## 1.SECTION 1: IDENTIFICATION OF THE MIXTURE AND OF THE COMPANY

1.1. Product identifier: MUREX 6013
Application: 1.2. Relevant identified uses of the substance or mixture and uses advised against: Arc Welding
Classification(s): EN ISO 2560-A: E 38 0 R 12 SFA/AWS A5.1: E6013
Supplier: 1.3. Details of the supplier of the safety data sheet: ESAB AB, Box 8004, 402 77 Göteborg, Sweden. sds.esab@esab.se Web site:www.esab.com
Telephone no.: +46 31 509000
1.4. Emergency telephone number: +46 31 509000 office hours

## 2.SECTION 2: HAZARDS IDENTIFICATION

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.

2.1. Classification of the substance or mixture: N.a.

2.2. Label elements: N.a.

2.3. Other hazards: This product contains titanium dioxide which is possibly carcinogenic.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 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. |
| 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. |

## 3.SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

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

| Coating Ingredients | Weight % | REACH Reg.# | CAS# | EC# | Haz. class.[1] | IARC[2] | NTP/ OSHA[3] | Haz. class.[4] |
|---|---|---|---|---|---|---|---|---|
| Aluminum silicate | 15-20 | - | 12141-46-7 | 235-253-8 | No | - | - | - |
| Cellulose | 2-5 | - | 9004-34-6 | 232-674-9 | No | - | - | - |
| Iron | 2-5 | 01-2119462838 - 24 | 7439-89-6 | 231-096-4 | No | - | - | - |
| Limestone | 2-5 | - | 1317-65-3 | 215-279-6 | No | - | - | - |
| Manganese | 5-10 | - | 7439-96-5 | 231-105-1 | No | - | - | - |
| Quartz | 2-5 | - | 14808-60-7 | 238-878-4 | * | 1 | K / - | * |
| Silicates | 10-15 | - | 1312-76-1 | 215-199-1 | No | - | - | - |
| Titanium oxide | 40-50 | - | 13463-67-7 | 236-675-5 | No | 2B | - | - |

(1) Hazard Classification according to European Council Directive 67/548/EEC, for R-phrases see Section 16. *Classified as carcinogenic (T; R45)(Carc.1A;H350) based on IARC's evaluation. Hazard classification of the product is however not affected since the substance is not in an inhalable form in the product.
(2) Evaluation according to the International Agency for Research on Cancer. 1-Carcinogenic to humans. 2A-Probably carcinogenic to humans. 2B-Possibly carcinogenic to humans.
(3) Classification according to the 11th Report on Carcinogens, published by the US National Toxicology Program. K- Known to be a Human Carcinogen. S- Suspect Carcinogen./ Carcinogen listing according to OSHA, (USA)
(4) Hazard Classification according to Regulation (EC) No 1272/2008, for H-statements see Section 16.

## 4.SECTION 4: FIRST AID MEASURES

4.1. Description of 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 / Skin 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. 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. |
| 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. |

4.2. Most important symptoms and effects, both acute and delayed: N.a. 4.3. Indication of any immediate medical attention and special treatment needed: N.a. General: Move to fresh air and call for medical aid.

## 5.SECTION 5: FIRE FIGHTING MEASURES

5.1. 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: N.a.

5.3. Advice for firefighters: Wear self-contained breathing apparatus as fumes or vapors may be harmful.

## 6.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

## 7.SECTION 7: HANDLING AND STORAGE

7.1. Precautions for safe handling: 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

## 8.SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1. Control parameters: Refer to section 8.2.

8.2. Exposure controls: Engineering measures: Avoid exposure to welding fumes, radiation, spatter, electric shock, heated materials and dust. 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 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. 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. Unless noted, all values are for 8 hour time weighted averages (TWA). For information about welding fume analysis refer to Section 10.

| Substance | CAS# | ACGIH TLV [1] mg/m3 | UK WELs [2] mg/m3 |
|---|---|---|---|
| Aluminum silicate | 12141-46-7 | 1** | - |
| Cellulose | 9004-34-6 | 10 | 4**, 10*** |
| Iron | 7439-89-6 | 5** | 5(f) |
| Limestone | 1317-65-3 | - | 4**, 10*** |
| Manganese | 7439-96-5 | 0,2(f), 0,1***, (0,02**(2013)) | 0,5 |
| Quartz | 14808-60-7 | 0,025** | 0,1** |
| Silicates | 1312-76-1 | - | - |
| Titanium oxide | 13463-67-7 | 10 | 4**, 10*** |

(1) Threshold Limit Values according to American Conference of Governmental Industrial Hygienists, 2012.
(2) United Kingdom, Workplace Exposure Limits, (ILO, IFA), 2012.
(3) *Total dust, **Respirable fraction, ***Inhalable fraction.(f) fume, (d) dust, (m) mist, (ceil) ceiling.

## 9.SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1. Information on basic physical and chemical properties: Appearance: Solid, non-volatile with varying color. Melting point: >1300°C / >2300ºF

9.2. Other information: No available data.

## 10.SECTION 10: STABILITY AND REACTIVITY

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

10.2. Chemical stability: This product is stable under normal conditions.

10.3. Possibility of hazardous reactions: N.a.

10.4. Conditions to avoid: This product is only intended for normal welding purposes.10.5. Incompatible materials: N.a.

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: | Fe | Mn | Cr | Pb | Cu | Ni |
|---|---|---|---|---|---|---|
| weight % less than | 40 | 15 | 0.1 | 0.1 | 0.1 | 0.1 |

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.

## 11.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).

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, symptoms of which may include slurred speech, lethargy, tremor, muscular weakness, psychological disturbances and spastic gait. Prolonged inhalation of titanium dioxide above safe exposure limits can cause cancer. Inhalable quartz is a respiratory carcinogen however the process of welding converts crystalline quartz to the amorphous form which is not considered to be a carcinogen.

## 12.SECTION 12: ECOLOGICAL INFORMATION

12.1. Toxicity: No available data.12.2. Persistence and degradability: No available data.12.3. Bioaccumulative potential: No available data.12.4. Mobility in soil: No available data.12.5. Results of PBT and vPvB assessment: No available data.12.6. Other adverse effects: No available data.

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.SECTION 13: DISPOSAL CONSIDERATIONS

13.1. Waste treatment methods: 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. Welding slag from this product typically contains mainly the following components originating from the coating of the electrode.

| Slag analysis: | $SiO_2$ | CaO | $Al_2O_3$ | $Fe_2O_3$ | MnO | $TiO_2$ | $K_2O$ |
|---|---|---|---|---|---|---|---|
| % less than | 25 | 5 | 10 | 15 | 15 | 55 | 10 |

## 14.SECTION 14: TRANSPORT INFORMATION

14.1. UN number: N.a. 14.2. UN proper shipping name: N.a. 14.3. Transport hazard class(es): N.a. 14.4. Packing group: N.a. 14.5. Environmental hazards: N.a. 14.6. Special precautions for user: N.a. 14.7. Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code: N.a. No international regulations or restrictions are applicable.

## 15.SECTION 15: REGULATORY INFORMATION

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

15.2. Chemical safety assessment: No

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.

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):

| Ingredient name | RQ (lb) | TPQ (lb) |
|---|---|---|
| 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

### 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.

| Ingredient name | Disclosure threshold |
|---|---|
| Manganese | 1.0% de minimis concentration |

## 16.SECTION 16: OTHER INFORMATION

This Safety Data Sheet has been revised due to modification(s) to paragraph(s) 1-16. This SDS supersedes...1094/02

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:

USA: Contact ESAB at www.esabna.com or 1-800-ESAB-123 if you have 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.

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: 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.

Explanation of risk phrases, H-statements mentioned in this SDS :

R&H: R45 - May cause cancer. H350 - May cause cancer.

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.

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