



## PRODUCT HEALTH AND SAFETY DATA SHEET

Date of issue: February 1997 (Issue 1: Rev 1)  
In accordance with: Commission Directive 93/112/EEC and  
Statutory Instrument 1994 No 3247  
Document: Avesta Welding MSDS 1:3 Inf. nr. 9720

### AUSTENITIC FILLERS, SPECIAL GRADES

#### 1. IDENTIFICATION OF PREPARATION AND COMPANY

Product identifier: Avesta Stainless Steel Electrode  
Application and use: Arc Welding  
Trade name/ synonyms:

| Avesta              | Classification: |             |
|---------------------|-----------------|-------------|
|                     | EN1600          | AWS A5.4    |
| SLR AC/DC           | 19 13 4L        | -           |
| 310 Bas. AC/DC      | 25 20           | E310-15/-17 |
| 253MA AC/DC         | -               | -           |
| 353MA Bas           | -               | -           |
| 904L, 904L-PW AC/DC | 20 25 5CuL      | E385-17     |
| SKR-NF Rutile       | 18 15 3L        | -           |
| 254 SFER Rutile     | 25 22 2L        | -           |
| P6 Bas              | -               | -           |
| SLR-NF Rutile       | 18 16 5L        | -           |
| P9 AC/DC            | -               | -           |

Telephone number: +46 226 81500  
Manufacturer / Supplier: Avesta Welding AB  
Box 501  
S-774 27 AVESTA  
SWEDEN

#### 2. COMPOSITION/INFORMATION ON INGREDIENTS

This product is produced by extruding a coating on a stainless steel core wire. The following components are defined in accordance with Commission Directive 93/112/EC Annex (LTV - threshold limit values according to ACGIH, hazard classification according to OJEC No L314 J):

Core wire: Iron alloy with  
up to 28% Cr  
up to 27% Ni  
up to 6% Mo.

| Coating<br>Ingredients | Weight %<br>less than |
|------------------------|-----------------------|
| Iron                   | 81                    |
| Manganese              | 17                    |
| Quartz                 | 15                    |
| Chromium               | 17                    |
| Nickel                 | 32                    |
| Titanium dioxide       | 35                    |
| Aluminium oxide        | 10                    |
| Limestone              | 37                    |
| Fluorides              | 33                    |
| Molybdenum             | 7                     |
| Copper                 | 7                     |

Details of classified substances contained:  
CAS no. (index no.): 7440-02-01 (028-002-00-7).  
Material name: Nickel.  
Proportion value unit: Up to 32%.  
Danger symbol: Xn.  
R-phrases: R40 / R43.

#### 3. HAZARDS IDENTIFICATION

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. Occupational exposure limits of components are described in paragraph no.2. When this product is used in a welding process the most important hazards are heat, radiation, electrical shock and fumes.

Heat: Spatter, melting metal and arc rays can cause burn injuries and start fires.  
Radiation: Arc rays can severely damage eyes or skin.  
Shock: Electrical shock can kill.  
Fumes: Chronic overexposure to welding fumes may affect pulmonary function.

#### 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: - 13  
Methods for cleaning up: - 13

#### 7. HANDLING AND STORAGE

Handling:  
Avoid exposure to welding fumes, radiation, spatter, electrical shock, heated materials and dust. Do not ingest. Handle with care to avoid stings and cuts. Spooled wire can spring.

Storage:  
Keep separate from chemical substances like acids 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 welder 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.

## 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance: Solid, non - volatile  
Odour: Odourless  
Colour: Varying  
From: Core wire ranging in diameter 1,6 to 5,0 mm length 300 mm to 450 mm with extruded coating.

## 10. STABILITY AND REACTIVITY

General: This product is intended only for normal welding purposes.  
Stability: This product is stable under normal conditions.  
Reactivity: Contact with chemical substances like acids could cause generation of gas

Hazardous decomposition products includes those from the volatilisation, reaction or oxidation of materials listed in section 2 and those from the base metal and coating.

Reasonably expected fume constituents of this product would include oxides of metals as iron, manganese and chromium.

Fume analysis: (wt%)

| Fe  | Mn  | F   | Pb   | Ni | Cr | V | Co | Cu   | Ba |
|-----|-----|-----|------|----|----|---|----|------|----|
| <13 | <10 | <20 | <0.1 | <4 | 12 | - | -  | <0.6 | -  |

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's and processes. Maximum fume exposure guideline for this product is 0,5 mg/m<sup>3</sup> according to SS 06 28 01/02 and Danish standard, based on the content of iron, manganese, chromium, nickel and fluoride.

Acute toxicity: Overexposure to welding fumes may result in symptoms like dizziness, nausea, dryness or irritation of the nose, throat or eyes.

Chronic toxicity: Overexposure to welding fumes may effect pulmonary function. Certain chromium and nickel compounds, like Cr<sup>6+</sup> are suspected of being cancer causing agents. Overexposure of manganese may affect the nervous system

## 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.

## 13. DISPOSAL CONSIDERATIONS

Discard any product, residue, disposable container or liner in an environmentally acceptable manner, in full compliance with federal and local regulations.

## 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.

FUME AND GASES can be dangerous to your health.

ARC RAYS can injure eyes and burn skin.

ELECTRIC SHOCK can kill.

Keep your head out of fumes. Use enough ventilation, exhaust at the arc, or both, to keep fumes and gases from your breathing zone, and the general area. Wear correct eye, ear and body protection. Do not touch live electrical parts.

**WARNING:** Welding fumes and gases may be dangerous to your health. Avoid breathing the fumes and gases. Use adequate ventilation. Arc rays may injure eyes and burn skin. Use adequate protective equipment.

**ADVERTISEMENT:** Les gaz et les vapeurs de soudage peuvent presenter des risques pour la santé. Eviter de les respirer. Assurer une ventilation adéquate. Les arcs peuvent causer des blessures aux yeux ou des brûlures de la peau. Utiliser un équipement de protection adéquate.

**WARNING:** Der Rauch dieses Schweißzusatzes enthält Chrom-, Nickel und/oder Kobaltverbindungen. Schweißrauche absugen!

**VARNING FÖR INANDNING AV SVETSRÖK**  
Medelhög akut giftighet. Risk för skador vid långvarig eller ofta upprepad inandning. Se till att ventilationen är god.

**ADVARSEL MOT INNANDNING AN SVEISERØYK OG GASSER:** Fare ved innåndning. Fare for langtidseffekter. Sørg for god ventilasjon.

**VÄLTÄ HITSAUSSAVUJEN SISÄÄHENGITTÄMISTÄ**  
Pitkäaikainen altistus voi olla haitallista. Huolehdi tuuletuksesta. Kästo hitsauspuikon turvaohjelehte.

## 16. OTHER INFORMATION

Refer 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", available from the manufacturer.

Germany: Unfallverhütungsvorschrift "Schweißen, Schneiden und verwandte Verfahren" (VBG 15)

Avesta Welding request the users of this product to study this Safety Data Sheet 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 sheet 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 and hazards and safety information.



Avesta Welding AB, Box 501, S-774 27 AVESTA, Sweden

Telephone +46 228 815 00  
Telefax +46 228 815 75

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