SAFETY DATA SHEET

satacen® 3

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

1.1 Product identifier

Product name	:	satacen® 3
Product code	:	16018
Internal code	:	16018
Date of issue/ Date of revision	:	4/3/2024
Date of previous issue	:	4/2/2024
Version	:	19.01
Product description	:	Mixture
Physical state	:	Liquid.
Chemical identity	:	Not available.
UFI	:	6U20-K0ET-N008-7FNM

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

Identified uses

Petrochemical industry: Fuel additive.

1.3 Details of the supplier of the safety data sheet

UK 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
EU Supplier	:	Innospec Limited Boite Postale 19, F-55300 St. Mihiel Han-sur-Meuse, Meuse, France + 33 3 2991 7300
Distributor	:	Clean-Life Umwelttechnik AG Bernstrasse 16a CH – 6144 Zell +41 (0)62 961 88 01 Fax: +41(0)62 961 88 02 info@clean-life.ch

1.4 Emergency telephone number

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

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

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 , Portuguese, Farsi)	:	+44 (0) 1235 239 671	London, UK
Asia Pacific (all countries except China)	:	+65 3158 1074	Singapore
China	:	400 120 6011	Beijing China
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

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]

Repr. 1B, H360FD
STOT RE 2, H373
Asp. Tox. 1, H304
Aquatic Chronic 3, H412

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 : H304 - May be fatal if swallowed and enters airways.
H360FD - May damage fertility. May damage the unborn child.
H373 - May cause damage to organs through prolonged or repeated exposure.
H412 - Harmful to aquatic life with long lasting effects.

Supplemental label elements : Repeated exposure may cause skin dryness or cracking.
Contains maleic anhydride. May produce an allergic reaction.

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 protective clothing. Wear eye or face protection: Recommended: splash goggles. Wear hearing protection.
P273 - Avoid release to the environment.
P260 - Do not breathe vapour.

Response : P308 + P313 - IF exposed or concerned: Get medical advice or attention.
P301 + P310, P331 - IF SWALLOWED: Immediately call a POISON CENTER or doctor. Do NOT induce vomiting.

Storage : Not applicable.

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

Hazardous ingredients : Hydrocarbons, C11-C13, isoalkanes, <2% aromatics and 1,1'-Bis-(ferrocenyl)octane

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 : This mixture does not contain any substances that are assessed to be a PBT or a vPvB.

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

SECTION 3: Composition/information on ingredients

3.2 Mixtures : Mixture

Product/ingredient name	Identifiers	%	Classification	Specific Conc. Limits, M-factors and ATEs	Type
Hydrocarbons, C11-C13, isoalkanes, <2% aromatics	REACH #: 01-2119456810-40 EC: 920-901-0 CAS: 64742-48-9	≥50 - ≤75	Asp. Tox. 1, H304 EUH066	-	[1] [2]
1,1'-Bis-(ferrocenyl)octane	REACH #: 01-0000020037-79 EC: 479-710-1	≥10 - ≤25	Repr. 1B, H360FD STOT RE 2, H373 (liver) Aquatic Chronic 4, H413	-	[1]
Hydrocarbons, C10, aromatics, >1% naphthalene [Solvent naphtha (petroleum), heavy arom.]	REACH #: 01-2119463588-24 EC: 919-284-0 CAS: 64742-94-5	≤3	STOT SE 3, H336 Asp. Tox. 1, H304 Aquatic Chronic 2, H411 EUH066	-	[1] [2]
naphthalene	EC: 202-049-5 CAS: 91-20-3 Index: 601-052-00-2	≤0.3	Acute Tox. 4, H302 Carc. 2, H351 Aquatic Acute 1, H400 Aquatic Chronic 1, H410	ATE [Oral] = 490 mg/kg M [Acute] = 1 M [Chronic] = 1	[1] [2]
maleic anhydride	REACH #: 01-2119472428-31 EC: 203-571-6 CAS: 108-31-6 Index: 607-096-00-9	<0.001	Acute Tox. 4, H302 Skin Corr. 1B, H314 Eye Dam. 1, H318 Resp. Sens. 1, H334 Skin Sens. 1A, H317	ATE [Oral] = 400 mg/kg Skin Sens. 1, H317: C ≥ 0.001%	[1] [2]

SECTION 3: Composition/information on ingredients

			STOT RE 1, H372 (respiratory system) (inhalation) EUH071 **See Section 16 for the full text of the H statements declared above.**		

Additional CAS # used in National Inventories

Hydrocarbons, C11-C13, isoalkanes, <2% aromatics	-	64742-48-9, 90622-58-5, 246538-78-3
Organometallic iron compound	-	
Solvent naphtha (petroleum), heavy arom.	-	64742-94-5
naphthalene	-	91-20-3

Additional information

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment, are PBTs or vPvBs or have been assigned a workplace exposure limit and hence require reporting in this section.

Type

[1] Substance classified with a health or environmental hazard

[2] Substance with a workplace exposure limit

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

SECTION 4: First aid measures

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 : No known significant effects or critical hazards.

Inhalation : No known significant effects or critical hazards.

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

Ingestion : May be fatal if swallowed and enters airways.

Over-exposure signs/symptoms

Eye contact : No specific data.

Inhalation : Adverse symptoms may include the following:
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

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 harmful 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

SECTION 5: Firefighting measures

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.

6.3 Methods and material 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. 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 breathe vapour or mist. Do not swallow. Avoid release to the environment. If during normal use the material presents a respiratory hazard, use only with adequate ventilation or wear appropriate respirator. 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.

SECTION 7: Handling and storage

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, C11-C13, isoalkanes, <2% aromatics	**Innospec Inc. (Europe, 5/2007).** Reciprocal Calculation Procedure (RCP) Supplier's information: 1200 mg/m³, (Hydrocarbon. Total.) 8 hours. Form: Vapour Reciprocal Calculation Procedure (RCP) Supplier's information: 171 ppm, (Hydrocarbon. Total.) 8 hours. Form: Vapour
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.
naphthalene	**SUVA (Switzerland, 1/2023). Absorbed through skin.** TWA: 10 ppm, 0 times per shift, 8 hours. Form: vapour and aerosols TWA: 50 mg/m³, 0 times per shift, 8 hours. Form: vapour and aerosols
maleic anhydride	**SUVA (Switzerland, 1/2023). Skin sensitiser. Inhalation sensitiser.** TWA: 0.1 ppm 8 hours. Form: vapour and aerosols TWA: 0.4 mg/m³ 8 hours. Form: vapour and aerosols STEL: 0.1 ppm 15 minutes. Form: vapour and aerosols STEL: 0.4 mg/m³ 15 minutes. Form: vapour and aerosols

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

DNELs/DMELs

SECTION 8: Exposure controls/personal protection

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	General population	Systemic
	DNEL	Long term Inhalation	32 mg/m³	General population	Systemic
	DNEL	Long term Oral	7.5 mg/kg bw/day	General population	Systemic
	DNEL	Long term Oral	0.03 mg/kg bw/day	General population	Systemic
	DNEL	Long term Dermal	0.28 mg/kg bw/day	General population	Systemic
	DNEL	Long term Inhalation	0.69 mg/m³	General population	Local
	DNEL	Long term Inhalation	0.69 mg/m³	General population	Systemic
	DNEL	Long term Dermal	0.95 mg/kg bw/day	Workers	Systemic
	DNEL	Long term Inhalation	2.31 mg/m³	Workers	Local
	DNEL	Long term Inhalation	2.31 mg/m³	Workers	Systemic
	DNEL	Short term Oral	25.6 mg/kg bw/day	General population	Systemic
	DNEL	Short term Inhalation	143.5 mg/m³	General population	Local
	DNEL	Short term Inhalation	160.23 mg/m³	Workers	Local
	DNEL	Short term Inhalation	226 mg/m³	General population	Systemic
	DNEL	Short term Inhalation	384 mg/m³	Workers	Systemic
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
	DNEL	Long term Dermal	3.57 mg/kg bw/day	Workers	Systemic
	DNEL	Long term Inhalation	25 mg/m³	Workers	Local
	DNEL	Long term Inhalation	25 mg/m³	Workers	Systemic
maleic anhydride	DNEL	Long term Inhalation	0.05 mg/m³	General population	Systemic
	DNEL	Long term Oral	0.06 mg/kg bw/day	General population	Systemic
	DNEL	Long term Inhalation	0.08 mg/m³	General population	Local
	DNEL	Short term Oral	0.1 mg/kg bw/day	General population	Systemic
	DNEL	Short term Dermal	0.1 mg/kg bw/day	General population	Systemic
	DNEL	Long term Dermal	0.1 mg/kg bw/day	General population	Systemic
	DNEL	Long term Inhalation	0.19 mg/m³	Workers	Systemic
	DNEL	Short term Dermal	0.2 mg/kg bw/day	Workers	Systemic

SECTION 8: Exposure controls/personal protection

	DNEL	Long term Dermal	0.2 mg/kg bw/day	Workers	Systemic
	DNEL	Long term Inhalation	0.32 mg/m³	Workers	Local
	DNEL	Short term Inhalation	0.8 mg/m³	Workers	Local
	DNEL	Short term Inhalation	0.8 mg/m³	Workers	Systemic

PNECs

Product/ingredient name	Type	Compartment Detail	Value	Method Detail
1,1'-Bis-(ferrocenyl)octane	PNEC	Sewage Treatment Plant	>9.9 mg/l	-
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 : If user operations generate dust, fumes, gas, vapour or mist, 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: 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 : Based on the hazard and potential for exposure, select a respirator that meets the appropriate standard or certification. Respirators must be used according to a respiratory protection program to ensure proper fitting, training, and other important aspects of use. Recommended: organic vapour (Type A) and particulate filter

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 8: Exposure controls/personal protection

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Appearance

Physical state	:	Liquid. [Clear.]
Colour	:	Brown. [Dark]
Odour	:	Hydrocarbon.
Odour threshold	:	Not available.
pH	:	Not applicable.
Melting point/freezing point	:	<-40°C
Initial boiling point and boiling range	:	>180°C (>356°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: 0.03compared 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% (Hydrocarbons, C11-C13, isoalkanes, <2% aromatics)
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: 5.6 (Air = 1) (Hydrocarbons, C11-C13, isoalkanes, <2% aromatics). Weighted average: 5.59 (Air = 1)
Relative density	:	Not available.
Density	:	0.85 g/cm³ [15°C (59°F)]
Solubility(ies)	:	
Partition coefficient: n-octanol/water	:	Not applicable.
Auto-ignition temperature	:	Lowest known value: >200°C (>392°F) (Hydrocarbons, C11-C13, isoalkanes, <2% aromatics).
Decomposition temperature	:	Not available.
Viscosity	:	Kinematic (40°C (104°F)): 3.2 mm^2/s (3.2 cSt)
Explosive properties	:	Not available.
Oxidising properties	:	Not available.

Particle characteristics

Median particle size	:	Not applicable.

9.2 Other information

Pour point	:	<-39°C

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.

SECTION 10: Stability and reactivity

10.4 Conditions to avoid : No specific data.

10.5 Incompatible materials : Reactive or incompatible with the following materials: oxidising materials

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

SECTION 11: Toxicological information

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

Acute toxicity

Product/ingredient name	Test	Species	Result type	Dose
Hydrocarbons, C11-C13, isoalkanes, <2% aromatics	-	Mammal - species unspecified	LD50 Dermal	>3160 mg/kg
	-	Mammal - species unspecified	LD50 Oral	>10000 mg/kg
1,1'-Bis-(ferrocenyl)octane	OECD 402 Acute Dermal Toxicity	Rat - Male, Female	LD50 Dermal	>2000 mg/kg
	OECD 423 Acute Oral toxicity - Acute Toxic Class Method	Rat - Male, Female	LD50 Oral	>2000 mg/kg
Hydrocarbons, C10, aromatics, >1% naphthalene [Solvent naphtha (petroleum), heavy arom.]	-	Rat	LC50 Inhalation Vapour	>590 mg/m³
	-	Rabbit	LD50 Dermal	>2 mL/kg
	-	Rabbit	LD50 Dermal	>2000 mg/kg
	-	Rat	LDLo Oral	5 mL/kg
naphthalene	-	Rat	LC50 Inhalation Vapour	>340 mg/m³
	-	Rabbit	LD50 Dermal	>2000 mg/kg
	-	Rat	LD50 Oral	490 mg/kg
maleic anhydride	-	Rabbit	LD50 Dermal	2620 mg/kg
	-	Rat	LD50 Oral	400 mg/kg

Irritation/Corrosion

Product/ingredient name	Test	Species	Result
Hydrocarbons, C10, aromatics, >1% naphthalene [Solvent naphtha (petroleum), heavy arom.]	-	Mammal - species unspecified	Eyes - Mild irritant -
	-	Rabbit	Skin - Mild irritant -
maleic anhydride	-	Rabbit	Eyes - Severe irritant -

Sensitisation

Product/ingredient name	Test	Species	Result
1,1'-Bis-(ferrocenyl)octane	OECD 406 Skin Sensitization	Guinea pig	Not sensitizing -

Potential chronic health effects

SECTION 11: Toxicological information

Product/ingredient name	Test	Species	Result	Dose
1,1'-Bis-(ferrocenyl)octane	-	Rat	Chronic LOAEL Oral	5 mg/kg (read across from similar material)

Mutagenicity

Product/ingredient name	Test	Experiment	Result
1,1'-Bis-(ferrocenyl)octane	OECD 471 Bacterial Reverse Mutation Test	Experiment: In vitro Subject: Bacteria Metabolic activation: No	Negative OECD 471 Bacterial Reverse Mutation Test
	OECD 474 Mammalian Erythrocyte Micronucleus Test	Experiment: In vivo Subject: Mammalian-Animal	Negative OECD 474 Mammalian Erythrocyte Micronucleus Test

Specific target organ toxicity (single exposure)

Product/ingredient name	Category	Route of exposure	Target organs
Hydrocarbons, C10, aromatics, >1% naphthalene [Solvent naphtha (petroleum), heavy arom.]	Category 3	-	Narcotic effects

Information on likely routes of exposure : Not available.

Potential acute health effects

Eye contact : No known significant effects or critical hazards.

Inhalation : No known significant effects or critical hazards.

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

Ingestion : May be fatal if swallowed and enters airways.

Symptoms related to the physical, chemical and toxicological characteristics

Eye contact : No specific data.

Inhalation : Adverse symptoms may include the following:
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

SECTION 11: Toxicological information

Potential immediate effects : Not available.

Potential delayed effects : Not available.

Long term exposure

Potential immediate effects : Not available.

Potential delayed effects : Not available.

General : May cause damage to organs through prolonged or repeated exposure. 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.

11.2 Information on other hazards

11.2.1 Endocrine disrupting properties

No known significant effects or critical hazards.

11.2.2 Other information

Not available.

SECTION 12: Ecological information

12.1 Toxicity

Product/ingredient name	Test	Species	Exposure	Result
1,1'-Bis-(ferrocenyl)octane	OECD 209 Activated Sludge, Respiration Inhibition Test	Micro-organism - Activated sludge	3 hours	Acute EC50 >1000 mg/l
	OECD 201 Alga, Growth Inhibition Test	Algae	72 hours	Acute NOEC >0.36 mg/l
	OECD 202 Daphnia sp. Acute Immobilisation Test	Daphnia	48 hours	Acute NOEC >0.36 mg/l
	OECD 203 Fish, Acute Toxicity Test	Fish - Juvenile (Fledgling, Hatchling, Weanling)	96 hours	Acute NOEC >0.5 mg/l
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
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*	60 days	Chronic NOEC 1.5 mg/l Fresh water

SECTION 12: Ecological information

maleic anhydride	-	*mossambicus* Fish - Western mosquitofish - *Gambusia affinis* - Adult	96 hours	Acute LC50 230 ppm Fresh water

12.2 Persistence and degradability

Product/ingredient name	Test	Result
1,1'-Bis-(ferrocenyl)octane	OECD 301D Ready Biodegradability - Closed Bottle Test	3 % - Not readily - 28 days

Product/ingredient name	Aquatic half-life	Photolysis	Biodegradability
Hydrocarbons, C11-C13, isoalkanes, <2% aromatics	-	-	Readily
1,1'-Bis-(ferrocenyl)octane	-	-	Not readily
Hydrocarbons, C10, aromatics, >1% naphthalene [Solvent naphtha (petroleum), heavy arom.]	-	-	Inherent

12.3 Bioaccumulative potential

Product/ingredient name	$LogP_{ow}$	BCF	Potential
1,1'-Bis-(ferrocenyl)octane	4.6	-	High
Hydrocarbons, C10, aromatics, >1% naphthalene [Solvent naphtha (petroleum), heavy arom.]	-	<100	Low
naphthalene	3.4	36.5 to 168	Low
maleic anhydride	-2.78	-	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 Endocrine disrupting properties

No known significant effects or critical hazards.

12.7 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 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	Not regulated.	9006	Not regulated.	Not regulated.
14.2 UN proper shipping name	-	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.	-	-
14.3 Transport hazard class(es)	-	9	-	-
14.4 Packing group	-	-	-	-
14.5 Environmental hazards	No.	Yes.	No.	No.
Additional information	-	The product is only regulated as a dangerous good when transported in tank vessels.	-	
14.6 Special precautions for user				
14.7 Maritime transport in bulk according to IMO instruments				

SECTION 15: Regulatory information

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

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

Annex XIV - List of substances subject to authorisation

Annex XIV

None of the components are listed.

Substances of very high concern

None of the components are listed.

Annex XVII - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles

Product/ingredient name	%	Designation [Usage]
satacen® 3	≥90	3 30
1,1'-Bis-(ferrocenyl)octane	≥10 - ≤25	30

Labelling : Restricted to professional users.

Other EU regulations

VOC : The provisions of Directive 2004/42/EC on VOC apply to this product. Refer to the product label and/or technical data sheet for further information.

VOC for Ready-for-Use Mixture : Not available.

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

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

Explosive precursors : Not applicable.

Ozone depleting substances (1005/2009/EU)

Not listed.

Prior Informed Consent (PIC) (649/2012/EU)

Not listed.

Persistent Organic Pollutants

Not listed.

National regulations

Product/ingredient name	List name	Name on list	Classification	Notes
naphthalene	Switzerland Occupational Exposure Limits	Naphthalin	Carc. C2	-

VOC content :VOC (w/w): 75.8%

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

SECTION 15: Regulatory information

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

Canada inventory :Please contact your supplier for information on the inventory status of this material.

China inventory (IECSC) :At least one component is not listed.

Japan inventory :Not determined.

Korea REACH Status :Please contact your supplier for information on the REACH status of this material.

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

Philippines inventory (PICCS) :At least one component is not listed.

Taiwan REACH Status :Please contact your supplier for information on the REACH status of this material.

Turkey REACH Status :Please contact your supplier for information on the REACH status of this material.

United States inventory (TSCA 8b) :Please contact your supplier for information on the inventory status of this material.

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

Not to be used for hydraulic fracking applications

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
Repr. 1B, H360FD	Calculation method
STOT RE 2, H373	Calculation method
Asp. Tox. 1, H304	Calculation method
Aquatic Chronic 3, H412	Calculation method

Full text of abbreviated H statements :

H302	Harmful if swallowed.
H304	May be fatal if swallowed and enters airways.
H314	Causes severe skin burns and eye damage.
H317	May cause an allergic skin reaction.
H318	Causes serious eye damage.
H334	May cause allergy or asthma symptoms or breathing difficulties if inhaled.
H336	May cause drowsiness or dizziness.
H351	Suspected of causing cancer.
H360FD	May damage fertility. May damage the unborn child.
H372	Causes damage to organs through prolonged or repeated exposure.
H373	May cause damage to organs through prolonged or repeated exposure.
H400	Very toxic to aquatic life.
H410	Very toxic to aquatic life with long lasting effects.
H411	Toxic to aquatic life with long lasting effects.
H412	Harmful to aquatic life with long lasting effects.

SECTION 16: Other information

H413 May cause long lasting harmful effects to aquatic life.
EUH066 Repeated exposure may cause skin dryness or cracking.
EUH071 Corrosive to the respiratory tract.

Full text of classifications [CLP/GHS] :

Acute Tox. 4	ACUTE TOXICITY - Category 4
Aquatic Acute 1	SHORT-TERM (ACUTE) AQUATIC HAZARD - Category 1
Aquatic Chronic 1	LONG-TERM (CHRONIC) AQUATIC HAZARD - Category 1
Aquatic Chronic 2	LONG-TERM (CHRONIC) AQUATIC HAZARD - Category 2
Aquatic Chronic 3	LONG-TERM (CHRONIC) AQUATIC HAZARD - Category 3
Aquatic Chronic 4	LONG-TERM (CHRONIC) AQUATIC HAZARD - Category 4
Asp. Tox. 1	ASPIRATION HAZARD - Category 1
Carc. 2	CARCINOGENICITY - Category 2
Eye Dam. 1	SERIOUS EYE DAMAGE/EYE IRRITATION - Category 1
Repr. 1B	REPRODUCTIVE TOXICITY - Category 1B
Resp. Sens. 1	RESPIRATORY SENSITISATION - Category 1
Skin Corr. 1B	SKIN CORROSION/IRRITATION - Category 1B
Skin Sens. 1A	SKIN SENSITISATION - Category 1A
STOT RE 1	SPECIFIC TARGET ORGAN TOXICITY - REPEATED EXPOSURE - Category 1
STOT RE 2	SPECIFIC TARGET ORGAN TOXICITY - REPEATED EXPOSURE - Category 2
STOT SE 3	SPECIFIC TARGET ORGAN TOXICITY - SINGLE EXPOSURE - 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	400 120 6011	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	+63 2 8231 2149	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

Notice to reader

SECTION 16: Other information

The information in this Safety Data Sheet is based on the present state of knowledge and current legislation. It provides guidance on health, safety and environmental aspects of the product and should not be construed as any guarantee of technical performance or suitability for particular applications. The product should not be used for purposes other than those shown in Section 1 without first referring to the supplier and obtaining written handling instructions. As the specific conditions of use of the product are outside the supplier's control, the user is responsible for ensuring that the requirements of relevant legislation are complied with. The information contained in this safety data sheet does not constitute the user's own assessment of workplace risks, as required by other health and safety legislation.