

SAFETY DATA SHEET

satacen 3

1. Identification of the substance/preparation and company/undertaking

Identification of the substance or preparation

Product name : satacen 3
 Product code : 16018
 Synonyms : 02-011/32
 Use of the substance/preparation : Fuel additive.

Company/undertaking identification

Supplier : Innospec Limited
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2. Composition/information on ingredients

Substance/preparation : Preparation

| Ingredient name | CAS number | % | EC number | Classification |
|--|-------------|--------------|-----------|--------------------------------|
| alkanes, c11-15-iso- | 90622-58-5 | 60 - 100 | 292-460-6 | Xn; R65 R66 |
| 1,1'-Bis-(ferrocenyl)octane | 501410-94-2 | 20-25 | | Xn; R48/22; R53 |
| dicyclopentadienyl iron | 102-54-5 | 0.099 - 0.99 | 203-039-3 | F; R11 Xn; R22 N; R51/53 |
| See section 16 for the full text of the R-phrases declared above | | | | |

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

3. Hazards identification

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

Classification : Xn; R48/22, R65
R66

Human health hazards : Harmful: danger of serious damage to health by prolonged exposure if swallowed.
 Harmful: may cause lung damage if swallowed.
 Repeated exposure may cause skin dryness or cracking.

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

4. First-aid measures

First-aid measures

- Inhalation** : Move exposed person to fresh air. Keep person warm and at rest. 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. Obtain medical attention if symptoms occur. 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.
- Ingestion** : Wash out mouth with water. Remove dentures if any. Move exposed person to fresh air. Keep person warm and at rest. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. Aspiration hazard if swallowed. Can enter lungs and cause damage. Do not induce vomiting 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. 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.
- Skin contact** : Wash skin thoroughly with soap and water or use recognised skin cleanser. Get medical attention if irritation occurs. Remove contaminated clothing and shoes. Wash clothing before reuse. Clean shoes thoroughly before reuse.
- Eye contact** : Immediately flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Get medical attention if irritation occurs.
- Protection of first-aiders** : No action shall be taken involving any personal risk or without suitable training.

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

5. Fire-fighting measures

Extinguishing media

- Suitable** : Use an extinguishing agent suitable for the surrounding fire.
- Not suitable** : None known.
- Special exposure hazards** : No specific hazard.
- Hazardous thermal decomposition products** : These products are carbon oxides (CO, CO₂). Some metallic oxides.
- 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.

6. Accidental release measures

- Personal precautions** : Immediately contact emergency personnel. Keep unnecessary personnel away. Use suitable protective equipment.
- Environmental precautions** : Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers.
- Methods for cleaning up** : If emergency personnel are unavailable, contain spilt material. For small spills, add absorbent (soil may be used in the absence of other suitable materials), scoop up material and place in a sealable, liquid-proof container for disposal. For large spills, dyke spilt material or otherwise contain material to ensure runoff does not reach a waterway. Place spilt material in an appropriate container for disposal.

7. Handling and storage

- Handling** : Aspiration hazard if swallowed. Can enter lungs and cause damage. Do not ingest. If ingested, do not induce vomiting. Wash thoroughly after handling.
- Storage** : Keep container tightly closed. Keep container in a cool, well-ventilated area.
- Packaging materials**
- Recommended** : Use original container.

8. Exposure controls/personal protection

Ingredient name

alkanes, c11-15-iso-

Occupational exposure limits

Innospec Inc. (Europe, 2006). Notes: Reciprocal Calculation Procedure (RCP)

TWA: 1200 mg/m³ 8 hour/hours.

TWA: 171 ppm 8 hour/hours.

dicyclopentadienyl iron

EH40-OES (United Kingdom (UK), 5/2003).

STEL: 20 mg/m³ 15 minute/minutes. Form: All formsTWA: 10 mg/m³ 8 hour/hours. Form: All forms

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 European Standard EN 689 for methods for the assessment of exposure by inhalation to chemical agents and national guidance documents for methods for the determination of hazardous substances.

Exposure controls

Occupational exposure controls : No special ventilation requirements. Good general ventilation should be sufficient to control airborne levels. If this product contains ingredients with exposure limits, use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure below any recommended or statutory limits.

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 (Type A) and particulate filter

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.
>8 hour/hours (breakthrough time): Viton; 1-4 hour/hours (breakthrough time): nitrile rubber

Eye 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.
Recommended: splash goggles

Skin 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.
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.

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.

9. Physical and chemical properties

General information

Appearance

Physical state : Liquid.

Colour : Brownish-red. (Dark.)

Odour : Hydrocarbon.

Important health, safety and environmental information

Boiling point : >180°C (356°F)

Melting point : <-40°C (-40°F)

Flash point : Closed cup: >62°C (143.6°F). (DIN EN ISO 2719)

Explosion limits : The greatest known range is Lower: 0.6% Upper: 7% (alkanes, c11-15-iso-)

9. Physical and chemical properties

- Vapour pressure** : The highest known value is 0.03 kPa (0.2 mm Hg) (at 20°C) (alkanes, c11-15-iso-).
- Density** : 0.85 g/cm³ (15°C / 59°F)
- Solubility** : Insoluble in cold water, hot water.
- Viscosity** : Kinematic: The highest known value is 1.67 cSt (alkanes, c11-15-iso-)
Kinematic (40C): 3.2 cSt
- Vapour density** : The highest known value is >1 (Air = 1) (alkanes, c11-15-iso-).
- Evaporation rate (butyl acetate = 1)** : 0.03 (alkanes, c11-15-iso-) compared with Butyl acetate.
- Auto-ignition temperature** : The lowest known value is >200°C (392°F) (alkanes, c11-15-iso-).

10. Stability and reactivity

- Stability** : The product is stable.
- Materials to avoid** : Highly reactive or incompatible with the following materials: oxidizing materials.

11. Toxicological information

Potential acute health effects

- Inhalation** : No known significant effects or critical hazards.
- Ingestion** : Aspiration hazard if swallowed. Can enter lungs and cause damage.
- Skin contact** : Slightly irritating to the skin.
- Eye contact** : No known significant effects or critical hazards.

Acute toxicity

| <u>Product/ingredient name</u> | <u>Test</u> | <u>Result</u> | <u>Route</u> | <u>Species</u> |
|--------------------------------|-------------|---------------|--------------|----------------|
| dicyclopentadienyl iron | LD50 | 1320 mg/kg | Oral | Rat |
| | LD50 | 832 mg/kg | Oral | Mouse |
| | LD50 | >2000 mg/kg | Dermal | Rat |

Potential chronic health effects

- Carcinogenicity** : No known significant effects or critical hazards.
- Mutagenicity** : No known significant effects or critical hazards.
- Reproductive toxicity** : No known significant effects or critical hazards.

12. Ecological information

Ecotoxicity data

| <u>Product/ingredient name</u> | <u>Species</u> | <u>Period</u> | <u>Result</u> |
|--------------------------------|----------------------|---------------|-----------------|
| dicyclopentadienyl iron | Fish (LC50) | 96 hour/hours | 24.5 mg/l |
| | Daphnia magna (EC50) | 48 hour/hours | >2.6 mg/l |
| | Algae (EC50) | 72 hour/hours | 2.4 to 3.8 mg/l |

Other ecological information

Persistence/degradability

| <u>Product/ingredient name</u> | <u>Aquatic half-life</u> | <u>Photolysis</u> | <u>Biodegradability</u> |
|--------------------------------|--------------------------|-------------------|-------------------------|
| alkanes, c11-15-iso- | - | - | Inherent |
| 1,1'-Bis-(ferrocenyl)octane | - | - | Not readily |
| dicyclopentadienyl iron | - | - | Inherent |

Bioaccumulative potential

| <u>Product/ingredient name</u> | <u>LogP_{ow}</u> | <u>BCF</u> | <u>Potential</u> |
|--------------------------------|--------------------------|------------|------------------|
| 1,1'-Bis-(ferrocenyl)octane | 4.6 | - | high |
| dicyclopentadienyl iron | 3.7 | - | high |

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

13. Disposal considerations

- Methods of disposal** : The generation of waste should be avoided or minimised wherever possible. Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers. 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.
- Hazardous waste** : The classification of the product may meet the criteria for a hazardous waste.

14. Transport information

International transport regulations

| Regulatory information | UN number | Proper shipping name | Class | PG* | Label | Additional information |
|------------------------|----------------|----------------------|-------|-----|-------|---|
| ADR/RID Class | Not regulated. | - | - | - | | - |
| ADNR Class | Not regulated. | - | - | - | | Remarks Dangerous in tank vessels only. |
| IMDG Class | Not regulated. | - | - | - | | - |
| IATA Class | Not regulated. | - | - | - | | - |

PG* : Packing group

15. Regulatory information

EU regulations

Hazard symbol/symbols :



Harmful

Risk phrases :

- R48/22- Harmful: danger of serious damage to health by prolonged exposure if swallowed.
- R65- Harmful: may cause lung damage if swallowed.
- R66- Repeated exposure may cause skin dryness or cracking.

Contains :

- 1,1'-Bis-(ferrocenyl)octane

Product use :

- Classification and labelling have been performed according to EU Directives 67/548/EEC and 1999/45/EC (including amendments) and the intended use.
- Industrial applications.

16. Other information

Full text of R-phrases referred to in sections 2 and 3 - United Kingdom (UK) :

- R11- Highly flammable.
- R22- Harmful if swallowed.
- R48/22- Harmful: danger of serious damage to health by prolonged exposure if swallowed.
- R65- Harmful: may cause lung damage if swallowed.
- R66- Repeated exposure may cause skin dryness or cracking.
- R51/53- Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
- R53- May cause long-term adverse effects in the aquatic environment.

Full text of classifications referred to in sections 2 and 3 - United Kingdom (UK) :

- F - Highly flammable
- Xn - Harmful
- N - Dangerous for the environment.

History

Date of printing : 09/06/2006.

Date of issue : 09/06/2006.

Date of previous issue : 07/06/2006.

Version : 1

Indicates information that has changed from previously issued version.

Notice to reader

16. Other information

To the best of our knowledge, the information contained herein is accurate. However, neither the above-named supplier, nor any of its subsidiaries, assumes any liability whatsoever for the accuracy or completeness of the information contained herein.

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.

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