



# SAFETY DATA SHEET

This Safety Data Sheet complies with European Commission Directive 93/112/EC and ISO 11014-1: 1994(E).

Page 1(2)  
Part number: S195/03  
Date: Feb. 17, 2004  
Product: OK 76.98

## 1. PRODUCT AND COMPANY IDENTIFICATION

Product name: OK 76.98  
Application: Arc Welding  
Classification(s): EN 1599: ECrMo 91 B 42 H5  
SFA/AWS A5.5: E9015-B9 (nearest)  
Supplier: ESAB AB, Box 8004  
402 77 Göteborg, Sweden  
Telephone no.: +46 31 509000

## 2. COMPOSITION/INFORMATION ON INGREDIENTS

This product is a preparation of core wire with extruded coating. The core wire type is mild steel.

Coating Ingredients	Weight % less than	CAS#	EINECS#	Hazard classification
Aluminum silicate	5	12141-46-7	235-253-8	No
Chromium	20	7440-47-3	231-157-5	No
Fluorides	15	7789-75-5	232-188-7	No
Iron	15	7439-89-6	231-096-4	No
Limestone	30	1317-65-3	215-279-6	No
Magnesium oxide	5	1309-48-4	215-171-9	No
Manganese	2	7439-96-5	231-105-1	No
Molybdenum	2	7439-98-7	231-107-2	No
Nickel	2	7440-02-0	231-111-4	Xn; R40-43
Potassium oxide	2	12136-45-7	235-227-6	No
Quartz	5	14808-60-7	238-878-4	No
Silica gel	5	7631-86-9	231-545-4	No
Silicon	2	7440-21-3	231-130-8	No
Sodium oxide	2	1313-59-3	215-208-9	No
Titanium oxide	10	13463-67-7	236-675-5	No

Hazard Classification acc. to EC Directive 67/548/EEC, for R-phrases see heading 16.

## 3. HAZARDS IDENTIFICATION

This product contains nickel, which is classified as a skin sensitizer, and a suspect carcinogen by EC Directive 67/548/EEC. This product is however not classified as hazardous based on the limited concentration of classified substances. This product contains quartz, but normally not in an inhalable fraction. Quartz can cause silicosis and may cause cancer. Avoid eye contact or inhalation of dust from the product. Skin contact is normally no hazard but should be avoided to prevent possible allergic reactions.

When this product is used in a welding process, the most important hazards are heat, radiation, electric shock and welding fumes.

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.

Fumes: Overexposure to welding fumes may result in symptoms like dizziness, nausea, dryness or irritation of the nose, throat or eyes. Chronic overexposure to welding fumes may affect pulmonary function. This product contains substances that are suspected of being cancer-causing agents and may affect the nervous system.

## 4. FIRST AID MEASURES

Inhalation: If breathing is difficult, provide fresh air and call physician.

Eye contact: For radiation burns due to arc flash, see physician.

Skin contact: For skin burns from arc radiation, see physician.

General: Move to fresh air and call for medical aid.

## 5. FIRE FIGHTING MEASURES

No specific for welding consumables.

## 6. ACCIDENTAL RELEASE MEASURES

Personal precautions: refer to section 8

Environmental precautions: refer to section 13

## 7. HANDLING AND STORAGE

Handling:

Avoid exposure to welding fumes, radiation, spatter, electric shock, heated materials and dust. Do not ingest. Handle with care to avoid stings and cuts.

Storage:

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

## 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Engineering measures:

Ensure sufficient ventilation and exhaust at the arc to keep the welding fumes and gases away from welders breathing zone. Keep working place and protective clothing clean and dry. Train welders to avoid contact with live electrical parts and insulate conductive parts. Check condition of protective clothing and equipment on a regular basis.

Personal protective equipment:

Use respirator or air supplied respirator when welding - brazing in a confined space. Wear hand, head, eyes 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.

Threshold Limit Values according to ACGIH 2003:

Substance	CAS#	EINECS#	TLV mg/m <sup>3</sup>
Aluminum silicate	12141-46-7	235-253-8	2
Chromium	7440-47-3	231-157-5	0.5
Fluorides	7789-75-5	232-188-7	2.5
Iron	7439-89-6	231-096-4	5
Limestone	1317-65-3	215-279-6	10
Magnesium oxide	1309-48-4	215-171-9	10
Manganese	7439-96-5	231-105-1	0.2
Molybdenum	7439-98-7	231-107-2	10
Nickel	7440-02-0	231-111-4	1.5
Potassium oxide	12136-45-7	235-227-6	-
Quartz	14808-60-7	238-878-4	0.05
Silica gel	7631-86-9	231-545-4	10
Silicon	7440-21-3	231-130-8	10
Sodium oxide	1313-59-3	215-208-9	-
Titanium oxide	13463-67-7	236-675-5	10

## 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance: Solid, non-volatile with varying colour

Melting point: >1300°C



# SAFETY DATA SHEET

This Safety Data Sheet complies with European Commission Directive 93/112/EC and ISO 11014-1: 1994(E).

Page 2(2)  
Part number: S195/03  
Date: Feb. 17, 2004  
Product: OK 76.98

## 10. STABILITY AND REACTIVITY

General: This product is only intended for normal welding purposes.

Stability: This product is stable under normal conditions.

Reactivity: Contact with chemical substances like acids or strong bases could cause generation of gas.

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 2 and those from the base metal and coating.

The amount of fumes generated from manual metal arc welding, varies with welding parameters and dimensions but is generally no more than 5 to 15 g/kg consumable.

Fume analysis: Fe Mn F Pb Cu Ni Cr  
weight % less than 30 5 15 0.1 0.1 0.2 5

Reasonably expected gaseous products would include carbon oxides, nitrogen oxides and ozone.

## 11. TOXICOLOGICAL INFORMATION

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.

Maximum fume exposure guideline for this product is 0.5 mg/m<sup>3</sup> according to SS 06 28 01 and Danish standard.

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.

Chronic toxicity: Overexposure to welding fumes may affect pulmonary function. Certain nickel and chromium compounds, like Cr VI, are suspected of being cancer-causing agents. Overexposure to manganese may affect the nervous system. Inhalation of quartz may cause lung disease and cancer.

## 12. ECOLOGICAL INFORMATION

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.

## 13. 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.

Residues from welding consumables and processes could degrade and accumulate in soils and groundwater. Welding slag from this product typically contains mainly the following components originating from the coating of the electrode.

Slag analysis:	Al <sub>2</sub> O <sub>3</sub>	CaO	Cr <sub>2</sub> O <sub>3</sub>	F	Fe <sub>2</sub> O <sub>3</sub>	K <sub>2</sub> O
% less than	2	45	10	15	10	5
	MgO	MnO	Na <sub>2</sub> O	SiO <sub>2</sub>	TiO <sub>2</sub>	
% less than	5	2	5	25	15	

## 14. TRANSPORT INFORMATION

No international regulations or restrictions are applicable.

## 15. REGULATORY INFORMATION

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.

FUMES AND GASES can be dangerous to your health.

ARC RAYS can injure eyes and burn skin.

ELECTRIC SHOCK can kill.

WARNING: Avoid breathing welding fumes and gases, since they may be hazardous to your health. Use adequate ventilation. Arc rays may injure eyes and burn skin. Wear correct eye, ear and body protection. Do not touch live electrical parts.

## 16. OTHER INFORMATION

Refer to ESAB "Welding and Cutting - Risks and Measures" Reg.No.XA00096120, available from ESAB and to:

USA: American National Standard Z49.1 "Safety in Welding and Cutting", American Welding Society, 550 North Le Jeune Road, Miami, Florida, 33135; OSHA Safety and Health Standards, 29CFR 1910, U.S Gov.Printing Office, Washington, D.C. 20402; American Conference of Governmental Hygienists (ACGIH), Threshold Limit Values and Biological Exposure Indices, 6500 Glenway Ave., Cincinnati, Ohio 45211, USA.

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

Germany: Unfallverhütungsvorschrift BGV D1, "Schweißen, Schneiden und verwandte Verfahren".

R-phrases: R40 - Limited evidence of a carcinogenic effect.  
R43 - May cause sensitization by skin contact.

ESAB request the users of this product to study this Safety Data Sheet (S.D.S.) 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 S.D.S 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.