1. Identification

Product identifier: AxTrap 4002
Other means of identification: G1001
Recommended use: Hydrogen sulfide and light mercaptan removal from gases
Recommended restrictions: None known.
General Description: Proprietary dry granular filtration media used for selective removal of hydrogen sulfide. Mixed iron oxides on natural zeolite.

Manufacturer/Importer/Supplier/Distributor information

Manufacturer:
  Company name: Axens North America, Inc.
  Address: 824 Lone Star Drive
             O’Fallon, MO 63366
  Telephone: 636-272-8000
  Emergency phone number: 636-272-8000

2. Hazard(s) identification

Physical hazards: Not classified.
Health hazards: Not classified.
Environmental hazards: Not classified.
OSHA defined hazards: Not classified.

Label elements
  Hazard symbol: None.
  Signal word: None.
  Hazard statement: The mixture does not meet the criteria for classification.
  Precautionary statement
    Prevention: Observe good industrial hygiene practices.
    Response: Wash hands and clothing after handling.
    Storage: Store away from incompatible materials.
    Disposal requirement: Dispose of waste and residues in accordance with local authority
  Hazard(s) not otherwise classified (HNOC): None.
  Supplemental information: None.

3. Composition / information on ingredients

Mixtures

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>Common name and synonyms</th>
<th>CAS number</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sodium aluminosilicate</td>
<td>Natural Zeolite – Clinoptilolite</td>
<td>1318-02-1</td>
<td>65 to 80</td>
</tr>
<tr>
<td>Iron Oxide, Various</td>
<td></td>
<td></td>
<td>20 to 35</td>
</tr>
</tbody>
</table>

other components are below reportable levels or not regulated

4. First-aid measures

Inhalation: Move to fresh air. Get medical attention of irritation develops and persists.
Skin contact: Wash off with soap and water. Get medical attention if irritation develops and persists.
Eye contact: Rinse with water. Get medical attention if irritation develops and persists.
Ingestion: Rinse mouth, drink plenty of water. Do not induce vomiting. Get medical attention.
Most important symptoms/effects, acute and delayed: Direct contact with eyes may cause temporary irritation.
Indication of immediate medical attention and special treatment needed

General information

Treat symptomatically.

Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves.

5. Fire-fighting measures

Suitable extinguishing media

Water fog. Foam. Dry chemical powder. Carbon dioxide (CO2).

Unsuitable extinguishing media

Do not use water jet as an extinguisher, as this will spread the fire.

Specific hazards arising from the chemical

During fire, gases hazardous to health may be formed. Prevent contaminated water from discharge to environment.

Special protective equipment and precautions for firefighters

Self-contained breathing apparatus and full protective clothing must be worn in case of fire.

Fire fighting equipment/instructions

Move containers from fire area if you can do so without risk.

Specific methods

Use standard firefighting procedures and consider the hazards of other involved materials.

General fire hazards

No unusual fire or explosion hazards noted. Decomposition products may include iron oxides at high temperatures.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

Keep unnecessary personnel away. For personal protection, see section 8 of the SDS.

Methods and materials for containment and cleaning up

Large Spills: Stop the flow of material, if this is without risk. Dike the spilled material, where this is possible. Cover with plastic sheet to prevent spreading. Absorb in vermiculite, dry sand or earth and place into containers.

Small Spills: Wipe up with absorbent material (e.g. cloth, fleece). Clean surface thoroughly to remove residual contamination.

Environmental precautions

Never return spills to original containers for re-use. For waste disposal, see section 13 of the SDS.

Avoid discharge into drains, water courses or onto the ground.

7. Handling and storage

Precautions for safe handling

Avoid prolonged exposure. Observe good industrial hygiene practices.

Conditions for safe storage, including any incompatibilities

Store in original tightly closed container. Store away from incompatible materials (see Section 10 of the SDS).

8. Exposure controls / personal protection

Occupational exposure limits

US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000)

<table>
<thead>
<tr>
<th>Components</th>
<th>Type</th>
<th>Value</th>
<th>Form</th>
</tr>
</thead>
<tbody>
<tr>
<td>Iron Oxides</td>
<td>PEL</td>
<td>5 mg/m3</td>
<td>Fume.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>15 mg/m3</td>
<td>Dust: Total</td>
</tr>
</tbody>
</table>

US. ACGIH Threshold Limit Values

<table>
<thead>
<tr>
<th>Components</th>
<th>Type</th>
<th>Value</th>
<th>Form</th>
</tr>
</thead>
<tbody>
<tr>
<td>Iron Oxides</td>
<td>TWA</td>
<td>5 mg/m3</td>
<td>Respirable fraction.</td>
</tr>
</tbody>
</table>

US. NIOSH: Pocket Guide to Chemical Hazards

<table>
<thead>
<tr>
<th>Components</th>
<th>Type</th>
<th>Value</th>
<th>Form</th>
</tr>
</thead>
<tbody>
<tr>
<td>Iron Oxides</td>
<td>TWA</td>
<td>500 mg/m3</td>
<td>Dust and fume.</td>
</tr>
</tbody>
</table>

Biological limit values

No biological exposure limits noted for the ingredient(s).

Appropriate engineering controls

Good general ventilation (typically 10 air changes per hour) should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level.

Individual protection measures, such as personal protective equipment

Eye/face protection

Wear safety glasses with side shields (or goggles).
**Skin protection**

Wear appropriate chemical resistant gloves. Suitable gloves can be recommended by the glove supplier.

**Hand protection**

Wear suitable protective clothing.

In case of insufficient ventilation, wear suitable respiratory equipment, NIOSH-MSHA approved, N95 or better rated respirators are recommended along with user training, repair/cleaning, and fit testing.

. Wear appropriate thermal protective clothing, when necessary.

**Respiratory protection**

Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants.

**Thermal hazards**

### 9. Physical and chemical properties

**Appearance**

- **Physical state**: Solid
- **Form**: Granular
- **Color**: RED/BROWN/BLACK
- **Odor**: ODORLESS
- **Odor threshold**: Not available.
- **pH**: Not available.
- **Melting point/freezing point**: 2120 °C estimated
- **Initial boiling point and boiling range**: 2258.39 °C estimated
- **Flash point**: Not available.
- **Evaporation rate**: Not available.
- **Flammability (solid, gas)**: Not applicable.
- **Upper/lower flammability or explosive limits**
  - **Flammability limit - lower (%)**: Not available.
  - **Flammability limit – upper (%)**: Not available.
  - **Explosive limit - lower (%)**: Not available.
  - **Explosive limit - upper (%)**: Not available.
- **Vapor pressure**: 0.15 hPa estimated
- **Vapor density**: Not available.
- **Relative density**: Not available.
- **Solubility(ies)**
  - **Solubility (water)**: Not available.
- **Partition coefficient (n-octanol/water)**: Not available.
- **Auto-ignition temperature**: Not available.
- **Decomposition temperature**: Not available.
- **Viscosity**: Not available.
- **Other information**
  - **Density**: 10 lbs./gal. estimated
  - **Explosive properties**: Not explosive.
  - **Oxidizing properties**: Not oxidizing.
  - **Percent volatile**: 10 % estimated
  - **Specific gravity**: 1.2 estimated

**10. Stability and reactivity**

- **Reactivity**: The product is stable and non-reactive under normal conditions of use, storage and transport.
- **Chemical stability**: Material is stable under normal conditions.
- **Possibility of hazardous reactions**: No dangerous reaction known under conditions of normal use.
Conditions to avoid
Contact with incompatible materials.
Incompatible materials
Strong oxidizing agents,
Hazardous decomposition products
No hazardous decomposition products are known.

11. Toxicological information
Information on likely routes of exposure
- Inhalation: Prolonged inhalation may be harmful.
- Skin contact: No adverse effects due to skin contact are expected.
- Eye contact: Direct contact with eyes may cause temporary irritation.
- Ingestion: Expected to be a low ingestion hazard.

Symptoms related to the physical, chemical and toxicological characteristics

Information on toxicological effect
- Acute toxicity: Not available as mixture.
- Skin corrosion/irritation: Prolonged skin contact may cause temporary irritation.
- Serious eye damage/eye irritation: Direct contact with eyes may cause temporary irritation.

Respiratory or skin sensitization
- Respiratory sensitization: Not a respiratory sensitizer.
- Skin sensitization: This product is not expected to cause skin sensitization.

Germ cell mutagenicity
- No data available to indicate product or any components present at greater than 0.1% are mutagenic or genotoxic.

Carcinogenicity
- This product is not considered to be a carcinogen by IARC, ACGIH, NTP, or OSHA.
- IARC Monographs. Overall Evaluation of Carcinogenicity
- Not classifiable as to carcinogenicity to humans.
- Not listed.

Reproductive toxicity
- This product is not expected to cause reproductive or developmental effects.

Specific target organ toxicity - single exposure
- Not classified.

Specific target organ toxicity - repeated exposure
- Not classified.

Aspiration hazard
- Not an aspiration hazard.

Chronic effects
- Prolonged inhalation may be harmful.

Further information
- This product has no known adverse effect on human health handled appropriately.

12. Ecological information
Ecotoxicity
- The product is not classified as environmentally hazardous. However, this does not exclude the possibility that large or frequent spills can have a harmful or damaging effect on the environment.

Persistence and degradability
- No data is available on the degradability of this mixture.

Bioaccumulative potential
- No evidence to indicate significant bioaccumulative potential.

Mobility in soil
- No evidence to indicate significant mobility in soil.

Other adverse effects
- No other adverse environmental effects (e.g. ozone depletion, photochemical ozone creation potential, endocrine disruption, global warming potential) are expected from this component.

13. Disposal considerations
Disposal instructions
- Collect and reclaim or dispose in sealed containers at licensed waste disposal site.
Local disposal regulations
- Dispose in accordance with all applicable regulations.
Hazardous waste code
- The waste code should be assigned in discussion between the user, the producer, and the waste disposal company.

Waste from residues / unused products
- Dispose of in accordance with local regulations. Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe manner (see: Disposal instructions).
Since emptied containers may retain product residue, follow label warnings even after container is emptied. Empty containers should be taken to an approved waste handling site for recycling or disposal.

14. Transport information

DOT Shipping Description: Not regulated for transportation by DOT, TDG, IMDG, ICAO/IATA.
Canada TDG Shipping Description: Not Regulated
UN PIN NO: Not Regulated.
IMDG Shipping Description: Not Regulated.
ICAO/IATA Shipping Description: Not Regulated.

15. Regulatory information

US federal regulations

One or more components are listed on TSCA. This product or its components are not known to be a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)
Not regulated. Notification not required.
CERCLA Hazardous Substance List (40 CFR 302.4)
Not regulated.
SARA 304 Emergency release notification
Not regulated.
OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)
Not listed.

Superfund Amendments and Reauthorization Act of 1986 (SARA)

Hazard categories
Immediate Hazard - No
Delayed Hazard - No
Fire Hazard - No
Pressure Hazard - No
Reactivity Hazard - No

SARA 302
Not regulated.
SARA 311/312 Hazardous chemical
No
SARA 313 (TRI reporting)
No

Other federal regulations

Clean Air Act (CAA) Section 112 Hazardous Air Pollutants (HAPs) List
Not regulated.
Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130)
Not regulated.
Safe Drinking Water Act (SDWA)
Not regulated.
USFDA – Primary components are listed as Generally Regarded as Safe (GRAS).

US State Regulations

US. California Controlled Substances. CA Department of Justice (California Health and Safety Code Section 11100) No.
US. Massachusetts RTK - Substance List
TRADE SECRET (CAS Proprietary)
US. New Jersey Worker and Community Right-to-Know Act
TRADE SECRET (CAS Proprietary)
US. Pennsylvania Worker and Community Right-to-Know Law
TRADE SECRET (CAS Proprietary)
US. Rhode Island RTK
Not regulated.
US. California Proposition 65
California Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65): This material is not known to contain any chemicals currently listed as carcinogens or reproductive toxins.
<table>
<thead>
<tr>
<th>Country(s) or region</th>
<th>Inventory name</th>
<th>On inventory (yes/no)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Australia</td>
<td>Australian Inventory of Chemical Substances (AICS)</td>
<td>Yes</td>
</tr>
<tr>
<td>Canada</td>
<td>Domestic Substances List (DSI)</td>
<td>No</td>
</tr>
<tr>
<td>Canada</td>
<td>Non-Domestic Substances list (NDSI)</td>
<td>No</td>
</tr>
<tr>
<td>China</td>
<td>Inventory of Existing Chemical Substances in China (IECSC)</td>
<td>Yes</td>
</tr>
<tr>
<td>Europe</td>
<td>European Inventory of Existing Commercial Chemical Substances (EINECS)</td>
<td>Yes</td>
</tr>
<tr>
<td>Europe</td>
<td>European List of Notified Chemical Substances (ELINCS)</td>
<td>No</td>
</tr>
<tr>
<td>Japan</td>
<td>Inventory of Existing and New Chemical Substances (ENCS)</td>
<td>No</td>
</tr>
<tr>
<td>Korea</td>
<td>Existing Chemicals List (ECI)</td>
<td>Yes</td>
</tr>
<tr>
<td>New Zealand</td>
<td>New Zealand Inventory</td>
<td>Yes</td>
</tr>
<tr>
<td>Philippines</td>
<td>Philippine Inventory of Chemicals and Chemical Substances (PICCS)</td>
<td>No</td>
</tr>
<tr>
<td>United States &amp; Puerto Rico</td>
<td>Toxic Substances Control Act (TSCA) Inventory</td>
<td>No</td>
</tr>
</tbody>
</table>

"Yes" indicates that all components of this product comply with the inventory requirements administered by the governing country(s).

"No" indicates that one or more components of the product are not listed or exempt from listing on the inventory administered by the governing countries.

16. Other information, including date of preparation or last revision

<table>
<thead>
<tr>
<th>Issue date</th>
<th>June-01-2016</th>
</tr>
</thead>
<tbody>
<tr>
<td>Version #</td>
<td>04</td>
</tr>
<tr>
<td>HMIS® ratings</td>
<td>Health: 1</td>
</tr>
<tr>
<td></td>
<td>Flammability: 0</td>
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<tr>
<td></td>
<td>Physical hazard: 0</td>
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<tr>
<td></td>
<td>Personal Protection: E</td>
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<td>NFPA ratings</td>
<td>Health: 1</td>
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<tr>
<td></td>
<td>Flammability: 0</td>
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<tr>
<td></td>
<td>Instability: 0</td>
</tr>
</tbody>
</table>

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