SAFETY DATA SHEET

Octamar™ Complete

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

1.1 Product identifier

Product name	:	Octamar™ Complete
Product code	:	VF-000016
Internal code	:	VF-000016
Date of issue/ Date of revision	:	2019-02-13
Date of previous issue	:	2018-09-10
Version	:	5.01
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	:	Innospec Limited Innospec Manufacturing Park Oil Sites Road Ellesmere Port Cheshire CH65 4EY United Kingdom
Telephone no.:	:	+44 (0)151 355 3611
Fax no.	:	+44 (0)151 356 2349
e-mail address of person responsible for this SDS	:	sdsinfo@innospecinc.com
NON-emergency enquiries	:	corporatecommunications@innospecinc.com

1.4 Emergency telephone number

Tox Info Suisse, the Swiss poisons information centre : 145 (24h)

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

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

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 11 3197 5891	Brazil
Mexico	: +52 555 004 8763	Mexico

In USA, Canada and North America, 24 h/7 days of 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 difficulty using the toll-free number, or for ships at sea, call	: +1 703 527 3887

See section 16.

Indicates information that has changed from previously issued version.

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]

Eye Irrit. 2, H319
Repr. 1B, H360FD (Fertility and Unborn child)
STOT SE 3, H336
Asp. Tox. 1, H304
Aquatic Chronic 1, H410

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 : H319 - Causes serious eye irritation.
H360FD - May damage fertility. May damage the unborn child.
H304 - May be fatal if swallowed and enters airways.
H336 - May cause drowsiness or dizziness.
H410 - Very toxic to aquatic life with long lasting effects.

Supplemental label elements : Repeated exposure may cause skin dryness or cracking.

Precautionary statements

General : Not applicable.

SECTION 2: Hazards identification

Prevention : P201 - Obtain special instructions before use.
P280 - Wear protective gloves: > 8 hours (breakthrough time): Viton®; 1 - 4 hours (breakthrough time): nitrile rubber. Wear eye or face protection: Recommended: splash goggles. Wear protective clothing.
P273 - Avoid release to the environment.

Response : P304 + P340 - IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P301 + P310 + P331 - IF SWALLOWED: Immediately call a POISON CENTER or physician. Do NOT induce vomiting.

Storage : P405 - Store locked up.

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

Hazardous ingredients : Hydrocarbons C10, Aromatics, <1% Naphthalene, [Solvent naphtha (petroleum), heavy arom.]; ferrocene

Special packaging requirements

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

Tactile warning of danger : Not 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 Regulation (EC) No. 1272/2008 [CLP]	Type
Hydrocarbons C10, Aromatics, <1% Naphthalene, [Solvent naphtha (petroleum), heavy arom.]	REACH #: 01-2119463583-34 EC: 918-811-1 CAS: 1189173-42-9 [64742-94-5] Index: 649-424-00-3	≥50 - ≤75	STOT SE 3, H336 Asp. Tox. 1, H304 Aquatic Chronic 2, H411 EUH066	[1] [2]
Polymer.	-	≤5	Eye Irrit. 2, H319	[1]
Alkylphenol / formaldehyde polymer	-	≤5	Eye Irrit. 2, H319	[1]
1,2,4-trimethylbenzene	REACH #: Compliant EC: 202-436-9 CAS: 95-63-6 Index: 601-043-00-3	≤5	Flam. Liq. 3, H226 Acute Tox. 4, H332 Skin Irrit. 2, H315 Eye Irrit. 2, H319 STOT SE 3, H335 Aquatic Chronic 2, H411	[1] [2]
ferrocene	REACH #: 01-2119978280-34 EC: 203-039-3 CAS: 102-54-5	≤5	Flam. Sol. 1, H228 Acute Tox. 4, H302 Acute Tox. 4, H332 Repr. 1B, H360FD (Fertility and Unborn child) (oral) STOT RE 2, H373 (liver) (oral) STOT RE 2, H373 (liver) (inhalation) Aquatic Chronic 1, H410 (M=10)	[1]
Camphor	REACH #: Compliant	≤3	Flam. Sol. 2, H228	[1] [2]

SECTION 3: Composition/information on ingredients

	EC: 200-945-0 CAS: 76-22-2		Acute Tox. 4, H302 Acute Tox. 4, H332 STOT SE 2, H371	
Solvent naphtha (petroleum), heavy arom.	REACH #: Compliant EC: 265-198-5, [919-284-0] CAS: 64742-94-5 Index: 649-424-00-3	≤3	Eye Irrit. 2, H319 STOT SE 3, H336 Asp. Tox. 1, H304 Aquatic Chronic 2, H411 EUH066	[1] [2]
naphthalene	REACH #: Compliant EC: 202-049-5 CAS: 91-20-3 Index: 601-052-00-2	<1	Acute Tox. 4, H302 Carc. 2, H351 Aquatic Acute 1, H400 (M=1) Aquatic Chronic 1, H410 (M=1)	[1] [2]
tris(methylphenyl) phosphate	REACH #: Compliant EC: 215-548-8 CAS: 1330-78-5	<0.1	Eye Irrit. 2, H319 Skin Sens. 1, H317 Repr. 2, H361f (Fertility) (oral) STOT RE 2, H373 (nervous system) (oral) Aquatic Acute 1, H400 (M=10) Aquatic Chronic 1, H410 (M=1)	[1]
			See Section 16 for the full text of the H statements declared above.	

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.

SECTION 4: First aid measures

Skin contact : Wash skin thoroughly with soap and water or use recognised skin cleanser. Remove contaminated clothing and shoes. Wash contaminated clothing thoroughly with water before removing it, or wear gloves. Continue to rinse for at least 10 minutes. Get medical attention. Wash clothing before reuse. Clean shoes thoroughly before reuse.

Ingestion : Get medical attention immediately. Call a poison center or physician. Remove dentures if any. Wash out mouth with water. Stop if the exposed person feels sick as vomiting may be dangerous. Remove victim to fresh air and keep at rest in a position comfortable for breathing. 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

Potential acute health effects

Eye contact : Causes serious eye irritation.

Inhalation : Can cause central nervous system (CNS) depression. May cause drowsiness or dizziness.

Skin contact : Defatting to the skin. May cause skin dryness and irritation.

Ingestion : Can cause central nervous system (CNS) depression. May be fatal if swallowed and enters airways.

Over-exposure signs/symptoms

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

Inhalation : Adverse symptoms may include the following:
nausea or vomiting
headache
drowsiness/fatigue
dizziness/vertigo
unconsciousness
reduced foetal weight
increase in foetal deaths
skeletal malformations

Skin contact : Adverse symptoms may include the following:
irritation
dryness
cracking
reduced foetal weight
increase in foetal deaths
skeletal malformations

Ingestion : Adverse symptoms may include the following:
nausea or vomiting
reduced foetal weight
increase in foetal deaths
skeletal malformations

SECTION 4: First aid measures

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 very 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
metal oxide/oxides

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 material for containment and cleaning up

SECTION 6: Accidental release measures

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. 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. 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

Storage : 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.

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
Hydrocarbons C10, Aromatics, <1% Naphthalene, [Solvent naphtha (petroleum), heavy arom.]	**Supplier/Manufacturer (Europe, 2015).** EU HSPA (RCP Aromatic solvents 180 - 215): 151 mg/m³ 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/m³, 0 times per shift, 8 hours.
Camphor	**EH40/2005 WELs (United Kingdom (UK), 12/2011).** STEL: 19 mg/m³ 15 minutes. STEL: 3 ppm 15 minutes. TWA: 2 ppm 8 hours. TWA: 13 mg/m³ 8 hours.
Solvent naphtha (petroleum), heavy arom.	**Supplier/Manufacturer (Europe, 2015).** EU HSPA (RCP Aromatic solvents 180 - 215): 151 mg/m³ 8 hours.
naphthalene	**EU OEL (Europe, 2/2017). Notes: list of indicative occupational exposure limit values** TWA: 10 ppm 8 hours. TWA: 50 mg/m³, 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
Hydrocarbons C10, Aromatics, <1% Naphthalene, [Solvent naphtha (petroleum), heavy arom.]	DNEL	Long term Dermal	12.5 mg/kg bw/day	Workers	Systemic
	DNEL	Long term Inhalation	151 mg/m³	Workers	Systemic
	DNEL	Long term Dermal	7.5 mg/kg bw/day	Consumers	Systemic
	DNEL	Long term Inhalation	32 mg/m³	Consumers	Systemic
	DNEL	Long term Oral	7.5 mg/kg bw/day	Consumers	Systemic
1,2,4-trimethylbenzene	DNEL	Short term Inhalation	100 mg/m³	Workers	Systemic
	DNEL	Short term Inhalation	100 mg/m³	Workers	Local
	DNEL	Long term Dermal	16171 mg/kg bw/day	Workers	Systemic
	DNEL	Long term	100 mg/m³	Workers	Systemic

SECTION 8: Exposure controls/personal protection

		Inhalation			
	DNEL	Long term Inhalation	100 mg/m³	Workers	Local
	DNEL	Short term Inhalation	29.4 mg/m³	Consumers	Systemic
	DNEL	Short term Inhalation	29.4 mg/m³	Consumers	Local
	DNEL	Long term Dermal	9512 mg/kg bw/day	Consumers	Systemic
	DNEL	Long term Inhalation	29.4 mg/m³	Consumers	Systemic
	DNEL	Long term Oral	15 mg/kg bw/day	Consumers	Systemic
	DNEL	Long term Inhalation	29.4 mg/m³	Consumers	Local
naphthalene	DNEL	Long term Dermal	3.57 mg/kg bw/day	Workers	Systemic
	DNEL	Long term Inhalation	25 mg/m³	Workers	Systemic
	DNEL	Long term Inhalation	25 mg/m³	Workers	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	-
	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	-
naphthalene	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	-

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

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. Recommended: splash goggles

Skin protection

SECTION 8: Exposure controls/personal 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 : 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)

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. [Light]

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: 205.63°C (402.1°F)

Flash point : Closed cup: >60°C (>140°F) [DIN EN ISO 2719]

Evaporation rate : Highest known value: 0.05 (Solvent naphtha (petroleum), heavy arom.) Weighted average: 0.05compared 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.)

Vapour pressure : Highest known value: 0.1 kPa (0.8 mm Hg) (at 20°C) (Solvent naphtha (petroleum), heavy arom.). Weighted average: 0.09 kPa (0.68 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 : 0.92 g/cm³ [15°C (59°F)]

Solubility(ies) : Insoluble in the following materials: cold water, hot water, methanol, diethyl ether.

SECTION 9: Physical and chemical properties

Partition coefficient: n-octanol/water : Not available.

Auto-ignition temperature : Lowest known value: 405°C (761°F) (Polymer.).

Decomposition temperature : Not available.

Viscosity : Kinematic (40°C (104°F)): <0.07 cm^2/s (<7 cSt) [DIN EN ISO 3104DIN 51562]

Explosive properties : Not available.

Oxidising properties : Not available.

9.2 Other information

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 type	Dose	
Hydrocarbons C10, Aromatics, <1% Naphthalene, [Solvent naphtha (petroleum), heavy arom.]	-	Rat	LC50 Inhalation Vapour	>590 mg/m³	4 hours
	-	Rabbit	LD50 Dermal	>2 mL/kg	-
	-	Rabbit	LD50 Dermal	2000 mg/kg	-
	-	Rat	LDLo Oral	5 mL/kg	-
Polymer.	-	Rat	LD50 Oral	>5000 mg/kg	-
ferrocene	OECD 402 Acute Dermal Toxicity	Rat - Male, Female	LD50 Dermal	>3000 mg/kg	-
	OECD 401 Acute Oral Toxicity	Rat	LD50 Oral	1320 mg/kg	-
Camphor	OECD 402 Acute Dermal Toxicity	Rat	LD50 Dermal	>2000 mg/kg	-
	-	Mouse	LD50 Oral	1310 mg/kg	-
Solvent naphtha (petroleum), heavy arom.	-	Rat	LC50 Inhalation Vapour	>590 mg/m³	4 hours
	-	Rabbit	LD50 Dermal	>2 mL/kg	-
	-	Rabbit	LD50 Dermal	2000 mg/kg	-
	-	Rat	LDLo Oral	5 mL/kg	-

SECTION 11: Toxicological information

naphthalene	-	Rat	LC50 Inhalation Vapour	>340 mg/m³	1 hours
	-	Rabbit	LD50 Dermal	>2000 mg/kg	-
	-	Rat	LD50 Oral	490 mg/kg	-
tris(methylphenyl) phosphate	-	Rabbit	LD50 Dermal	>10000 mg/kg	-
	-	Rat	LD50 Oral	3 g/kg	-

Acute toxicity estimates (ATE)

Route	ATE value
Oral	11120.9 mg/kg
Inhalation (vapours)	96.65 mg/l

Irritation/Corrosion

Product/ingredient name	Test	Species	Result	
Hydrocarbons C10, Aromatics, <1% Naphthalene, [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	-
tris(methylphenyl) phosphate	-	Rabbit	Eyes - Mild irritant	-
	-	Rabbit	Skin - Mild irritant	-

Reproductive toxicity

Product/ingredient name	Test	Species	Result	Dose
ferrocene	OECD 421 Reproduction/ Developmental Toxicity Screening Test	Rat - Male, Female	Reproductive and Developmental effects	Oral: 25 mg/kg
	OECD 421 Reproduction/ Developmental Toxicity Screening Test	Rat - Male, Female	NOAEL	Oral: 10 mg/kg

Information on likely routes of exposure : Not available.

Potential acute health effects

Eye contact : Causes serious eye irritation.

Inhalation : Can cause central nervous system (CNS) depression. May cause drowsiness or dizziness.

Skin contact : Defatting to the skin. May cause skin dryness and irritation.

Ingestion : Can cause central nervous system (CNS) depression. May be fatal if swallowed and enters airways.

Symptoms related to the physical, chemical and toxicological characteristics

SECTION 11: Toxicological information

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

Inhalation : Adverse symptoms may include the following:
nausea or vomiting
headache
drowsiness/fatigue
dizziness/vertigo
unconsciousness
reduced foetal weight
increase in foetal deaths
skeletal malformations

Skin contact : Adverse symptoms may include the following:
irritation
dryness
cracking
reduced foetal weight
increase in foetal deaths
skeletal malformations

Ingestion : Adverse symptoms may include the following:
nausea or vomiting
reduced foetal weight
increase in foetal deaths
skeletal malformations

Delayed and immediate effects as well as 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 : No known significant effects or critical hazards.

Mutagenicity : No known significant effects or critical hazards.

Teratogenicity : May damage the unborn child.

Developmental effects : No known significant effects or critical hazards.

Fertility effects : May damage fertility.

SECTION 12: Ecological information

12.1 Toxicity

Product/ingredient name	Test	Species	Exposure	Result
Hydrocarbons C10, Aromatics, <1% Naphthalene, [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
1,2,4-trimethylbenzene	-	Fish - Pimephales promelas	96 hours	Acute LC50 7.72 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
naphthalene	-	Daphnia - Water flea - Daphnia magna	48 hours	Acute EC50 1.96 mg/l Fresh water
	-	Crustaceans - Daggerblade grass shrimp - Palaemonetes pugio	48 hours	Acute LC50 2350 µg/l Marine water
	-	Fish - Oncorhynchus mykiss	96 hours	Acute LC50 1.6 mg/l
	-	Crustaceans - Fiddler crab - Uca pugnax - Adult	3 weeks	Chronic NOEC 0.5 mg/l Marine water
	-	Fish - Mozambique tilapia - Oreochromis mossambicus	60 days	Chronic NOEC 1.5 mg/l Fresh water
tris(methylphenyl) phosphate	-	Algae - Green algae - Scenedesmus pannonicus - Exponential growth phase	96 hours	Acute EC50 1300 µg/l Fresh water
	-	Daphnia - Daphnia magna	48 hours	Acute EC50 3.2 mg/l
	-	Fish - Oncorhynchus mykiss	96 hours	Acute LC50 0.26 mg/l
	-	Fish - Threespine stickleback - Gasterosteus aculeatus - Egg	96 hours	Chronic NOEC 160 µg/l Fresh water

12.2 Persistence and degradability

Product/ingredient name	Test	Result
Polymer.	OECD 310 Ready Biodegradability - CO2 in Sealed Vessels (Headspace Test)	12 % - Inherent - 28 days
tris(methylphenyl) phosphate	OECD 301B Ready Biodegradability - CO2 Evolution Test	82 % - 28 days
	OECD 301C Ready Biodegradability - Modified MITI Test (I)	80 % - 28 days

SECTION 12: Ecological information

Product/ingredient name	Aquatic half-life	Photolysis	Biodegradability
Hydrocarbons C10, Aromatics, <1% Naphthalene, [Solvent naphtha (petroleum), heavy arom.]	-	-	Inherent
Polymer.	-	-	Inherent
Solvent naphtha (petroleum), heavy arom.	-	-	Inherent
tris(methylphenyl) phosphate	-	50%; < 28 day(s)	Readily

12.3 Bioaccumulative potential

Product/ingredient name	$LogP_{ow}$	BCF	Potential
Hydrocarbons C10, Aromatics, <1% Naphthalene, [Solvent naphtha (petroleum), heavy arom.]	2.8 to 6.5	<100	low
Polymer.	<-1	-	low
1,2,4-trimethylbenzene	4.09	275	low
Solvent naphtha (petroleum), heavy arom.	-	<100	low
naphthalene	3.3	>100	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

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

SECTION 13: Disposal considerations

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 spilt 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., dicyclopentadienyl iron)	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (Solvent naphtha (petroleum), heavy arom., dicyclopentadienyl iron)	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (Solvent naphtha (petroleum), heavy arom., dicyclopentadienyl iron). Marine pollutant (Solvent naphtha (petroleum), heavy arom., dicyclopentadienyl iron)	Environmentally hazardous substance, liquid, n.o.s. (Solvent naphtha (petroleum), heavy arom., dicyclopentadienyl iron)
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	This product is not regulated as a dangerous good when transported in sizes of ≤5 L or ≤5 kg, provided the packagings meet the general provisions of 4.1.1.1, 4.1.1.2 and 4.1.1.4 to 4.1.1.8. **Hazard identification number** 90 **Limited quantity** 5 L **Special provisions**	This product is not regulated as a dangerous good when transported in sizes of ≤5 L or ≤5 kg, provided the packagings meet the general provisions of 4.1.1.1, 4.1.1.2 and 4.1.1.4 to 4.1.1.8. **Special provisions** 274, 335, 375, 601	This product is not regulated as a dangerous good when transported in sizes of ≤5 L or ≤5 kg, provided the packagings meet the general provisions of 4.1.1.1, 4.1.1.2 and 4.1.1.4 to 4.1.1.8. **Emergency schedules (EmS)** F-A, S-F **Special provisions** 274, 335, 969	

SECTION 14: Transport information

	274, 335, 601, 375			
14.6 Special precautions for user				
14.7 Transport in bulk according to Annex II of Marpol and the IBC Code				

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 : Restricted to professional users.

Other EU regulations

Seveso Directive - Reporting thresholds (in tonnes)

Danger criteria

Category	Notification and MAPP threshold	Safety report threshold
E1: Hazardous to the aquatic environment - Acute 1 or Chronic 1	100	200
9ii: Toxic for the environment	200	500

Black List Chemicals : Not listed

Priority List Chemicals : Not determined

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

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

SECTION 15: Regulatory information

Product/ingredient name	Carcinogenic effects	Mutagenic effects	Developmental effects	Fertility effects
ferrocene	-	-	Repr. 1B, H360D (Unborn child) (oral)	Repr. 1B, H360F (Fertility) (oral)
naphthalene	Carc. 2, H351	-	-	-
tris(methylphenyl) phosphate	-	-	-	Repr. 2, H361f (Fertility) (oral)

Chemical Weapons Convention List Schedule I Chemicals : Not listed

Chemical Weapons Convention List Schedule II Chemicals : Not listed

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) : **Japan inventory (ENCS)**: All components are listed or exempted.
Japan inventory (ISHL): 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

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

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

Classification	Justification
Eye Irrit. 2, H319	Calculation method
Repr. 1B, H360FD (Fertility and Unborn child)	Calculation method
STOT SE 3, H336	Calculation method
Asp. Tox. 1, H304	Calculation method
Aquatic Chronic 1, H410	Calculation method

Full text of abbreviated H statements :

H226	Flammable liquid and vapour.
H228	Flammable solid.
H302	Harmful if swallowed.
H304	May be fatal if swallowed and enters airways.
H315	Causes skin irritation.
H317	May cause an allergic skin reaction.
H319	Causes serious eye irritation.
H332	Harmful if inhaled.
H335	May cause respiratory irritation.
H336	May cause drowsiness or dizziness.
H351	Suspected of causing cancer.
H360FD (oral)	May damage fertility if swallowed. May damage the unborn child if swallowed.
H360FD	May damage fertility. May damage the unborn child.
H361f (oral)	Suspected of damaging fertility if swallowed.
H371	May cause damage to organs.
H373 (inhalation)	May cause damage to organs through prolonged or repeated exposure if inhaled.
H373 (oral)	May cause damage to organs through prolonged or repeated exposure if swallowed.
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, 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
EUH066	Repeated exposure may cause skin dryness or cracking.
Eye Irrit. 2, H319	SERIOUS EYE DAMAGE/EYE IRRITATION - Category 2
Flam. Liq. 3, H226	FLAMMABLE LIQUIDS - Category 3
Flam. Sol. 1, H228	FLAMMABLE SOLIDS - Category 1
Flam. Sol. 2, H228	FLAMMABLE SOLIDS - Category 2
Repr. 1B, H360FD (oral)	REPRODUCTIVE TOXICITY (Fertility and Unborn child) (oral) - Category 1B
Repr. 1B, H360FD	REPRODUCTIVE TOXICITY (Fertility and Unborn child) - Category 1B
Repr. 2, H361f (oral)	REPRODUCTIVE TOXICITY (Fertility) (oral) - Category 2
Skin Irrit. 2, H315	SKIN CORROSION/IRRITATION - Category 2
Skin Sens. 1, H317	SKIN SENSITISATION - Category 1

SECTION 16: Other information

STOT RE 2, H373 (inhalation)	SPECIFIC TARGET ORGAN TOXICITY - REPEATED EXPOSURE (inhalation) - Category 2
STOT RE 2, H373 (oral)	SPECIFIC TARGET ORGAN TOXICITY - REPEATED EXPOSURE (oral) - Category 2
STOT SE 2, H371	SPECIFIC TARGET ORGAN TOXICITY - SINGLE EXPOSURE - Category 2
STOT SE 3, H335	SPECIFIC TARGET ORGAN TOXICITY - SINGLE EXPOSURE (Respiratory tract irritation) - Category 3
STOT SE 3, H336	SPECIFIC TARGET ORGAN TOXICITY - SINGLE EXPOSURE (Narcotic effects) - Category 3

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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
China	Mandarin, English	+86 10 5100 3039	Beijing China
India	Hindi, English	+65 3158 1198	Singapore
India (local toll free number)	Hindi, English	000800 100 7479	India
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
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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