SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier

Product form : Mixture
Product name : CARBON STEEL – RESULFURIZED
Other means of identification : Grades AISI 1108-1151

1.2. Relevant identified uses of the substance or mixture and uses advised against

Use of the substance/mixture : Automotive & Machine Components
Multiple Industrial Uses

1.3. Details of the supplier of the safety data sheet

Republic Steel
2633 Eighth Street NE
Canton, Ohio 44704
Fax 330-438-5423
Phone 330-438-5466
http://www.republicsteel.com/

1.4. Emergency telephone number

Emergency number : 24 hr. Emergency Contact : Republic Steel
U.S.A. 330.438.5466
International +1.330.438.5466

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Classification (GHS-US)
Acute Tox. 4 (Oral) H302
Full text of H-phrases: see section 16

2.2. Label elements

GHS-US labeling
Hazard pictograms (GHS-US) : 

Signal word (GHS-US) : Warning
Hazard statements (GHS-US) : H302 - Harmful if swallowed
Precautionary statements (GHS-US) : P264 - Wash exposed areas thoroughly after handling
P270 - Do not eat, drink or smoke when using this product
P301 + P312 - If swallowed: Call a poison center/doctor if you feel unwell
P330 - Rinse mouth

2.3. Other hazards

Steel products in the solid state present no fire or explosion hazard; however, the particulates generated may present a dust explosion hazard. Steel products in the natural state do not present an inhalation, ingestion or contact hazard. However, operations such as burning, welding, sawing, brazing, and grinding may result in exposures.

2.4. Unknown acute toxicity (GHS-US)

None of the ingredients are of unknown toxicity.

SECTION 3: Composition/information on ingredients

3.1. Substance

Not applicable – this product is a mixture.

3.2. Mixture
SECTION 4: First aid measures

4.1. Description of first aid measures

First-aid measures general: Never give anything by mouth to an unconscious person. If you feel unwell, seek medical advice (show the label where possible).

First-aid measures after inhalation: Allow victim to breathe fresh air. Allow the victim to rest.

First-aid measures after skin contact: Remove affected clothing and wash all exposed skin area with mild soap and water, followed by warm water rinse.

First-aid measures after eye contact: Rinse immediately with plenty of water. Obtain medical attention if pain, blinking or redness persist.

First-aid measures after ingestion: Rinse mouth. Do NOT induce vomiting. Obtain emergency medical attention. Call a POISON CENTER or doctor/physician if you feel unwell.

4.2. Most important symptoms and effects, both acute and delayed

Symptoms/injuries after ingestion: Swallowing a small quantity of this material will result in serious health hazard.

4.3. Indication of any immediate medical attention and special treatment needed

No additional information available

SECTION 5: Firefighting measures

5.1. Extinguishing media


Unsuitable extinguishing media: Do not use a heavy water stream.

5.2. Special hazards arising from the substance or mixture

Fire hazard: Steel products in the solid state present no fire or explosion hazard; however, the particulates generated may present a dust explosion hazard.

5.3. Advice for firefighters

Firefighting instructions: Exercise caution when fighting any chemical fire. Prevent fire-fighting water from entering environment.

Protection during firefighting: Do not enter fire area without proper protective equipment, including respiratory protection.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

6.1.1. For non-emergency personnel

Emergency procedures: Evacuate unnecessary personnel.

6.1.2. For emergency responders

Protective equipment: Equip cleanup crew with proper protection.

Emergency procedures: Ventilate area.

6.2. Environmental precautions

Prevent entry to sewers and public waters. Notify authorities if liquid enters sewers or public waters.

6.3. Methods and material for containment and cleaning up

Methods for cleaning up: On land, sweep or shovel into suitable containers. Minimize generation of dust. Store away from other materials.

6.4. Reference to other sections

See Heading 8. Exposure controls and personal protection.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Precautions for safe handling: Wash hands and other exposed areas with mild soap and water before eating, drinking or smoking and when leaving work. Provide good ventilation in process area to prevent formation of vapor.

Hygiene measures: Do not eat, drink or smoke when using this product. Wash hands and other exposed areas thoroughly after handling.
7.2. Conditions for safe storage, including any incompatibilities

Storage conditions: Store in a cool, well ventilated place.
Incompatible products: Strong bases. Strong acids.
Incompatible materials: Sources of ignition. Direct sunlight.

7.3. Specific end use(s)

Appropriate protective equipment should be worn when burning or welding this product. Gloves should be considered when handling material to prevent cuts and skin irritation. Approved eye protection is recommended for operations involving burning, grinding, brazing, welding, or machining.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

<table>
<thead>
<tr>
<th>CARBON STEEL – RESULFURIZED</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACGIH</td>
</tr>
<tr>
<td>OSHA</td>
</tr>
</tbody>
</table>

**Manganese (7439-96-5)**

<table>
<thead>
<tr>
<th></th>
<th>ACGIH</th>
<th>OSHA</th>
</tr>
</thead>
<tbody>
<tr>
<td>TWA (mg/m³)</td>
<td>0.1 mg/m³</td>
<td>5 mg/m³</td>
</tr>
</tbody>
</table>

**Iron (7439-89-6)**

<table>
<thead>
<tr>
<th></th>
<th>ACGIH</th>
<th>OSHA</th>
</tr>
</thead>
<tbody>
<tr>
<td>PEL (Ceiling) (mg/m³)</td>
<td>5 mg/m³</td>
<td>10 mg/m³ (as fume)</td>
</tr>
</tbody>
</table>

**Iron Oxide (1309-37-1)**

<table>
<thead>
<tr>
<th></th>
<th>ACGIH</th>
<th>OSHA</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>5 mg/m³ (as fume)</td>
<td>10 mg/m³ (as fume)</td>
</tr>
</tbody>
</table>

* Steel products in the natural state do not present an inhalation, ingestion or contact hazard. However, operations such as burning, welding, sawing, brazing, and grinding may result in exposure to iron oxide.

8.2. Exposure controls

Personal protective equipment: Avoid all unnecessary exposure.

Hand protection: Wear protective gloves.
Eye protection: Chemical goggles or safety glasses.
Respiratory protection: If processing of this product generates particulates, local and general ventilation may be necessary to control employee exposures to within applicable limits. If the exposure limits indicated are exceeded, NIOSH approved respirators for protection against dust and/or fume should be worn in accordance with 29 CFR 1910.134.

Other information: Do not eat, drink or smoke during use.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

<table>
<thead>
<tr>
<th>Physical state</th>
<th>Solid</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appearance</td>
<td>Metal</td>
</tr>
<tr>
<td>Color</td>
<td>Grey</td>
</tr>
<tr>
<td>Odor</td>
<td>odorless</td>
</tr>
<tr>
<td>Odor threshold</td>
<td>No data available</td>
</tr>
<tr>
<td>pH</td>
<td>No data available</td>
</tr>
<tr>
<td>Melting point</td>
<td>1316 - 1537 °C</td>
</tr>
<tr>
<td>Freezing point</td>
<td>No data available</td>
</tr>
<tr>
<td>Boiling point</td>
<td>No data available</td>
</tr>
<tr>
<td>Flash point</td>
<td>No data available</td>
</tr>
<tr>
<td>Relative evaporation rate (butyl acetate=1)</td>
<td>No data available</td>
</tr>
<tr>
<td>Flammability (solid, gas)</td>
<td>No data available</td>
</tr>
<tr>
<td>Explosion limits</td>
<td>No data available</td>
</tr>
<tr>
<td>Explosive properties</td>
<td>No data available</td>
</tr>
</tbody>
</table>
CARBON STEEL – RESULFURIZED
Safety Data Sheet
according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

### 9.2. Other information

No additional information available

### SECTION 10: Stability and reactivity

#### 10.1. Reactivity

No additional information available

#### 10.2. Chemical stability

Stable.

#### 10.3. Possibility of hazardous reactions

No additional information available

#### 10.4. Conditions to avoid

None.

#### 10.5. Incompatible materials

Strong acids. Strong bases.

#### 10.6. Hazardous decomposition products


### SECTION 11: Toxicological information

#### 11.1. Information on toxicological effects

Acute toxicity: Oral: Harmful if swallowed.

<table>
<thead>
<tr>
<th>CARBON STEEL – RESULFURIZED</th>
<th>993.939 mg/kg body weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>ATE US (oral)</td>
<td></td>
</tr>
</tbody>
</table>

**Iron (7439-89-6)**

| LD50 oral rat               | 984 mg/kg                |
| ATE US (oral)               | 984.000 mg/kg body weight |

- Skin corrosion/irritation: Not classified
- Serious eye damage/irritation: Not classified
- Respiratory or skin sensitization: Not classified
- Germ cell mutagenicity: Not classified
- Carcinogenicity: Not classified
- Reproductive toxicity: Not classified
- Specific target organ toxicity (single exposure): Not classified
- Specific target organ toxicity (repeated exposure): Not classified
- Aspiration hazard: Not classified
- Potential Adverse human health effects and symptoms: Based on available data, the classification criteria are not met. Harmful if swallowed.
**Symptoms/injuries after ingestion**: Swallowing a small quantity of this material will result in serious health hazard.

### SECTION 12: Ecological information

#### 12.1. Toxicity
No additional information available

#### 12.2. Persistence and degradability

<table>
<thead>
<tr>
<th>CARBON STEEL – RESULFURIZED</th>
<th>Persistence and degradability</th>
<th>Not established.</th>
</tr>
</thead>
</table>

#### 12.3. Bioaccumulative potential

<table>
<thead>
<tr>
<th>CARBON STEEL – RESULFURIZED</th>
<th>Bioaccumulative potential</th>
<th>Not established.</th>
</tr>
</thead>
</table>

#### 12.4. Mobility in soil
No additional information available

#### 12.5. Other adverse effects
Other information: Avoid release to the environment.

### SECTION 13: Disposal considerations

#### 13.1. Waste treatment methods
Waste disposal recommendations: Dispose in a safe manner in accordance with local, state and federal regulations.

Ecology - waste materials: Avoid release to the environment.

### SECTION 14: Transport information

**Department of Transportation (DOT)**
In accordance with DOT

**ADR**
No additional information available

**Transport by sea**
No additional information available

**Air transport**
No additional information available

### SECTION 15: Regulatory information

#### 15.1. US Federal regulations

<table>
<thead>
<tr>
<th>Manganese (7439-96-5)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Listed on the United States TSCA (Toxic Substances Control Act) inventory</td>
</tr>
<tr>
<td>Listed on United States SARA Section 313</td>
</tr>
<tr>
<td>SARA Section 313 - Emission Reporting 1.0% deminimis</td>
</tr>
</tbody>
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#### 15.2. International regulations

**CANADA**

<table>
<thead>
<tr>
<th>Manganese (7439-96-5)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Listed on the Canadian DSL (Domestic Substances List)</td>
</tr>
<tr>
<td>WHMIS Classification</td>
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**EU-Regulations**

<table>
<thead>
<tr>
<th>Manganese (7439-96-5)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)</td>
</tr>
</tbody>
</table>
Iron (7439-89-6)
Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)

Classification according to Regulation (EC) No. 1272/2008 [CLP]
No additional information available

Classification according to Directive 67/548/EEC [DSD] or 1999/45/EC [DPD]
No additional information available

National regulations

**Manganese (7439-96-5)**
- Listed on the AICS (Australian Inventory of Chemical Substances)
- Listed on IECSC (Inventory of Existing Chemical Substances Produced or Imported in China)
- Listed on the Korean ECL (Existing Chemicals List)
- Listed on NZIoC (New Zealand Inventory of Chemicals)
- Listed on PICCS (Philippines Inventory of Chemicals and Chemical Substances)
- Pollutant Release and Transfer Register Law (PRTR Law)
- Listed on the Canadian IDL (Ingredient Disclosure List)

**Iron (7439-89-6)**
- Listed on the AICS (Australian Inventory of Chemical Substances)
- Listed on IECSC (Inventory of Existing Chemical Substances Produced or Imported in China)
- Listed on the Korean ECL (Existing Chemicals List)
- Listed on NZIoC (New Zealand Inventory of Chemicals)
- Listed on PICCS (Philippines Inventory of Chemicals and Chemical Substances)

15.3. US State regulations
No additional information available

**SECTION 16: Other information**

Other information

Steel products may be coated with petroleum oils to meet customer specifications. Information relative to specific coatings may be obtained from Republic Steel. Republic's steel products undergo close scrutiny in the steel manufacturing process to ensure they are free of any radioactive contamination. First, our purchasing specifications prohibit any foreign, radioactive articles and if any are detected at our truck/rail gate detectors, they are returned to the scrap supplier in accord with DOT requirements.

Full text of H-phrases:

<table>
<thead>
<tr>
<th>H-phrase</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acute Tox. 4 (Oral)</td>
<td>Acute toxicity (oral) Category 4</td>
</tr>
<tr>
<td>H302</td>
<td>Harmful if swallowed</td>
</tr>
</tbody>
</table>

SDS US (GHS HazCom 2012)

The information in this SDS was obtained from sources we believe are reliable. However, the information is provided without any representation or warranty, express or implied, regarding the accuracy or correctness. The conditions or methods of handling, storage, use and disposal of the product are beyond our control and may be beyond our knowledge. For this and other reasons, we do not assume responsibility and expressly disclaim liability for loss, damage or expense arising out of or in any way connected with the handling, storage, use, or disposal of the product.