# Shell Refrigeration Oil S4 FR-V 32

Version 1.0 | Revision Date 2015/03/26 | Print Date 2015/03/27

## 1. IDENTIFICATION OF THE HAZARDOUS CHEMICALS AND OF THE SUPPLIER

| | | |
|---|---|---|
| Product name | : | Shell Refrigeration Oil S4 FR-V 32 |
| Product code | : | 001D8398 |
| CAS-No. | : | 68855-24-3 |

**Manufacturer or supplier's details**

| | | |
|---|---|---|
| Supplier | : | Shell Malaysia Trading Sdn Bhd<br>(6087-M)<br>Menara Shell<br>No. 211 Jalan Tun Sambanthan<br>50470 Kuala Lumpur<br>Malaysia |
| Telephone | : | (+60) 3 2385 2888 |
| Telefax | : | |
| Emergency telephone number | : | 1 800 88 3899 |
| **Email Contact for Safety Data Sheet** | : | If you have any enquiries about the content of this SDS please email lubricantSDS@shell.com |

**Recommended use of the chemical and restrictions on use**

| | | |
|---|---|---|
| Recommended use | : | Refrigerator oil. |

## 2. HAZARDS IDENTIFICATION

**GHS Classification**

| | | |
|---|---|---|
| Chronic aquatic toxicity | : | Category 4 |

**GHS Label element**

| | | |
|---|---|---|
| Hazard pictograms | : | No Hazard Symbol required |
| Signal word | : | No signal word |
| Hazard statements | : | PHYSICAL HAZARDS:<br>Not classified as a physical hazard under GHS criteria.<br>HEALTH HAZARDS:<br>Not classified as a health hazard under GHS criteria.<br>ENVIRONMENTAL HAZARDS:<br>H413 May cause long lasting harmful effects to aquatic life. |
| Precautionary statements | : | **Prevention:**<br>P273 Avoid release to the environment.<br><br>**Response:**<br>No precautionary phrases. |

**Storage:**
No precautionary phrases.

**Disposal:**
P501 Dispose of contents/ container to an approved waste disposal plant.

**Other hazards which do not result in classification**

Prolonged or repeated skin contact without proper cleaning can clog the pores of the skin resulting in disorders such as oil acne/folliculitis.Used oil may contain harmful impurities.High-pressure injection under the skin may cause serious damage including local necrosis.Not classified as flammable but will burn.

## 3. COMPOSITION AND INFORMATION OF THE INGREDIENTS OF THE HAZARDOUS CHEMICAL

Substance / Mixture : Substance

**Hazardous components**

| Chemical Name | CAS-No. | Classification | Concentration [%] |
|---|---|---|---|
| Alkylbenzene (C14-C30) | 68855-24-3 | Aquatic Chronic4; H413 | <= 100 |

For explanation of abbreviations see section 16.

## 4. FIRST-AID MEASURES

General advice : Not expected to be a health hazard when used under normal conditions.

If inhaled : No treatment necessary under normal conditions of use.
If symptoms persist, obtain medical advice.

In case of skin contact : Remove contaminated clothing. Flush exposed area with water and follow by washing with soap if available.
If persistent irritation occurs, obtain medical attention.

When using high pressure equipment, injection of product under the skin can occur. If high pressure injuries occur, the casualty should be sent immediately to a hospital. Do not wait for symptoms to develop.
Obtain medical attention even in the absence of apparent wounds.

In case of eye contact : Flush eye with copious quantities of water.
If persistent irritation occurs, obtain medical attention.

If swallowed : In general no treatment is necessary unless large quantities are swallowed, however, get medical advice.

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| Most important symptoms and effects, both acute and delayed | : | Oil acne/folliculitis signs and symptoms may include formation of black pustules and spots on the skin of exposed areas. Ingestion may result in nausea, vomiting and/or diarrhoea.<br><br>Local necrosis is evidenced by delayed onset of pain and tissue damage a few hours following injection. |
| Protection of first-aiders | : | When administering first aid, ensure that you are wearing the appropriate personal protective equipment according to the incident, injury and surroundings. |
| Notes to physician | : | Treat symptomatically.<br><br>High pressure injection injuries require prompt surgical intervention an d possibly steroid therapy, to minimise tissue damage and loss of function.<br>Because entry wounds are small and do not reflect the seriousness of the underlying damage, surgical exploration to determine the extent of involvement may be necessary. Local anaesthetics or hot soaks should be avoided because they can contribute to swelling, vasospasm and ischaemia. Prompt surgical decompression, debridement and evacuation of foreign material should be performed under general anaesthetics, and wide exploration is essential. |

## 5. FIRE-FIGHTING MEASURES

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| Suitable extinguishing media | : | Foam, water spray or fog. Dry chemical powder, carbon dioxide, sand or earth may be used for small fires only. |
| Unsuitable extinguishing media | : | Do not use water in a jet. |
| Specific hazards during firefighting | : | Hazardous combustion products may include:<br>A complex mixture of airborne solid and liquid particulates and gases (smoke).<br>Carbon monoxide may be evolved if incomplete combustion occurs.<br>Unidentified organic and inorganic compounds. |
| Specific extinguishing methods | : | Use extinguishing measures that are appropriate to local circumstances and the surrounding environment. |
| Special protective equipment for firefighters | : | Proper protective equipment including chemical resistant gloves are to be worn; chemical resistant suit is indicated if large contact with spilled product is expected. Self-Contained Breathing Apparatus must be worn when approaching a fire in a confined space. Select fire fighter's clothing approved to relevant Standards (e.g. Europe: EN469). |

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| Hazchem Code | : | NONE/TIADA |

## 6. ACCIDENTAL RELEASE MEASURES

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| Personal precautions, protective equipment and emergency procedures | : | Avoid contact with skin and eyes. |
| Environmental precautions | : | Use appropriate containment to avoid environmental contamination. Prevent from spreading or entering drains, ditches or rivers by using sand, earth, or other appropriate barriers.<br><br>Local authorities should be advised if significant spillages cannot be contained. |
| Methods and materials for containment and cleaning up | : | Slippery when spilt. Avoid accidents, clean up immediately.<br>Prevent from spreading by making a barrier with sand, earth or other containment material.<br>Reclaim liquid directly or in an absorbent.<br>Soak up residue with an absorbent such as clay, sand or other suitable material and dispose of properly. |
| Additional advice | : | For guidance on selection of personal protective equipment see Chapter 8 of this Safety Data Sheet.<br>For guidance on disposal of spilled material see Chapter 13 of this Safety Data Sheet. |

## 7. HANDLING AND STORAGE

Handling

| | | |
|---|---|---|
| General Precautions | : | Use local exhaust ventilation if there is risk of inhalation of vapours, mists or aerosols.<br>Use the information in this data sheet as input to a risk assessment of local circumstances to help determine appropriate controls for safe handling, storage and disposal of this material. |
| Advice on safe handling | : | Avoid prolonged or repeated contact with skin.<br>Avoid inhaling vapour and/or mists.<br>When handling product in drums, safety footwear should be worn and proper handling equipment should be used.<br>Properly dispose of any contaminated rags or cleaning materials in order to prevent fires. |
| Avoidance of contact | : | Strong oxidising agents. |

**Storage**

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| Other data | : | Keep container tightly closed and in a cool, well-ventilated place.<br>Use properly labeled and closable containers. |

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| Packaging material | : | Suitable material: For containers, or container linings use mild steel.<br>Unsuitable material: For containers or container linings avoid PVC, polyethylene or high density polyethylene. |

## 8. EXPOSURE CONTROLS AND PERSONAL PROTECTION

**Components with workplace control parameters**

**Biological occupational exposure limits**

No biological limit allocated.

**Monitoring Methods**

Monitoring of the concentration of substances in the breathing zone of workers or in the general workplace may be required to confirm compliance with an OEL and adequacy of exposure controls. For some substances biological monitoring may also be appropriate.
Validated exposure measurement methods should be applied by a competent person and samples analysed by an accredited laboratory.
Examples of sources of recommended exposure measurement methods are given below or contact the supplier. Further national methods may be available.

National Institute of Occupational Safety and Health (NIOSH), USA: Manual of Analytical Methods http://www.cdc.gov/niosh/

Occupational Safety and Health Administration (OSHA), USA: Sampling and Analytical Methods http://www.osha.gov/

Health and Safety Executive (HSE), UK: Methods for the Determination of Hazardous Substances http://www.hse.gov.uk/

Institut für Arbeitsschutz Deutschen Gesetzlichen Unfallversicherung (IFA) , Germany http://www.dguv.de/inhalt/index.jsp

L'Institut National de Recherche et de Securité, (INRS), France http://www.inrs.fr/accueil

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| **Engineering measures** | : | The level of protection and types of controls necessary will vary depending upon potential exposure conditions. Select controls based on a risk assessment of local circumstances. Appropriate measures include:<br>Adequate ventilation to control airborne concentrations.<br><br>Where material is heated, sprayed or mist formed, there is greater potential for airborne concentrations to be generated.<br><br>General Information:<br>Define procedures for safe handling and maintenance of controls.<br>Educate and train workers in the hazards and control measures relevant to normal activities associated with this product. |

Ensure appropriate selection, testing and maintenance of equipment used to control exposure, e.g. personal protective equipment, local exhaust ventilation.
Drain down system prior to equipment break-in or maintenance.
Retain drain downs in sealed storage pending disposal or subsequent recycle.
Always observe good personal hygiene measures, such as washing hands after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants. Discard contaminated clothing and footwear that cannot be cleaned.
Practice good housekeeping.

**Personal protective equipment**

**Protective measures**

Personal protective equipment (PPE) should meet recommended national standards. Check with PPE suppliers.

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| Respiratory protection | : | No respiratory protection is ordinarily required under normal conditions of use.<br>In accordance with good industrial hygiene practices, precautions should be taken to avoid breathing of material.<br>If engineering controls do not maintain airborne concentrations to a level which is adequate to protect worker health, select respiratory protection equipment suitable for the specific conditions of use and meeting relevant legislation.<br>Check with respiratory protective equipment suppliers.<br>Where air-filtering respirators are suitable, select an appropriate combination of mask and filter.<br>Select a filter suitable for the combination of organic gases and vapours [Type A/Type P boiling point >65°C (149°F)]. |
| Hand protection<br>Remarks | : | Where hand contact with the product may occur the use of gloves approved to relevant standards (e.g. Europe: EN374, US: F739) made from the following materials may provide suitable chemical protection. PVC, neoprene or nitrile rubber gloves Suitability and durability of a glove is dependent on usage, e.g. frequency and duration of contact, chemical resistance of glove material, dexterity. Always seek advice from glove suppliers. Contaminated gloves should be replaced. Personal hygiene is a key element of effective hand care. Gloves must only be worn on clean hands. After using gloves, hands should be washed and dried thoroughly. Application of a non-perfumed moisturizer is recommended.<br><br>For continuous contact we recommend gloves with breakthrough time of more than 240 minutes with preference for > 480 minutes where suitable gloves can be identified. For short-term/splash protection we recommend the same, but recognize that suitable gloves offering this level of protection |

may not be available and in this case a lower breakthrough time maybe acceptable so long as appropriate maintenance and replacement regimes are followed. Glove thickness is not a good predictor of glove resistance to a chemical as it is dependent on the exact composition of the glove material. Glove thickness should be typically greater than 0.35 mm depending on the glove make and model.

| | | |
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| Eye protection | : | If material is handled such that it could be splashed into eyes, protective eyewear is recommended. |
| Skin and body protection | : | Skin protection is not ordinarily required beyond standard work clothes.<br>It is good practice to wear chemical resistant gloves. |
| Thermal hazards | : | Not applicable |

**Environmental exposure controls**

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|---|---|---|
| General advice | : | Take appropriate measures to fulfill the requirements of relevant environmental protection legislation. Avoid contamination of the environment by following advice given in Chapter 6. If necessary, prevent undissolved material from being discharged to waste water. Waste water should be treated in a municipal or industrial waste water treatment plant before discharge to surface water.<br>Local guidelines on emission limits for volatile substances must be observed for the discharge of exhaust air containing vapour. |

## 9. PHYSICAL AND CHEMICAL PROPERTIES

| | | |
|---|---|---|
| Appearance | : | Liquid at room temperature. |
| Colour | : | colourless |
| Odour | : | Slight hydrocarbon |
| Odour Threshold | : | Data not available |
| pH | : | Not applicable |
| pour point | : | -45 °C / -49 °FMethod: Unspecified |
| Initial boiling point and boiling range | : | > 280 °C / 536 °Festimated value(s) |
| Flash point | : | 180 °C / 356 °F<br>Method: Unspecified |
| Evaporation rate | : | Data not available |
| Flammability (solid, gas) | : | Data not available |
| Upper explosion limit | : | Typical 10 %(V) |

| | | |
|---|---|---|
| Lower explosion limit | : | Typical 1 %(V) |
| Vapour pressure | : | < 0.5 Pa (20 °C / 68 °F)<br>estimated value(s) |
| Relative vapour density | : | > 1estimated value(s) |
| Relative density | : | 0.870 (15 °C / 59 °F) |
| Density | : | 870 kg/m3 (15.0 °C / 59.0 °F)<br>Method: ISO 12185 |
| Solubility(ies) | | |
| Water solubility | : | negligible |
| Solubility in other solvents | : | Data not available |
| Partition coefficient: n-octanol/water | : | Pow: > 6(based on information on similar products) |
| Auto-ignition temperature | : | > 320 °C / 608 °F |
| Viscosity | | |
| Viscosity, dynamic | : | Data not available |
| Viscosity, kinematic | : | 29 mm2/s (40.0 °C / 104.0 °F)<br>Method: ISO 3104 |
| | | 4.1 mm2/s (100 °C / 212 °F)<br>Method: ISO 3104 |
| Conductivity | : | This material is not expected to be a static accumulator. |
| Decomposition temperature | : | Data not available |

## 10. STABILITY AND REACTIVITY

| | | |
|---|---|---|
| Chemical stability | : | Stable. |
| Possibility of hazardous reactions | : | Reacts with strong oxidising agents. |
| Conditions to avoid | : | Extremes of temperature and direct sunlight. |
| Incompatible materials | : | Strong oxidising agents. |
| Hazardous decomposition products | : | Hazardous decomposition products are not expected to form during normal storage. |

## 11. TOXICOLOGICAL INFORMATION

| | | |
|---|---|---|
| Basis for assessment | : | Information given is based on data on the components and the toxicology of similar products. |
| Symptoms of Overexposure | : | Oil acne/folliculitis signs and symptoms may include formation of black pustules and spots on the skin of exposed areas. Ingestion may result in nausea, vomiting and/or diarrhoea.Local necrosis is evidenced by delayed onset of pain and tissue damage a few hours following injection. |
| Information on likely routes of exposure | : | Skin and eye contact are the primary routes of exposure although exposure may occur following accidental ingestion. |

**Acute toxicity**

**Product:**

| | | |
|---|---|---|
| Acute oral toxicity | : | LD50 rat: > 5,000 mg/kg<br>Remarks: Expected to be of low toxicity: |
| Acute inhalation toxicity | : | LC 50 Rat: > 5 mg/l<br>Exposure time: 4 h<br>Remarks: Low toxicity by inhalation. |
| Acute dermal toxicity | : | LD50 Rabbit: > 5,000 mg/kg<br>Remarks: Expected to be of low toxicity: |

**Skin corrosion/irritation**

**Product:**

Remarks: Expected to be slightly irritating., Prolonged or repeated skin contact without proper cleaning can clog the pores of the skin resulting in disorders such as oil acne/folliculitis.

**Serious eye damage/eye irritation**

**Product:**

Remarks: Expected to be slightly irritating.

**Respiratory or skin sensitisation**

**Product:**

Remarks: Not expected to be a skin sensitiser.

**Germ cell mutagenicity**

**Product:**

: Remarks: Not considered a mutagenic hazard.

**Carcinogenicity**

**Product:**

Remarks: Not expected to be carcinogenic.

| Material | GHS/CLP Carcinogenicity Classification |
|---|---|
| Alkylbenzene (C14-C30) | No carcinogenicity classification. |

**Reproductive toxicity**

**Product:**

:

Remarks: Not expected to impair fertility., Not expected to be a developmental toxicant.

**STOT - single exposure**

**Product:**

Remarks: Not expected to be a hazard.

**STOT - repeated exposure**

**Product:**

Remarks: Not expected to be a hazard.

**Aspiration toxicity**

**Product:**

Not considered an aspiration hazard.

**Further information**

**Product:**

Remarks: Used oils may contain harmful impurities that have accumulated during use. The concentration of such impurities will depend on use and they may present risks to health and the environment on disposal., ALL used oil should be handled with caution and skin contact avoided as far as possible.

Remarks: High pressure injection of product into the skin may lead to local necrosis if the product is not surgically removed.

Remarks: Slightly irritating to respiratory system.

## 12. ECOLOGICAL INFORMATION

Basis for assessment : Ecotoxicological data have not been determined specifically for this product.
Information given is based on a knowledge of the components and the ecotoxicology of similar products.
Unless indicated otherwise, the data presented is representative of the product as a whole, rather than for individual component(s).(LL/EL/IL50 expressed as the nominal amount of product required to prepare aqueous test extract.)

### Ecotoxicity

**Product:**

Toxicity to fish (Acute toxicity) :
Remarks: Expected to be practically non toxic:
LL/EL/IL50 > 100 mg/l

Toxicity to crustacean (Acute toxicity) :
Remarks: Expected to be practically non toxic:
LL/EL/IL50 > 100 mg/l

Toxicity to algae/aquatic plants (Acute toxicity) :
Remarks: Expected to be practically non toxic:
LL/EL/IL50 > 100 mg/l

Toxicity to fish (Chronic toxicity) : Remarks: NOEC/NOEL > 100 mg/l

Toxicity to crustacean (Chronic toxicity) : Remarks: NOEC/NOEL > 1.0 - <=10 mg/l (based on test data)

### Persistence and degradability

**Product:**

Biodegradability : Remarks: Major constituents are expected to be readily biodegradable, but the product contains components that may persist in the environment

### Bioaccumulative potential

**Product:**

Bioaccumulation : Remarks: Contains components with the potential to bioaccumulate.

Partition coefficient: n-octanol/water : Pow: > 6Remarks: (based on information on similar products)

### Mobility in soil

**Product:**

Mobility : Remarks: Liquid under most environmental conditions., If it enters soil, it will adsorb to soil particles and will not be

mobile.
Remarks: Floats on water.

**Other adverse effects**

no data available

**Product:**

| | | |
|---|---|---|
| Additional ecological information | : | Product is a mixture of non-volatile components, which are not expected to be released to air in any significant quantities., Not expected to have ozone depletion potential, photochemical ozone creation potential or global warming potential.<br>Films formed on water may affect oxygen transfer and damage organisms., May cause physical fouling of aquatic organisms. |

## 13 DISPOSAL INFORMATION

**Disposal methods**

| | | |
|---|---|---|
| Waste from residues | : | Recover or recycle if possible.<br>It is the responsibility of the waste generator to determine the toxicity and physical properties of the material generated to determine the proper waste classification and disposal methods in compliance with applicable regulations.<br>Do not dispose into the environment, in drains or in water courses |
| Contaminated packaging | : | Dispose in accordance with prevailing regulations, preferably to a recognized collector or contractor. The competence of the collector or contractor should be established beforehand. Disposal should be in accordance with applicable regional, national, and local laws and regulations. |
| Local legislation<br>Remarks | : | Disposal should be in accordance with applicable regional, national, and local laws and regulations. |

## 14. TRANSPORTATION INFORMATION

**National Regulations**

| | | |
|---|---|---|
| Hazchem Code | : | NONE/TIADA |

**International Regulation**

**ADR**
Not regulated as a dangerous good

**IATA-DGR**
Not regulated as a dangerous good

**IMDG-Code**
Not regulated as a dangerous good

**Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code**

| | | |
|---|---|---|
| Pollution category | : | Not applicable |
| Ship type | : | Not applicable |
| Product name | : | Not applicable |
| Special precautions | : | Not applicable |

**Special precautions for user**

| | | |
|---|---|---|
| Remarks | : | Special Precautions: Refer to Chapter 7, Handling & Storage, for special precautions which a user needs to be aware of or needs to comply with in connection with transport. |
| **Additional Information** | **:** | MARPOL Annex 1 rules apply for bulk shipments by sea. |

## 15. REGULATORY INFORMATION

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

Occupational Safety and Health (Classification, Labelling and Safety Data Sheet of Hazardous Chemicals) Regulations 2013. Occupational Safety and Health (Use and Standards of Exposure of Chemicals Hazardous to Health) Regulations 2000.

OSHA 1994 and relevant regulations.

Factories and Machinery Act 1967 and relevant regulations.

Petroleum (Safety Measures) Act 1984.

Environmental Quality Act 1974 and regulation.

Motor Vehicles (Construction and Use) (Vehicles Carrying Petroleum Products) Rules, 1965- L.N.405/65 under Road Transport Act 1987.

Motor Vehicles (Construction, Equipment and Use) (Use Of Liquefied Petroleum Gas Fuel System in Motor Vehicles) Rules 1982 – P.U. (A) 392/82 under Road Transport Act, 1987.

**Other international regulations**

**The components of this product are reported in the following inventories:**

| | | |
|---|---|---|
| EINECS | : | All components listed or polymer exempt. |
| TSCA | : | All components listed. |

## 16. OTHER INFORMATION

**Full text of H-Statements**

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|---|---|
| H413 | May cause long lasting harmful effects to aquatic life. |

**Full text of other abbreviations**

| | |
|---|---|
| Aquatic Chronic | Chronic aquatic toxicity |

| | | |
|---|---|---|
| Abbreviations and Acronyms | : | The standard abbreviations and acronyms used in this document can be looked up in reference literature (e.g. scientific dictionaries) and/or websites. |

**Further information**

Other information : A vertical bar (|) in the left margin indicates an amendment from the previous version.

This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product.