SECTION 1  IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

<table>
<thead>
<tr>
<th>Trade name</th>
<th>ASO (Acid Soluble Oil)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Synonyms</td>
<td>Aromatic Hydrocarbon Mixture</td>
</tr>
<tr>
<td>Use</td>
<td>Fuel</td>
</tr>
<tr>
<td>Company</td>
<td>Sasol Chemicals (USA) LLC</td>
</tr>
<tr>
<td></td>
<td>(an affiliate of Sasol Chemicals North America LLC)</td>
</tr>
<tr>
<td>Address</td>
<td>12120 Wickchester Lane   Houston TX 77079</td>
</tr>
<tr>
<td>Telephone</td>
<td>CHEMTREC North America Transportation Emergency (24-hr) (800) 424-9300</td>
</tr>
<tr>
<td></td>
<td>CHEMTREC World Wide (703) 527-3887</td>
</tr>
<tr>
<td></td>
<td>Other Emergencies (24-hr) (337) 494-5142</td>
</tr>
<tr>
<td></td>
<td>SDS and Product Information (8:00am-4:30pm CST) (281) 588-3491</td>
</tr>
<tr>
<td></td>
<td>Health and Safety Information (7:30am-4:00pm CST) (281) 588-3492</td>
</tr>
<tr>
<td>E-mail address</td>
<td><a href="mailto:SasolElectronicSDS@us.sasol.com">SasolElectronicSDS@us.sasol.com</a></td>
</tr>
</tbody>
</table>

SECTION 2  HAZARDS IDENTIFICATION

<table>
<thead>
<tr>
<th>OSHA/GHS Hazards</th>
<th>Acute toxicity (Dermal)</th>
<th>Category 1</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Acute toxicity (Inhalation)</td>
<td>Category 1</td>
</tr>
<tr>
<td></td>
<td>Acute toxicity (Oral)</td>
<td>Category 1</td>
</tr>
<tr>
<td></td>
<td>Skin corrosion</td>
<td>Category 1</td>
</tr>
<tr>
<td></td>
<td>Serious eye damage</td>
<td>Category 1</td>
</tr>
<tr>
<td></td>
<td>Carcinogenicity</td>
<td>Category 1A</td>
</tr>
<tr>
<td></td>
<td>Germ cell mutagenicity</td>
<td>Category 1B</td>
</tr>
<tr>
<td></td>
<td>Specific target organ toxicity - repeated exposure</td>
<td>Category 1</td>
</tr>
<tr>
<td></td>
<td>Aspiration toxicity</td>
<td>Category 1</td>
</tr>
<tr>
<td></td>
<td>Long-term (chronic) aquatic hazard</td>
<td>Category 1</td>
</tr>
</tbody>
</table>

LABEL ELEMENTS

Hazard symbols

Signal word  Danger
ASO (Acid Soluble Oil)

Hazard statements

H300 + H310 + H330  Fatal if swallowed, in contact with skin or if inhaled.
H304  May be fatal if swallowed and enters airways.
H314  Causes severe skin burns and eye damage.
H340  May cause genetic defects.
H350  May cause cancer.
H372  Causes damage to organs through prolonged or repeated exposure.
H410  Very toxic to aquatic life with long lasting effects.

Precautionary statements

Prevention

P201  Obtain special instructions before use.
P202  Do not handle until all safety precautions have been read and understood.
P260  Do not breathe dust/ fume/ gas/ mist/ vapours/ spray.
P262  Do not get in eyes, on skin, or on clothing.
P264  Wash skin thoroughly after handling.
P270  Do not eat, drink or smoke when using this product.
P271  Use only outdoors or in a well-ventilated area.
P280  Wear protective gloves/ protective clothing/ eye protection/ face protection.
P273  Avoid release to the environment.

Response

P301 + P330 + P331  IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
P304 + P340  IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
P305 + P351 + P338  IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P303 + P361 + P353  IF ON SKIN (or hair): Remove/ Take off immediately all contaminated clothing. Rinse skin with water/ shower.
P363  Wash contaminated clothing before reuse.
P310  Immediately call a POISON CENTER/doctor.
P391  Collect spillage.

Storage

P403 + P233  Store in a well-ventilated place. Keep container tightly closed.
P405  Store locked up.

Disposal

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

SECTION 3  COMPOSITION/INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>Components</th>
<th>CAS-No.</th>
<th>Weight percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anthracene (alkylated)</td>
<td>120-12-7</td>
<td>&lt;40</td>
</tr>
<tr>
<td>Alkanes, C10-14</td>
<td>93924-07-3</td>
<td>&lt;18</td>
</tr>
<tr>
<td>Naphthalene (alkylated)</td>
<td>91-20-3</td>
<td>&lt;12</td>
</tr>
<tr>
<td>Indane (alkylated)</td>
<td>496-11-7</td>
<td>&lt;10</td>
</tr>
<tr>
<td>Fluorene (alkylated)</td>
<td>86-73-7</td>
<td>&lt;4</td>
</tr>
</tbody>
</table>
ASO (Acid Soluble Oil)

Acenaphthylene (alkylated) 208-96-8 <3
Dialin (alkylated) 447-53-0 <3
Benzene 71-43-2 <1
Hydrofluoric acid 7664-39-3 <0.5
Unidentified aromatic hydrocarbons Mixture <15

See Section 8 for Exposure Guidelines and Section 15 for Regulatory Classifications.

SECTION 4 FIRST AID MEASURES

Eye contact Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Get medical attention immediately.

Skin contact Wash off immediately with soap and plenty of water while removing all contaminated clothes and shoes. Get medical attention immediately. Apply calcium gluconate (2.5%) gel at burn site or area of contamination.

Inhalation Remove to fresh air. If breathing is irregular or stopped, administer artificial respiration. In case of shortness of breath, give oxygen. Call a physician immediately.

Ingestion Do NOT induce vomiting. If swallowed, call a poison control centre or doctor immediately. Never give anything by mouth to an unconscious person.

SECTION 5 FIREFIGHTING MEASURES

FLAMMABLE PROPERTIES

Fire/explosion Do not allow run-off from fire fighting to enter drains or water courses. Hydrofluoric acid will attack most metals, releasing potentially explosive hydrogen gas. NFPA Class IIIB combustible liquid.

Suitable extinguishing media Water spray or fog, foam, dry chemical, CO2.

Protective equipment and precautions for firefighters Wear self-contained breathing apparatus and protective suit.

Further information Evacuate personnel to safe areas. Stay upwind/ keep distance from source. In the event of fire, cool tanks with water spray. Do not use a solid water stream as it may scatter and spread fire. Do not allow run-off from fire fighting to enter drains or water courses.

SECTION 6 ACCIDENTAL RELEASE MEASURES
SECTION 7 HANDLING AND STORAGE

Methods and materials for containment and cleaning up
Evacuate the area and eliminate all sources of ignition. Wear a self-contained breathing apparatus and appropriate Personal Protective Equipment (PPE). Contain spillage, neutralize acidity with alkaline material, and then collect with non-combustible absorbent materials or spill control pads. Do not use sorbents that contain silicon like vermiculite or sand, as materials may produce silicon tetrafluoride. Do not allow product to contaminate groundwater, lakes, streams, ponds, or soil. Neutralise with the following product(s): lime.

SECTION 8 EXPOSURE CONTROLS/PERSONAL PROTECTION

ENGINEERING MEASURES
Air contaminant levels should be controlled below the PEL or TLV for this product (see Exposure Guidelines).

PERSONAL PROTECTIVE EQUIPMENT

<table>
<thead>
<tr>
<th>Component</th>
<th>Type</th>
<th>Limit(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Naphthalene</td>
<td>Eyes</td>
<td>Goggles, Face-shield</td>
</tr>
<tr>
<td>(alkylated)</td>
<td>Skin</td>
<td>Suitable protective clothing, gloves and eye/face protection. Request information on glove permeation properties from the glove supplier.</td>
</tr>
<tr>
<td></td>
<td>Inhalation</td>
<td>Use NIOSH approved respiratory protection.</td>
</tr>
</tbody>
</table>

EXPOSURE GUIDELINES

<table>
<thead>
<tr>
<th>Component</th>
<th>Exposure limit(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Naphthalene</td>
<td>OSHA PEL (Permissible Exposure Limit) 10 ppm 50 mg/m3</td>
</tr>
<tr>
<td></td>
<td>ACGIH TLV (8-hour) 10 ppm</td>
</tr>
<tr>
<td>Benzene</td>
<td>OSHA TWA 1 ppm</td>
</tr>
<tr>
<td></td>
<td>OSHA STEL (Short Term Exposure Limit) 5 ppm</td>
</tr>
<tr>
<td></td>
<td>ACGIH TLV (8-hour) 0.5 ppm</td>
</tr>
<tr>
<td></td>
<td>ACGIH STEL (Short Term Exposure Limit) 2.5 ppm</td>
</tr>
<tr>
<td>Hydrofluoric acid</td>
<td>ACGIH TLV (8-hour) 0.5 ppm</td>
</tr>
<tr>
<td></td>
<td>ACGIH Ceiling 2 ppm</td>
</tr>
<tr>
<td></td>
<td>OSHA TLV (8-hour) 3 ppm</td>
</tr>
</tbody>
</table>

PEL= Permissible Exposure Limits  TWA= Time Weighted Average (8 hr.)
### SECTION 9  PHYSICAL AND CHEMICAL PROPERTIES

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appearance</td>
<td>viscous; liquid;</td>
</tr>
<tr>
<td>Colour</td>
<td>brown</td>
</tr>
<tr>
<td>Form</td>
<td>viscous, liquid</td>
</tr>
<tr>
<td>Odour</td>
<td>Hydrocarbons</td>
</tr>
<tr>
<td>Odour Threshold</td>
<td>No data available</td>
</tr>
<tr>
<td>Flash point</td>
<td>107 °C, 225 °F; PM;</td>
</tr>
<tr>
<td>Flammability</td>
<td>Upper explosion limit: Not available</td>
</tr>
<tr>
<td></td>
<td>Lower explosion limit: Not available</td>
</tr>
<tr>
<td>Boiling point/boiling</td>
<td>190 °C, 375 °F;</td>
</tr>
<tr>
<td>range</td>
<td></td>
</tr>
<tr>
<td>Melting point/range</td>
<td>No data available</td>
</tr>
<tr>
<td>Auto-ignition temperature</td>
<td>Not available</td>
</tr>
<tr>
<td>Decomposition temperature</td>
<td>No data available</td>
</tr>
<tr>
<td>Flammability (solid, gas)</td>
<td>No data available</td>
</tr>
<tr>
<td>Vapour pressure</td>
<td>No data available</td>
</tr>
<tr>
<td>Vapour density</td>
<td>No data available</td>
</tr>
<tr>
<td>Density</td>
<td>0.9698 g/cm³ @ 20 °C, 68 °F;</td>
</tr>
<tr>
<td>Specific gravity</td>
<td>No data available</td>
</tr>
<tr>
<td>Water solubility</td>
<td>insoluble</td>
</tr>
<tr>
<td>Viscosity</td>
<td>22.895 cSt @ 60 °C, 140 °F;</td>
</tr>
<tr>
<td>pH</td>
<td>2.1 - 5.9</td>
</tr>
</tbody>
</table>
Evaporation rate: No data available
Partition coefficient: n-octanol/water: No data available

**SECTION 10  STABILITY AND REACTIVITY**

**Reactivity**: Stable at normal ambient temperature and pressure.

**Chemical stability**: No decomposition if stored and applied as directed.

**Conditions to avoid**: Keep away from heat and sources of ignition.

**Hazardous decomposition products**: Carbon dioxide (CO2). Carbon monoxide. HF decomposes by reaction with metals, liberates hydrogen gas. Contact with materials containing silicon may produce silicon tetrafluoride.

**Materials to avoid**: Oxidizing agents, Fluorine, Metals, Alkalies, materials containing silicon

**Hazardous polymerisation**: None.

**SECTION 11  TOXICOLOGICAL INFORMATION**

**Additional Remarks**: Information given is based on data on the components and the toxicology of similar products.

**Acute dermal toxicity**: Test substance: Hydrofluoric acid, Benzene and other aromatic hydrocarbons; Toxic through skin absorption.

**Acute inhalation toxicity**: Aspiration of liquid material into lungs may cause lung damage.

**Acute oral toxicity**: Fatal if swallowed.

**Skin corrosion/irritation**: Test substance: Hydrofluoric Acid Corrosive

**Serious eye damage/eye irritation**: Test substance: Hydrofluoric Acid Corrosive
ASO (Acid Soluble Oil)

**Respiratory or skin sensitisation**
No data available

**Germ cell mutagenicity**
- **Genotoxicity in vitro:** No data available
- **Genotoxicity in vivo:** No data available
**Assessment Mutagenicity:**
May cause genetic defects.

**Reproductive toxicity**
- **Reproductive toxicity:** No data available
**Assessment Reproductive toxicity:**
No data available
- **Teratogenicity:**
No data available
**Assessment teratogenicity:**
No data available

**STOT - single exposure**
No data available

**STOT - repeated exposure**
Causes damage to organs through prolonged or repeated exposure.

**Aspiration toxicity**
May be fatal if swallowed and enters airways.

**Carcinogenicity**
**Assessment carcinogenicity:**
May cause cancer.

**Carcinogenicity ratings**
- Naphthalene (alkylated)
  - NTP: Reasonably anticipated to be a human carcinogen.
  - IARC: Possible human carcinogen
- Benzene
  - NTP: Known to be a human carcinogen.
  - OSHA: Carcinogen
  - IARC: Carcinogenic to humans.
# ASO (Acid Soluble Oil)

## SECTION 12  
**ECOLOGICAL INFORMATION**

<table>
<thead>
<tr>
<th>Aquatic toxicity</th>
<th>Very toxic to aquatic life with long lasting effects.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Toxicity to fish</td>
<td>No data available</td>
</tr>
<tr>
<td>Toxicity to aquatic invertebrates</td>
<td>No data available</td>
</tr>
<tr>
<td>Toxicity to algae</td>
<td>No data available</td>
</tr>
<tr>
<td>Chronic toxicity to fish</td>
<td>No data available</td>
</tr>
<tr>
<td>Chronic toxicity to aquatic invertebrates</td>
<td>No data available</td>
</tr>
<tr>
<td>Biodegradation</td>
<td>Not readily biodegradable.</td>
</tr>
<tr>
<td>Bioaccumulative potential</td>
<td>No data available</td>
</tr>
<tr>
<td>Mobility in soil</td>
<td>No data available</td>
</tr>
<tr>
<td>Other adverse effects</td>
<td>No data available</td>
</tr>
</tbody>
</table>

## SECTION 13  
**DISPOSAL CONSIDERATIONS**

| Waste Code | D018 (TC Benzene) RQ = 10 lbs. U134 (Hydrofluoric acid) RQ = 100 lbs. This product has the RCRA characteristic of corrosivity and toxicity. Re-evaluation of the product may be required by the user at the time of disposal, since the product uses, transformations, mixtures, contamination, and spillage may change the classification. |
| Disposal methods | Dispose of only in accordance with local, state, and federal regulations. Land disposal of this product is restricted. Do not contaminate any lakes, streams, ponds, groundwater or soil. |
| Empty containers | Empty containers retain product residue (liquid and/or vapor) and can be dangerous. DO NOT PRESSURIZE, CUT, WELD, BRAZE, SOLDER, DRILL, GRIND, OR EXPOSE SUCH CONTAINERS TO HEAT, FLAME, SPARKS, STATIC ELECTRICITY, OR OTHER SOURCES OF IGNITION; THEY MAY EXPLODE AND CAUSE INJURY OR DEATH. Empty drums should be completely drained, triple-rinsed, properly bunged and promptly returned to a drum reconditioner, or properly disposed. |

## SECTION 14  
**TRANSPORT INFORMATION**
**ASO (Acid Soluble Oil)**

**DOT**
UN 2922, Corrosive liquids, toxic, n.o.s.(contains Hydrofluoric acid, Benzene, Naphthalene), 8 (6.1), II
When shipped in quantities greater than 833 lbs, RQ must be added to the shipping description.

**IATA**
UN 2922, Corrosive liquids, toxic, n.o.s.(contains Hydrofluoric acid, Benzene, Naphthalene), 8 (6.1), II
When shipped in quantities greater than 833 lbs, RQ must be added to the shipping description.

**IMDG**
UN 2922, Corrosive liquids, toxic, n.o.s., (contains Hydrofluoric acid, Benzene, Naphthalene), 8 (6.1), II
When shipped in quantities greater than 833 lbs, RQ must be added to the shipping description.

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

**Remarks**
No data available

## SECTION 15 REGULATORY INFORMATION

### U.S. FEDERAL REGULATIONS

#### TSCA Inventory Listing

**Components**
- Not listed
- This material is not listed on TSCA.

#### SARA 302 Status

**Components**
- Hydrofluoric acid
- CAS-No: 7664-39-3
- Weight percent: < 0.5 %

**SARA 311/312 Classification**
- "Immediate (acute) health hazard", "Delayed (chronic) health hazard"

#### SARA 313 Chemical

**Components**
- Anthracene
  - CAS-No: 120-12-7
  - Weight percent: < 40 %
- Naphthalene
  - CAS-No: 91-20-3
  - Weight percent: < 12 %
- Benzene
  - CAS-No: 71-43-2
  - Weight percent: < 1 %
- Hydrofluoric acid
  - CAS-No: 7664-39-3
  - Weight percent: < 0.5 %

**US. EPA CERCLA Hazardous Substances (40 CFR 302)**

**Components**
- Anthracene
  - Reportable Quantity: 5,000 LB
  - Weight percent: < 40 %
- Naphthalene
  - Reportable Quantity: 100 LB
  - Weight percent: < 12 %
- Fluorene
  - Reportable Quantity: 5,000 LB
  - Weight percent: < 4 %
- Acenaphthylene
  - Reportable Quantity: 5,000 LB
  - Weight percent: < 3 %
SAFETY DATA SHEET

ASO (Acid Soluble Oil)

INTERNATIONAL REGULATIONS

WHMIS Classification

- Acute toxicity (Dermal): Category 1
- Acute toxicity (Inhalation): Category 1
- Acute toxicity (Oral): Category 1
- Skin corrosion: Category 1
- Serious eye damage: Category 1
- Carcinogenicity: Category 1A
- Germ cell mutagenicity: Category 1B
- Specific target organ toxicity - repeated exposure: Category 1
- Aspiration toxicity: Category 1
- Long-term (chronic) aquatic hazard: Category 1

European Union

Classification according to Regulation (EU) 1272/2008.

- Acute toxicity (Dermal), Category 1
- Acute toxicity (Inhalation), Category 1
- Acute toxicity (Oral), Category 1
- Carcinogenicity, Category 1A
- Germ cell mutagenicity, Category 1B
- Serious eye damage, Category 1
- Skin irritation, Category 1
- Specific target organ toxicity - repeated exposure, Category 1
- Aspiration hazard, Category 1
- Long-term (chronic) aquatic hazard, Category 1

Australia. Inventory of Chemical Substances (AICS) Not listed

Japan. Inventory of Existing and New Chemical Substances (ENCS) Not listed

Japan. ISHL - Inventory of Chemical Substances Not listed

Canada. Domestic Substances List (DSL) Inventory Not listed

Canada. Non-Domestic Substance Listing (NDSL) Not listed

Philippines. Inventory of Chemicals / Chemical Substances (PICCS) Not listed

Korea. Existing Chemicals Inventory (KECI) Not listed

Revision Date 12/26/2018
Version 2.1
Print Date 12/26/2018
11000004803
Page 10 of 11
ASO (Acid Soluble Oil)

China. Inventory of Existing Chemical Substances (IECSC) Not listed
Mexico Not listed
New Zealand. Inventory of Chemical Substances Not listed
Switzerland Not listed
Taiwan Not listed

Please note: The names and CAS numbers which are used for this product in the stated inventories may deviate from the information which is listed in Section 3.

STATE REGULATIONS

California Prop. 65

<table>
<thead>
<tr>
<th>Components</th>
<th>CAS-No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Naphthalene</td>
<td>91-20-3</td>
</tr>
<tr>
<td>Benzene</td>
<td>71-43-2</td>
</tr>
</tbody>
</table>

SECTION 16 OTHER INFORMATION

HAZARD RATINGS

<table>
<thead>
<tr>
<th></th>
<th>Health</th>
<th>Flammability</th>
<th>Physical Hazard/ Instability</th>
</tr>
</thead>
<tbody>
<tr>
<td>HMIS®</td>
<td>3</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>NFPA</td>
<td>3</td>
<td>1</td>
<td>0</td>
</tr>
</tbody>
</table>

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