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

1.1. Product identifier

| Trade name | 4043 Aluminum Welding and Metallizing Wire |

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

| Product type | This product is a continuous solid metal wire. |
| Use | Arc Welding |

1.3. Details of the supplier of the safety data sheet

| SDS created by | TDS Team |
| Supplier | ESAB AB |
| Street address | Box 8004 |
| | 402 77 Göteborg |
| | Sweden |
| Telephone | +46 31 509000 |
| Email | sdsrequest@esab.com |
| Web site | www.esab.com |

1.4. Emergency telephone number

| Emergency phone number | +46 31 509000 |
| Available outside office hours | No |
| Phone, general enquiries | +46 31 509000 |

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

| Description | In the form these substances are present in this product they do not contribute to a hazard classification of the product. The product is not classified |

2.2. Label elements

The product does not require labelling in accordance with CLP Regulation (EC) No 1272/2008.
2.3. Other hazards

When this product is used in a welding process, the most important hazards are welding fumes, heat, radiation and electric shock. Avoid exposure to brazing and welding fumes, radiation, spatter, electric shock, heated materials and dust. Overexposure to cutting, scarfing and welding fumes may result in symptoms like metal fume fever, dizziness, nausea, dryness or irritation of the nose, throat or eyes. Overexposure to cutting, scarfing and welding fumes may affect pulmonary function. Persons with a pacemaker should not go near welding or cutting operations until they have consulted their doctor and obtained information from the manufacturer of the device. When this product is used in a welding process, the most important hazards are welding fumes, heat, radiation and electric shock. Fumes: Overexposure to welding fumes may result in symptoms like metal fume fever, dizziness, nausea, dryness or irritation of the nose, throat or eyes. Chronic overexposure to welding fumes may affect pulmonary function. Overexposure to manganese and manganese compounds above safe exposure limits can cause irreversible damage to the central nervous system, including the brain, symptoms of which may include slurred speech, lethargy, tremor, muscular weakness, psychological disturbances and spastic gait. Heat: Spatter and melting metal can cause burn injuries and start fires. Radiation: Arc rays can severely damage eyes or skin. Electricity: ELECTRIC SHOCK can kill.

Not applicable
### SECTION 3: Composition/information on ingredients

#### 3.2. Mixtures

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>CAS No. EC No. REACH No. Index No.</th>
<th>Concentration</th>
<th>Classification</th>
<th>M factor acute</th>
<th>M factor chronic</th>
<th>Note</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aluminum</td>
<td>7429-90-5 231-072-3 - - -</td>
<td>99 - 100%</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Silicon</td>
<td>7440-21-3 231-130-8 - - -</td>
<td>4.5 - 6%</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>IRON</td>
<td>7439-89-6 231-096-4 Registered -</td>
<td>0 - 0.8%</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Copper</td>
<td>7440-50-8 231-159-6 - - -</td>
<td>0 - 0.3%</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Titanium</td>
<td>7440-32-6 231-142-3 - - -</td>
<td>0 - 0.2%</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Zinc</td>
<td>7440-66-6 231-175-3 - - -</td>
<td>0 - 0.1%</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Manganese</td>
<td>7439-96-5 231-105-1 - - -</td>
<td>0 - 0.05%</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>magnesium powder (pyrophoric)</td>
<td>7439-95-4 231-104-6 - - -</td>
<td>0 - 0.05%</td>
<td>Water react. 1, Pyr. Sol. 1</td>
<td>H250, H260</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

**Product based on**

This product is a continuous solid metal wire.
SECTION 4: First aid measures

4.1. Description of first aid measures

<table>
<thead>
<tr>
<th>Description of first aid measures</th>
<th>No first aid measures should be required for this product as shipped. Electric shock: Disconnect and turn off the power. Use a nonconductive material to pull victim away from contact with live parts or wires. If not breathing, begin artificial respiration, preferably mouth-to-mouth. If no detectable pulse, begin Cardio Pulmonary Resuscitation (CPR). call emergency physician to the scene of the accident.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inhalation</td>
<td>If breathing has stopped, perform artificial respiration and obtain medical assistance immediately! If breathing is difficult, provide fresh air and call physician.</td>
</tr>
<tr>
<td>Skin contact</td>
<td>For skin burns from arc radiation, promptly flush with cold water. Get medical attention for burns or irritations that persist. To remove dust or particles wash with mild soap and water</td>
</tr>
<tr>
<td>Eye contact</td>
<td>For radiation burns due to arc flash, see physician. To remove dusts or fumes flush with water for at least fifteen minutes. If irritation persists, obtain medical assistance.</td>
</tr>
<tr>
<td>Ingestion</td>
<td>According to experience not expected.</td>
</tr>
</tbody>
</table>

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

Not applicable

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

Not applicable

Other

Not applicable

SECTION 5: Firefighting measures

5.1. Extinguishing media

Not applicable

5.2. Special hazards arising from the substance or mixture

No specific recommendations for welding consumables. Welding arcs and sparks can ignite combustible and flammable materials. Use the extinguishing media recommended for the burning materials and fire situation.

5.3. Advice for firefighters

Wear self-contained breathing apparatus as fumes or vapors may be harmful.

Other

Not applicable
SAFETY DATA SHEET

This Safety Data Sheet complies with Annex II of 830/2015 amending EC No. 1907/2006, CLP directive 1272/2008, also in accordance with ISO 11014-1 and ANSI Z400.1

4043 Aluminum Welding and Metallizing Wire

Issued: 2018-01-14

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Personal precautions, protective equipment and emergency procedures

Wear hand, head, eyes, ear and body protection like welders gloves, helmet or face shield with filter lens, safety boots, apron, arm and shoulder protection. Keep protective clothing clean and dry.

6.2. Environmental precautions

Environmental precautions

Refer to Section 13.

6.3. Methods and material for containment and cleaning up

Methods and material for containment and cleaning up

Solid objects may be picked up and placed into a container. Liquids or pastes should be scooped up and placed into a container. Wear proper protective equipment while handling these materials. Do not discard as refuse.

6.4. Reference to other sections

Reference to other sections

Refer to Section 8 and Section 13.

Other

Not applicable

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Preventive handling precautions

Handle with care to avoid stings and cuts. Wear gloves when handling welding consumables. Avoid exposure to dust. Do not ingest. Some individuals can develop an allergic reaction to certain materials. Retain all warning and identity labels.

7.2. Conditions for safe storage, including any incompatibilities

Conditions for safe storage, including any incompatibilities

Keep separate from chemical substances like acids and strong bases, which could cause chemical reactions.

7.3. Specific end use(s)

Specific end use(s)

Arc Welding

Other

Not applicable
SAFETY DATA SHEET
This Safety Data Sheet complies with Annex II of 830/2015 amending EC No. 1907/2006, CLP directive 1272/2008, also in accordance with ISO 11014-1 and ANSI Z400.1

4043 Aluminum Welding and Metallizing Wire

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Exposure limits

Use industrial hygiene monitoring equipment to ensure that exposure does not exceed applicable national exposure limits. The following limits can be used as guidance. Unless noted, all values are for 8 hour time weighted averages (TWA).

<table>
<thead>
<tr>
<th>Ingredient</th>
<th>CAS No.</th>
<th>EC No.</th>
<th>Exposure limit ppm / mg/m³</th>
<th>Short-term exposure limit ppm / mg/m³</th>
<th>Ceiling exposure limit ppm / mg/m³</th>
<th>Source</th>
<th>Remark</th>
<th>Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>Zinc</td>
<td>7440-66-6</td>
<td>231-175-3</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>OSHA</td>
<td>No PEL</td>
<td>2017</td>
</tr>
<tr>
<td>Manganese</td>
<td>7439-95-6</td>
<td>231-105-1</td>
<td>-</td>
<td>-</td>
<td>5</td>
<td>OSHA</td>
<td>-</td>
<td>2017</td>
</tr>
<tr>
<td>Aluminum</td>
<td>7429-90-5</td>
<td>231-072-3</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>OSHA</td>
<td>Total dust</td>
<td>2017</td>
</tr>
<tr>
<td>Aluminum</td>
<td>7429-90-5</td>
<td>231-072-3</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>OSHA</td>
<td>Respirable fraction</td>
<td>2017</td>
</tr>
<tr>
<td>Iron</td>
<td>7439-89-6</td>
<td>231-096-4</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>OSHA</td>
<td>NO PEL</td>
<td>2017</td>
</tr>
<tr>
<td>Silicon</td>
<td>7440-21-3</td>
<td>231-130-8</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>OSHA</td>
<td>Total dust</td>
<td>2017</td>
</tr>
<tr>
<td>Silicon</td>
<td>7440-21-3</td>
<td>231-130-8</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>OSHA</td>
<td>Respirable Fraction</td>
<td>2017</td>
</tr>
<tr>
<td>Copper</td>
<td>7440-50-8</td>
<td>231-159-6</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>OSHA</td>
<td>as Cu (Fume)</td>
<td>2017</td>
</tr>
<tr>
<td>Copper</td>
<td>7440-50-8</td>
<td>231-159-6</td>
<td>0.1</td>
<td>-</td>
<td>-</td>
<td>OSHA</td>
<td>as Cu (dust,mist)</td>
<td>2017</td>
</tr>
<tr>
<td>Magnesium powder (pyrophoric)</td>
<td>7439-95-4</td>
<td>231-104-6</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>OSHA</td>
<td>NO PEL</td>
<td>2017</td>
</tr>
<tr>
<td>Titanium</td>
<td>7440-32-6</td>
<td>231-142-3</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>OSHA</td>
<td>NO PEL</td>
<td>2017</td>
</tr>
</tbody>
</table>

8.2. Exposure controls

Not applicable

Other

Avoid exposure to brazing and welding fumes, radiation, spatter, electric shock, heated materials and dust. Train welders to avoid contact with live electrical parts and insulate conductive parts.

Ventilation

Use respirator or air supplied respirator when welding or brazing in a confined space, or where local exhaust or ventilation is not sufficient to keep exposure values within safe limits. Use special care when welding painted or coated steels since hazardous substances from the coating may be emitted. Ensure sufficient ventilation, local exhaust, or both, to keep welding fumes and gases from breathing zone and general area.
SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appearance, physical state</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Appearance, colour</td>
<td>Silver grey</td>
</tr>
<tr>
<td>Odour</td>
<td>None</td>
</tr>
<tr>
<td>Odour threshold</td>
<td>Not applicable</td>
</tr>
<tr>
<td>pH value</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Melting point / freezing point</td>
<td>970 - 1515 °F</td>
</tr>
<tr>
<td>Initial boiling point and boiling range</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Flash point</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Evaporation rate</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Flammability (solid, gas)</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Upper / lower flammability or explosive limits</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Vapour pressure</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Vapour density</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Relative density</td>
<td>0.1 lb/in³</td>
</tr>
<tr>
<td>Solubility</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Water solubility</td>
<td>None</td>
</tr>
<tr>
<td>Partition coefficient: n-octanol / water</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Auto-ignition temperature</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Decomposition temperature</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Viscosity, kinematic</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Viscosity, dynamic</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Explosive properties</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Oxidising properties</td>
<td>Not applicable</td>
</tr>
</tbody>
</table>

9.2. Other information

Not applicable
SECTION 10: Stability and reactivity

10.1. Reactivity
Reactivity
The product is non-reactive under normal conditions of use, storage, and transport.

10.2. Chemical stability
Chemical stability
Stable at normal conditions

10.3. Possibility of hazardous reactions
Not applicable

10.4. Conditions to avoid
Conditions to avoid
Incompatible with strong acids and oxidizing agents. This product is only intended for normal welding purposes.

10.5. Incompatible materials
Incompatible materials
Incompatible with strong acids and oxidizing agents.

10.6. Hazardous decomposition products
Hazardous decomposition products
When this product is used in a welding process, hazardous decomposition products would include those from the volatilization, reaction or oxidation of the materials listed in Section 3 and those from the base metal and coating. The amount of fumes generated from this product varies with welding parameters and dimensions.

SECTION 11: Toxicological information

11.1. Information on toxicological effects
Information on toxicological effects
Inhalation of welding fumes and gases can be dangerous to your health. Classification of welding fumes is difficult because of varying base materials, coatings, air contamination and processes. The International Agency for Research on Cancer has classified welding fumes as possibly carcinogenic to humans (Group 2B).

Acute toxicity
Overexposure to welding fumes may result in symptoms like metal fume fever, dizziness, nausea, dryness or irritation of the nose, throat or eyes.

Skin corrosion/irritation
No data available
4043 Aluminum Welding and Metallizing Wire

Issued: 2018-01-14

SECTION 12: Ecological information

12.1. Toxicity

| Acute toxicity | No data available |
| Aquatic        | No data available |
| Soil           | No data available |
| Acute fish toxicity | No data available |
| Acute algae toxicity | No data available |
| Acute crustacean toxicity | No data available |
| Chronic toxicity  | No data available |

12.2. Persistence and degradability

| Persistence and degradability | No data available |
12.5. Results of PBT and vPvB assessment

No data available

12.6. Other adverse effects

No data available

Other adverse effects

Welding consumables and materials could degrade/weather into components originating from the consumables or from the materials used in the welding process. Avoid exposure to conditions that could lead to accumulation in soils or groundwater.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

USA RCRA: This product is not considered hazardous waste if discarded. Discard any product, residue, disposable container or liner in an environmentally acceptable manner, in full compliance with federal and local regulations. Use recycling procedures if available. Residues from welding consumables and processes could degrade and accumulate in soils and groundwater.

Other

Not applicable

SECTION 14: Transport information

14.1. UN number

Not applicable

14.2. UN proper shipping name

Not applicable

14.3. Transport hazard class(es)

Not applicable

14.4. Packing group

Not applicable
SAFETY DATA SHEET
This Safety Data Sheet complies with Annex II of 830/2015 amending EC No. 1907/2006, CLP directive 1272/2008, also in accordance with ISO 11014-1 and ANSI Z400.1

4043 Aluminum Welding and Metallizing Wire

14.5. Environmental hazards
Not applicable

14.6. Special precautions for user
Not applicable

14.7. Transport in bulk according to Annex II of Marpol and the IBC Code
Not applicable

Other
Not applicable

SECTION 15: Regulatory information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture


Issued: 2018-01-14
Other regulations, limitations and legal regulations:

Poland Regulations:

- Regulation of the Minister of Labour and Social Policy of 6 June 2014 on Maximum Permissible Concentration and Intensity of Agents Harmful to Health in the Working Environment (Dz. u. z. 2014, poz 817).
- Act of 13th June 2013 on packaging management and packaging waste (Journal of Laws of 2013, item 888).
- Regulation of the Minister of Health of 2 February 2011 on tests and measurements of factors harmful to health in the working environment (the Journal of Laws 2011, no. 33, item 166).

USA Regulations:

USA: This product contains or produces a chemical known to the state of California to cause cancer and birth defects (or other reproductive harm). (California Health & Safety Code § 25249.5 et seq.)

CERCLA/SARA Title III Reportable Quantities (RQs) and/or Threshold Planning Quantities (TPQs):

Product is a solid solution in the form of a solid article. Spills or releases resulting in the loss of any ingredient at or above its RQ require immediate notification to the National Response Center and to your Local Emergency Planning Committee.

EPCRA/SARA Title III 313 Toxic Chemicals: The following metallic components are listed as SARA 313 "Toxic Chemicals" and potential subject to annual SARA 313 reporting. See Section 3 for weight percent.
- Manganese: 1.0% de minimis concentration
- Aluminium: 1.0% de minimis concentration
- Copper: 1.0% de minimis concentration
- Zinc: 1.0% de minimis concentration

International Inventories:

Australia: The substance(s) in this product is/are in compliance with the inventory requirements of Australian Inventory of Chemical Substances (AICS)

United States EPA Toxic Substance Control Act: All constituents of this product are on the TSCA inventory list or are excluded from listing.

Canadian Environmental Protection Act (CEPA): All constituent(s) of this product is/are on the Domestic Substance List (DSL).

15.2. Chemical safety assessment

Chemical safety assessment: Not Available
Read and understand the manufacturer's instructions, your employer's safety practices and the health and safety instructions on the label. Observe any federal and local regulations. Take precautions when welding and protect yourself and others.

**WARNING:** Welding fumes and gases are hazardous to your health and may damage lungs and other organs. Use adequate ventilation. **ELECTRIC SHOCK** can kill. **ARC RAYS** and **SPARKS** can injure eyes and burn skin.

---

**SECTION 16: Other information**

**Changes to previous revision**

This Safety Data Sheet has been revised due to modifications to Sections 1-16.

**References to key literature and data sources**


USA: Contact ESAB at www.esabna.com or 1-800 ESAB-123 if you have any questions about this SDS.


USA: OSHA Publication 2206 (29 C.F.R. 1910), U.S. Government Printing Office, Superintendent of Documents, P.O. Box 371954, Pittsburgh, PA 15250-7954

USA: American Conference of Governmental Hygienists (ACGIH), Threshold Limit Values and Biological Exposure Indices, 6500 Glenway Ave., Cincinnati, Ohio 45211, USA.

USA: NFPA 51B "Standard for Fire Prevention During Welding, Cutting, and Other Hot Work" published by the National Fire Protection Association, 1 Batterymarch Park, Quincy, MA 02169.

UK: WMA Publication 236 and 237, "Hazards from Welding Fume", "The arc welder at work, some general aspects of health and safety".

Germany: Accident prevention regulation BGV D1, "Welding, cutting and related procedures".

Canada: Canada: CSA Standard CAN/CSA-W117.2-01 "Safety in Welding, Cutting, and Allied Processes".

This product has been classified according to the hazard criteria of the CPR and the SDS contains all the information required by the CPR.
ESAB requests the users of this product to study this Safety Data Sheet (SDS) and become aware of product hazards and safety information. To promote safe use of this product a user should:
- notify its employees, agents and contractors of the information on this SDS and any product hazards/safety information.
- furnish this same information to each of its customers for this product.
- request such customers to notify employees and customers for the same product hazards and safety information.

The information herein is given in good faith and based on technical data that ESAB believes to be reliable. Since the conditions of use is outside our control, we assume no liability in connection with any use of this information and no warranty, expressed or implied is given. Contact ESAB for more information.