

SAFETY DATA SHEET

OCTAMAR™ LI-5 PLUS

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

1.1 Product identifier

Product name : Octamar (TM) LI-5 Plus (Public)
Product code : 14011FC
Internal code : 14011FC
Product description : Mixture
Product type : Liquid.

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

Identified uses

Petrochemical industry: Petrochemicals. Fuel additive.

1.3 Details of the supplier of the safety data sheet

Supplier/Manufacturer : Fuelcare Ltd,
 Mercury House
 Shrewsbury Business Park
 Shrewsbury
 SY2 6LG
 UNITED KINGDOM

Telephone no.: : +44 (0)1743 360784
Fax no. :
e-mail address of person responsible for this SDS : info@fuelcare.com

1.4 Emergency telephone number

In Europe, Middle East, Africa, Asia Pacific and South America 24 hour / 7 day emergency response for our products is provided by the NCEC CARECHEM 24 global network



The main regional centres are listed here in Section 1.

Other local contact numbers for specific language support in Asia Pacific are listed in Section 16

Country information	: Emergency telephone number	Location
Europe (all countries, all languages)	: +44 (0) 1235 239 670	London, UK
Middle East, Africa (Arabic, French, English)	: +44 (0) 1235 239 671	Lebanon
Middle East, Africa (French, Portuguese, English)	: +44 (0) 1235 239 670	London UK
Asia Pacific (all countries except China)	: +65 3158 1074	Singapore
China	: +86 10 5100 3039	Beijing China
South America (all countries except Brazil and Mexico)	: +1 215 207 0061	Philadelphia USA
Brazil	: +55 113 711 9144	Brazil

Octamar (TM) LI-5 Plus (Public)

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

Mexico : +52 555 004 8763 Mexico

In USA, Canada and North America, 24 hour / 7 day emergency response for our product is provided by the CHEMTREC (R) Emergency Call Center based in the USA

Country information : **Emergency telephone number**

USA : 800 424 9300

Canada, Puerto Rico, Virgin Islands : +1 800 424 9300

In case of difficulties, or for ships at sea : +1 703 527 3887

See section 16.

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Product definition : Mixture

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

Carc. 2, H351

STOT SE 3, H336 (Narcotic effects)

Aquatic Chronic 2, H411

[Classification according to Directive 1999/45/EC \[DPD\]](#)

The product is classified as dangerous according to Directive 1999/45/EC and its amendments.

Carc. Cat. 3; R40

R66, R67

N; R51/53

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

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

2.2 Label elements

Hazard pictograms :



Signal word : Warning

Hazard statements : H351 - Suspected of causing cancer.
H336 - May cause drowsiness or dizziness.
H411 - Toxic to aquatic life with long lasting effects.

Supplemental label elements : Contains 3,6,9-triazaundecamethylenediamine. May produce an allergic reaction.
Repeated exposure may cause skin dryness or cracking.

[Precautionary statements](#)

General : P103 - Read label before use.
P102 - Keep out of reach of children.
P101 - If medical advice is needed, have product container or label at hand.

Prevention : P201 - Obtain special instructions before use.
P273 - Avoid release to the environment.
P261 - Avoid breathing vapour.

Response : P304 + P340 + P312 - IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Call a POISON CENTER or physician if you feel unwell.

Storage : P405 - Store locked up.

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

Hazardous ingredients : Solvent naphtha (petroleum), heavy arom.; naphthalene

[Special packaging requirements](#)

Octamar (TM) LI-5 Plus (Public)

SECTION 2: Hazards identification

Containers to be fitted with child-resistant fastenings : Not applicable.

Tactile warning of danger : Yes, applicable.

2.3 Other hazards

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

SECTION 3: Composition/information on ingredients

Substance/mixture : Mixture

Product/ingredient name	Identifiers	%	Classification		Type
			67/548/EEC	Regulation (EC) No. 1272/2008 [CLP]	
Solvent naphtha (petroleum), heavy arom.	REACH #: 01-2119463583-34 EC: 265-198-5 CAS: 64742-94-5 Index: 649-424-00-3	>=25 - <35	Xn; R65 R66, R67 N; R51/53	STOT SE 3, H336 (Narcotic effects) Asp. Tox. 1, H304 Aquatic Chronic 2, H411	[1] [2]
Solvent naphtha (petroleum), heavy arom.	REACH #: 01-2119463588-24 EC: 265-198-5 CAS: 64742-94-5 Index: 649-424-00-3	>=10 - <15	Xn; R65 R66, R67 N; R51/53	STOT SE 3, H336 (Narcotic effects) Asp. Tox. 1, H304 Aquatic Chronic 2, H411	[1] [2]
1,2,4-trimethylbenzene	REACH #: Compliant EC: 202-436-9 CAS: 95-63-6 Index: 601-043-00-3	>=1 - <2.5	R10 Xn; R20 Xi; R36/37/38 N; R51/53	Flam. Liq. 3, H226 Acute Tox. 4, H332 Skin Irrit. 2, H315 Eye Irrit. 2, H319 STOT SE 3, H335 (Respiratory tract irritation) Aquatic Chronic 2, H411	[1] [2]
naphthalene	REACH #: Compliant EC: 202-049-5 CAS: 91-20-3 Index: 601-052-00-2	>=1 - <2.5	Carc. Cat. 3; R40 Xn; R22 N; R50/53	Acute Tox. 4, H302 Carc. 2, H351 Aquatic Acute 1, H400 Aquatic Chronic 1, H410	[1] [2]
2,6-di-tert-butylphenol	REACH #: Compliant EC: 204-884-0 CAS: 128-39-2	0.99 - 4.99	Xi; R38 N; R50/53	Acute Tox. 4, H302 Skin Irrit. 2, H315 Eye Irrit. 2, H319 Aquatic Chronic 1, H410	[1]
2,4,6-tri-tert-butylphenol	REACH #: Compliant EC: 211-989-5 CAS: 732-26-3	0.09 - 0.99	N; R50/53	Acute Tox. 4, H302 Eye Irrit. 2, H319 Aquatic Acute 1, H400 Aquatic Chronic 1, H410	[1]
3,6,9-triazaundecamethylenediamine	REACH #: 01-2119487290-37 EC: 203-986-2 CAS: 112-57-2 Index: 612-060-00-0	>=0.1 - <0.25	Xn; R21/22 C; R34 R43 N; R51/53	Acute Tox. 4, H302 Acute Tox. 4, H312 Skin Corr. 1B, H314 Eye Dam. 1, H318 Skin Sens. 1, H317 Aquatic Chronic 2, H411	[1]

Octamar (TM) LI-5 Plus (Public)

SECTION 3: Composition/information on ingredients

			See Section 16 for the full text of the R-phrases declared above.	See Section 16 for the full text of the H statements declared above.	
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Additional information

Type

- [1] Substance classified with a health or environmental hazard
- [2] Substance with a workplace exposure limit
- [3] Substance meets the criteria for PBT according to Regulation (EC) No. 1907/2006, Annex XIII
- [4] Substance meets the criteria for vPvB according to Regulation (EC) No. 1907/2006, Annex XIII
- [5] Substance of equivalent concern

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

Our REACH (pre-) registrations DO NOT cover the following:

1. The manufacture of these products by our company outside the EU unless covered by the Only Representative provisions, and
 2. The importation of these products into Europe by other companies. Re-importation by other companies is not covered by our (pre-) registrations
- Customers and other third parties importing and/or re-importing our products into Europe will need either:
- Their own (pre-) registration for substances contained in the imported product, or constituent monomers (imported above 1 tonne per year and >2% by weight) in the case of imported polymers, or
 - In the case of importation only, to make use of the "Only Representative" provisions, if available.

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. In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.
- Skin contact** : Wash skin thoroughly with soap and water or use recognised skin cleanser. Remove contaminated clothing and shoes. Continue to rinse for at least 10 minutes. Get medical attention. Wash clothing before reuse. Clean shoes thoroughly before reuse.
- Ingestion** : Wash out mouth with water. Remove dentures if any. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Get medical attention. If necessary, call a poison center or physician. 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.

4.2 Most important symptoms and effects, both acute and delayed

Potential acute health effects

- Eye contact** : No known significant effects or critical hazards.
- Inhalation** : Can cause central nervous system (CNS) depression. May cause drowsiness or dizziness. Exposure to decomposition products may cause a health hazard. Serious effects may be delayed following exposure.

SECTION 4: First aid measures

- Skin contact** : Defatting to the skin. May cause skin dryness and irritation.
Ingestion : Can cause central nervous system (CNS) depression.

Over-exposure signs/symptoms

- Eye contact** : No specific data.
Inhalation : Adverse symptoms may include the following:
 nausea or vomiting
 headache
 drowsiness/fatigue
 dizziness/vertigo
 unconsciousness
- Skin contact** : Adverse symptoms may include the following:
 irritation
 dryness
 cracking
- Ingestion** : No specific data.

4.3 Indication of any immediate medical attention and special treatment needed

- Notes to physician** : In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.
Specific treatments : No specific treatment.

SECTION 5: Firefighting measures

5.1 Extinguishing media

- Suitable extinguishing media** : Use an extinguishing agent suitable for the surrounding fire.
Unsuitable extinguishing media : None known.

5.2 Special hazards arising from the substance or mixture

- Hazards from the substance or mixture** : In a fire or if heated, a pressure increase will occur and the container may burst. 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 thermal decomposition products : Decomposition products may include the following materials:
 carbon dioxide
 carbon monoxide
 nitrogen oxides
Aliphatic carboxylic acid.: This material increases the risk of fire and may aid combustion.

5.3 Advice for firefighters

- Special protective actions for fire-fighters** : Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. 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. Clothing for fire-fighters (including helmets, protective boots and gloves) conforming to European standard EN 469 will provide a basic level of protection for chemical incidents.

SECTION 6: Accidental release measures

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. Avoid breathing vapour or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.
- 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 materials for containment and cleaning up

- Small spill** : Stop leak if without risk. Move containers from spill area. Dilute with water and mop up if water-soluble. Alternatively, or if water-insoluble, absorb with an inert dry material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.
- Large spill** : Stop leak if without risk. Move containers from spill area. 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. Dispose of via a licensed waste disposal contractor. Contaminated absorbent material may pose the same hazard as the spilt product.

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. Do not handle until all safety precautions have been read and understood. Do not get in eyes or on skin or clothing. Do not ingest. Avoid breathing vapour or mist. Avoid release to the environment. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. 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.

7.2 Conditions for safe storage, including any incompatibilities

- : Store in accordance with local regulations. Store in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10). Store locked up. 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.

Octamar (TM) LI-5 Plus (Public)

SECTION 7: Handling and storage

7.3 Specific end use(s)

Recommendations : Not available.

Industrial sector specific solutions : Not available.

SECTION 8: Exposure controls/personal protection

The 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).

8.1 Control parameters

Occupational exposure limits

Product/ingredient name	Exposure limit values
Solvent naphtha (petroleum), heavy arom.	Innospec (Europe, 1/2013). EU HSPA (RCP Aromatic solvents 180 - 215): 151 mg/m ³ 8 hours.
Solvent naphtha (petroleum), heavy arom.	Innospec (Europe, 1/2013). EU HSPA (RCP Aromatic solvents 180 - 215): 151 mg/m ³ 8 hours.
1,2,4-trimethylbenzene	EH40/2005 WELs (United Kingdom (UK), 12/2011). TWA: 25 ppm, 0 times per shift, 8 hours. TWA: 125 mg/m ³ , 0 times per shift, 8 hours.
naphthalene	EU OEL (Europe, 12/2009). Notes: list of indicative occupational exposure limit values TWA: 10 ppm 8 hours. TWA: 50 mg/m ³ , 0 times per shift, 8 hours.

Recommended monitoring procedures : If this product contains ingredients with exposure limits, personal, workplace atmosphere or biological monitoring may be required to determine the effectiveness of the ventilation or other control measures and/or the necessity to use respiratory protective equipment. Reference should be made to monitoring standards, such as the following: European Standard EN 689 (Workplace atmospheres - Guidance for the assessment of exposure by inhalation to chemical agents for comparison with limit values and measurement strategy) European Standard EN 14042 (Workplace atmospheres - Guide for the application and use of procedures for the assessment of exposure to chemical and biological agents) European Standard EN 482 (Workplace atmospheres - General requirements for the performance of procedures for the measurement of chemical agents) Reference to national guidance documents for methods for the determination of hazardous substances will also be required.

DNELs/DMELs

Product/ingredient name	Type	Exposure	Value	Population	Effects
1,2,4-trimethylbenzene	DNEL	Short term Inhalation	100 mg/m ³	Workers	Systemic
	DNEL	Short term Inhalation	100 mg/m ³	Workers	Local
	DNEL	Long term Dermal	16171 mg/kg bw/day	Workers	Systemic
	DNEL	Long term Inhalation	100 mg/m ³	Workers	Systemic
	DNEL	Long term Inhalation	100 mg/m ³	Workers	Local
	DNEL	Short term Inhalation	29.4 mg/m ³	Consumers	Systemic
	DNEL	Short term Inhalation	29.4 mg/m ³	Consumers	Local
	DNEL	Long term Dermal	9512 mg/kg bw/day	Consumers	Systemic
	DNEL	Long term Inhalation	29.4 mg/m ³	Consumers	Systemic
	DNEL	Long term Oral	15 mg/kg bw/day	Consumers	Systemic

Octamar (TM) LI-5 Plus (Public)

SECTION 8: Exposure controls/personal protection

naphthalene	DNEL	Long term Inhalation	29.4 mg/m ³	Consumers	Local
	DNEL	Long term Dermal	3.57 mg/kg bw/day	Workers	Systemic
3,6,9-triazaundecamethylenediamine	DNEL	Long term Inhalation	25 mg/m ³	Workers	Systemic
	DNEL	Long term Inhalation	25 mg/m ³	Workers	Local
	DNEL	Short term Inhalation	6940 mg/m ³	Workers	Systemic
	DNEL	Long term Dermal	0.74 mg/kg bw/day	Workers	Systemic
	DNEL	Long term Inhalation	1.29 mg/m ³	Workers	Systemic
	DNEL	Short term Dermal	10 mg/kg bw/day	Consumers	Systemic
	DNEL	Short term Inhalation	2071 mg/m ³	Consumers	Systemic
	DNEL	Short term Oral	26 mg/kg bw/day	Consumers	Systemic
	DNEL	Short term Oral	1.29 mg/cm ²	Consumers	Local
	DNEL	Long term Dermal	0.32 mg/kg bw/day	Consumers	Systemic
	DNEL	Long term Inhalation	0.38 mg/m ³	Consumers	Systemic
	DNEL	Long term Oral	0.53 mg/kg bw/day	Consumers	Systemic
	DNEL	Long term Dermal	0.56 mg/cm ²	Consumers	Local

PNECs

Product/ingredient name	Type	Compartment Detail	Value	Method Detail
1,2,4-trimethylbenzene	PNEC	Fresh water	0.12 mg/l	-
	PNEC	Marine	0.12 mg/l	-
	PNEC	Sewage Treatment Plant	2.41 mg/l	-
naphthalene	PNEC	Fresh water sediment	13.56 mg/kg dwt	-
	PNEC	Marine water sediment	13.56 mg/kg dwt	-
	PNEC	Soil	2.34 mg/kg dwt	-
	PNEC	Fresh water	2.4 µg/l	-
	PNEC	Marine	0.24 µg/l	-
	PNEC	Sewage Treatment Plant	2.9 mg/l	-
	PNEC	Fresh water sediment	67.2 µg/kg dwt	-
	PNEC	Marine water sediment	67.2 µg/kg dwt	-
	PNEC	Soil	53.3 µg/kg dwt	-
3,6,9-triazaundecamethylenediamine	PNEC	Fresh water	6.8 µg/l	-
	PNEC	Marine	0.68 µg/l	-
	PNEC	Sewage Treatment Plant	9.73 mg/l	-
	PNEC	Fresh water sediment	3.43 mg/kg dwt	-
	PNEC	Marine water sediment	0.343 mg/kg dwt	-
	PNEC	Soil	0.683 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.

Individual protection measures

SECTION 8: Exposure controls/personal protection

- 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: safety glasses with side-shields. Recommended: 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®
1 - 4 hours (breakthrough time): nitrile rubber
- 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.
- 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** : Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator. Recommended: organic vapour filter (Type A)
- 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**9.1 Information on basic physical and chemical properties****Appearance**

- Physical state** : Liquid.
- Colour** : Amber.
- Odour** : Aromatic.
- Odour threshold** : Not available.
- pH** : Not available.
- Melting point/freezing point** : Not available.
- Initial boiling point and boiling range** : Lowest known value: 168.01°C (334.4°F) (1,2,4-trimethylbenzene). Weighted average: 204.29°C (399.7°F)
- Flash point** : Closed cup: 66°C (150.8°F) [DIN EN ISO 2719]
- Evaporation rate** : Highest known value: 0.05 (Solvent naphtha (petroleum), heavy arom.)
Weighted average: 0.05 compared with butyl acetate
- Flammability (solid, gas)** : Not available.
- Burning time** : Not applicable.
- Burning rate** : Not applicable.
- Upper/lower flammability or explosive limits** : Greatest known range: Lower: 0.6% Upper: 7% (Solvent naphtha (petroleum), heavy arom.)

Octamar (TM) LI-5 Plus (Public)

SECTION 9: Physical and chemical properties

Vapour pressure	: Highest known value: 0.1 kPa (0.8 mm Hg) (at 20°C) (Solvent naphtha (petroleum), heavy arom.). Weighted average: 0.06 kPa (0.45 mm Hg) (at 20°C)
Vapour density	: Highest known value: 4.6 to 5.5 (Air = 1) (Solvent naphtha (petroleum), heavy arom.). Weighted average: 5 (Air = 1)
Relative density	: Not available.
Density	: 0.925 g/cm ³ [15°C (59°F)]
Solubility(ies)	: Easily soluble in the following materials: diethyl ether, acetone. Insoluble in the following materials: cold water, hot water.
Partition coefficient: n-octanol/ water	: Not available.
Auto-ignition temperature	: Lowest known value: 362°C (683.6°F) (Aliphatic carboxylic acid.).
Decomposition temperature	: Not available.
Viscosity	: Kinematic (40°C (104°F)): 0.77 cm ² /s (77 cSt) [ISO 3104 / DIN 51562]
Explosive properties	: Not available.
Oxidising properties	: Not available.

9.2 Other information

Pour point	: <-40°C
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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	: No specific data.
10.5 Incompatible materials	: No specific data.
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	Dose
Solvent naphtha (petroleum), heavy arom.	-	Rat	LC50 Inhalation Vapour	>590 mg/m ³
	-	Rabbit	LD50 Dermal	>2 mL/kg
Solvent naphtha (petroleum), heavy arom.	-	Rat	LDLo Oral	5 mL/kg
	-	Rat	LC50 Inhalation Vapour	>590 mg/m ³
naphthalene	-	Rabbit	LD50 Dermal	>2 mL/kg
	-	Rat	LDLo Oral	5 mL/kg
	-	Rat	LC50 Inhalation Vapour	>340 mg/m ³
	-	Rabbit	LD50	>2000 mg/kg

Octamar (TM) LI-5 Plus (Public)

SECTION 11: Toxicological information

2,6-di-tert-butylphenol	-	Rat	Dermal LD50	>2500 mg/kg
	-	Rat	Dermal LD50 Oral	490 mg/kg
	-	Rabbit	LD50	>10000 mg/kg
2,4,6-tri-tert-butylphenol	-	Rat	Dermal LD50 Oral	>5000 mg/kg
3,6,	-	Rat	LD50 Oral	1610 mg/kg
9-triazaundecamethylenediamine	-	Rat	LD50	1260 mg/kg
	-		Dermal LD50 Oral	2100 to 3990 mg/kg

Irritation/Corrosion

Product/ingredient name	Test	Species	Result
Solvent naphtha (petroleum), heavy arom.	-	Rabbit	Skin - Mild irritant -
	-	Mammal - species unspecified	Eyes - Mild irritant -
Solvent naphtha (petroleum), heavy arom.	-	Rabbit	Skin - Mild irritant -
	-	Mammal - species unspecified	Eyes - Mild irritant -
2,6-di-tert-butylphenol	-	Rat	Skin - Moderate irritant -
3,6,	-	Rabbit	Eyes - Moderate irritant -
9-triazaundecamethylenediamine	-	Rabbit	Skin - Severe irritant -

Sensitisation

Product/ingredient name	Test	Species	Result
3,6, 9-triazaundecamethylenediamine	-	Guinea pig	Sensitising -

Potential chronic health effects

Product/ingredient name	Test	Species	Result	Dose
3,6, 9-triazaundecamethylenediamine	-	Rat	LOAEL	43 mg/kg
	-	Rabbit	LOAEL	50 mg/kg

Mutagenicity

Product/ingredient name	Test	Experiment	Result
3,6, 9-triazaundecamethylenediamine	-	Experiment: In vivo Subject: Mammalian-Animal	Negative

Reproductive toxicity

Product/ingredient name	Test	Species	Result	Dose
3,6, 9-triazaundecamethylenediamine	-	Mammal - species unspecified	-	Oral: 970 NOAEL
	-	Mammal - species unspecified	-	Dermal: 161 NOAEL

Information on the likely routes of exposure : Not available.

Potential acute health effects

Eye contact : No known significant effects or critical hazards.

Octamar (TM) LI-5 Plus (Public)

SECTION 11: Toxicological information

- Inhalation** : Can cause central nervous system (CNS) depression. May cause drowsiness or dizziness. Exposure to decomposition products may cause a health hazard. Serious effects may be delayed following exposure.
- Skin contact** : Defatting to the skin. May cause skin dryness and irritation.
- Ingestion** : Can cause central nervous system (CNS) depression.

Symptoms related to the physical, chemical and toxicological characteristics

- Eye contact** : No specific data.
- Inhalation** : Adverse symptoms may include the following:
nausea or vomiting
headache
drowsiness/fatigue
dizziness/vertigo
unconsciousness
- Skin contact** : Adverse symptoms may include the following:
irritation
dryness
cracking
- Ingestion** : No specific data.

Delayed and immediate effects and also chronic effects from short and long term exposure

Short term exposure

- Potential immediate effects** : Not available.
- Potential delayed effects** : Not available.

Long term exposure

- Potential immediate effects** : Not available.
- Potential delayed effects** : Not available.

- General** : Prolonged or repeated contact can defat the skin and lead to irritation, cracking and/or dermatitis.
- Carcinogenicity** : Suspected of causing cancer. Risk of cancer depends on duration and level of exposure.
- Mutagenicity** : No known significant effects or critical hazards.
- Teratogenicity** : No known significant effects or critical hazards.
- Developmental effects** : No known significant effects or critical hazards.
- Fertility effects** : No known significant effects or critical hazards.

SECTION 12: Ecological information

12.1 Toxicity

Product/ingredient name	Test	Species	Exposure	Result
Solvent naphtha (petroleum), heavy arom.	-	Algae	72 hours	Acute EC50 1 to 3 mg/l
	-	Daphnia	48 hours	Acute EC50 3 to 10 mg/l
	-	Fish	96 hours	Acute LC50 2 to 5 mg/l
Solvent naphtha (petroleum), heavy arom.	-	Algae	72 hours	Acute EC50 1 to 3 mg/l
	-	Daphnia	48 hours	Acute EC50 3 to 10 mg/l
	-	Fish	96 hours	Acute LC50 2 to 5 mg/l

Octamar (TM) LI-5 Plus (Public)

SECTION 12: Ecological information

1,2,4-trimethylbenzene	-	Fish - Pimephales promelas	hours 96	Acute LC50 7.72 mg/l
naphthalene	-	Daphnia - Water flea - Daphnia magna	hours 48	Acute EC50 1.96 mg/l Fresh water
	-	Crustaceans - Daggerblade grass shrimp - Palaemonetes pugio	hours 48	Acute LC50 2350 µg/l Marine water
	-	Fish - Oncorhynchus mykiss	hours 96	Acute LC50 1.6 mg/l
3,6,9-triazaundecamethylenediamine	-	Algae	hours 72	Acute EC50 6.8 mg/l
	-	Daphnia	hours 48	Acute EC50 24.1 mg/l
	-	Fish	hours 96	Acute LC50 420 mg/l
	-	Algae	hours -	Acute NOEC 0.5 mg/l

12.2 Persistence and degradability

Product/ingredient name	Aquatic half-life	Photolysis	Biodegradability
Solvent naphtha (petroleum), heavy arom.	-	-	Inherent
Solvent naphtha (petroleum), heavy arom.	-	-	Inherent
2,6-di-tert-butylphenol	Fresh water 17 to 130 days	<1 day(s)	Inherent
2,4,6-tri-tert-butylphenol	-	-	Not readily
3,6,9-triazaundecamethylenediamine	-	-	Not readily

12.3 Bioaccumulative potential

Product/ingredient name	LogP _{ow}	BCF	Potential
Solvent naphtha (petroleum), heavy arom.	-	<100	low
Solvent naphtha (petroleum), heavy arom.	-	<100	low
1,2,4-trimethylbenzene	4.09	275	low
naphthalene	3.3	>100	low
2,6-di-tert-butylphenol	4.92	434.9	low
2,4,6-tri-tert-butylphenol	6.06	3282	high
3,6,9-triazaundecamethylenediamine	-3.16	-	low

12.4 Mobility in soil

Soil/water partition coefficient (K_{oc}) : Not available.

Mobility : Not available.

12.5 Results of PBT and vPvB assessment

PBT : Not applicable.

vPvB : Not applicable.

12.6 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.

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.

Special precautions : This material and its container must be disposed of in a safe way. Care should be taken when handling emptied containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues. Avoid dispersal of spill material and runoff and contact with soil, waterways, drains and sewers.

SECTION 14: Transport information

	ADR/RID	ADN	IMDG	IATA
14.1 UN number	UN3082	UN3082	UN3082	UN3082
14.2 UN proper shipping name	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (Solvent naphtha (petroleum), heavy arom., naphthalene)	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (Solvent naphtha (petroleum), heavy arom., naphthalene)	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (Solvent naphtha (petroleum), heavy arom., naphthalene). Marine pollutant (Solvent naphtha (petroleum), heavy arom., naphthalene)	Environmentally hazardous substance, liquid, n.o.s. (Solvent naphtha (petroleum), heavy arom., naphthalene)
14.3 Transport hazard class(es)	9 	9 	9 	9 
14.4 Packing group	III	III	III	III
14.5 Environmental hazards	Yes.	Yes.	Yes.	Yes.
Additional information	The environmentally hazardous substance mark is not required when transported in sizes of ≤5 L or ≤5 kg. Hazard identification number 90 Limited quantity	The environmentally hazardous substance mark is not required when transported in sizes of ≤5 L or ≤5 kg.	The marine pollutant mark is not required when transported in sizes of ≤5 L or ≤5 kg. Emergency schedules (EmS) F-A, S-F Special provisions 274, 335	

Octamar (TM) LI-5 Plus (Public)

SECTION 14: Transport information

	5 L			
	Special provisions 274, 335, 601			
	Tunnel code (E)			
14.6 Special precautions for user				
14.7 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code	Not available.			

SECTION 15: Regulatory information

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

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

Annex XIV - List of substances subject to authorisation

Substances of very high concern

None of the components are listed.

Annex XVII - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles : Not applicable.

Other EU regulations

Seveso II Directive - Reporting thresholds (in tonnes)

Danger criteria

Category	Notification and MAPP threshold	Safety report threshold
E2: Hazardous to the aquatic environment - Chronic 2	200	500
C9ii: Toxic for the environment	200	500

Black List Chemicals : Not listed

Priority List Chemicals : Listed

Integrated pollution prevention and control list (IPPC) - Air : Not listed

Integrated pollution prevention and control list (IPPC) - Water : Not listed

Product/ingredient name	Carcinogenic effects	Mutagenic effects	Developmental effects	Fertility effects
naphthalene	Carc. 2, H351	-	-	-

Chemical Weapons Convention List Schedule I Chemicals : Not listed

Chemical Weapons Convention List Schedule II Chemicals : Not listed

Octamar (TM) LI-5 Plus (Public)

SECTION 15: Regulatory information

Chemical Weapons Convention List Schedule III Chemicals : Not listed

International lists

Australia inventory (AICS) : All components are listed or exempted.
Canada inventory : All components are listed or exempted.
China inventory (IECSC) : All components are listed or exempted.
EU Inventory (EINECS/ELINCS/NLP) : All components are listed or exempted.
Japan inventory (ENCS) : Not determined.
Korea inventory (KECI) : All components are listed or exempted.
New Zealand Inventory of Chemicals (NZIoC) : All components are listed or exempted.
Philippines inventory (PICCS) : All components are listed or exempted.
Taiwan inventory (TCSI) : All components are listed or exempted.
United States inventory (TSCA 8b) : All components are listed or exempted.

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

SECTION 16: Other information

✔ Indicates information that has changed from previously issued version.

Abbreviations and acronyms : ATE = Acute Toxicity Estimate
 CLP = Classification, Labelling and Packaging Regulation [Regulation (EC) No. 1272/2008]
 DNEL = Derived No Effect Level
 EUH statement = CLP-specific Hazard statement
 PNEC = Predicted No Effect Concentration
 RRN = REACH Registration Number

Classification according to Directive 67/548/EEC [DSD] or Classification according to Directive 1999/45/EC [DPD]

Indication of danger : Harmful, Dangerous for the environment
Risk phrases : R40- Limited evidence of a carcinogenic effect.
 R66- Repeated exposure may cause skin dryness or cracking.
 R67- Vapours may cause drowsiness and dizziness.
 R51/53- Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
Safety phrases : S2- Keep out of the reach of children.
 S29- Do not empty into drains.
 S36/37- Wear suitable protective clothing and gloves.
 S46- If swallowed, seek medical advice immediately and show this container or label.
 S61- Avoid release to the environment. Refer to special instructions/safety data sheet.

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

Classification	Justification
Carc. 2, H351	Calculation method
STOT SE 3, H336 (Narcotic effects)	Calculation method
Aquatic Chronic 2, H411	Calculation method

SECTION 16: Other information

Full text of abbreviated H statements	: H226 Flammable liquid and vapour. H302 Harmful if swallowed. H304 May be fatal if swallowed and enters airways. H312 Harmful in contact with skin. H314 Causes severe skin burns and eye damage. H315 Causes skin irritation. H317 May cause an allergic skin reaction. H318 Causes serious eye damage. H319 Causes serious eye irritation. H332 Harmful if inhaled. (inhalation) H335 May cause respiratory irritation. (Respiratory tract irritation) (Respiratory tract irritation) H336 May cause drowsiness or dizziness. (Narcotic effects) (Narcotic effects) H351 Suspected of causing cancer. H400 Very toxic to aquatic life. H410 Very toxic to aquatic life with long lasting effects. H411 Toxic to aquatic life with long lasting effects.
Full text of classifications [CLP/GHS]	: Acute Tox. 4, H302 ACUTE TOXICITY (oral) - Category 4 Acute Tox. 4, H312 ACUTE TOXICITY (dermal) - Category 4 Acute Tox. 4, H332 ACUTE TOXICITY (inhalation) - Category 4 Aquatic Acute 1, H400 ACUTE AQUATIC HAZARD - Category 1 Aquatic Chronic 1, H410 LONG-TERM AQUATIC HAZARD - Category 1 Aquatic Chronic 2, H411 LONG-TERM AQUATIC HAZARD - Category 2 Asp. Tox. 1, H304 ASPIRATION HAZARD - Category 1 Carc. 2, H351 CARCINOGENICITY - Category 2 Eye Dam. 1, H318 SERIOUS EYE DAMAGE/ EYE IRRITATION - Category 1 Eye Irrit. 2, H319 SERIOUS EYE DAMAGE/ EYE IRRITATION - Category 2 Flam. Liq. 3, H226 FLAMMABLE LIQUIDS - Category 3 Skin Corr. 1B, H314 SKIN CORROSION/IRRITATION - Category 1B Skin Irrit. 2, H315 SKIN CORROSION/IRRITATION - Category 2 Skin Sens. 1, H317 SKIN SENSITIZATION - Category 1 STOT SE 3, H335 (Respiratory tract irritation) SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Respiratory tract irritation) - Category 3 STOT SE 3, H336 (Narcotic effects) SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Narcotic effects) - Category 3
Full text of abbreviated R phrases	: R10- Flammable. R40- Limited evidence of a carcinogenic effect. R20- Harmful by inhalation. R22- Harmful if swallowed. R21/22- Harmful in contact with skin and if swallowed. R65- Harmful: may cause lung damage if swallowed. R34- Causes burns. R38- Irritating to skin. R36/37/38- Irritating to eyes, respiratory system and skin. R43- May cause sensitisation by skin contact. R66- Repeated exposure may cause skin dryness or cracking. R67- Vapours may cause drowsiness and dizziness. R50/53- Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment. R51/53- Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
Full text of classifications [DSD/DPD]	: Carc. Cat. 3 - Carcinogen category 3 C - Corrosive Xn - Harmful Xi - Irritant N - Dangerous for the environment

SECTION 16: Other information

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Emergency contact numbers for local language support in Asia Pacific region

Country information	Languages supported	Telephone no.:	Location
Australia	English	+61 2 8014 4558	Australia
Bangladesh	Bengali, English	+65 3158 1200	Singapore
Brazil	Portuguese, English	+55 113 711 9144	Brazil
China	Mandarin, English	+86 10 5100 3039	Beijing China
India	Hindi, English	+65 3158 1198	Singapore
Indonesia (local toll free number)	Bahasa Indonesian, English	00780 3011 0293	Indonesia
Japan	Japanese, English	+81 3 4578 9341	Japan
Korea	Korean, English	+65 3158 1285	Singapore
Malaysia	Bahasa Malaysian, English	+60 3 6207 4347	Malaysia
Mexico	Spanish, English	+52 555 004 8763	Mexico
New Zealand	English	+64 9929 1483	New Zealand
Pakistan	Urdu, English	+65 3158 1329	Singapore
Philippines	Tagalog, English	+65 3158 1203	Singapore
Sri Lanka	Sinhalese, English	+65 3158 1195	Singapore
Thailand (local toll free number)	Thai, English	001800 1 2066 6751	Thailand
Vietnam	Vietnamese, English	+65 3158 1255	Singapore

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Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.