



**SAFETY DATA SHEET**

This Safety Data Sheet complies with Regulation (EC) No 1907/2006, 1272/2008, ISO 11014-1 and ANSI Z400.1

**OK 67.60**

Issued: 2016-04-01

136-019

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

1.1. Product identifier

Trade name OK 67.60

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

Use Arc Welding

1.3. Details of the supplier of the safety data sheet

SDS created by TDST

Supplier ESAB DENTON

Street address 2800 Airport Road  
Denton, TX 76207

Telephone 1-800-372-2123

Email sdsrequest@esab.com

Web site www.esab.com

676050360  
6760252030  
6760323020  
6760403020

1.4. Emergency telephone number

Emergency phone number 1-800-372-2123

Available outside office hours No

Other

Classification(s): SFA/AWS A5.4: E309L-17

**SECTION 2: Hazards identification**

2.1. Classification of the substance or mixture

The product is not classified

2.2. Label elements

The product do not require labeling



## SAFETY DATA SHEET

This Safety Data Sheet complies with Regulation (EC) No 1907/2006, 1272/2008, ISO 11014-1 and ANSI Z400.1

**OK 67.60**

Issued: 2016-04-01

### 2.3. 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 titanium dioxide which is possibly carcinogenic. This product contains quartz, but normally not in an inhalable fraction. In the form these substances are present in this product they do not contribute to a hazard classification of the product. 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 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, 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.

### Other

Emergency Overview: Coated metal rods in varying colours. This product is normally not considered hazardous as shipped. Gloves should be worn when handling to prevent contaminating hands with product dust.



## SAFETY DATA SHEET

This Safety Data Sheet complies with Regulation (EC) No 1907/2006, 1272/2008, ISO 11014-1 and ANSI Z400.1

**OK 67.60**

Issued: 2016-04-01

### SECTION 3: Composition/information on ingredients

#### 3.2. Mixtures

Chemical name	CAS No. EC No. REACH No.	Concentration	Classification	R-phrase H-phrase
Chromium	7440-47-3 231-157-5 -	20 - 30%	- -	- -
Titanium oxide	13463-67-7 236-675-5 -	20 - 30%	- -	- -
Aluminum Silicate	12141-46-7 235-253-8 -	10 - 15%	- -	- -
Iron	7439-89-6 231-096-4 01-2119462838 - 24	5 - 10%	- -	- -
Limestone	1317-65-3 215-279-6 -	5 - 10%	- -	- -
Nickel powder	7440-02-0 231-111-4 -	5 - 10%	- Carc. 2, Aquatic Chronic 3, Skin Sens. 1, STOT RE 1	- H317, H351, H372, H412
Silicate Binder (Potassium silicate)	1312-76-1 215-199-1 -	5 - 10%	- -	- -
Fluorides	7789-75-5 232-188-7 -	2 - 5%	- -	- -
Quartz	14808-60-7 238-878-4 -	2 - 5%	- STOT RE 1	- H372
Manganese powder	7439-96-5 231-105-1 -	1 - 2%	- -	- -

**Product based on**

This product is a preparation of core wire with extruded coating.

### 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.



## SAFETY DATA SHEET

This Safety Data Sheet complies with Regulation (EC) No 1907/2006, 1272/2008, ISO 11014-1 and ANSI Z400.1

OK 67.60

Issued: 2016-04-01

### 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

Not applicable

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

Not applicable

## 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

Not applicable

### 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

Refer to section 8.

### 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 Regulation (EC) No 1907/2006, 1272/2008, ISO 11014-1 and ANSI Z400.1

**OK 67.60**

Issued: 2016-04-01

### 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).  
UK, Workplace Exposure Limits, mg/m<sup>3</sup>



### SAFETY DATA SHEET

This Safety Data Sheet complies with Regulation (EC) No 1907/2006, 1272/2008, ISO 11014-1 and ANSI Z400.1

**OK 67.60**

Issued: 2016-04-01

**National occupational exposure limits**

Ingredient	CAS No.	EC No.	Exposure limit mg/m <sup>3</sup> -ppm		Short-term exposure limit mg/m <sup>3</sup> -ppm		Ceiling exposure limit mg/m <sup>3</sup> -ppm		Remark	Source	Year
Fluorides	7789-75-5	232-188-7	2,5	-	-	-	-	-	as F	OS HA	2016
Limestone	1317-65-3	215-279-6	15	-	-	-	-	-	Total dust	OS HA	2016
Limestone	1317-65-3	215-279-6	5	-	-	-	-	-	respirable fraction	OS HA	2016
Silicate Binder (Potassium silicate)	1312-76-1	215-199-1	-	-	-	-	-	-	No PEL	OS HA	2016
Titanium oxide	13463-67-7	236-675-5	15	-	-	-	-	-	Total dust	OS HA	2016
Chromium	7440-47-3	231-157-5	1	-	-	-	-	-	Metal	OS HA	2016
Chromium	7440-47-3	231-157-5	0,5	-	-	-	-	-	as Cr(Cr(II) and Cr(III) inorganic compds)	OS HA	2016
Chromium	7440-47-3	231-157-5	0,005	-	-	-	-	-	as Cr(VI)(water sol. and insol. inorganic compds)	OS HA	2016
Iron	7439-89-6	231-096-4	-	-	-	-	-	-	No PEL	OS HA	2016
Quartz	14808-60-7	238-878-4	-	-	-	-	-	-	30 mg/m <sup>3</sup> /%SiO <sub>2</sub> +2, total dust, 10 mg/m <sup>3</sup> /%SiO <sub>2</sub> +2, respir. dust(quartz, tripoli), Value calculated from respir. dust formula for quartz(cristobalite, tridymite)	OS HA	2016
Manganese powder	7439-96-5	231-051-1	-	-	-	-	5	-	as Mn (metal and fume)	OS HA	2016



**SAFETY DATA SHEET**

This Safety Data Sheet complies with Regulation (EC) No 1907/2006, 1272/2008, ISO 11014-1 and ANSI Z400.1

**OK 67.60**

Issued: 2016-04-01

	Aluminum Silicate	121 41- 46- 7	23 5-2 53- 8	15	-	-	-	-	-	Total dust	OS HA	2016
	Aluminum Silicate	121 41- 46- 7	23 5-2 53- 8	5	-	-	-	-	-	respirable fraction	OS HA	2016
	Nickel powder	744 0-0 2-0	23 1-1 11- 4	1	-	-	-	-	-	as Ni	OS HA	2016

**8.2. Exposure controls**

Not applicable

**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**

Ensure sufficient ventilation, local exhaust, or both, to keep welding fumes and gases from breathing zone and general area. Use special care when welding painted or coated steels since hazardous substances from the coating may be emitted. 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.

**Personal protective equipment**

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. Check condition of protective clothing and equipment on a regular basis.

**SECTION 9: Physical and chemical properties**

**9.1. Information on basic physical and chemical properties**

**Appearance**

Solid, non-volatile with varying color.

**Appearance, colour**

Not applicable

**Appearance, physical state**

Not applicable

**Auto-ignition temperature**

Not applicable

**Decomposition temperature**

Not applicable

**Evaporation rate**

Not applicable

**Explosive properties**

Not applicable

**Flammability (solid, gas)**

Not applicable

**Flash point**

Not applicable



## SAFETY DATA SHEET

This Safety Data Sheet complies with Regulation (EC) No 1907/2006, 1272/2008, ISO 11014-1 and ANSI Z400.1

OK 67.60

Issued: 2016-04-01

Initial boiling point and boiling range	Not applicable
Melting point	>1300°C / >2300°F
Melting point / freezing point	Not applicable
Odour	Not applicable
Odour treshold	Not applicable
Oxidising properties	Not applicable
Partition coefficient: n-octanol / water	Not applicable
pH value	Not applicable
Relative density	Not applicable
Solubility	Not applicable
Upper / lower flammability or explosive limits	Not applicable
Vapour density	Not applicable
Vapour pressure	Not applicable
Viscosity	Not applicable

### 9.2. Other information

Not applicable

## SECTION 10: Stability and reactivity

### 10.1. Reactivity

Reactivity	Contact with chemical substances like acids or strong bases could cause generation of gas.
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### 10.2. Chemical stability

Chemical stability	Stable at normal conditions
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### 10.3. Possibility of hazardous reactions

Not applicable

### 10.4. Conditions to avoid

Conditions to avoid	This product is only intended for normal welding purposes.
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This Safety Data Sheet complies with Regulation (EC) No 1907/2006, 1272/2008, ISO 11014-1 and ANSI Z400.1

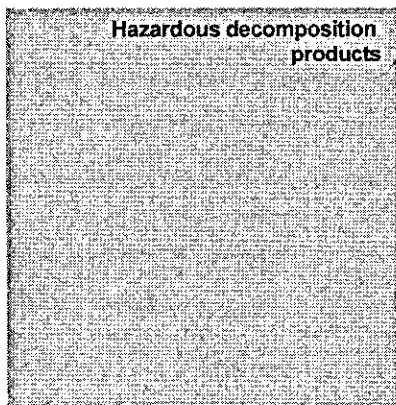
OK 67.60

Issued: 2016-04-01

### 10.5. Incompatible materials

Not applicable

### 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 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 analysed, according to available standards.

Fume analysis in weight% :

Fe <5

Mn <5

F <15

Pb <0.1

Cu <0.1

Ni <1

Cr <10

### 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 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).



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



Not applicable



Not applicable



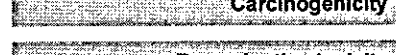
Not applicable



Not applicable



Not applicable



Not applicable



Not applicable



# SAFETY DATA SHEET

This Safety Data Sheet complies with Regulation (EC) No 1907/2006, 1272/2008, ISO 11014-1 and ANSI Z400.1

OK 67.60

Issued: 2016-04-01

STOT-single exposure	Not applicable
STOT-repeated exposure	Not applicable
Aspiration hazard	Not applicable

*Other*

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 Inhalation of quartz may cause lung disease and cancer. Prolonged inhalation of titanium dioxide above safe exposure limits can cause cancer.
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## SECTION 12: Ecological information

- 12.1. Toxicity Not applicable
- 12.2. Persistence and degradability Not applicable
- 12.3. Bioaccumulative potential Not applicable
- 12.4. Mobility in soil Not applicable
- 12.5. Results of PBT and vPvB assessment Not applicable
- 12.6. Other adverse effects Not applicable

*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.  
Nickel powder is harmful for the environment. Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.



# SAFETY DATA SHEET

This Safety Data Sheet complies with Regulation (EC) No 1907/2006, 1272/2008, ISO 11014-1 and ANSI Z400.1

## OK 67.60

Issued: 2016-04-01

### 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.

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 in %:

Al<sub>2</sub>O<sub>3</sub> <10

CaO <10

F <5

Fe<sub>2</sub>O<sub>3</sub> <10

K<sub>2</sub>O <5

MnO <10

SiO<sub>2</sub> <25

Na<sub>2</sub>O <5

TiO<sub>2</sub> <35

Cr<sub>2</sub>O<sub>3</sub> <25

### 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. Transport in bulk according to Annex II of Marpol and the IBC Code

Not applicable



# SAFETY DATA SHEET

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## OK 67.60

Issued: 2016-04-01

### SECTION 15: Regulatory information

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

Other regulations, limitations and legal regulations

Canada: WHMIS classification: Class D; Division 2, Subdivision A Canadian Environmental Protection Act (CEPA): All constituents of this product are on the Domestic Substance List (DSL).  
USA: Under the OSHA Hazard Communication Standard, this product is considered hazardous. 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.)  
United States EPA Toxic Substance Control Act: All constituents of this product are on the TSCA inventory list or are excluded from listing.  
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. Section 311 Hazard Class  
As shipped: Immediate; In use: Immediate delayed  
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 Nickel 0.1% de minimis concentration

#### 15.2. Chemical safety assessment

Chemical safety assessment

No

#### 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

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](http://www.esab.com)

Phrase meaning

Aquatic Chronic 3 - Hazardous to the aquatic environment — Chronic hazard category 3  
Carc. 2 - Carcinogenicity, hazard category 2  
Skin Sens. 1 - Skin sensitisation, hazard category 1  
STOT RE 1 - Specific Target Organ Toxicity — Repeated exposure, hazard category 1  
H317 - May cause an allergic skin reaction.  
H351 - Suspected of causing cancer.  
H372 - Causes damage to organs through prolonged or repeated exposure.  
H412 - Harmful to aquatic life with long lasting effects.



## SAFETY DATA SHEET

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OK 67.60

Issued: 2016-04-01

### Other

#### Additional information

USA: Contact ESAB at [www.esabna.com](http://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", AWSF3.2MF3.2 "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](http://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 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.