibility of hazardous reactions

Hazardous reactions: Hazardous reactions will not occur under normal transport or storage conditions.

Decomposition may occur on exposure to conditions or materials listed below.

10.4. Conditions to avoid

Conditions to avoid: Heat. Sources of ignition. Flames.

10.5. Incompatible materials

Materials to avoid: Strong oxidising agents. Strong acids.

10.6. Hazardous decomposition products

Haz. decomp. products: In combustion emits toxic fumes of carbon dioxide / carbon monoxide.

Section 11: Toxicological information

11.1. Information on toxicological effects

Relevant hazards for product:

Hazard Route Basis

Serious eye damage/irritation OPT Hazardous: calculated

Symptoms / routes of exposure

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Skin contact: There may be mild irritation at the site of contact.

Eye contact: There may be irritation and redness.

Ingestion: There may be irritation of the throat.

Inhalation: Not applicable.

Delayed / immediate effects: Continuous skin contact may cause skin sensitivity and dermatitis

Other information: Not applicable.

Section 12: Ecological information

12.1. Toxicity

Ecotoxicity values: No data available.

12.2. Persistence and degradability

Persistence and degradability: Biodegradable in part only.

12.3. Bioaccumulative potential

Bioaccumulative potential: Slightly bioaccumulable.

12.4. Mobility in soil

Mobility: Insoluble in water. Absorbed only slowly into soil.

12.5. Results of PBT and vPvB assessment

PBT identification: This product is not identified as a PBT/vPvB substance.

12.6. Other adverse effects

Other adverse effects: Negligible ecotoxicity.

Section 13: Disposal considerations

13.1. Waste treatment methods

Disposal operations: Transfer to a suitable container and arrange for collection by specialised disposal company.

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Recovery operations: Not applicable.

Disposal of packaging: Dispose of as normal industrial waste.

NB: The user's attention is drawn to the possible existence of regional or national regulations regarding disposal.

Section 14: Transport information

Transport class: This product does not require a classification for transport.

Section 15: Regulatory information

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

Specific regulations: Not applicable.

15.2. Chemical Safety Assessment

Section 16: Other information

Other information

Other information: This safety data sheet is prepared in accordance with Commission Regulation (EU) No 2015/830.

* indicates text in the SDS which has changed since the last revision.

Phrases used in s.2 and s.3: H315: Causes skin irritation.

H318: Causes serious eye damage.

H319: Causes serious eye irritation.

H411: Toxic to aquatic life with long lasting effects.

Legal disclaimer: The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. This company shall not be held liable for any damage resulting from handling or from contact with the above product.