SAFETY DATA SHEET

This Safety Data Sheet complies with Annex II of 830/2015 amending EC No. 1907/2006,Commision Regulation (EU) 2019/521 amending CLP directive 1272/2008, also in accordance with ISO 11014-1 and ANSI Z400.1

Issued: 2021-11-09

OK Tigrod 309L

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

1.1. Product identifier

Trade name	OK Tigrod 309L

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

Relevant identified uses	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	+1 703-741-5970 / 1-800-424-9300
Available outside office hours	Yes

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

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

2.3. Other hazards

Other hazards	This product contains nickel, which is classified as toxic by prolonged inhalation, a skin sensitizer and a suspect carcinogen. Nickel powder is harmful for the environment. This product contains cobalt, which is possibly carcinogenic and may cause sensitization by inhalation and skin contact, and long-term adverse effects in the aquatic environment. 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. Prolonged inhalation of nickel and chromium compounds above safe exposure limits can cause cancer. 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: WARNING: Welding fumes and gases are hazardous to your health and may damage lungs and other organs. Use adequate ventilation.

Other

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.

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
IRON(REACh Registered)	7439-89-6 231-096-4 - -	50 - 70%	-	- - -	-
CHROMIUM	7440-47-3 231-157-5 - -	20 - 30%	-	- - -	-
Nickel powder**	7440-02-0 231-111-4 - -	10 - 15%	Skin Sens. 1, STOT RE 1, Aquatic Chronic 3, Carc. 2	H317, H351, H372, H412 - -	-
MANGANESE	7439-96-5 231-105-1 - -	0 - 3%	-	- - -	-
Silicon	7440-21-3 231-130-8 - -	0 - 1%	-	- - -	-
COPPER	7440-50-8 231-159-6 - -	0 - 0.5%	-	- - -	-
COBALT**	7440-48-4 231-158-0 - -	0 - 0.5%	Skin Sens. 1, Aquatic Chronic 4, Resp. Sens. 1	H317, H334, H413 - -	-

SECTION 4: First aid measures

4.1. Description of first aid measures

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
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

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 8/13

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

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/m³	Short-term exposure limit ppm / mg/m³	Source	Remark	Year
IRON(REACh Registered) (English- Canada) / Fer(REACh Registered) (French- Canada)	7439-89-6 231-096-4	- -	- -	ALBERTA REGULATION 87/2009	-	2020
MANGANESE (English- Canada) / Manganèse (French- Canada)	439-96-5 231-105-1	- 0.2	- -	ALBERTA REGULATION 87/2009	as Mn / comme Mn	2020
Nickel powder** (English- Canada) / Poudre de Nickel** (French- Canada)	7440-02-0 231-111-4	- 0.1	- -	ALBERTA REGULATION 87/2009	Soluble compounds / Composés solubles	2020
CHROMIUM (English- Canada) / CHROME (French- Canada)	7440-47-3 231-157-5	- 0.05	- -	ALBERTA REGULATION 87/2009	Water-soluble Cr VI Compounds/ Composés de Cr VI hydrosolubles	2020
CHROMIUM (English- Canada) / CHROME (French- Canada)	7440-47-3 231-157-5	- 0.01	- -	ALBERTA REGULATION 87/2009	Insoluble Cr VI Compounds/ Composés de Cr VI insolubles	2020
Silicon (English- Canada) / Silicium (French- Canada)	7440-21-3 231-130-8	- -	- -	ALBERTA REGULATION 87/2009	-	2020
Nickel powder** (English- Canada) / Poudre de Nickel** (French- Canada)	7440-02-0 231-111-4	- 0.2	- -	ALBERTA REGULATIO	Insoluble compounds / Composés insolubles	2020

Ingredient	CAS No. EC No.	Exposure limit ppm / mg/m³	Short-term exposure limit ppm / mg/m³	Source	Remark	Year
				N 87/2009		
CHROMIUM (English- Canada) / CHROME (French- Canada)	7440-47-3 231-157-5	- 0.5	- -	ALBERTA REGULATION 87/2009	Metal and Cr III Compounds/ Composés métalliques et Cr III	2020
Copper (English- Canada) / Cuivre (French- Canada)	7440-50-8 231-159-6	- 0.2	- -	ALBERTA REGULATION 87/2009	fume / Fumées	2020
Copper (English- Canada) / Cuivre (French- Canada)	7440-50-8 231-159-6	- 1	- -	ALBERTA REGULATION 87/2009	Dusts or mists, as Cu/ Poussières ou brouillards, comme Cu	2020
Cobalt** (English- Canada) / COBALT** (French- Canada)	7440-48-4 231-158-0	- 0.02	- -	ALBERTA REGULATION 87/2009	-	2020

8.2. Exposure controls

Hand protection

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. 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))

Other

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.

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

Physical state	No data available
Colour	Solid, non-volatile with varying color.
Odour	No data available
Melting point / freezing point	>1000°C / >1800oF
Boiling point or initial boiling point and boiling range	No data available
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

9.2. Other information

No data available

SECTION 10: Stability and reactivity

10.1. Reactivity

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

10.2. Chemical stability

Chemical stability	This product is stable under normal conditions.

10.3. Possibility of hazardous reactions

No data available

10.4. Conditions to avoid

Conditions to avoid	This product is only intended for normal welding purposes.

10.5. Incompatible materials

No data available

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

Other

Other	Refer to applicable national exposure limits for fume compounds, including those exposure limits for fume compounds found in Section 8. A significant amount of the chromium in the fumes can be hexavalent chromium, which has a very low exposure limit in some countries. Manganese and nickel have low exposure limits, 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

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 carcinogenic to humans (Group 1).
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
Serious eye damage/irritation	No data available
Respiratory or skin sensitisation	No data available
Germ cell mutagenicity	No data available
Genotoxicity	No data available
Carcinogenicity	

Product / Substance name **CAS / EC no.**	**Other**
NICKEL POWDER** 7440-02-0 / 231-111-4	**This product contains substance(s) that may cause cancer, which is/are classified as Possibly carcinogenic to humans as per IARC.This product can expose you to Nickel Powder which is known to the State of California to cause cancer. For more information go to www.P65Warnings.ca.gov.
COBALT** 7440-48-4 / 231-158-0	**This product contains substance(s) that may cause cancer, which is/are classified as Possibly carcinogenic to humans as per IARC.This product can expose you to Cobalt which is known to the State of California to cause cancer. For more information go to www.P65Warnings.ca.gov.

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

LD50 Oral	No data available
LD50 Dermal	No data available
LC50 Inhalation	No data available
Toxicity in case of skin contact	No data available
Toxicity in case of eye contact	No data available
Toxicity in case of ingestion	No data available

11.2. Information on other hazards

No data available

Other

Acute effects	No data available
Long term effect	Overexposure to welding fumes may affect pulmonary function. Prolonged inhalation of nickel and chromium compounds above safe exposure limits can cause cancer. 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. Cobalt may cause cancer and sensitization by inhalation and skin contact.

SECTION 12: Ecological information

12.1. Toxicity

Acute toxicity	No data available
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
Chronical toxicity	

Product / Substance name **CAS / EC no.**	**Remark**
COBALT** 7440-48-4 / 231-158-0	This product contains cobalt, which is classified by CLP Directive Regulation (EC) No 1272/2008 , as toxic to aquatic organisms and may cause long-term adverse effects in the aquatic environment.
NICKEL POWDER** 7440-02-0 / 231-111-4	This product contains Nickel powder which is classified as harmful to aquatic organisms by 1272/2008 CLP Directive and may cause long-term adverse effects in the aquatic environment.

12.2. Persistence and degradability

Persistence and degradability	No data available
Decay/transformation	No data available

12.3. Bioaccumulative potential

Bioaccumulative potential	No data available

12.4. Mobility in soil

Mobility	No data available

12.5. Results of PBT and vPvB assessment

Results of PBT and vPvB assessment	No data available

12.6. Endocrine disrupting properties

No data available

12.7. Other adverse effects

Other adverse effects	No data available

Other

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: Unused products or product residue containing chromium is considered hazardous waste if discarded, RCRA ID Characteristic Toxic Hazardous Waste D007. https://rcrapublic.epa.gov/rcrainfoweb/action/main-menu/view Residues from welding consumables and processes could degrade and accumulate in soils and groundwater.

SECTION 14: Transport information

14.1. UN number

No data available

14.2. UN proper shipping name

No data available

14.3. Transport hazard class(es)

No data available

14.4. Packing group

No data available

14.5. Environmental hazards

No data available

14.6. Special precautions for user

No data available

14.7. Maritime transport in bulk according to IMO instruments

No data available

Other

Other	No international regulations or restrictions are 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.

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 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 Chromium: 1.0% de minimis concentration Copper: 1.0% de minimis concentration Cobalt: 0.1% de minimis concentration Nickel Powder: 0.1% 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 Domestic Substance List (DSL).

15.2. Chemical safety assessment

Chemical safety assessment	Not Available

Other

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 hand, eyes and body protection. Keep protective clothing clean and dry.

SECTION 16: Other information

Changes to previous revision	This Safety Data Sheet has been revised due to modifications to Sections 1-16. Latest Revision of SDS as per Regulation and exposure limits – October 2021.
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
Phrase meaning	Skin Sens. 1 - Skin sensitisation, hazard category 1 STOT RE 1 - Specific Target Organ Toxicity — Repeated exposure, hazard category 1 Aquatic Chronic 3 - Hazardous to the aquatic environment — Chronic hazard category 3 Carc. 2 - Carcinogenicity, hazard category 2 Aquatic Chronic 4 - Hazardous to the aquatic environment — Chronic hazard category 4 Resp. Sens. 1 - Respiratory sensitisation, hazard category 1 H317 May cause an allergic skin reaction. H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled. H351 Suspected of causing cancer. H372 Causes damage to organs through prolonged or repeated exposure . H412 Harmful to aquatic life with long lasting effects. H413 May cause long lasting harmful effects to aquatic life.

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", 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.
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 of 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 products

Request such customers to notify employees and customers for the same product hazards and safety information.

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