

SAFETY DATA SHEET



C5 RAFFINATE

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

1.1 Product identifier

Product name : C5 RAFFINATE
see Section 16 for Synonyms

EC number : 270-735-1

CAS number : 68477-50-9

Product description : Olefin

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

Intended Use : Intermediate

Identified uses

Distribution of substance
Manufacture of substance
Use as an intermediate

Uses advised against

Not applicable.

1.3 Details of the supplier of the safety data sheet

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

Supplier General Contact : + 32 2 239 3111

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

SDS Internet Address : www.sds.exxonmobil.com

National contact

ExxonMobil Chemical Ltd.
MAILPOINT 14
MARSH LANE
FAWLEY, SOUTHAMPTON
SO45 1TX HAMPSHIRE
Great Britain
+44 (0)23-8089-3822

1.4 Emergency telephone number

**National advisory body/
Poison Centre** : (UK) 111

**24 Hour Emergency
Telephone** : +44 20 3807 3798 / +1-703-527-3887 (CHEMTREC)

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Product definition : UVCB

Classification according to UK CLP/GHS

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SECTION 2: Hazards identification

Flam. Liq. 1, H224
 Acute Tox. 4, H302
 Acute Tox. 4, H312
 Skin Irrit. 2, H315
 Eye Irrit. 2, H319
 Muta. 1B, H340
 Carc. 1A, H350
 Repr. 2, H361d
 STOT SE 3, H335
 STOT SE 3, H336
 Asp. Tox. 1, H304
 Aquatic Chronic 2, H411

The product is classified as hazardous according to UK CLP Regulation SI 2019/720 as amended.

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

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

2.2 Label elements

Hazard pictograms



Signal word

: Danger

Hazard statements

: H224 - Extremely flammable liquid and vapour.
 H302 + H312 - Harmful if swallowed or in contact with skin.
 H304 - May be fatal if swallowed and enters airways.
 H315 - Causes skin irritation.
 H319 - Causes serious eye irritation.
 H335 - May cause respiratory irritation.
 H336 - May cause drowsiness or dizziness.
 H340 - May cause genetic defects.
 H350 - May cause cancer.
 H361d - Suspected of damaging the unborn child.
 H411 - Toxic to aquatic life with long lasting effects.

Precautionary statements

Prevention

: P201 - Obtain special instructions before use.
 P202 - Do not handle until all safety precautions have been read and understood.
 P210 - Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
 P240 - Ground and bond container and receiving equipment.
 P241 - Use explosion-proof electrical, ventilating or lighting equipment.
 P242 - Use non-sparking tools.
 P243 - Take action to prevent static discharges.
 P261 - Avoid breathing vapour.
 P264 - Wash thoroughly after handling.
 P270 - Do not eat, drink or smoke when using this product.
 P271 - Use only outdoors or in a well-ventilated area.
 P273 - Avoid release to the environment.
 P280 - Wear protective gloves, protective clothing, eye protection, face protection, or hearing protection.

Response

: P301 + P330, P331, P310 - IF SWALLOWED: Rinse mouth. Do NOT induce vomiting. Immediately call a POISON CENTER or doctor.
 P302 + P312, P352 - IF ON SKIN: Call a POISON CENTER or doctor if you feel unwell. Wash with plenty of water.
 P303 + P361 + P353 - IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water or shower.
 P304 + P312, P340 - IF INHALED: Call a POISON CENTER or doctor if you feel unwell. Remove person to fresh air and keep comfortable for breathing.
 P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

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SECTION 2: Hazards identification

- P308 + P313 - IF exposed or concerned: Get medical advice or attention.
 P332 + P313 - If skin irritation occurs: Get medical advice/attention.
 P337 + P313 - If eye irritation persists: Get medical advice/attention.
 P362 + P364 - Take off contaminated clothing and wash it before reuse.
 P370 + P378 - In case of fire: Use water fog, foam, dry chemical or carbon dioxide (CO2) to extinguish flames.
 P391 - Collect spillage.
- Storage** : P403 + P233 - Store in a well-ventilated place. Keep container tightly closed.
 P403 + P235 - Keep cool.
 P405 - Store locked up.
- Disposal** : P501 - Dispose of contents and container in accordance with all local, regional, national and international regulations.
- Hazardous ingredients** : distillates (petroleum), polymd. steam-cracked petroleum distillates, c5-12 fraction
- Supplemental label elements** : Not applicable.
- Annex XVII - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles** : None.
- Special packaging requirements**
- Containers to be fitted with child-resistant fastenings** : Not applicable.
- Tactile warning of danger** : Not applicable.

2.3 Other hazards

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

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

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

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

SECTION 3: Composition/information on ingredients

3.1 Substances : UVCB

Product/ingredient name	Identifiers	%	Classification	Type
distillates (petroleum), polymd. steam-cracked petroleum distillates, c5-12 fraction	REACH #: 01-2119490729-21 EC: 270-735-1 CAS: 68477-50-9	100	Flam. Liq. 1, H224 Acute Tox. 4, H302 Acute Tox. 4, H312 Skin Irrit. 2, H315 Eye Irrit. 2, H319 Muta. 1B, H340 Carc. 1A, H350 Repr. 2, H361d STOT SE 3, H335 STOT SE 3, H336 Asp. Tox. 1, H304 Aquatic Chronic 2, H411	[1]
pentane	REACH #:	0 - 50	Flam. Liq. 1, H224	[1]

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SECTION 3: Composition/information on ingredients

isopentane	01-2119459286-30 EC: 203-692-4 CAS: 109-66-0 REACH #: 01-2119475602-38 EC: 201-142-8 CAS: 78-78-4	0 - 35	STOT SE 3, H336 Asp. Tox. 1, H304 Aquatic Chronic 2, H411 EUH066 Flam. Liq. 1, H224 STOT SE 3, H336 Asp. Tox. 1, H304 Aquatic Chronic 2, H411 EUH066	[1]
pentene-2	EC: 203-695-0 CAS: 109-68-2	0 - 20	Flam. Liq. 2, H225 Skin Irrit. 2, H315 Eye Irrit. 2, H319 STOT SE 3, H336 Asp. Tox. 1, H304	[1]
cyclopentene	EC: 205-532-9 CAS: 142-29-0	0 - 10.5	Flam. Liq. 2, H225 Acute Tox. 4, H302 Acute Tox. 4, H312 Skin Irrit. 2, H315 Asp. Tox. 1, H304	[1]
benzene	REACH #: 01-2119447106-44 EC: 200-753-7 CAS: 71-43-2	0 - 0.5	Flam. Liq. 2, H225 Skin Irrit. 2, H315 Eye Irrit. 2, H319 Muta. 1B, H340 Carc. 1A, H350 STOT RE 1, H372 (blood) Asp. Tox. 1, H304 Aquatic Chronic 3, H412	[1]
1,3-butadiene	REACH #: 01-2119471988-16 EC: 203-450-8 CAS: 106-99-0	0 - 0.1	Flam. Gas 1A, H220 Press. Gas (Liq.), H280 Muta. 1B, H340 Carc. 1A, H350 See Section 16 for the full text of the H statements declared above.	[1]

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

Type

[1] Constituent

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

SECTION 4: First aid measures

4.1 Description of first aid measures

Eye contact

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

Inhalation

: Remove victim to fresh air and keep at rest in a position comfortable for breathing. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Get medical attention. If necessary, call a poison center or physician. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.

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SECTION 4: First aid measures

- Skin contact** : Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Wash clothing before reuse. Clean shoes thoroughly before reuse. Continue to rinse for at least 10 minutes. Wash contaminated clothing thoroughly with water before removing it, or wear gloves. Get medical attention. If necessary, call a poison center or physician. Wash with plenty of soap and water.
- Ingestion** : Get medical attention immediately. Call a poison center or physician. Wash out mouth with water. Remove dentures if any. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. Aspiration hazard if swallowed. Can enter lungs and cause damage. Do not induce vomiting. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.
- Protection of first-aiders** : No action shall be taken involving any personal risk or without suitable training. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Wash contaminated clothing thoroughly with water before removing it, or wear gloves.

4.2 Most important symptoms and effects, both acute and delayed

Over-exposure signs/symptoms

- Eye contact** : Adverse symptoms may include the following:
pain or irritation
watering
redness
- Inhalation** : Adverse symptoms may include the following:
respiratory tract irritation
coughing
nausea or vomiting
headache
drowsiness/fatigue
dizziness/vertigo
unconsciousness
- Skin contact** : Adverse symptoms may include the following:
irritation
redness
- Ingestion** : Adverse symptoms may include the following:
nausea or vomiting

4.3 Indication of any immediate medical attention and special treatment needed

- Notes to physician** : If ingested, material may be aspirated into the lungs and cause chemical pneumonitis. Treat appropriately. This material, or a component, may be associated with cardiac sensitization following very high exposures (well above occupational exposure limits) or with concurrent exposure to high stress levels or heart-stimulating substances like epinephrine. Administration of such substances should be avoided.
- Specific treatments** : No specific treatment.

See toxicological information (Section 11)

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SECTION 5: Firefighting measures

5.1 Extinguishing media

- Suitable extinguishing media** : Use dry chemical, CO₂, water spray (fog) or foam.
- Unsuitable extinguishing media** : Do not use water jet.

5.2 Special hazards arising from the substance or mixture

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

5.3 Advice for firefighters

- Special protective actions for fire-fighters** : Use standard firefighting procedures and consider the hazards of other involved materials. Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. Move containers from fire area if this can be done without risk. Use water spray to keep fire-exposed containers cool. Assure an extended cooling down period to prevent re-ignition. Prevent run-off from fire control or dilution from entering streams, sewers or drinking water supply. No action shall be taken involving any personal risk or without suitable training.
- Special protective equipment for fire-fighters** : Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

SECTION 6: Accidental release measures

NOTIFICATION PROCEDURES

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

6.1 Personal precautions, protective equipment and emergency procedures

- For non-emergency personnel** : No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilt material. Shut off all ignition sources. No flares, smoking or flames in hazard area. Put on appropriate personal protective equipment. Avoid breathing vapour or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate.
- For emergency responders** : If specialised clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".

6.2 Environmental precautions

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

6.3 Methods and material for containment and cleaning up

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

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SECTION 6: Accidental release measures

Large spill : Stop leak if without risk. Eliminate all ignition sources. Move containers from spill area. Use spark-proof tools and explosion-proof equipment. Approach the release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Wash spillages into an effluent treatment plant or proceed as follows. Contain and collect spillage with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations (see Section 13). Dispose of via a licensed waste disposal contractor. Contaminated absorbent material may pose the same hazard as the spilt product. If the Flash Point does not exceed the Ambient Air Temperature by at least 10C, use booms as a barrier to protect shorelines and allow material to evaporate. If the Flash Point exceeds the Ambient Temperature by 10 deg C or more, use containment booms and remove from the surface by skimming or with suitable absorbents when conditions permit. Seek the advice of a specialist before using dispersants. Warn other shipping. Note: see Section 1 for emergency contact information and Section 13 for waste disposal.

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

6.4 Reference to other sections : See Section 1 for emergency contact information.
See Section 8 for information on appropriate personal protective equipment.
See Section 13 for additional waste treatment information.

SECTION 7: Handling and storage

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

7.1 Precautions for safe handling

Protective measures : Put on appropriate personal protective equipment (see Section 8). Avoid exposure - obtain special instructions before use. Avoid exposure during pregnancy. Do not handle until all safety precautions have been read and understood. Do not get in eyes or on skin or clothing. Do not swallow. Avoid breathing vapour or mist. Avoid release to the environment. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Do not enter storage areas and confined spaces unless adequately ventilated. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Store and use away from heat, sparks, open flame or any other ignition source. Use explosion-proof electrical (ventilating, lighting and material handling) equipment. Use only non-sparking tools. Take precautionary measures against electrostatic discharges. To avoid fire or explosion, dissipate static electricity during transfer by earthing and bonding containers and equipment before transferring material. Empty containers retain product residue and can be hazardous. Do not reuse container.

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

Static Accumulator : This material is a static accumulator.

Loading/Unloading Temperature : Ambient

Transport Temperature : Ambient

Transport Pressure : Ambient

7.2 Conditions for safe storage, including any incompatibilities

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SECTION 7: Handling and storage

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

Seveso Directive - Reporting thresholds

Named substances

Name	Notification and MAPP threshold	Safety report threshold
Petroleum products and alternative fuels (a) gasolines and naphthas, (b) kerosenes (including jet fuels), (c) gas oils (including diesel fuels, home heating oils and gas oil blending streams) (d) heavy fuel oils (e) alternative fuels serving the same purposes and with similar properties as regards flammability and environmental hazards as the products referred to in points (a) to (d)	2500 tonne	25000 tonne

Danger criteria

Category	Notification and MAPP threshold	Safety report threshold
P5a E2	10 tonne 200 tonne	50 tonne 500 tonne

Storage Temperature : Ambient

Storage Pressure : Ambient

**Suitable Containers/
Packing** : Tank Cars, Tank Trucks, Drums

**Suitable Materials and
Coatings** : Epoxy Phenolics, Inorganic Zinc Coatings, Carbon Steel, Stainless Steel, Cast Iron

**Unsuitable Materials and
Coatings** : rubber, Amine Epoxy

7.3 Specific end use(s)

Recommendations : Not available.

**Industrial sector specific
solutions** : Not available.

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Occupational exposure limits

Product/ingredient name	Exposure limit values
pentane	EH40/2005 WELs (United Kingdom (UK), 1/2020) TWA 8 hours: 600 ppm. TWA 8 hours: 1800 mg/m ³ . EU OEL (Europe, 1/2022) TWA 8 hours: 3000 mg/m ³ . TWA 8 hours: 1000 ppm. ACGIH TLV (United States, 1/2024) [Pentane] TWA 8 hours: 1000 ppm.
isopentane	EH40/2005 WELs (United Kingdom (UK), 1/2020) TWA 8 hours: 600 ppm. TWA 8 hours: 1800 mg/m ³ . EU OEL (Europe, 1/2022) TWA 8 hours: 3000 mg/m ³ .

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isoprene	TWA 8 hours: 1000 ppm. ACGIH TLV (United States, 1/2024) [Pentane]
benzene	TWA 8 hours: 1000 ppm. ExxonMobil (COMPANY) TWA 8 hours: 10 ppm. EH40/2005 WELs (United Kingdom (UK), 1/2020) Absorbed through skin. TWA 8 hours: 1 ppm. TWA 8 hours: 3.25 mg/m ³ . EU OEL (Europe, 3/2024) Absorbed through skin. TWA 8 hours: 0.5 ppm. TWA 8 hours: 1.65 mg/m ³ . ACGIH TLV (United States, 1/2024) Absorbed through skin. TWA 8 hours: 0.02 ppm. ExxonMobil (COMPANY) Absorbed through skin. STEL 15 minutes: 1 ppm. TWA 8 hours: 0.2 ppm.
1,3-butadiene	EH40/2005 WELs (United Kingdom (UK), 1/2020) TWA 8 hours: 1 ppm. TWA 8 hours: 2.2 mg/m ³ . EU OEL (Europe, 3/2024) TWA 8 hours: 1 ppm. TWA 8 hours: 2.2 mg/m ³ . ACGIH TLV (United States, 1/2024) TWA 8 hours: 2 ppm. TWA 8 hours: 4.4 mg/m ³ .

NOTE: Limits/standards shown for guidance only. Follow applicable regulations.

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

DNELs/DMELs

Product/ingredient name	Type	Exposure	Value	Population	Effects
pentane	DNEL	Long term Oral	214 mg/kg bw/day	General population	Systemic
	DNEL	Long term Dermal	214 mg/kg bw/day	General population	Systemic
	DNEL	Long term Inhalation	3000 mg/m ³	Workers	Systemic
	DNEL	Long term Dermal	432 mg/kg bw/day	Workers	Systemic
isopentane	DNEL	Long term Inhalation	643 mg/m ³	General population	Systemic
	DNEL	Long term Inhalation	643 mg/m ³	General population	Systemic
	DNEL	Long term Dermal	214 mg/kg bw/day	General population	Systemic
	DNEL	Long term Inhalation	3000 mg/m ³	Workers	Systemic
1,3-butadiene	DNEL	Long term Oral	214 mg/kg bw/day	General population	Systemic
	DNEL	Long term Dermal	432 mg/kg bw/day	Workers	Systemic
	DNEL	Long term Inhalation	0.066 mg/m ³	General population	Systemic

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SECTION 8: Exposure controls/personal protection

	DNEL	Long term Inhalation	2.21 mg/m ³	Workers	Systemic
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PNECs

Product/ingredient name	Compartment Detail	Value	Method Detail
pentane	Fresh water sediment	1.2 mg/kg dwt	-
	Sewage treatment plant	3.6 mg/l	-
	Fresh water	0.23 mg/l	-
	Marine water	0.23 mg/l	-
	Soil	0.55 mg/kg	-
	Marine water sediments	1.2 mg/kg dwt	-

8.2 Exposure controls

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

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

Individual protection measures

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

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

Skin protection

Hand protection : Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. Considering the parameters specified by the glove manufacturer, check during use that the gloves are still retaining their protective properties. It should be noted that the time to breakthrough for any glove material may be different for different glove manufacturers. In the case of mixtures, consisting of several substances, the protection time of the gloves cannot be accurately estimated. > 8 hours (breakthrough time): Viton, minimum 0.71 mm thickness or comparable protective barrier material
CEN standards EN 420 and EN 374 provide general requirements and lists of glove types.

Body protection : Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product. When there is a risk of ignition from static electricity, wear anti-static protective clothing. For the greatest protection from static discharges, clothing should include anti-static overalls, boots and gloves.

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

Respiratory protection : Based on the hazard and potential for exposure, select a respirator that meets the appropriate standard or certification. Respirators must be used according to a respiratory protection program to ensure proper fitting, training, and other important aspects of use. Recommended: organic vapour filter (Type A)
European Committee for Standardization (CEN) standards EN 136, 140 and 405 provide respirator masks and EN 149 and 143 provide filter recommendations.

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

Section 9. Physical and chemical properties and safety characteristics

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

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

9.1 Information on basic physical and chemical properties**Appearance**

Physical state	: Liquid. [Clear]
Colour	: Colorless to Yellow
Odour	: Pungent petroleum
Odour threshold	: Not available.
pH	: Not applicable.
Melting point/freezing point	: Not available.
Boiling point or initial boiling point and boiling range	: 29.4 to 74.7°C (84.9 to 166.5°F) [In-house method ,]
Flash point	: Closed cup: <-15°C (<5°F) [In-house method ,]
Evaporation rate	: Not available.
Flammability	: Flammable liquids - Category 1
Lower and upper explosive (flammable) limits	: Not available.
Vapour pressure	: 663.8 to 855.07 mm Hg [37.8 °C] [In-house method ,]
Relative vapour density	: Not available.
Relative density	: 0.665 [ASTM D4052]
Solubility in water	: Negligible
Partition coefficient: n-octanol/ water	: 2.2 to 5
Auto-ignition temperature	: Not available.
Decomposition temperature	: Not available.
Viscosity	: 0.59 to 5.2 cSt [20 °C]
Particle characteristics	
Median particle size	: Not applicable.
Pour point	: <-100°C [Technical literature]

SECTION 10: Stability and reactivity

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

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SECTION 10: Stability and reactivity

10.5 Incompatible materials : Reactive or incompatible with the following materials:,oxidising materials,Alkalies, Formic acids, Strong oxidisers

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

Product/ingredient name	Test	Species	Result	Duration
distillates (petroleum), polymd. steam-cracked petroleum distillates, c5-12 fraction	LC50 Inhalation Vapour	Rat	>5200 mg/m ³	4 hours
	LD50 Dermal	Rabbit	1183 mg/kg	-
cyclopentene	LD50 Oral	Rat	1592 mg/kg	-
	LD50 Dermal	Rabbit	1231 mg/kg	-
	LD50 Oral	Rat	1656 mg/kg	-

Conclusion/Summary

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

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

Oral : Slightly toxic. Data available. Based on test data for structurally similar materials. Test(s) equivalent or similar to OECD Guideline 401

Acute toxicity estimates

Product/ingredient name	Oral (mg/kg)	Dermal (mg/kg)	Inhalation (gases) (ppm)	Inhalation (vapours) (mg/l)	Inhalation (dusts and mists) (mg/l)
distillates (petroleum), polymd. steam-cracked petroleum distillates, c5-12 fraction	1058.4	1100	N/A	>20	N/A
distillates (petroleum), polymd. steam-cracked petroleum distillates, c5-12 fraction	500	1100	N/A	N/A	N/A
cyclopentene	1656	1231	N/A	N/A	N/A
benzene	2500	N/A	N/A	N/A	N/A

Irritation/Corrosion

Conclusion/Summary

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

Eyes : Irritating and will injure eye tissue. Data available. Based on test data for structurally similar materials. Test(s) equivalent or similar to OECD Guideline 405

Respiratory : May be irritating to the respiratory tract. The effects are reversible. No end point data for material.

Respiratory or skin sensitization

Conclusion/Summary

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

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

Mutagenicity

Conclusion/Summary : May cause genetic defects. No end point data for material. Based on assessment of the components.

Carcinogenicity

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SECTION 11: Toxicological information

Conclusion/Summary : May cause cancer. No end point data for material. Based on assessment of the components.

Reproductive toxicity

Conclusion/Summary : May damage the unborn child. No end point data for material. Based on assessment of the components.

Specific target organ toxicity (single exposure)

Not available.

Conclusion/Summary : May cause drowsiness or dizziness. May cause respiratory irritation. No end point data for material.

Specific target organ toxicity (repeated exposure)

distillates (petroleum), polymd. steam-cracked petroleum Not applicable. -
distillates, c5-12 fraction

Conclusion/Summary : Not expected to cause organ damage from prolonged or repeated exposure. Data available. Based on test data for structurally similar materials. Test(s) equivalent or similar to OECD Guideline 408 413 422 453

Aspiration hazard

distillates (petroleum), polymd. steam-cracked petroleum Category 1
distillates, c5-12 fraction

Conclusion/Summary : May be fatal if swallowed and enters airways. Based on physico-chemical properties of the material. Data available.

Information on likely routes of exposure : Not available.

Other information

Contains : ISOPRENE: Produced mutations and cancer in laboratory animals. The relevance of these findings to humans is uncertain. 1,3- Butadiene. 1,3-Butadiene is a multi-site carcinogen in rodents. Epidemiology studies indicate an association between exposure to 1,3-butadiene and leukemia in humans. Mutations have been observed in in-vitro and in-vivo rodent assays. Although several older studies had conflicting results, a newer screening study in rats showed no adverse reproductive or developmental effects. BENZENE: Caused cancer (acute myeloid leukemia and myelodysplastic syndrome), damage to the blood-producing system, and serious blood disorders in human studies. Caused genetic effects and effects on the immune system in laboratory animal and some human studies. Caused toxicity to the fetus and cancer in laboratory animal studies.

Product : Exposure to this material, or one of its components, in situations where there is the potential for high levels, such as in confined spaces or with abuse, may result in abnormal heart rhythm (arrhythmia). High-level exposure to hydrocarbons (above occupational exposure limits) may initiate arrhythmia in a worker that is undergoing stress or is taking a heart-stimulating substance such as epinephrine, a nasal decongestant, or an asthma or cardiovascular drug. Small amounts of liquid aspirated into the lungs during ingestion or from vomiting may cause chemical pneumonitis or pulmonary edema.

Section 12. Ecological information

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

12.1 Toxicity

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Section 12. Ecological information

Product/ingredient name	Result	Species	Exposure
-	Acute EL50 75.6 mg/l data for similar materials	Algae - <i>Pseudokirchneriella subcapitata</i>	72 hours
-	Acute EL50 6.96 mg/l data for similar materials	daphnia - <i>Daphnia magna</i>	48 hours
-	Acute LL50 14.1 mg/l data for similar materials	Fish - <i>Oncorhynchus mykiss</i>	96 hours
-	Acute NOEL 20.7 mg/l data for similar materials	Algae - <i>Pseudokirchneriella subcapitata</i>	72 hours

Conclusion/Summary

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

12.2 Persistence and degradability

Product/ingredient name	Test	Result	Dose	Inoculum
-	Ready Biodegradability	9 % - 28 days	data for similar materials	water

- Biodegradability** : Material -- Expected to biodegrade slowly.
Hydrolysis : Material -- Transformation due to hydrolysis not expected to be significant.
Photolysis : Material -- Transformation due to photolysis not expected to be significant.
Atmospheric Oxidation : Material -- Expected to degrade rapidly in air

12.3 Bioaccumulative potential

Not determined.

12.4 Mobility in soil

- Mobility** : Material -- Highly volatile, will partition rapidly to air. Not expected to partition to sediment and wastewater solids.

12.5 Results of PBT and vPvB assessment

Product/ingredient name	PBT	P	B	T	vPvB	vP	vB
distillates (petroleum), polymd. steam-cracked petroleum distillates, c5-12 fraction	N/A	N/A	N/A	Yes	N/A	N/A	N/A

12.6 Other adverse effects

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

SECTION 13: Disposal considerations

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

13.1 Waste treatment methods

Product

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

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SECTION 13: Disposal considerations

Packaging

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

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

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

SECTION 14: Transport information

	ADR/RID	ADN	IMDG	IATA
14.1 UN number	UN3295	UN3295	UN3295	UN3295
14.2 UN proper shipping name	HYDROCARBONS, LIQUID, N.O.S.	HYDROCARBONS, LIQUID, N.O.S.	HYDROCARBONS, LIQUID, N.O.S.	Hydrocarbons, liquid, n.o.s.
14.3 Transport hazard class(es)	3 	3 	3 	3 
14.4 Packing group	I	I	I	I
14.5 Environmental hazards	Yes.	Yes.	Yes.	Yes. The environmentally hazardous substance mark is not required.

Additional information

ADR/RID : The environmentally hazardous substance mark is not required when transported in sizes of ≤5 L or ≤5 kg.

Hazard identification number 33

Limited quantity 500 ml

Tunnel code (D/E)

ADN : The environmentally hazardous substance mark is not required when transported in sizes of ≤5 L or ≤5 kg.

CMR, N2

IMDG : The marine pollutant mark is not required when transported in sizes of ≤5 L or ≤5 kg.

Emergency schedules F-E, S-D

Flash point <-15 °C C.C.

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SECTION 14: Transport information

IATA : The environmentally hazardous substance mark may appear if required by other transportation regulations.
Quantity limitation Passenger and Cargo Aircraft: 1 L. Packaging instructions: 351. Cargo Aircraft Only: 30 L. Packaging instructions: 361. Limited Quantities - Passenger Aircraft: Forbidden. Packaging instructions: Forbidden.
Special provisions A3, A324

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

14.7 Transport in bulk according to IMO instruments : Not applicable.

SECTION 15: Regulatory information

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

UK (GB)/REACH

Annex XIV - List of substances subject to authorisation

Annex XIV

None of the components are listed.

Substances of very high concern

None of the components are listed.

Ozone depleting substances

Not listed.

Prior Informed Consent (PIC)

Not listed.

Persistent Organic Pollutants

Not listed.

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

Seveso Directive

This product is controlled under the Seveso Directive.

Named substances

Name

Petroleum products and alternative fuels (a) gasolines and naphthas, (b) kerosenes (including jet fuels), (c) gas oils (including diesel fuels, home heating oils and gas oil blending streams) (d) heavy fuel oils (e) alternative fuels serving the same purposes and with similar properties as regards flammability and environmental hazards as the products referred to in points (a) to (d)

Danger criteria

Category

P5a
E2

National regulations

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SECTION 15: Regulatory information

Product/ingredient name	List name	Name on list	Classification	Notes
benzene	EH40/2005 WELs ACGIH TLV	-	Carc A1	-
1,3-butadiene	EH40/2005 WELs ACGIH TLV	-	Carc A2	-

EU regulations

**Industrial emissions
(integrated pollution
prevention and control) -
Air** : Not listed

**Industrial emissions
(integrated pollution
prevention and control) -
Water** : Not listed

Inventory list

- Australia inventory (AIRC)** : All components are listed or exempted.
- Canada inventory (DSL-NDSL)** : Restrictions Apply
- China inventory (IECSC)** : Not determined.
- Japan inventory (CSCL)** : Not determined.
- Japan inventory (Industrial Safety and Health Act)** : Not determined.
- New Zealand Inventory of Chemicals (NZIoC)** : Not determined.
- Philippines inventory (PICCS)** : Not determined.
- Korea inventory (KECI)** : All components are listed or exempted.
- Taiwan Chemical Substances Inventory (TCSI)** : Not determined.
- United States inventory (TSCA 8b)** : All components are active or exempted.

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

SECTION 16: Other information

✔ Indicates information that has changed from previously issued version.

Abbreviations and acronyms :

- ATE = Acute Toxicity Estimate
- GB CLP = UK CLP (EC No 1272/2008) on the Classification, Labelling and Packaging of Substances and Mixtures as amended by (EU Exit) Regulations 2019 No. 720 and amendments
- DMEL = Derived Minimal Effect Level
- DNEL = Derived No Effect Level
- EUH statement = GB CLP-specific Hazard statement
- N/A = Not available
- PBT = Persistent, Bioaccumulative and Toxic
- PNEC = Predicted No Effect Concentration
- RRN = REACH Registration Number
- SGG = Segregation Group
- vPvB = Very Persistent and Very Bioaccumulative

Procedure used to derive the classification

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SECTION 16: Other information

Classification	Justification
Flam. Liq. 1, H224 Acute Tox. 4, H302 Acute Tox. 4, H312 Skin Irrit. 2, H315 Eye Irrit. 2, H319 Muta. 1B, H340 Carc. 1A, H350 Repr. 2, H361d STOT SE 3, H335 STOT SE 3, H336 Asp. Tox. 1, H304 Aquatic Chronic 2, H411	On basis of test data Calculation method Expert judgment Calculation method Calculation method Calculation method Calculation method Calculation method Calculation method Calculation method Calculation method Calculation method Calculation method

Full text of abbreviated H statements

H220	Extremely flammable gas.
H224	Extremely flammable liquid and vapour.
H225	Highly flammable liquid and vapour.
H280	Contains gas under pressure; may explode if heated.
H302	Harmful if swallowed.
H304	May be fatal if swallowed and enters airways.
H312	Harmful in contact with skin.
H315	Causes skin irritation.
H319	Causes serious eye irritation.
H335	May cause respiratory irritation.
H336	May cause drowsiness or dizziness.
H340	May cause genetic defects.
H350	May cause cancer.
H361d	Suspected of damaging the unborn child.
H372	Causes damage to organs through prolonged or repeated exposure.
H411	Toxic to aquatic life with long lasting effects.
H412	Harmful to aquatic life with long lasting effects.
EUH066	Repeated exposure may cause skin dryness or cracking.

Full text of classifications

Acute Tox. 4	ACUTE TOXICITY - Category 4
Aquatic Chronic 2	LONG-TERM (CHRONIC) AQUATIC HAZARD - Category 2
Aquatic Chronic 3	LONG-TERM (CHRONIC) AQUATIC HAZARD - Category 3
Asp. Tox. 1	ASPIRATION HAZARD - Category 1
Carc. 1A	CARCINOGENICITY - Category 1A
Eye Irrit. 2	SERIOUS EYE DAMAGE/EYE IRRITATION - Category 2
Flam. Gas 1A	FLAMMABLE GASES - Category 1A
Flam. Liq. 1	FLAMMABLE LIQUIDS - Category 1
Flam. Liq. 2	FLAMMABLE LIQUIDS - Category 2
Muta. 1B	GERM CELL MUTAGENICITY - Category 1B
Press. Gas (Liq.)	GASES UNDER PRESSURE - Liquefied gas
Repr. 2	REPRODUCTIVE TOXICITY - Category 2
Skin Irrit. 2	SKIN CORROSION/IRRITATION - Category 2
STOT RE 1	SPECIFIC TARGET ORGAN TOXICITY - REPEATED EXPOSURE - Category 1
STOT SE 3	SPECIFIC TARGET ORGAN TOXICITY - SINGLE EXPOSURE - Category 3

Date of issue/ Date of revision : 29 January 2025

Date of previous issue : 28 January 2025

Version : 1.03

THIS SDS COVERS THE FOLLOWING MATERIALS :

E-1000 Raffinate; E-1000 Raffinate w/o aromatics; Light fill E 1000 (NDG); Raffinate; Raffinate - TK1955 (BR); T 150 overhead (NDG); TK 22105 raffinate (NDG)

Product code : 1150832

Notice to reader

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SECTION 16: Other information

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