

1 IDENTIFICATION OF THE SUBSTANCE / PREPARATION AND OF THE COMPANY / UNDERTAKING

Identification of the product : Solid
 Company identification : PT. LION SUPERIOR ELECTRODES
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Trade name : FN 312
 type of product : Electric arc welding coated electrode.
 Use : For professional use only.

2 COMPOSITION / INFORMATION ON INGREDIENTS

This product is not considered to be hazardous but contains hazardous components.

Substance Name	Value(s)	CAS No / EC no / EC Index	Symbol(s)	R-Phrase(s)
<u>Iron</u>	: 36 to 42 %	7439-89-6 / 231-096-4 / ----		
<u>Chromium</u>	: 21 to 24 %	7440-47-3 / 231-157-5 / ----		
<u>Titanium Dioxide</u>	: 11 to 14 %	13463-67-7 / 236-675-5 / ----		
<u>Silicon Dioxide</u>	: 8 to 12 %	7631-86-9 / ---- / ----		
<u>Nickel</u>	: 6 to 9 %	7440-02-0 / 231-111-4 / 028-002-00-7	Xn	40-43
<u>Aluminium Oxide</u>	: 2 to 4 %	1344-28-1 / 215-691-6 / ----		
<u>Potassium Oxide</u>	: 2 to 3 %	12136-45-7 / ---- / ----		
<u>Calcium Carbonate</u>	: 1.2 to 2.5 %	471-34-1 / 207-439-9 / ----	Xi	36
<u>Manganese</u>	: 1.2 to 3 %	7439-96-5 / 231-105-1 / ----		
<u>Calcium Fluoride</u>	: 1 to 2 %	7789-75-5 / 232-188-7 / ----		
<u>Magnesium Carbonate</u>	: 1 to 2 %	546-93-0 / 208-915-9 / ----		
<u>Cellulose</u>	: to 0.8 %	9004-34-6 / 232-674-9 / ----		
<u>Silicium</u>	: < 0.5 %	7440-21-3 / 231-130--8 / ----		
<u>Sodium Oxide</u>	: < 0.5 %	1313-59-3 / ---- / ----		
<u>Molybdenum</u>	: < 0.5 %	7439-98-7 / ---- / ----		
<u>Iron (III) Oxide</u>	: < 0.5 %	1309-37-1 / 215-168-2 / ----		

3 HAZARDS IDENTIFICATION

By delivery : Not hazardous.
 Risk by welding use :
 - General : Electric shock;
 - Inhalation : Inhalation of welding fumes may cause respiratory irritation. Cough.
 - Skin contact : UV, IR radiations, Heat, May produce skin irritation.
 Slags can cause burns.
 - Eye contact : UV, IR radiations, Heat, May cause eye irritation.
 Slags can cause burns.

4 FIRST AID MEASURES

First Aid

- Inhalation : Assure fresh air breathing.
- Skin contact : Stop exposure.
- Eye contact : Minimize exposure to light.
- Ingestion : Ingestion unlikely. Rinse mouth.
- Electric shock : Electrical circuits must be shut off as soon as possible. Prepare to administer resuscitation in case of cardiac or respiratory failure. In case of respiratory arrest, administer artificial respiration.

General information : In all case : Obtain medical attention. If possible show this sheet.

5 FIRE-FIGHTING MEASURES

- Flammable class : The product is not flammable.
- Prevention : Welding hot slag or sparks may cause fire. Keep away from combustible material.
- Surrounding fires : Use water spray or fog for cooling exposed containers.
- Protection against fire : Wear proper protective equipment.

6 ACCIDENTAL RELEASE MEASURES

- Personal precautions : Equip clean-up crew with proper protection.
- After spillage and/or leakage : On land, sweep or shovel into suitable containers.

7 HANDLING AND STORAGE

- Storage : Store in dry protected location to prevent any moisture contact. Keep container closed when not in use.
- handling : Wash hands and other exposed areas with mild soap and water before eating, drinking or smoking and when leaving work.

8 EXPOSURE CONTROLS / PERSONAL PROTECTION

- Respiratory protection : Do not breathe gas/fumes/vapour.
In case of insufficient ventilation, wear suitable respiratory equipment.
- Hand protection : Welding gloves.
- Skin protection : Skin protection appropriate to the conditions of use should be provided.
- Eye protection : Use a protection mask equipped with suitable filter glasses.
Interdiction to wear contact lenses.
- Ingestion : When using, do not eat, drink or smoke.
- Industrial hygiene : Provide local exhaust or general room ventilation to minimize fumes concentrations.

9 PHYSICAL AND CHEMICAL PROPERTIES

- Physical state : Solid.
- Colour : Grey.
- Odour : Odourless.
- Melting point [°C] : ca 1500

10 STABILITY AND REACTIVITY

Stability : Stable under normal conditions. (< 650°C)
 hazardous decomposition products : Formation of dangerous fumes during use.
 According to process conditions, hazardous decomposition products may be generated. Such as :

Al ₂ O ₃	CAS 001344-28-1	EC 215-691-6	TLV (mg/m ³) :	10
CO	CAS 000630-08-0	EC 211-128-3	TLV (mg/m ³) :	29
CO ₂	CAS 000124-38-9	EC 204-696-9	TLV (mg/m ³) :	-
CaO	CAS 001305-78-8	EC 215-138-9	TLV (mg/m ³) :	2 (Ca)
Cr	CAS 007440-47-3	EC 231-157-5	TLV (mg/m ³) :	0.5
Fe	CAS 007439-89-6	EC 231-096-4	TLV (mg/m ³) :	1 (insoluble)
F	CAS 007789-96-5	EC 232-188-7	TLV (mg/m ³) :	2.5
MgO	CAS 001309-48-4	EC 215-171-9	TLV (mg/m ³) :	10
Mn	CAS 007439-96-5	EC 231-105-1	TLV (mg/m ³) :	0.2
Mo	CAS 007439-98-7	EC 231-107-2	TLV (mg/m ³) :	10
Ni	CAS 007440-02-0	EC 231-111-4	TLV (mg/m ³) :	1 (insoluble)
Ni	CAS 007440-02-0	EC 231-111-4	TLV (mg/m ³) :	0.05 (soluble)
PbO	CAS 001317-36-8	EC 215-267-0	TLV (mg/m ³) :	0.05
Si	CAS 007440-21-3	EC 231-130-8	TLV (mg/m ³) :	10 (SiO ₂)
SiO ₂	CAS 014808-60-7	EC 238-878-4	TLV (mg/m ³) :	10
TiO ₂	CAS 013463-67-7	EC 236-675-5	TLV (mg/m ³) :	10
Cr (III)	CAS 012018-00-7	-----	TLV (mg/m ³) :	0.5
Cr (VI)	CAS 001308-39-9	-----	TLV (mg/m ³) :	0.05
K ₂ O	CAS 012136-45-7	-----	TLV (mg/m ³) :	-
Na ₂ O	CAS 001313-59-3	-----	TLV (mg/m ³) :	2 (NaOH)
BaO	CAS 001304-28-5	-----	TLV (mg/m ³) :	0.5 (Ba)

: Threshold Limit Values (TLV-TWA) given according to ACGIH.
 The TLV limit of the above elements is function of the national reglementation.

Hazardous properties : Welding fumes are classified carcinogen by the ICRC (International Center of Research on Cancer) :Group :2B. Cancer suspected agent.

Standard NF A-81-040 :

Emission level of the fumes (mg/mn) – Diameter 2.5 mm : 130 – Diameter 3.2 mm : 200
 (NF A 81-040) (mg/mn) Diameter 4.0 mm : 250
 Fume Class - (standard NF A-81-040) : Diameter 2.5 mm : A4 – Diameter 3.2 mm : A4
 Diameter 4.0 mm : A4 – Diameter 5.0 mm : A4

Standard SS 06 028 01 :

Emission level of the fumes (g/h) – (SS Diameter 2.5 mm : 8 – Diameter 3.2 mm : 12
 06 028 01) Diameter 4.0 mm : 15
 Fume Class - (standard SS 06 028 01) : Diameter 2.5 mm : R=3 – Diameter 3.2 mm : R=4
 Diameter 4.0 mm : R=4

Materials to avoid : Avoid contact with: Acids. Oxidizing agent.

Other Information : In case of work on parts covered by coatings such as : Lubricant, Solvent, Paint, Metallic compounds, Grease, etc... the thermal or photochemical decomposition products of these elements cumulate with the dusts and fumes emitted by the melting of the welding product.

The solution to adopt must be, in any case, preceded by a spot study. Refer to the document "Health and Safety in Welding" published by the International Institute of Welding (IIS/IIW).

11 TOXICOLOGICAL INFORMATION

- Toxicity Information : This material or its emissions may induce an allergic or sensitization reaction and thereby aggravate existing systemic disease.
- Acute toxicity : Overexposure to welding fumes may cause: Fever. Nausea. Giddiness. Eye irritation. Irritation to the respiratory tract and to other mucous membranes.
- Chronic toxicity : Overexposure to welding fumes may cause: Pulmonary/bronchial disease and/or cause breathing difficulty.
Overexposure to: Manganese (Mn). This material or its emissions may attack the nervous system and/or aggravate pre-existing disorders.
Quartz inhalation: May cause lung damage. May cause cancer.

12 ECOLOGICAL INFORMATION

- Ecological effects information : This product contains no hazardous components for the environment. Avoid release to the environment.

13 DISPOSAL CONSIDERATIONS

- Disposal : Comply with local regulations for disposal.
Apply the same procedure for slags remaining from welding.
- Industrial waste number : 120113 Welding wastes
120101 Ferrous metallic scraps

14 TRANSPORT INFORMATION

- General Information : Not regulated.

15 REGULATORY INFORMATION

- Symbols(s) : None.
- R Phrase(s) : None.
- S Phrase(s) : None.

16 OTHER INFORMATION

- Warning : Fumes and gases emitted during welding may be dangerous. Good ventilation of the workplace required. Electric rays may burn eyes and skin. Electric shocks can kill. Wear proper protective equipment.
- Training advice : Ensure that user is aware of the potential hazards and knows what to do in the event of an accident or an emergency.
- Recommended uses and restrictions : Contact your supplier in case of doubt.
- Further information : Revision - See : *
- The present Safety Data Sheet has been inspired by the European Directives currently in force.

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