# MATERIAL SAFETY DATA SHEET

## 1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

<table>
<thead>
<tr>
<th>NFPA</th>
<th>HMIS</th>
<th>Personal Protective Equipment</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>0</td>
<td><img src="image" alt="Eye Protection" /></td>
</tr>
<tr>
<td></td>
<td></td>
<td><img src="image" alt="Gloves" /></td>
</tr>
<tr>
<td></td>
<td></td>
<td><img src="image" alt="Respiratory Protection" /></td>
</tr>
</tbody>
</table>

### Product code: S1280

### Product Name: SODIUM FLUORIDE, POWDER, REAGENT, ACS

### Chemical Name: No information available

### Synonyms:
- Sodium hydrofluoride
- Sodium monofluoride
- Fluorure de sodium (French)
- Sodium fluorure (French)

### Recommended use:
Fungicide. Fluoridation agent in drinking water.

### CAS #:
7681-49-4

### RTECS #:
WB0350000

### Formula:
NaF

### CI#:
Not available

### Supplier:
Spectrum Chemicals and Laboratory Products, Inc.
14422 South San Pedro St.
Gardena, CA 90248
(310) 516-8000

### Order Online At:
https://www.spectrumchemical.com

### Emergency Telephone Number:
CHEMTREC: 1-800-424-9300

### Contact Person:
Regina Wachenheim (East Coast)
Martin LaBenz (West Coast)

## 2. HAZARDS IDENTIFICATION

See Section 8.
2. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW
DANGER!
May be fatal if absorbed through skin
Harmful if swallowed
Irritating to eyes
Irritating to skin

|-----------------|------------------------|---------------------|--------------|

OSHA Regulatory Status
This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200)

POTENTIAL HEALTH EFFECTS

Principal Routes of Exposure:
Ingestion. Inhalation. Skin.

Acute Potential Health Effects:

Skin Contact:
Fatal if absorbed through skin. Causes skin irritation. May cause severe irritation and possible burns if skin is wet.

Eye Contact:
Causes eye irritation. May cause conjunctivitis. May cause burns. May cause corneal damage.

Inhalation:
May cause irritation of respiratory tract.

Ingestion:

Chronic Potential Health Effects:

Component
Sodium Fluoride 7681-49-4 (100)

Carcinogen Status:
- Group 4 - Not classifiable as a human carcinogen by ACGIH (listed under fluorides)
- Group 3 - Not classifiable as to its carcinogenicity to humans (Fluorides inorganic used in drinking-water) by IARC

Target Organs:

Mutagenic Effects:
May affect genetic material
Mutations in microorganisms
Experiments with bacteria and/or yeast have shown mutagenic effects
Mutagenic effects in mammalian somatic cells
Experiments with animal lymphocytes have shown mutagenic effects

Teratogenic Effects:
May cause birth defects (teratogenic effects) based on animal test data

Aggravated Medical Conditions:
No information available

See Section 11 for additional Toxicological Information

Product code: S1280
Product name: SODIUM FLUORIDE, POWDER, REAGENT, ACS
3. COMPOSITION/INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>Components</th>
<th>CAS-No.</th>
<th>Weight %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sodium Fluoride</td>
<td>7681-49-4</td>
<td>100</td>
</tr>
</tbody>
</table>

4. FIRST AID MEASURES

General Advice: Poison information centres in each State capital city can provide additional assistance for scheduled poisons (13 1126). Ensure that medical personnel are aware of the material(s) involved and take precautions to protect themselves. First aider needs to protect himself.

Skin Contact: Toxic in contact with skin. Wash off immediately with soap and plenty of water removing all contaminated clothes and shoes. Get medical attention. If skin irritation persists, call a physician.

Eye Contact: Flush eye with water for 15 minutes. Get medical attention. If symptoms persist, call a physician.

Inhalation: Move to fresh air. If breathing is difficult, give oxygen. If not breathing, give artificial respiration. WARNING! It may be hazardous to the person providing aid to give mouth-to-mouth resuscitation when the inhaled or ingested material is toxic, infectious or corrosive. Do not use mouth-to-mouth resuscitation if victim ingested or inhaled the substance; induce artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. Get medical attention.

Ingestion: Do not induce vomiting without medical advice. Never give anything by mouth to an unconscious person. Toxic if swallowed. Immediate medical attention is required. Call a physician or Poison Control Centre immediately.

Notes to Physician: Treat symptomatically

5. FIRE-FIGHTING MEASURES

Flammable Properties

Flashpoint (°C/°F): No information available.

Flash Point Tested according to: Not available

Lower Explosion Limit (%): No information available

Upper Explosion Limit (%): No information available

Autoignition Temperature (°C/°F): No information available

Suitable Extinguishing Media: The product is not flammable. If it is involved in a fire, extinguish the fire using an agent suitable for the type of surrounding fire.

Unsuitable Extinguishing Media: No information available.

Product code: S1280 Product name: SODIUM FLUORIDE, POWDER, REAGENT, ACS
### Hazardous Combustion Products:
No information available.

### Specific hazards:
This material is an inorganic dust/powder and will not create nor support conditions that would result in a dust explosion or fire.

### Special Protective Equipment for Firefighters:
As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

### Specific Methods:
For large fires, flood fire area with water from a distance. Cool affected containers with flooding quantities of water.

### 6. ACCIDENTAL RELEASE MEASURES

#### Personal Precautions:
Keep people away from and upwind of spill/leak. Ensure adequate ventilation. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Use personal protective equipment. Avoid contact with skin, eyes and clothing. Avoid dust formation.

#### Environmental Precautions:
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Prevent entry into waterways, sewers, basements or confined areas.

#### Methods for Cleaning Up:
Sweep up and shovel into suitable containers for disposal. Clean contaminated surface thoroughly.

### 7. HANDLING AND STORAGE

#### Handling

- **Technical Measures/Precautions:**
  Provide sufficient air exchange and/or exhaust in work rooms. Avoid dust formation. Keep away from incompatible materials.

- **Safe Handling Advice:**
  Wear personal protective equipment. Avoid contact with skin, eyes and clothing. Do not ingest. Do not breathe vapours/dust. Avoid dust formation. Keep away from heat and sources of ignition. Handle in accordance with good industrial hygiene and safety practice.

#### Storage

- **Technical Measures/Storage Conditions:**
  Keep container tightly closed in a dry and well-ventilated place. Store at room temperature in the original container. Store away from incompatible materials.

- **Incompatible Materials:**
Engineering measures to reduce exposure: Use process enclosures, local exhaust ventilation, or other engineering controls to keep airborne levels below recommended exposure limits. If user operations generate dust, fume or mist, use ventilation to keep exposure to airborne contaminants below the exposure limit.

Personal Protective Equipment

Eye protection: Safety glasses. Safety glasses with side-shields.

Skin and body protection: Long sleeved clothing. Chemical resistant apron. Gloves.

Respiratory protection: Wear respirator with dust filter.

Hygiene measures: Avoid contact with skin, eyes and clothing. Wash hands before breaks and immediately after handling the product. When using, do not eat, drink or smoke.

National occupational exposure limits

United States
U.S Occupational Exposure Limits: Not determined

<table>
<thead>
<tr>
<th>Components</th>
<th>OSHA</th>
<th>NIOSH</th>
<th>ACGIH</th>
<th>AIHA WHEEL</th>
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</thead>
<tbody>
<tr>
<td>Sodium Fluoride - 7681-49-4</td>
<td>None</td>
<td>2.5 mg/m³ TWA F</td>
<td>2.5 mg/m³ TWA F</td>
<td>None</td>
</tr>
</tbody>
</table>

Canada
Canada Occupational Exposure Limits: Not determined

<table>
<thead>
<tr>
<th>Components</th>
<th>Alberta</th>
<th>British Columbia</th>
<th>Ontario</th>
<th>Quebec</th>
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<tbody>
<tr>
<td>Sodium Fluoride</td>
<td>2.5 mg/m³ TWA F</td>
<td>2.5 mg/m³ TWA F</td>
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<td>2.5 mg/m³ TWA EV F</td>
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<tr>
<td>7681-49-4</td>
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</tbody>
</table>

Australia and Mexico
Occupational Exposure Limits for Australia and Mexico: Not determined

<table>
<thead>
<tr>
<th>Components</th>
<th>Australia</th>
<th>Mexico</th>
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</thead>
<tbody>
<tr>
<td>Sodium Fluoride</td>
<td>None</td>
<td>None</td>
</tr>
<tr>
<td>7681-49-4</td>
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<td></td>
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</tbody>
</table>

9. PHYSICAL AND CHEMICAL PROPERTIES
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<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical state</td>
<td>Solid</td>
</tr>
<tr>
<td>Appearance</td>
<td>Powder</td>
</tr>
<tr>
<td>Odor</td>
<td>Odorless</td>
</tr>
<tr>
<td>Taste</td>
<td>Saline. Salty</td>
</tr>
<tr>
<td>Molecular/Formula weight</td>
<td>41.99</td>
</tr>
<tr>
<td>Flash point (°C):</td>
<td>No data available</td>
</tr>
<tr>
<td>Boiling point/range(°C/°F):</td>
<td>1704-1705°C/3099.2-3101 °F</td>
</tr>
<tr>
<td>Melting point/range(°C/°F):</td>
<td>993 °C/1819 °F</td>
</tr>
<tr>
<td>pH</td>
<td>No information available</td>
</tr>
<tr>
<td>Specific gravity</td>
<td>2.78</td>
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<tr>
<td>Density (g/cm3):</td>
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</tr>
<tr>
<td>Decomposition temperature(°C/°F):</td>
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</tr>
<tr>
<td>Bulk density</td>
<td>No information available</td>
</tr>
<tr>
<td>Evaporation rate</td>
<td>No information available</td>
</tr>
<tr>
<td>Vapor density</td>
<td>No information available</td>
</tr>
<tr>
<td>Odor threshold (ppm):</td>
<td>No information available</td>
</tr>
<tr>
<td>Partition coefficient</td>
<td>No information available</td>
</tr>
<tr>
<td>Solubility</td>
<td>Insoluble in alcohol</td>
</tr>
<tr>
<td></td>
<td>Soluble in water</td>
</tr>
<tr>
<td></td>
<td>Solubility in Water: 4.0 g/100 ml at 15 °C; 4.3 g/100 ml at 25 °C; 5 g/100 ml at 100 °C</td>
</tr>
</tbody>
</table>

10. STABILITY AND REACTIVITY

Stability: Stable at normal conditions
Conditions to avoid: Avoid dust formation. Incompatible materials.
Hazardous decomposition products: When heated to decomposition it emits toxic fumes. Hydrogen fluoride. Sodium oxides.
Possibility of Hazardous Reactions: Reacts with acids to form hydrogen fluoride
Polymerization: Hazardous polymerisation does not occur
Corrosivity: No information available
Special Remarks on Corrosivity: No information available

11. TOXICOLOGICAL INFORMATION

Acute Toxicity

Component Information
**Product Information**

LC50/inhalation/rat = No information available  
LC50/inhalation/mouse = No information available  
LD50/dermal/rabbit = No information available  
LD50/dermal/rat = 175 mg/kg  
LD50/oral/mouse = 26-101 mg/kg  
LD50/oral/rat = 52 mg/kg

**Local Effects**

Skin irritation: Causes skin irritation. May cause severe irritation and possible burns if skin is wet.

Eye irritation: Causes eye irritation. May cause conjunctivitis. May cause burns. May cause corneal damage.

Inhalation: May cause irritation of respiratory tract.

Ingestion: Harmful if swallowed. Causes gastroenteritis. Causes abdominal pain (epigastric distress). Causes vomiting. Causes nausea. Causes diarrhea. Causes salivation. May cause muscle weakness. Acute ingestion of fluorides may cause (nervous system effects) neurological symptoms such as headache, tremors, convulsions, seizures/convulsions, tetanic contractons, muscle spasms, muscle weakness. May affect electrolytes. Fluoride ion can reduce serum calcium levels possibly causing fatal hypocalcemia, hypomagnesemia, metabolic and/or respiratory acidosis, and sometimes hyperkalemia. May affect the cardiovascular system (cardiac arrhythmias).

Sensitization: No information available

**Chronic Toxicity**

Chronic Toxicity Chronic or prolonged exposure from inhalation or ingestion of fluoride dusts, vapors or mists may cause Fluorosis (chronic fluoride poisoning) and may also affect the blood serum composition and red blood cell count. Fluorosis is characterized by weight loss, weakness, anemia, brittle bones, and stiff joints. Other musculoskeletal effects may include teeth discoloration/mottled enamel, tendon calcification, and osteosclerosis. Repeated exposure may cause bronchitis to develop with cough, phlegm, and/or shortness of breath. Chronic exposure may cause central nervous system effects. Chronic ingestion of high levels of fluorides may affect the kidneys. Prolonged or repeated ingestion may affect the liver. Prolonged or repeated ingestion may cause hyperglycemia.

Carcinogenic effects: Not classifiable as to its carcinogenicity to humans. Not classifiable as a human carcinogen.
Components | NTP | IARC | OSHA HCS - Carcinogens | ACGIH - Carcinogens | Australia - Prohibited Carcinogenic Substances | Australia - Notifiable Carcinogenic Substances
--- | --- | --- | --- | --- | --- | ---
Sodium Fluoride | Not listed | Group 3 - Supplement 7 [1987] Fluorides inorganic used in drinking-water | Not listed | Group A4 - Not Classifiable As A Human Carcinogen (listed under Fluorides) | Not listed | Not listed

Mutagenic Effects:
- May affect genetic material
- Mutations in microorganisms
- Experiments with bacteria and/or yeast have shown mutagenic effects
- Mutagenic effects in mammalian somatic cells
- Experiments with animal lymphocytes have shown mutagenic effects

Reproductive Effects:
- May cause adverse reproductive effects based on animal data. May cause adverse developmental effects based on animal data.

Teratogenic Effects:
- May cause birth defects (teratogenic effects) based on animal test data.

Target Organs:

### 12. ECOLOGICAL INFORMATION

#### ECOTOXICITY

Toxicity to terrestrial and aquatic plants and animals: Information given is based on data on the components and the ecotoxicology of similar products

Ecotoxicity effects: Aquatic environment.

Aquatic toxicity:

**Sodium Fluoride - 7681-49-4**

**Freshwater Algae Data:**
- 272 mg/L EC50 Pseudokirchneriella subcapitata 96 h
- 850 mg/L EC50 Desmodesmus subspicatus 72 h

**Freshwater Fish Species Data:**
- 38 - 68 mg/L LC50 Oncorhynchus mykiss 96 h static 1
- 180 mg/L LC50 Pimephales promelas 96 h semi-static 1
- 830 mg/L LC50 Lepomis macrochirus 96 h semi-static 1
- 530 mg/L LC50 Lepomis macrochirus 96 h 1

**Water Flea Data:**
- 338 mg/L EC50 Daphnia magna 48 h
- 98 mg/L EC50 Daphnia magna 48 h

Mobility: No information available

Persistence and degradability: No information available

Bioaccumulative potential: No information available

### 13. DISPOSAL CONSIDERATIONS

**Waste from residues / unused products:**
Waste must be disposed of in accordance with Federal, State and Local regulation.

**Contaminated packaging:**
Empty containers should be taken for local recycling, recovery or waste disposal

Product code: S1280  
Product name: SODIUM FLUORIDE, POWDER, REAGENT, ACS
## 14. TRANSPORT INFORMATION

**DOT**
- **UN-No:** UN1690
- **Proper Shipping Name:** Sodium fluoride, solid
- **Hazard Class:** 6.1
- **Packing Group:** III
- **Subsidiary Risk:** Not applicable
- **Marine Pollutant:** No data available
- **ERG No:** 154
- **DOT RQ (lbs):** No information available
- **Symbol(s):** R4

**TDG (Canada)**
- **UN-No:** UN1690
- **Proper Shipping Name:** Sodium fluoride, solid
- **Hazard Class:** 6.1
- **Packing Group:** III
- **Subsidiary Risk:** No information available
- **Description:** No information available

**ADR**
- **UN-No:** UN1690
- **Proper Shipping Name:** Sodium fluoride, solid
- **Hazard Class:** 6.1
- **Packing Group:** III
- **Subsidiary Risk:** No information available
- **Classification Code:** No information available
- **Description:** No information available

**IMO / IMDG**
- **UN-No:** UN1690
- **Proper Shipping Name:** Sodium fluoride, solid
- **Hazard Class:** 6.1
- **Packing Group:** III
- **Subsidiary Risk:** P
- **Description:** No information available
- **IMDG Page:** No information available
- **Marine Pollutant:** No information available
- **EMS:** F-A
- **MFAG:** No information available
- **Maximum Quantity:** No information available

**RID**
- **UN-No:** UN1690
- **Proper Shipping Name:** Sodium fluoride, solid
- **Hazard Class:** 6.1
- **Packing Group:** III
- **Subsidiary Risk:** 6.1
- **Classification Code:** No information available
- **Description:** No information available

**ICAO**

**Product code:** S1280  **Product name:** SODIUM FLUORIDE, POWDER, REAGENT, ACS
UN-No: UN1690
Proper Shipping Name: Sodium fluoride, solid
Hazard Class: 6.1
Packing Group: III
Subsidiary Risk: No information available
Description: No information available

IATA
UN-No: UN1690
Proper Shipping Name: Sodium fluoride, solid
Hazard Class: 6.1
Packing Group: III
Subsidiary Risk: No information available
ERG Code: 6L
Description: No information available

15. REGULATORY INFORMATION

International Inventories

<table>
<thead>
<tr>
<th>Components</th>
<th>U.S. TSCA</th>
<th>Philippines (PICCS)</th>
<th>KOREA KECL</th>
<th>Japan ENCS</th>
<th>CHINA</th>
<th>Australia (AICS)</th>
<th>EINECS-No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sodium Fluoride</td>
<td>Present</td>
<td>Present</td>
<td>Present KE-31540</td>
<td>Present (1)-332</td>
<td>Present</td>
<td>Present</td>
<td>Present 231-667-8</td>
</tr>
</tbody>
</table>

U.S. Regulations

Sodium Fluoride

Massachusetts RTK: Present
New Jersey RTK Hazardous Substance List: Present
New Jersey - Discharge Prevention - List of Hazardous Substances: Present
Pennsylvania RTK: Environmental hazard
Pennsylvania RTK - Environmental Hazard List: Present
Minnesota - Hazardous Substance List: Present (listed as fluorides)
New York Release Reporting - List of Hazardous Substances:
1000 lb RQ
100 lb RQ
Louisiana Reportable Quantity List for Pollutants: 1000 lb final RQ
454 kg final RQ
California Directors List of Hazardous Substances: Present


Chemicals Known to the State of California to Cause Cancer:
This product does not contain a chemical requiring a warning under California Prop. 65. (See table below)

Chemicals Known to the State of California to Cause Reproductive Toxicity:
This product does not contain a chemical requiring a warning under California Prop. 65. (See table below)

<table>
<thead>
<tr>
<th>Components</th>
<th>Carcinogen</th>
<th>Developmental Toxicity</th>
<th>Male Reproductive Toxicity</th>
<th>Female Reproductive Toxicity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sodium Fluoride</td>
<td>Not Listed</td>
<td>Not Listed</td>
<td>Not Listed</td>
<td>Not Listed</td>
</tr>
</tbody>
</table>

CERCLA/SARA

<table>
<thead>
<tr>
<th>Components</th>
<th>CERCLA - Hazardous Substances and their Reportable Quantities</th>
<th>Section 302 Extremely Hazardous Substances and TPQs</th>
<th>Section 302 Extremely Hazardous Substances and RQs</th>
<th>Section 313 - Chemical Category</th>
<th>Section 313 - Reporting de minimis</th>
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</thead>
<tbody>
<tr>
<td>Sodium Fluoride</td>
<td>1000 lb final RQ 454 kg final RQ</td>
<td>None</td>
<td>None</td>
<td>None</td>
<td>None</td>
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</tbody>
</table>

Product code: S1280
Product name: SODIUM FLUORIDE, POWDER, REAGENT, ACS
### U.S. TSCA

<table>
<thead>
<tr>
<th>Components</th>
<th>TSCA Section 5(a)2 - Chemicals With Significant New Use Rules (SNURS)</th>
<th>TSCA 8(d) - Health and Safety Reporting</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sodium Fluoride</td>
<td>Not Applicable</td>
<td>Not Applicable</td>
</tr>
</tbody>
</table>

### Canada

**WHMIS hazard class:**
- D1B  Toxic materials
- D2A Very toxic materials
- D2B  Toxic materials

**Sodium Fluoride**
- D1B  D2A  D2B

**Canada Controlled Products Regulation:**
This product has been classified according to the hazard criteria of the CPR (Controlled Products Regulation) and the MSDS contains all of the information required by the CPR.

<table>
<thead>
<tr>
<th>Components</th>
<th>WHMIS Ingredient Disclosure List -</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sodium Fluoride</td>
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### Inventory

<table>
<thead>
<tr>
<th>Components</th>
<th>Canada (DSL)</th>
<th>Canada (NDSL)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sodium Fluoride</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Components</th>
<th>CEPA Schedule I - Toxic Substances</th>
<th>CEPA - 2010 Greenhouse Gases Subject to Mandatory Reporting</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sodium Fluoride</td>
<td>Not listed</td>
<td>Not listed</td>
</tr>
</tbody>
</table>

### EU Classification

**R-phrase(s)**
- R25 - Toxic if swallowed.
- R32 - Contact with acids liberates very toxic gas.
- R36/38 - Irritating to eyes and skin.

**S-phrase(s)**
- S22 - Do not breathe dust.
- S36 - Wear suitable protective clothing.
- S45 - In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).
- S 1/2 - Keep locked up and out of the reach of children.

<table>
<thead>
<tr>
<th>Components</th>
<th>Classification</th>
<th>Concentration Limits:</th>
<th>Safety Phrases</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sodium Fluoride</td>
<td>T; R25</td>
<td>No information</td>
<td>S1/2 S22 S36 S45</td>
</tr>
<tr>
<td></td>
<td>R32</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Xi; R36/38</td>
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</tr>
</tbody>
</table>

The product is classified in accordance with Annex VI to Directive 67/548/EEC.
Indication of danger:
T - Toxic
Xi - Irritant.

16. OTHER INFORMATION

The MSDS format complies with ANSI Z400.1/Z129.1-2010 standards.

Preparation Date: 09-Apr-2014
Reason for revision: Not applicable
Prepared by: Sonia Owen
Literature reference: No information available

All chemicals may pose unknown hazards and should be used with caution. This Material Safety Data Sheet (MSDS) applies only to the material as packaged. If this product is combined with other materials, deteriorates, or becomes contaminated, it may pose hazards not mentioned in this MSDS. The physical properties reported in this MSDS are obtained from the literature and do not constitute product specifications. Information contained herein does not constitute a warranty, whether expressed or implied, as to the safety, merchantability or fitness of the goods for a particular purpose. Spectrum Chemicals & Laboratory Products, Inc. assumes no responsibility for results obtained or for incidental or consequential damages, including lost profits, arising from the use of these data. No warranty against infringement of any patent, copyright or trademark is made or implied. It shall be the user's responsibility to develop proper methods of handling and personal protection based on the actual conditions of use. While this MSDS is based on technical data judged to be reliable, Spectrum assumes no responsibility for the completeness or accuracy of the information contained herein.