SAFETY DATA SHEET

1. IDENTIFICATION

Product code: IS111
Product Name: ISONIAZID, USP

Other means of identification

Synonyms:
- Hydrazid
- 4-(Hydrazinocarbonyl)pyridine
- Idrazide dell'acido isonicotinico (Italian)
- Iscotin
- Isidrina
- Ismazide
- Isonicotil
- Isobicina
- Isocid
- Isocidene
- Isoncotin
- Isolyn
- Isonerit
- Isonex
- Isoniazid
- Isoniazide
- Isonicazide
- Isonicotinhazid
- Isonicotinyl hydrazide
- Isonide
- Isonidrin
- Isonikazid
- Isonicotinoyl hydrazide
- Isonicotinoylhydrazine
- Isonicotinsaeurehydrazid (German)
- 4-Pyridinecarboxylic acid, hydrazide
- 4-Pyridinecarboxylic hydrazide

CAS #: 54-85-3
RTECS #: NS1751850
CI#: Not available

Recommended use of the chemical and restrictions on use

Uses advised against: No information available

Supplier:
Spectrum Chemical Mfg. Corp
14422 South San Pedro St.
Gardena, CA 90248
(310) 516-8000

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

Product code: IS111
Product name: ISONIAZID, USP
2. HAZARDS IDENTIFICATION

Classification

This chemical is considered hazardous according to the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Considered a dangerous substance or mixture according to the Globally Harmonized System (GHS)

<table>
<thead>
<tr>
<th>Hazard Category</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acute toxicity - Oral</td>
</tr>
<tr>
<td>Skin corrosion/irritation</td>
</tr>
<tr>
<td>Serious eye damage/eye irritation</td>
</tr>
<tr>
<td>Specific target organ toxicity (single exposure)</td>
</tr>
<tr>
<td>Specific target organ toxicity (repeated exposure)</td>
</tr>
</tbody>
</table>

Label elements

Warning

Hazard statements
Harmful if swallowed
Causes skin irritation
Causes eye irritation
May cause damage to organs
May cause damage to organs through prolonged or repeated exposure

Hazard symbols

Hazard statements

Not Applicable

Other hazards
Not available

Precautionary Statements - Prevention

Wash face, hands and any exposed skin thoroughly after handling
Do not eat, drink or smoke when using this product
Do not breathe dust/fume/gas/mist/vapors/spray
Wear protective gloves

Precautionary Statements - Response

IF exposed or if you feel unwell: Call a POISON CENTER or doctor/physician
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice/attention.
IF ON SKIN: Wash with plenty of water
If skin irritation occurs: Get medical advice/attention
Take off contaminated clothing and wash it before reuse
IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell
Rinse mouth

Precautionary Statements - Storage

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

3. COMPOSITION/INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>Components</th>
<th>CAS-No.</th>
<th>Weight %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Isoniazid</td>
<td>54-85-3</td>
<td>100</td>
</tr>
</tbody>
</table>

4. FIRST AID MEASURES

First aid measures
General Advice: National Capital Poison Center in the United States can provide assistance if you have a poison emergency and need to talk to a poison specialist. Call 1-800-222-1222.

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

Eye Contact: Flush eyes with water for 15 minutes. Get medical attention.

Inhalation: Move to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.

Ingestion: Do not induce vomiting without medical advice. Never give anything by mouth to an unconscious person. Obtain medical attention.

Most important symptoms and effects, both acute and delayed

Indication of any immediate medical attention and special treatment needed
Notes to Physician: Treat symptomatically

Protection of first-aiders
First-Aid Providers: Avoid exposure to blood or body fluids. Wear gloves and other necessary protective clothing. Dispose of contaminated clothing and equipment as bio-hazardous waste

5. FIRE-FIGHTING MEASURES

Extinguishing Media
Suitable Extinguishing Media: Dry chemical. Carbon dioxide (CO2). Water spray mist or foam.

Unsuitable Extinguishing Media: No information available.

Specific hazards arising from the chemical
Hazardous Combustion Products: Carbon monoxide; Carbon dioxide; nitrogen oxides
Specific hazards: May be combustible at high temperatures

Special Protective Actions for Firefighters
Specific Methods:
No information available.

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.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

Personal Precautions:
Ensure adequate ventilation. Avoid contact with skin, eyes and clothing. Use personal protective equipment. Avoid dust formation. Remove all sources of ignition.

Environmental precautions
Prevent further leakage or spillage if safe to do so. Prevent product from entering drains. Prevent from entering into soil, ditches, sewers, waterways, and/or ground water.

Methods and material for containment and cleaning up

Methods for containment
Stop leak if you can do it without risk. Cover with plastic sheet to prevent spreading.

Methods for cleaning up
Sweep up and shovel into suitable containers for disposal. Clean contaminated surface thoroughly.

7. HANDLING AND STORAGE

Precautions for safe 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. Avoid dust formation. Do not ingest. Do not breathe vapors/dust. Keep away from heat and sources of ignition. Handle in accordance with good industrial hygiene and safety practice.

Conditions for safe storage, including any incompatibilities

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. Sensitive to light. Store in light-resistant containers. Protect from light.

Incompatible Materials:
Oxidizing agents. Bases.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters

National occupational exposure limits

United States

<table>
<thead>
<tr>
<th>Components</th>
<th>OSHA</th>
<th>NIOSH</th>
<th>ACGIH</th>
<th>AIHA WHEEL</th>
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<tbody>
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<td>Isoniazid 54-85-3</td>
<td>None</td>
<td>None</td>
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</table>

Canada

<table>
<thead>
<tr>
<th>Components</th>
<th>Alberta</th>
<th>British Columbia</th>
<th>Ontario</th>
<th>Quebec</th>
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<tbody>
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Product code: IS111
Product name: ISONIAZID, USP
Components

<table>
<thead>
<tr>
<th>Australia</th>
<th>Mexico</th>
</tr>
</thead>
<tbody>
<tr>
<td>Isoniazid 54-85-3</td>
<td>None</td>
</tr>
</tbody>
</table>

Appropriate engineering controls

**Engineering measures to reduce exposure:**

Ensure adequate ventilation. 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.

**Individual protection measures, such as personal protective equipment**

**Personal Protective Equipment**

- **Eye protection:** Goggles
- **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.

9. PHYSICAL AND CHEMICAL PROPERTIES
### 9. PHYSICAL AND CHEMICAL PROPERTIES

<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>Crystals. Crystalline powder.</td>
</tr>
<tr>
<td>Color</td>
<td>White</td>
</tr>
<tr>
<td>Odor</td>
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</tr>
<tr>
<td>Taste</td>
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<tr>
<td>Molecular/Formula weight</td>
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<td>Flammability</td>
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<tr>
<td>Upper Explosion Limit (%)</td>
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<td>Decomposition temperature (°C/°F):</td>
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<tr>
<td>Density (g/cm³)</td>
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<td>Evaporation rate</td>
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<tr>
<td>Vapor density</td>
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<tr>
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<td>Partition coefficient (n-octanol/water):</td>
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<tr>
<td>Solubility</td>
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<tr>
<td></td>
<td>Soluble in Water: 140000 mg/l at 25 deg. C</td>
</tr>
<tr>
<td></td>
<td>Soluble in Acetone</td>
</tr>
<tr>
<td></td>
<td>Soluble in Methyl Ethyl Ketone</td>
</tr>
<tr>
<td>Flash Point Tested</td>
<td>Not applicable</td>
</tr>
<tr>
<td>No information available</td>
<td>No information available</td>
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<td>No information available</td>
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<td>Decomposition temperature</td>
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<tr>
<td>Vapor density</td>
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<tr>
<td>Odor threshold (ppm)</td>
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<tr>
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<tr>
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<tr>
<td></td>
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</tr>
<tr>
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</tr>
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<td>Soluble in Acetone</td>
</tr>
<tr>
<td></td>
<td>Soluble in Methyl Ethyl Ketone</td>
</tr>
</tbody>
</table>

### 10. STABILITY AND REACTIVITY

**Reactivity**
- Reactive with oxidizing agents
- Reactive with bases

**Chemical stability**
- **Stability:** Sensitive to light. Exposure to light accelerates decomposition. Stable under recommended storage conditions.

**Possibility of Hazardous Reactions:**
- Hazardous polymerization does not occur

**Conditions to avoid:**

**Incompatible Materials:**
- Oxidizing agents. Bases.

**Hazardous decomposition products:**
- Carbon monoxide. Carbon dioxide. When heated to decomposition it emits toxic fumes. Nitrogen oxides (NOx).

**Other Information**
- **Corrosivity:** No information available

**Special Remarks on Corrosivity:** No information available
11. TOXICOLOGICAL INFORMATION

Information on likely routes of exposure

Principal Routes of Exposure:
Ingestion. Inhalation.

Acute Toxicity

Component Information

Isoniazid - 54-85-3

LD50/oral/rat = 1250 mg/kg Oral LD50 Rat
LD50/oral/mouse = 188.9 mg/kg
LD50/dermal/rabbit = No information available
LD50/dermal/rat = No information available
LC50/inhalation/rat = No information available
LC50/inhalation/mouse = No information available
Other LD50 or LC50 information = No information available

Product Information

LD50/oral/rat =
VALUE - Acute Tox Oral = 1250mg/kg

LD50/oral/mouse =
VALUE - Acute Tox Oral = 188.9mg/kg

LD50/dermal/rabbit
VALUE - Acute Tox Dermal = No information available

LD50/dermal/rat
VALUE - Acute Tox Dermal = No information available

LC50/inhalation/rat
VALUE - Vapor = No information available
VALUE - Gas = No information available
VALUE - Dust/Mist = No information available

LC50/inhalation/mouse
VALUE -Vapor = No information available
VALUE - Gas = No information available
VALUE - Dust/Mist = No information available

Symptoms

Skin Contact: Causes skin irritation. Moderately irritating to the skin.

Eye Contact: Causes eye irritation. Mild eye irritation.

Inhalation May cause respiratory tract irritation.

Product code: IS111
Product name: ISONIAZID, USP
**Ingestion**


Ingestion:

May also cause glycosuria (excretion of glucose into the urine) and ketonuria (a medical condition in which ketone bodies are present in the urine). May also cause visual hallucinations (including bright colors and strange designs) and slurred speech.

**Aspiration hazard**

No information available

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

**Chronic Toxicity**

Prolonged or repeated ingestion may affect the liver
Prolonged or repeated ingestion may affect the liver (hepatitis)
Prolonged or repeated ingestion may affect the blood (changes in clotting factors)
Prolonged or repeated ingestion may affect the blood (hemolytic anemia)
Prolonged or repeated ingestion may affect the peripheral nervous system (peripheral neuropathy - extremity numbness and tingling, muscle pains and weakness)

**Sensitization:**

No information available

**Mutagenic Effects:**

Cytogenetic analysis (Hamster fibroblast)
Cytogenetic analysis (hamster lung)
Cytogenetic Analysis: human lymphocyte
Mutations in microorganisms
Experiments with bacteria and/or yeast have shown mutagenic effects

**Carcinogenic effects:**

Not classifiable as to its carcinogenicity to humans.

<table>
<thead>
<tr>
<th>Components</th>
<th>IARC (International Agency for Research on Cancer)</th>
<th>ACGIH - Carcinogens</th>
<th>NTP</th>
<th>OSHA HCS - Carcinogens</th>
<th>Australia - Notifiable Carcinogenic Substances</th>
<th>Australia - Prohibited Carcinogenic Substances</th>
</tr>
</thead>
</table>

**IARC (International Agency for Research on Cancer)**

Group 3 - Not classifiable as to its carcinogenicity to humans

**Reproductive toxicity**

No data is available

**Reproductive Effects:**

No information available

**Developmental Effects:**

No information available

**Teratogenic Effects:**

No information available

**Specific Target Organ Toxicity**

**STOT - single exposure**

central nervous system.

**STOT - repeated exposure**


**Target Organs:**

12. ECOLOGICAL INFORMATION

Ecotoxicity

Ecotoxicity effects: No data available.

Persistence and degradability: No information available

Bioaccumulative potential: No information available

Mobility: No information available

13. DISPOSAL CONSIDERATIONS

Disposal Methods

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

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Isoniazid</td>
<td>None</td>
<td>None</td>
<td>None</td>
<td>None</td>
</tr>
</tbody>
</table>

14. TRANSPORT INFORMATION

DOT

UN-No: Not Regulated
Proper Shipping Name: No information available
Hazard Class: No information available
Subsidiary Risk: No information available
Packing Group: None
ERG No: No information available
Marine Pollutant: No data available
DOT RQ (lbs): No information available
Special Provisions: No Information available
Symbol(s): No information available

TDG (Canada)

UN-No: Not Regulated
Proper Shipping Name: No information available
Hazard Class: No information available
Subsidiary Risk: No information available
Packing Group: No information available
Marine Pollutant: No Information available

ADR

UN-No: Not Regulated
Proper Shipping Name: No information available
Hazard Class: No information available
Packing Group: No information available
Subsidiary Risk: No information available
14. TRANSPORT INFORMATION

IMO / IMDG

- UN-No: Not Regulated
- Proper Shipping Name: No information available
- Hazard Class: No information available
- Subsidiary Risk: No information available
- Packing Group: No information available
- Marine Pollutant: No information available

RID

- UN-No: Not Regulated
- Proper Shipping Name: No information available
- Hazard Class: No information available
- Subsidiary Risk: No information available
- Packing Group: No information available

ICAO

- UN-No: Not Regulated
- Proper Shipping Name: No information available
- Hazard Class: No information available
- Subsidiary Risk: No information available
- Packing Group: No information available

IATA

- UN-No: Not Regulated
- Proper Shipping Name: No information available
- Hazard Class: No information available
- Subsidiary Risk: No information available
- Packing Group: No information available
- ERG Code: No information available
- Special Provisions: No information available

15. REGULATORY INFORMATION

International Inventories

<table>
<thead>
<tr>
<th>Components</th>
<th>U.S. TSCA</th>
<th>KOREA KECL</th>
<th>Philippines (PICCS)</th>
<th>Japan ENCS</th>
<th>CHINA</th>
<th>Australia (AICS)</th>
<th>EINECS-No.</th>
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</thead>
<tbody>
<tr>
<td>Isoniazid</td>
<td>Present</td>
<td>Present KE-29938</td>
<td>Present</td>
<td>Present (5)-737</td>
<td>Present</td>
<td>Present</td>
<td>Present 200-214-6</td>
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</table>

U.S. Regulations

Isoniazid

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>
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</thead>
<tbody>
<tr>
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<td>Not Listed</td>
<td>Not Listed</td>
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</tr>
</tbody>
</table>

CERCLA/SARA

Product code: IS111 Product name: ISONIAZID, USP
Components CERCLA - Hazardous Substances and their Reportable Quantities | Section 302 Extremely Hazardous Substances and TPQs | Section 302 Extremely Hazardous Substances and RQs | Section 313 - Chemical Category | Section 313 - Reporting de minimis
---|---|---|---|---
Isoniazid | None | None | None | None

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>Isoniazid</td>
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<td>Not Applicable</td>
</tr>
</tbody>
</table>

Canada

WHMIS hazard class:
D2B  Toxic materials

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.

Inventory

<table>
<thead>
<tr>
<th>Components</th>
<th>Canada (DSL)</th>
<th>Canada (NDSL)</th>
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<tbody>
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<table>
<thead>
<tr>
<th>Components</th>
<th>CEPA Schedule I - Toxic Substances</th>
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</thead>
<tbody>
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</table>

<table>
<thead>
<tr>
<th>Components</th>
<th>CEPA - 2010 Greenhouse Gases Subject to Mandatory Reporting</th>
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<tbody>
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</tr>
</tbody>
</table>

EU Classification

R-phrase(s)
R22 - Harmful if swallowed.
R36/38 - Irritating to eyes and skin.

S-phrase(s)
S26 - In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
S37 - Wear suitable gloves.
S46 - If swallowed, seek medical advice immediately and show this container or label.
S37/39 - Wear suitable gloves and eye/face protection.

<table>
<thead>
<tr>
<th>Components</th>
<th>Classification</th>
<th>Concentration Limits:</th>
<th>Safety Phrases</th>
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<tbody>
<tr>
<td>Isoniazid</td>
<td></td>
<td>No information</td>
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</table>

The product is classified in accordance with Annex VI to Directive 67/548/EEC

Indication of danger:
Xi - Irritant.
Xn - Harmful.
16. OTHER INFORMATION

Preparation Date: 4/11/2016
Revision Date: 4/11/2016
Prepared by: Sonia Owen

Disclaimer:
All chemicals may pose unknown hazards and should be used with caution. This Safety Data Sheet (SDS) 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 SDS. The physical properties reported in this SDS 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 SDS is based on technical data judged to be reliable, Spectrum assumes no responsibility for the completeness or accuracy of the information contained herein.

End of Safety Data Sheet