

SAFETY DATA SHEET

*This Safety Data Sheet complies with Annex
II of 830/2015 amending EC No.
1907/2006, Commission Regulation (EU)
2020/878 amending CLP directive
1272/2008, also in accordance with ISO
11014-1 and ANSI Z400.1*

Issued: 2023-08-21



OK Tigrod 4047

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

1.1. Product identifier

Trade name

OK Tigrod 4047

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

Product type

Arc Welding

1.3. Details of the supplier of the safety data sheet

SDS created by

Product Stewardship & Sustainability Team

Supplier

ESAB Welding & Cutting Products

Street address

801 Wilson Ave.

Hanover, PA 17331

Hanover

USA

Telephone

1-717-637-8911

Email

us.technical.fillermetals@esab.com

Fax

1-717-630-3458

Web site

www.esabna.com

1.4. Emergency telephone number

+1 703-741-5970 / 1-800-424-9300

Available outside office hours

Yes

Poison center/Additional emergency number

1-800-222-1222; +56 2 2 247 3600 - American Association of Poison Control Centers

Other

Classification(s): EN ISO 18273: S AI 4047 (AISI120 SFA/AWS A5.10: R4047)

SAFETY DATA SHEET

This Safety Data Sheet complies with Annex
II of 830/2015 amending EC No.
1907/2006, Commission Regulation (EU)
2020/878 amending CLP directive
1272/2008, also in accordance with ISO
11014-1 and ANSI Z400.1

Issued: 2023-08-21

OK Tigrod 4047

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Description

The product is not classified as hazardous according to applicable GHS hazard classification criteria.

2.2. Label elements

Labeling according to Regulation (US HCS) 29 CFR 1910.1200

More information

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

2.3. Other hazards

Skin contact is normally no hazard but should be avoided to prevent possible allergic reactions. 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.

The mixture does not contain substance(s) included in the list established in accordance with Article 59(1) of REACH for having endocrine disrupting properties, or is not identified as having endocrine disrupting properties in accordance with the criteria set out in Commission Delegated Regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at a concentration equal to or greater than 0.1 %

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.

The mixture does not contain substances in an individual concentration of $\geq 0,1$ % which meet the criteria for vPvB and PBT according to Regulation (EC) No 1907/2006, Annex XIII (REACH).

Other

Emergency Overview: Metal wire or rods in varying colours. This product is normally not considered hazardous as shipped. Gloves should be worn when handling to prevent cuts and abrasions.

SAFETY DATA SHEET

This Safety Data Sheet complies with Annex
II of 830/2015 amending EC No.
1907/2006, Commission Regulation (EU)
2020/878 amending CLP directive
1272/2008, also in accordance with ISO
11014-1 and ANSI Z400.1

Issued: 2023-08-21



OK Tigrod 4047

SECTION 3: Composition/information on ingredients

3.2. Mixtures

| Chemical name | CAS No. EC No. REACH No. Index No. | Concentration | Classification | H-phrase M factor acute M factor chronic | Note |
|---------------|---|---------------|----------------|--|------|
| ALUMINUM | 7429-90-5 231-072-3 - - | 80 - 90% | - | - - - | - |
| SILICON. | 7440-21-3 231-130-8 - - | 10 - 15% | - | - - - | - |
| MANGANESE | 7439-96-5 231-105-1 - - | 0 - 0.5% | - | - - - | - |

Product based on

This product is a solid metal rod.

SECTION 4: First aid measures

4.1. Description of first aid measures

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.

Inhalation

If breathing has stopped, perform artificial respiration and obtain medical assistance immediately! If breathing is difficult, provide fresh air and call physician.

Skin contact

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

SAFETY DATA SHEET

This Safety Data Sheet complies with Annex
II of 830/2015 amending EC No.
1907/2006, Commission Regulation (EU)
2020/878 amending CLP directive
1272/2008, also in accordance with ISO
11014-1 and ANSI Z400.1

Issued: 2023-08-21

OK Tigrod 4047

Eye contact

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.

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

No data available

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

No data available

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media

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.

5.2. Special hazards arising from the substance or mixture

No data available

5.3. Advice for firefighters

Special protective equipment for fire-fighters

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

SECTION 6: Accidental release measures

6.1. 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

Refer to section 13.

6.3. 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

Refer to section 8/13

SAFETY DATA SHEET

This Safety Data Sheet complies with Annex II of 830/2015 amending EC No. 1907/2006, Commission Regulation (EU) 2020/878 amending CLP directive 1272/2008, also in accordance with ISO 11014-1 and ANSI Z400.1

Issued: 2023-08-21



OK Tigrod 4047

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

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

7.3. Specific end use(s)

Arc Welding

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).

National occupational exposure limits

| Ingredient | CAS No. EC No. | Exposure limit ppm / mg/m ³ | Ceiling exposure limit ppm / mg/m ³ | Source | Remark | Year |
|------------|-------------------|---|---|--------|------------------------|------|
| Silicon | 7440-21-3 | - | - | OSHA | Total dust | 2019 |
| | 231-130-8 | 15 | - | | | |
| ALUMINUM | 7429-90-5 | - | - | OSHA | Total dust | 2019 |
| | 231-072-3 | 15 | - | | | |
| MANGANESE | 7439-96-5 | - | - | OSHA | as Mn (metal and fume) | 2019 |
| | 231-105-1 | - | 5 | | | |
| MANGANESE | 7439-96-5 | - | - | ACGIH | as Mn | 2019 |
| | 231-105-1 | 0.02 | - | | | |
| Silicon | 7440-21-3 | - | - | OSHA | Respirable fraction | 2019 |
| | 231-130-8 | 5 | - | | | |
| ALUMINUM | 7429-90-5 | - | - | OSHA | Respirable fraction | 2019 |
| | 231-072-3 | 5 | - | | | |

SAFETY DATA SHEET

This Safety Data Sheet complies with Annex II of 830/2015 amending EC No. 1907/2006, Commission Regulation (EU) 2020/878 amending CLP directive 1272/2008, also in accordance with ISO 11014-1 and ANSI Z400.1

Issued: 2023-08-21



OK Tigrod 4047

| Ingredient | CAS No. EC No. | Exposure limit ppm / mg/m ³ | Ceiling exposure limit ppm / mg/m ³ | Source | Remark | Year |
|------------|------------------------|---|---|--------|---------------------------------------|------|
| ALUMINUM | 7429-90-5 231-072-3 | - 1 | - - | ACGIH | Respirable fraction | 2019 |
| MANGANESE | 7439-96-5 231-105-1 | - 0.1 | - - | ACGIH | for elemental and inorganic compounds | 2019 |

8.2. Exposure controls

Hand protection

Abrasion (Cycles):(Type A-2 (500));(Type B-1 (100)); Cut (Factor):(Type A-1 (1.2));(Type B-1 (1.2)); Tear (Newton):(Type A-2 (25));(Type B-1 (10)); Puncture (Newton):(Type A-2 (60));(Type B-1 (20)); Burning Behaviour:(Type A-3);(Type B-2); Contact Heat:(Type A-1);(Type B-1); Convective Heat:(Type A-2);(Type B--); Small Splashes:(Type A-3);(Type B-2); Dexterity:(Type A-1 (11));(Type B-4 (6.5))

Type B gloves are recommended when high dexterity is required as for TIG welding, while type A gloves are recommended for other welding processes. The contact temp (oC) is 100 and the threshold time (seconds) >15.

Other

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

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state

Solid, non-volatile with varying color.

Colour

No data available

Odour

No data available

Melting point / freezing point

>1000°C / >1800oF

Boiling point or initial boiling point and boiling range

No data available

SAFETY DATA SHEET

This Safety Data Sheet complies with Annex
II of 830/2015 amending EC No.
1907/2006, Commission Regulation (EU)
2020/878 amending CLP directive
1272/2008, also in accordance with ISO
11014-1 and ANSI Z400.1

Issued: 2023-08-21

OK Tigrod 4047

Flammability

No data available

Lower and upper explosion limit

No data available

Flash point

No data available

Auto-ignition temperature

No data available

Decomposition temperature

No data available

pH

No data available

Kinematic viscosity

No data available

Solubility

No data available

Partition coefficient n-octanol/water

No data available

Vapour pressure

No data available

Density and/or relative density

No data available

Relative vapour density

No data available

Particle characteristics

No data available

9.2. Other information

No data available

SAFETY DATA SHEET

This Safety Data Sheet complies with Annex
II of 830/2015 amending EC No.
1907/2006, Commission Regulation (EU)
2020/878 amending CLP directive
1272/2008, also in accordance with ISO
11014-1 and ANSI Z400.1

Issued: 2023-08-21



OK Tigrod 4047

SECTION 10: Stability and reactivity

10.1. Reactivity

Non Reactive unless gets in contact with chemical substances like acids or strong bases could cause generation of gas

10.2. Chemical stability

Stable at normal conditions .

10.3. Possibility of hazardous reactions

No data available

10.4. Conditions to avoid

This product is only intended for normal welding purposes.

10.5. Incompatible materials

No data available

10.6. 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 / Coated wire / Coated rod / Bare wire / Bare rod.

Other

Refer to applicable national exposure limits for fume compounds, including those exposure limits for fume compounds found in Section 8. Manganese has a low exposure limit, in some countries, that may be easily exceeded.

Reasonably expected gaseous products would include carbon oxides, nitrogen oxides and ozone. Air contaminants around the welding area can be affected by the welding process and influence the composition and quantity of fumes and gases produced.

SECTION 11: Toxicological information

11.1. Information on hazard classes as defined in Regulation (EC) No 1272/2008

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 carcinogenic to humans (Group 1).

Acute toxicity

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.

SAFETY DATA SHEET

This Safety Data Sheet complies with Annex
II of 830/2015 amending EC No.
1907/2006, Commission Regulation (EU)
2020/878 amending CLP directive
1272/2008, also in accordance with ISO
11014-1 and ANSI Z400.1

Issued: 2023-08-21

OK Tigrod 4047

Skin corrosion/irritation

No data available.

Serious eye damage/irritation

No data available.

Respiratory or skin sensitisation

No data available.

Germ cell mutagenicity

No data available.

Carcinogenicity

No data available.

Repeated dose toxicity

No data available.

Reproductive toxicity

No data available.

STOT-single exposure

No data available.

STOT-repeated exposure

No data available.

Aspiration hazard

No data available.

11.2. Information on other hazards

Endocrine disrupting properties

The mixture does not contain substance(s) included in the list established in accordance with Article 59(1) of REACH for having endocrine disrupting properties, or is not identified as having endocrine disrupting properties in accordance with the criteria set out in Commission Delegated Regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at a concentration equal to or greater than 0.1 %

SECTION 12: Ecological information

12.1. Toxicity

Toxicity

No data available.

SAFETY DATA SHEET

This Safety Data Sheet complies with Annex
II of 830/2015 amending EC No.
1907/2006, Commission Regulation (EU)
2020/878 amending CLP directive
1272/2008, also in accordance with ISO
11014-1 and ANSI Z400.1

Issued: 2023-08-21



OK Tigrod 4047

12.2. Persistence and degradability

No data available.

12.3. Bioaccumulative potential

No data available.

12.4. Mobility in soil

Mobility

No data available.

12.5. Results of PBT and vPvB assessment

The mixture does not contain substances in an individual concentration of $\geq 0,1$ % which meet the criteria for vPvB and PBT according to Regulation (EC) No 1907/2006, Annex XIII (REACH).

12.6. Endocrine disrupting properties

The mixture does not contain substance(s) included in the list established in accordance with Article 59(1) of REACH for having endocrine disrupting properties, or is not identified as having endocrine disrupting properties in accordance with the criteria set out in Commission Delegated Regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at a concentration equal to or greater than 0.1 %

12.7. Other adverse effects

Other adverse effects

No data available.

Other

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

Disposal considerations

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.

USA RCRA: This product is not considered hazardous waste if discarded.

Residues from welding consumables and processes could degrade and accumulate in soils and groundwater.

SAFETY DATA SHEET

This Safety Data Sheet complies with Annex
II of 830/2015 amending EC No.
1907/2006, Commission Regulation (EU)
2020/878 amending CLP directive
1272/2008, also in accordance with ISO
11014-1 and ANSI Z400.1

Issued: 2023-08-21

OK Tigrod 4047

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

14.5. Environmental hazards

Not applicable

14.6. Special precautions for user

Not applicable

14.7. Maritime transport in bulk according to IMO instruments

Not applicable

SECTION 15: Regulatory information

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

EU regulations

Regulation (EC) No 1907/2006 of the European Parliament and of the Council of 18 December 2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH), establishing a European Chemicals Agency, amending Directive 1999/45/EC and repealing Council Regulation (EEC) No 793/93 and Commission Regulation (EC) No 1488/94 as well as Council Directive 76/769/EEC and Commission Directives 91/155/EEC, 93/67/EEC, 93/105/EC and 2000/21/EC.

Regulation (EC) No 1272/2008 of the European Parliament and of the Council of 16 December 2008 on classification, labelling and packaging of substances and mixtures, amending and repealing Directives 67/548/EEC and 1999/45/EC, and amending Regulation (EC) No 1907/2006

Commission Regulation (EU) 2015/830 of 28 May 2015 amending Regulation (EC) No 1907/2006 of the European Parliament and the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH)

DIRECTIVE 2008/98/EC OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 19 November 2008. on waste and repealing certain Directives.

European Parliament and Council Directive 94/62/EC of 20 December 1994 on packaging and packaging waste.

National regulations

SAFETY DATA SHEET

*This Safety Data Sheet complies with Annex
II of 830/2015 amending EC No.
1907/2006, Commission Regulation (EU)
2020/878 amending CLP directive
1272/2008, also in accordance with ISO
11014-1 and ANSI Z400.1*

Issued: 2023-08-21

OK Tigrod 4047

No data available

SAFETY DATA SHEET

*This Safety Data Sheet complies with Annex
II of 830/2015 amending EC No.
1907/2006, Commission Regulation (EU)
2020/878 amending CLP directive
1272/2008, also in accordance with ISO
11014-1 and ANSI Z400.1*

Issued: 2023-08-21

OK Tigrod 4047

Other regulations, limitations and legal regulations

Poland Regulations:

ACT of 25 February 2011 on the chemical substances and their mixtures (OJ # 63, poz. 322).

Regulation of the Minister of Family, Labour and Social Policy of 12th June 2018 on the Maximum Admissible Concentrations and Intensities of Harmful to Health Agents in the Working Environment (Dz. U. No 1286)

The Act on Waste of 14 December 2012, Journal of Laws of 2013, item 21 with amendments

Act of 13th June 2013 on packaging management and packaging waste (Journal of Laws of 2013, item 888).

Regulation of the Minister of the Environment of 9 December 2014 on waste catalogue (Journal of Laws of 2014, item 1923).

Regulation of the Minister of Economy of 21 December 2005. Concerning essential requirements for personal protective equipment (Journal. Laws No. 259, item. 2173).

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 does not contain 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

International Inventories:

Australia: The substance(s) in this product is/are in compliance with the inventory requirements of Australia- Inventory of Industrial Chemicals (AIIC)

United States EPA Toxic Substance Control Act: All constituents of this product are on the TSCA inventory list under active substances

Canadian Environmental Protection Act (CEPA): All constituent(s) of this product is/are on the

SAFETY DATA SHEET

*This Safety Data Sheet complies with Annex
II of 830/2015 amending EC No.
1907/2006, Commission Regulation (EU)
2020/878 amending CLP directive
1272/2008, also in accordance with ISO
11014-1 and ANSI Z400.1*

Issued: 2023-08-21



OK Tigrod 4047

Domestic Substance List (DSL).

15.2. Chemical safety assessment

Not Available

Other

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. Wear correct hand, head, eye and body protection

SECTION 16: Other information

Changes to previous revision

This Safety Data Sheet has been revised due to modification(s) to section(s) 1-16 Latest Revision of SDS as per Regulation and exposure limits – January 2023

References to key literature and data sources

Refer to ESAB "Welding and Cutting - Risks and Measures", F52-529 "Precautions and Safe Practices for Electric Welding and Cutting" and F2035 "Precautions and Safe Practices for Gas Welding, Cutting and Heating" available from ESAB, and to: www.esab.com

SAFETY DATA SHEET

*This Safety Data Sheet complies with Annex
II of 830/2015 amending EC No.
1907/2006, Commission Regulation (EU)
2020/878 amending CLP directive
1272/2008, also in accordance with ISO
11014-1 and ANSI Z400.1*

Issued: 2023-08-21

OK Tigrod 4047

Other

Additional information

USA: Contact ESAB at www.esabna.com or 1-800 ESAB-123 if you have any questions about this SDS. American National Standard Z49.1 Safety in Welding and Cutting, ANSI/AWS F1.5 Methods for Sampling and Analyzing Gases from Welding and Allied Processes, ANSI/AWS F1.1 "Method for Sampling Airborne Particles Generated by Welding and Allied Processes", AWSF3.2M/F3.2 "Ventilation Guide for Weld Fume", American Welding Society, 550 North Le Jeune Road, Miami Florida 33135. Safety and Health Fact Sheets available from AWS at www.aws.org.

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

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