SAFETY DATA SHEET

SDS # : 37044
FS-LUBRILAM S40 L

Date of the previous version: 2015-10-23 Revision Date: 2015-11-20 Version 1.03

1. IDENTIFICATION

Product identifier
Product name FS-LUBRILAM S40 L

Other means of identification
Product Code(s) 37044
Trade name -
Substance/mixture Substance

Recommended use of the chemical and restrictions on use
Identified uses Manufacture of substances. Distribution of substance. Metalworking fluid. Rolling oil. Laboratory activities.
Uses advised against Do not use for any purpose other than the one for which it is intended

Details of the supplier of the safety data sheet
Supplier Address TOTAL Specialties USA Inc
1201 Louisiana Street, Suite 1800
Houston, TX  77002
Phone: +1 800 323 3198

Contact Point Technical/ HSEQ
E-mail Address specialfluidsusa@total.com

Emergency telephone number
Company Phone Number +1 (713) 483-5039
Emergency telephone CHEMTREC: +1 800 424 9300 (24h)

2. HAZARDS IDENTIFICATION

Classification
Aspiration toxicity - Category 1

Label elements
DANGER

May be fatal if swallowed and enters airways

Ingestion
IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician
Do NOT induce vomiting

Precautionary Statements - Storage
Store locked up

Precautionary Statements - Disposal
Dispose of contents/ container to an approved waste disposal plant

Unknown Acute Toxicity
No information available

Hazards not otherwise classified (HNOC)
None known

Other information
Physical-Chemical Properties
Contaminated surfaces will be extremely slippery.

Properties Affecting Health
If swallowed accidentally, the product may enter the lungs due to its low viscosity and lead to the rapid development of very serious pulmonary lesions (medical survey during 48 hours). Prolonged or repeated contact may cause skin irritation.

Environmental properties
Should not be released into the environment.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical nature
A complex and variable combination of paraffinic and cyclic hydrocarbons having a carbon number range predominantly of C13 to C16 and boiling in the range of approximately 220°C to 275°C,

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>CAS-No</th>
<th>Weight %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hydrocarbons, C13-C16, n-alkanes, isoalkanes, cyclics, &lt; 0.03% aromatics</td>
<td>^</td>
<td>100</td>
</tr>
</tbody>
</table>

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4. FIRST AID MEASURES

First aid measures for different exposure routes

**General advice**
IN CASE OF SERIOUS OR PERSISTENT CONDITIONS, CALL A DOCTOR OR EMERGENCY MEDICAL CARE.

**Eye contact**
Rinse thoroughly with plenty of water, also under the eyelids. Keep eye wide open while rinsing.

**Skin contact**
Remove contaminated clothing and shoes. Wash off with soap and water.

**Inhalation**
In case of exposure to intense concentrations of vapours, fumes or spray, transport the person away from the contaminated zone, keep warm and allow to rest.

**Ingestion**
Do not ingest. If swallowed then seek immediate medical assistance.
Risk of product entering the lungs on vomiting after ingestion. In this case, the casualty should be sent immediately to hospital.

**Protection of First-aiders**
Use personal protective equipment.

**Most important symptoms/effects, acute and delayed**

**Skin contact**
Non-irritating during normal use.

**Eye contact**
Burning feeling and temporary redness.

**Inhalation**
Vapors inhaled in strong concentration have a narcotic effect on the central nervous system.

**Ingestion**
If swallowed accidentally, the product may enter the lungs due to its low viscosity and lead to the rapid development of very serious pulmonary lesions (medical survey during 48 hours).
Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhea.

**Symptoms**
Redness.

**Indication of immediate medical attention and special treatment needed, if necessary**

**Notes to physician**
Treat symptomatically.

5. FIRE-FIGHTING MEASURES

**Suitable Extinguishing Media**
Foam. Dry powder. Carbon dioxide (CO₂).

**Uniform Fire Code**
Combustible Liquid: III-B
SDS # : 37044

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Unsuitable Extinguishing Media
Do not use a solid water stream as it may scatter and spread fire.

Special Hazard
Incomplete combustion and thermolysis may produce gases of varying toxicity such as carbon monoxide, carbon dioxide, various hydrocarbons, aldehydes and soot. These may be highly dangerous if inhaled in confined spaces or at high concentration.

Explosion Data

Sensitivity to Mechanical Impact
None.

Sensitivity to Static Discharge
May be ignited by friction, heat, sparks or flames.

Protective Equipment and Precautions for Firefighters
As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear. Evacuate non-essential personnel.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

General Information
Use personal protective equipment.  
Evacuate non-essential personnel.  
Ensure adequate ventilation, especially in confined areas.  
ELIMINATE all ignition sources (no smoking, flares, sparks or flames in immediate area).  
Do not touch or walk through spilled material.

Other information
Remove all sources of ignition.

Environmental precautions

General Information
Prevent further leakage or spillage if safe to do so. Dike to collect large liquid spills. The product should not be allowed to enter drains, water courses or the soil. Local authorities should be advised if significant spillages cannot be contained. See Section 12 for additional Ecological Information.

Methods and materials for containment and cleaning up

Methods for cleaning up
Soak up with inert absorbent material. Keep in suitable, closed containers for disposal. Following product recovery, flush area with water.

7. HANDLING AND STORAGE

Precautions for safe handling

Advice on safe handling
For personal protection see section 8. Use only in well-ventilated areas. Do not breathe vapors or spray mist.  
Avoid contact with eyes.

Technical measures
Ensure adequate ventilation.  
Do not spray at high pressure (> 3 bar).

Prevention of fire and explosion
Handle away from any source of ignition (open flame and sparks) and heat (hot manifolds or casings). Do not smoke.  
Take precautionary measures against static discharges.

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Hygiene measures

Ensure the application of strict rules of hygiene by the personnel exposed to the risk of contact with the product. When using, do not eat, drink or smoke. Regular cleaning of equipment, work area and clothing is recommended. Do not dry hands with rags that have been contaminated with product. Do not use abrasives, solvents or fuels. Wash hands before breaks and at the end of workday.

Conditions for safe storage, including any incompatibilities

Technical measures/Storage conditions

Design the installations in order to avoid accidental emissions of product (due to seal breakage, for example) onto hot casings or electrical contacts. Storage installations should be designed with adequate bunds so as to prevent ground or water pollution in case of leaks or spills. Keep in a bunded area. Keep in a dry, cool and well-ventilated place. Keep away from open flames, hot surfaces and sources of ignition. Ground/bond containers, tanks and transfer/receiving equipment. Store at room temperature. Keep containers tightly closed and properly labelled. Use only hydrocarbon-resistant containers, seals, pipes, etc.

Packaging material

Keep only in the original container or in a suitable container for this kind of product: steel, Stainless steel.

Materials to Avoid

Strong acids. Oxidizing agents.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters

Exposure limits

Mineral oil mist:
USA: OSHA (PEL) TWA 5 mg/m$^3$, NIOSH (REL) TWA 5 mg/m$^3$, STEL 10 mg/m$^3$, ACGIH (TLV) TWA 5 mg/m$^3$ (highly refined).

Exposure controls

Engineering Measures

When working in confined spaces (tanks, containers, etc.), ensure that there is a supply of air suitable for breathing and wear the recommended equipment. Apply technical measures to comply with the occupational exposure limits.

Individual protection measures, such as personal protective equipment

General Information

Protective engineering solutions should be implemented and in use before personal protective equipment is considered. These recommendations apply to the product as supplied. If the product is used in mixtures, it is recommended that you contact the appropriate protective equipment suppliers.

Eye/Face Protection

If splashes are likely to occur, wear: Safety glasses with side-shields.
Skin and body protection: Wear suitable protective clothing. Protective shoes or boots.

Hand Protection: Protective gloves.

Respiratory protection: If exposure limits are exceeded or irritation is experienced, NIOSH/MSHA approved respiratory protection should be worn. Positive-pressure supplied air respirators may be required for high airborne contaminant concentrations. Respiratory protection must be provided in accordance with current local regulations.

Hygiene measures: Ensure the application of strict rules of hygiene by the personnel exposed to the risk of contact with the product. When using, do not eat, drink or smoke. Regular cleaning of equipment, work area and clothing is recommended. Do not dry hands with rags that have been contaminated with product. Do not use abrasives, solvents or fuels. Wash hands before breaks and at the end of workday.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical and chemical properties:

<table>
<thead>
<tr>
<th>Property</th>
<th>Values</th>
<th>Remarks</th>
<th>Method</th>
</tr>
</thead>
<tbody>
<tr>
<td>color</td>
<td>colorless</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Physical State @20°C</td>
<td>liquid</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Odor</td>
<td>Hydrocarbon-like</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Odor Threshold</td>
<td>No information available</td>
<td></td>
<td></td>
</tr>
<tr>
<td>pH</td>
<td>Not applicable</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Melting point/range</td>
<td>No information available</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Boiling point/boiling range</td>
<td>230 - 275 °C</td>
<td></td>
<td>ISO 3405</td>
</tr>
<tr>
<td></td>
<td>446 - 527 °F</td>
<td></td>
<td>ISO 3405</td>
</tr>
<tr>
<td>Flash point</td>
<td>&gt;= 101 °C</td>
<td></td>
<td>ASTM D 93</td>
</tr>
<tr>
<td></td>
<td>&gt;= 214 °F</td>
<td></td>
<td>ASTM D 93</td>
</tr>
<tr>
<td>Evaporation rate</td>
<td>No information available</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Flammability Limits in Air</td>
<td>upper: 6 %</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>lower: 1 %</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vapor Pressure</td>
<td>0.02 hPa</td>
<td></td>
<td>@ 20 °C</td>
</tr>
<tr>
<td>Vapor density</td>
<td></td>
<td></td>
<td>No information available</td>
</tr>
<tr>
<td>Relative density</td>
<td></td>
<td></td>
<td>No information available</td>
</tr>
<tr>
<td>Density</td>
<td>815 kg/m³</td>
<td>Substance is a UVCB. Standard tests for this endpoint are not appropriate</td>
<td>ISO 12185</td>
</tr>
<tr>
<td>Water solubility</td>
<td></td>
<td>Soluble in many common organic solvents</td>
<td></td>
</tr>
</tbody>
</table>

Solubility in other solvents:

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10. STABILITY AND REACTIVITY

Reactivity  None under normal processing.

Chemical stability  Stable under recommended storage conditions.

Possibility of hazardous reactions  None under normal processing.

Conditions to Avoid  Heat, flames and sparks. Take precautionary measures against static discharges.

Incompatible Materials  Strong acids. Oxidizing agents.

Hazardous Decomposition Products  Incomplete combustion and thermolysis may produce gases of varying toxicity such as carbon monoxide, carbon dioxide, various hydrocarbons, aldehydes and soot.

11. TOXICOLOGICAL INFORMATION

Acute toxicity

Product Information  Product does not present an acute toxicity hazard based on known information

Information on likely routes of exposure

Principle Routes of Exposure  Eye contact, Skin contact, Inhalation, Ingestion.

ATEmix (oral)  5001 mg/kg
ATEmix (dermal)  5001 mg/kg
ATEmix (inhalation-dust/mist)  5.3 mg/l

Component Information

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>LD50 Oral</th>
<th>LD50 Dermal</th>
<th>LC50 Inhalation</th>
</tr>
</thead>
</table>

Version GNAM
Hydrocarbons, C13-C16, n-alkanes, isoalkanes, cyclics, < 0.03% aromatics

<table>
<thead>
<tr>
<th></th>
<th>LD50 &gt; 5000 mg/kg bw (rat - OECD 401)</th>
<th>LD50 (24h) &gt; 3160mg/kg bw (rabbit - OECD 402)</th>
<th>LC50 (4h) &gt; 5266 mg/m³ (aerosol) (rat - OECD 403)</th>
</tr>
</thead>
</table>

**Information on toxicological effects**

**Symptoms**

- **Skin contact**: Non-irritating during normal use.
- **Eye contact**: Burning feeling and temporary redness.
- **Inhalation**: Vapors inhaled in strong concentration have a narcotic effect on the central nervous system.
- **Ingestion**: If swallowed accidentally, the product may enter the lungs due to its low viscosity and lead to the rapid development of very serious pulmonary lesions (medical survey during 48 hours). Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhea.

**Delayed and immediate effects as well as chronic effects from short and long-term exposure**

- **Skin corrosion/irritation**: Not classified.
- **Serious eye damage/eye irritation**: Not classified.
- **Sensitization**: The current toxicological knowledge allows to not classify the product as a sensitizer.
- **Carcinogenicity**: The current toxicological knowledge allows to not classify the product as a carcinogen.
- **Mutagenicity**: The current toxicological knowledge allows to not classify the product as a mutagen.
- **Reproductive toxicity**: The current toxicological knowledge allows to not classify the product as a toxic to reproduction.
- **Target Organ Effects (STOT)**: None known.
- **STOT-single exposure**: Not Classified.
- **STOT - repeated exposure**: Not Classified.
- **Aspiration Hazard**: May be fatal if swallowed and enters airways.

**12. ECOLOGICAL INFORMATION**

**Ecotoxicity**

**Acute aquatic toxicity - Product Information**

Not applicable

**Acute aquatic toxicity - Component Information**

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>Toxicity to algae</th>
<th>Toxicity to fish</th>
<th>Toxicity to daphnia and other aquatic invertebrates</th>
<th>Toxicity to microorganisms</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hydrocarbons, C13-C16, n-alkanes, isoalkanes, cyclics, &lt; 0.03% aromatics</td>
<td>ErL50 (72h) &gt; 10000 mg/l (Skeletonema costatum - ISO 10253)</td>
<td>LL50 (96h) &gt; 1028 mg/l (Scaphthalmus maximus - OECD 203)</td>
<td>LL50 (48h) &gt; 3193 mg/l (Acartia tonsa - ISO 14669)</td>
<td></td>
</tr>
</tbody>
</table>
Chronic aquatic toxicity  - Product Information

Not applicable

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>Toxicity to algae</th>
<th>Toxicity to daphnia and other aquatic invertebrates</th>
<th>Toxicity to fish</th>
<th>Toxicity to microorganisms</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hydrocarbons, C13-C16, n-alkanes, isoalkanes, cyclics, &lt; 0.03% aromatics</td>
<td>NOELR (21d) &gt; 1000 mg/l (Daphnia magna - QSAR Petrotox)</td>
<td>NOELR (28d) &gt; 1000 mg/l (Oncorhynchus mykiss - QSAR Petrotox)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Effects on terrestrial organisms  No information available.

Persistence and degradability

General Information  Readily biodegradable ( 74 % after 28 days).

<table>
<thead>
<tr>
<th>Biodegradation</th>
<th>Type</th>
<th>Method</th>
<th>Sampling time</th>
<th>Specific effects</th>
<th>Values</th>
<th>Unit</th>
<th>Biodegradability</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>OECD 306</td>
<td>28 days</td>
<td></td>
<td></td>
<td>74</td>
<td>%</td>
<td>Readily biodegradable</td>
</tr>
</tbody>
</table>

Bioaccumulative potential

Product Information  Measured experimental data on hydrocarbon UVCB substances are not meaningful, since each of the constituents is likely to behave differently.

logPow  Not applicable

Component Information  Not applicable.

Mobility

Soil  Substance is a UVCB. Standard tests for this endpoint are not appropriate

Other adverse effects

General Information  No information available

13. DISPOSAL CONSIDERATIONS

Waste treatment

Waste Disposal Methods  Dispose of in accordance with local regulations.

Contaminated packaging  Empty containers should be taken to an approved waste handling site for recycling or disposal.
14. TRANSPORT INFORMATION

DOT Not regulated
TDG Not regulated
MEX Not regulated
ICAO/IATA Not regulated
IMDG/IMO Not regulated
ADR/RID Not regulated
ADN Not regulated

15. REGULATORY INFORMATION

Related CAS 64742-46-7

International Inventories The substance is listed or exempted from listing in the following inventories:
Europe (EINECS/ELINCS/NLP)
U.S.A. (TSCA)
Canada (DSL/NDSL)
Australia (AICS)
Korea (KECL)
China (IECSC)
Japan (ENCS)
Philippines (PICCS)
New Zealand (NZIoC)

U.S. Federal Regulations

SARA 313 Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product does not contain any chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372.

SARA 311/312 Hazard Categories

<table>
<thead>
<tr>
<th>Category</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Acute Health Hazard</td>
<td>Yes</td>
</tr>
<tr>
<td>Chronic Health Hazard</td>
<td>no</td>
</tr>
<tr>
<td>Fire Hazard</td>
<td>no</td>
</tr>
<tr>
<td>Sudden Release of Pressure Hazard</td>
<td>no</td>
</tr>
</tbody>
</table>

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Clean Water Act
This product does not contain any substances regulated as pollutants pursuant to the Clean Water Act (40 CFR 122.21 and 40 CFR 122.42).

Clean Air Act, Section 112 Hazardous Air Pollutants (HAPs) (see 40 CFR 61)
This product does not contain any substances regulated as hazardous air pollutants (HAPS) under Section 112 of the Clean Air Act Amendments of 1990.

CERCLA
This material, as supplied, does not contain any substances regulated as hazardous substances under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302) or the Superfund Amendments and Reauthorization Act (SARA) (40 CFR 355). There may be specific reporting requirements at the local, regional, or state level pertaining to releases of this material.

U.S. State Regulations

California Proposition 65
This product does not contain any Proposition 65 chemicals.

U.S. State Right-to-Know Regulations
No information available

16. OTHER INFORMATION

<table>
<thead>
<tr>
<th>NFPA</th>
<th>Health Hazard</th>
<th>Flammability</th>
<th>Instability</th>
<th>Physical and chemical hazards</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1</td>
<td>1</td>
<td>0</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>HMIS</th>
<th>Health Hazard</th>
<th>Flammability</th>
<th>Physical Hazard</th>
<th>Personal protection</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>X</td>
</tr>
</tbody>
</table>

NFPA (National Fire Protection Association)
HMIS (Hazardous Material Information System)
Hazards are split into categories each with a 0 to 4 rating, 0 meaning no hazard and 4 meaning high hazard

Revision Date: 2015-11-20
Revision Note: (M)SDS sections updated: 9, 11
Abbreviations, acronyms

UVCB = Substance of unknown or Variable composition, Complex reaction products or Biological material
LD50 = 50% Lethal Dose - Chemical amount, given at once, which causes the death of 50% (one half) of a group of test animals
LC50 = 50% Lethal concentration - Concentration of a chemical in air or a chemical in water which causes the death of 50% (one half) of a group of test animals
LL = Lethal Loading
OECD = Organization for Economic Co-operation and Development
bw = body weight
bw/day = body weight/day
SCBA = Self Contained Breathing Apparatus
GLP = Good Laboratory Practice
fw = fresh water
mw = marine water
or = occasional release
dw = dry weight

Legend

Section 8
ACGIH - American Conference of Governmental Industrial Hygienists
OSHA - Occupational Safety and Health Administration
NIOSH - National Institute for Occupational Safety and Health
TLV - Threshold Limit Values
PEL - Permissible Exposure Limits
IDHL - Immediately Dangerous to Life or Health concentrations
TWA - Time Weight Average
STEL - Short Term Exposure Limits
S* - Skin notation
TSCA - Toxic Substance Control Act

This safety data sheet serves to complete but not to replace the technical product sheets. The information contained herein is given in good faith and is accurate to the best of knowledge at the date indicated above. It is understood by the user that any use of the product for purposes other than those for which it was designed entails potential risk. The information given herein in no way dispenses the user from knowing and applying all provisions regulating his activity. The user bears sole liability for the precautions required when using the product. The regulatory texts indicated herein are intended to aid the user to fulfill his obligations. This list is not to be considered complete and exhaustive. It is the user's responsibility to ensure that he is subject to no other obligations than those mentioned.

End of the safety data sheet