



SAFETY DATA SHEET

This Safety Data Sheet complies with European Commission Directive 91/155/EEC, ISO 11014-1 and ANSI Z400.1

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SDS number: 1074/01
Date: April 23, 2006
Product: OK 48.04

1. PRODUCT AND COMPANY IDENTIFICATION

Product name: OK 48.04
Application: Arc Welding
Classification(s): EN 499: E 42 4 B 32 H5, SFA/AWS A5.1: E7018
Supplier: ESAB AB, Box 8004, 402 77 Göteborg, Sweden
Telephone no.: +46 31 509000
Web site: www.esab.com

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 %	CAS#	EINECS#	Hazard classification ⁽¹⁾	IARC ⁽²⁾	NTP ⁽³⁾	OSHA List ⁽⁴⁾
Aluminum oxide	2-5	1344-28-1	215-691-6	No	-	-	-
Fluorides	15-20	7789-75-5	232-188-7	No	-	-	-
Iron	30-40	7439-89-6	231-096-4	No	-	-	-
Limestone	20-30	1317-65-3	215-279-6	No	-	-	-
Magnesium oxide	2-5	1309-48-4	215-171-9	No	-	-	-
Manganese	2-5	7439-96-5	231-105-1	No	-	-	-
Quartz	1-2	14808-60-7	238-878-4	T; R45	Carcinogenic to humans (1)	Known to be a human carcinogen	-
Silicates	5-10	1312-76-1	215-199-1	No	-	-	-
Silicon	2-5	7440-21-3	231-130-8	No	-	-	-
Titanium oxide	5-10	13463-67-7	236-675-5	No	-	-	-

⁽¹⁾ Hazard Classification according to European Council Directive 67/548/EEC, for R-phrases see heading 16.

⁽²⁾ Evaluation according to the International Agency for Research on Cancer.

⁽³⁾ Classification according to the 11th Report on Carcinogens, published by the US National Toxicology Program

⁽⁴⁾ Carcinogen listing according to OSHA, Occupational Safety & Health Administration (USA)

3. HAZARDS IDENTIFICATION

Emergency overview: Coated metal rods in varying colours. This product is normally not considered hazardous as shipped.

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.

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 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. Overexposure to manganese and manganese compounds above safe exposure limits can cause irreversible damage to the central nervous system, including the brain.

4. FIRST AID MEASURES

Inhalation: If breathing has stopped, perform artificial respiration and obtain medical assistance immediately! If breathing is difficult, provide fresh air and call physician.
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.
Skin contact: For skin burns from arc radiation, promptly flush with cold water. Get medical attention for irritation or burns that persists. To remove dust or particles wash with mild soap and water.
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). Immediately call a physician.
General: Move to fresh air and call for medical aid.

5. FIRE FIGHTING MEASURES

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

6. ACCIDENTAL RELEASE MEASURES

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.

Personal precautions: refer to section 8
Environmental precautions: refer to section 13



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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. Wear gloves when handling welding consumables. Some individuals can develop an allergic reaction to certain materials. Retain all warning and identity labels.

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, local exhaust, or both, to keep welding fumes and gases from breathing zone and general area. 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 or brazing in a confined space, or where local exhaust or ventilation is not sufficient. Use special care when welding painted or coated steels since hazardous substances from the coating may be emitted. 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.

Use industrial hygiene monitoring equipment to ensure that exposure does not exceed applicable national exposure limits. The following limits can be used as guidance for dust. For information about welding fume analysis refer to section 10.

Substance	CAS#	ACGIH TLV ⁽¹⁾ mg/m ³	OSHA PEL ⁽²⁾ mg/m ³
Aluminum oxide	1344-28-1	10	15
Fluorides	7789-75-5	2.5	2.5
Iron	7439-89-6	5	-
Limestone	1317-65-3	10	15
Magnesium oxide	1309-48-4	10	15
Manganese	7439-96-5	0.2	5
Quartz	14808-60-7	0.025	30mg/m3 / (%SiO ₂ +2)
Silicates	1312-76-1	-	80mg/m3 / %SiO ₂
Silicon	7440-21-3	-	15
Titanium oxide	13463-67-7	10	15

⁽¹⁾ Threshold Limit Values according to American Conference of Governmental Hygienists, 2006

⁽²⁾ Permissible Exposure Limits according to the Occupational Safety & Health Administration (USA)

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance: Solid, non-volatile with varying color

Melting point: >1300°C / >2300°F

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. Fumes from this product contain compounds of the following chemical elements. The rest is not analyzed, according to available standards.

Fume analysis:	Fe	Mn	F	Pb	Cu	Ni	Cr
weight % less than	25	10	25	0.1	0.1	0.1	0.1

Refer to applicable national exposure limits for fume compounds.

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

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. 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.

Chronic toxicity: 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. 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.



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

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.

This Safety Data Sheet has been revised due to modifications to several paragraphs and/or new format. This SDS supersedes S154/04 and IQD006.

R-phrases: R45 - May cause cancer.

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.

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