

# Material Safety Data Sheet

In accordance with ANSI Z400.1-2004

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## 1. PRODUCT AND COMPANY IDENTIFICATION

**Product identifier:** Pickling products for stainless steel**Trade names:** Avesta 101,  
Avesta RedOne™ 140, 204**Classification:** ID#: UN 2922 ERG 157

### Company

Avesta Welding Products, Inc.  
3176 Abbot Road  
Orchard Park, NY 14127

Tel. 1 800 441 7343

1 716 827 4400

Fax 1 716 827 4404

### Emergency numbers

USA 1 800 424 9300 Chemtrec

Canada 1 613 996 6666 Canutec

## 2. HAZARDS IDENTIFICATION

**DANGER!** HARMFUL IF INHALED.

CAUSES SEVERE EYE, SKIN AND DIGESTIVE TRACT BURNS.

**Precaution:** Avoid breathing vapor or mists.

Do not get in eyes or on skin. Do not taste or swallow. Use only with adequate ventilation.

Wash thoroughly after handling.

**Potential environmental effect:**

Will strongly reduce pH in water and therefore must be neutralized.

**Physical and chemical risks:** When heated nitrous gases may form. Only for treatment of stainless steels, not suitable on other metals.

### OSHA Regulatory Status

This material is considered hazardous by OSHA Hazard Communication standard (29CFR1910.1200).

## 3. COMPONENTS/ INFORMATION ON INGREDIENTS

Component	CAS No.	% by Wt.
Nitric acid HNO <sub>3</sub>	7697-37-2	15 - 25
Hydrofluoric acid HF	7664-39-3	2 - 6
Aluminum fluoride	7784-18-1	22
Calcium Fluoride	7789-75-5	5

## 4. FIRST AID MEASURES

Remove victim from exposure area and call for medical help. Employ first aid techniques recommended by American Red Cross.

**Eye contact:** Immediately call for medical assistance. Flush eyes with plenty of water until medical assistance becomes available. Treat with HF antidote eye drops containing calcium gluconate, if available.**Skin contact:** Remove contaminated clothing. Rinse immediately with plenty of water. Antidotes are available for hydrogen fluoride burns, including HF Antidote Gel, containing 2.5% calcium gluconate. Seek medical attention for severe burns.**Inhalation:** Fresh air and rest. Rinse nose and mouth with water, discharging rinsed material. If breathing has stopped, provide artificial respiration. Immediately seek medical attention even for small incidences.**Ingestion:** Drink plenty of fluids, preferably milk, or water. Utilize appropriate antacid. Do not induce vomiting. Seek immediate Medical advice.**Information for medical care:** Inform treating physician that injury was caused by contact with hydrofluoric/sulfuric and nitric acid solution. Antidote treatment for contact with hydrofluoric acid is a 2.5% calcium gluconate solution.

## 5. FIRE FIGHTING MEASURES

**Danger of fire/explosion:** The fluid is non-flammable. Small quantities of hydrogen gas is formed in contact with metals. Trapped gas together with air may cause an explosion in confined spaces. Bottles close to fire should be removed or cooled with water. Refer to ANSI Z49.1 and NFPA 51B standards for additional fire prevention information.

**Suitable extinguishing media:** Water. Released product should be neutralized with caustic soda.

**Chemical exposure risks caused by the product itself:** The Pickling fluid will cause corrosive damage on skin contact.

**Chemical exposure risks caused by released gases/vapours:** The Pickling fluid will emit toxic fumes and nitrous gases in the presence of heat/fire.

**Protection of firefighters:** Normal protective clothing.

**Breathing protection:** Firefighters should use self-contained breathing apparatus or an air-purifying respirator with acid gas cartridges when it is confirmed through air monitoring that it is safe to do so.

**Cleaning:** Thoroughly wash soiled fire equipment with water.

## 6. ACCIDENTAL RELEASE MEASURES

**Personal Precautions:** Avoid direct contact. Wear eye protection, skin protection, rubber gloves, and breathing apparatus. Keep good ventilation.

**Environmental Precautions:** Prevent spillage from entering sewage or public waters.

**Methods for cleaning up:** Neutralize with Avesta Neutralizing Agent or a strong

alkaline compound i.e. slaked lime. Embank with sand. Arrange for pick up. Rinse with plenty of water.

**Spillage and decontamination:** Spillage is acid waste and should be collected and disposed of in full compliance with federal, state and local regulations.

If such potential for a spill or release exists, it is advisable to develop an emergency spill response plan.

## 7. HANDLING AND STORAGE

### Handling

**Technical measures:** Work place and work methods should be arranged in order to avoid direct contact. Keep good ventilation. A closed rinse water system with filtration and reuse of clear water is recommended.

**To prevent fire and explosion:** Bottles close to fire should be removed or cooled with water.

**Precautions:** Avoid fume generation and accumulation by using in a well-ventilated area. Use in areas having local exhaust and general ventilation.

Possibilities to rinse the eyes with water should be available at the working place.

### Storage

**Technical measures:** Storage room should be kept separate, cool, dry, and closed to unauthorized persons.

**Incompatible products:** Not applicable.

**Storage conditions:** When not in use, keep containers securely closed and in an upright position. Store in areas where temperature remains between 32 – 98 °F or 0 – 35 °C at all times.

**Packaging materials:** Packaging material must be of acid resistant plastic material.

**Shelf life:** At least one year in unopened bottle correctly stored

## 8. EXPOSURE CONTROLS/ PERSONAL PROTECTION

### Exposure Guidelines, 8-hour TWA, mg/m<sup>3</sup>

Component	OSHA PEL	ACGIH TLV	Carcinogenic listing		
			ACGIH	NTP	IARC
Nitric acid, HNO <sub>3</sub>	5	4	No	No	No
Hydrofluoric acid, HF, as F	2	0.5 C 2 ppm	BEI	No	No
Aluminum fluoride, as Al			No	No	No
Metal dust	15	10			
Respirable fraction	5	N.E.			
Calcium fluoride, as fluoride	2.5	2.5	A4; BEI	No	No

N.E. - Not Established, C=Ceiling, BEI=Biological Exposure Index, A4=Not classifiable as a Human Carcinogen

**General:** Avoid direct contact. Provide engineering control and personal protective equipment to prevent inhalation and skin and eye contact of mists and vapor the pickling chemicals. Use enough local and general ventilation to keep below the PEL/TLV. Train workers to keep head out of vapors.

**Engineering controls:** Local exhaust ventilation is recommended.

**Personal protective equipment:** Protection of the skin and eyes from the corrosive effects of this cleaner is of primary importance. See ANSI Standard Z49.1 for additional information.

**Respiratory protection:** Where local exhaust or general ventilation is insufficient, use a NIOSH approved full-face supplied air respirator or self contained breathing apparatus. Lung function tests (PFT) and respirator fit testing are recommended for respirator users.

**Hand protection:** Acid resistant rubber-gloves.

**Eye protection:** Face shield.

**Skin and body protection:** Rubber boots and acid resistant clothes, which covers all body parts exposed to splashes.

**Specific hygienic measures:** Keep head out of mists/vapours. Do not inhale fumes; avoid contact with eyes, skin and clothes. Do not eat, drink and smoke at workplace. Remove contaminated clothes immediately. Wash face and hands thoroughly after working with pickling paste/gel.

## 9. PHYSICAL AND CHEMICAL PROPERTIES

Color:	White
Odor:	Minor pungent smell
Odor threshold:	Not established
Physical state:	Paste/Liquid
pH:	0 at 68°F (20°C)
Freezing point:	100°F (40°C)
Fluid-gas:	120-140°F (50-60°C (nitric fumes)
Boiling point:	175-212°F (80-100°C)
Flash point:	Not applicable
Vapor pressure:	< 0.00145 psi (0.01kPa) at 68°F (20°C)
Flammability:	Not applicable
Density:	1.1 - 1.4 g/cm <sup>3</sup>
Viscosity:	30 rpm at 73°F (23°C)
Dynamic	1700 – 2300 mPa.s
Kinematical	0.0013-0.0018 m <sup>2</sup> /s
Solubility in water:	90 weight %
Solubility in organic solvents:	Not applicable

## 10. STABILITY AND REACTIVITY

**Stability:** Stable under normal conditions. Polymerization will not occur.

**Conditions to avoid:** Avoid high temperatures, must not be exposed to direct sunshine. When heated phosphoric gases will be developed.

**Material to avoid:** Alkaline compounds and water, will give an exothermal reaction, with heat development.

**Hazardous decomposition products:** Will emit phosphoric gases and hydrogen gas.

## 11. TOXICOLOGY INFORMATION

### Acute effects

**Effect on the eyes:** Causes intense pain and corrosive damage. Risk of permanent damage to the eyes.

**Effect on the skin:** Causes corrosive damage with yellow discoloration of the skin, rashes, blisters and slow-healing wounds.

**After ingestion:** Causes corrosive damage with burning pain, possibly severe general effect and damage to kidneys and liver.

**Upon inhalation:** Inhalation of fumes or mist causes aches, cough and difficulty in breathing. Risk for oedema on the lungs.

**Note:** Symptoms may not appear immediately.

## 12. ECOLOGICAL INFORMATION

**Ecotoxicity Hydrofluoric acid:** Fish (Fresh water) 60 ppm, lethal (time period not specified).

Persistence/degradability: Proteolyses in water to  $H^+$ ,  $NO_3$ ,  $F^-$ .

**Bioaccumulation:** The product is not regarded as bio-accumulative.

**Mobility:** The product in its concentrated form will have a toxic effect on the ground and water. During usage the product will be diluted with water but will still lower the pH of ground water and may not be discharged without pre-treatment.

## 13. DISPOSAL CONSIDERATIONS

**RCRA Hazardous waste #:** D002, D007, K062

### Methods of removal

**Product:** Undiluted product is regulated under environmental and transportation laws as corrosive waste. Dispose of according to all Federal, state and local regulations.

**Wastes from residues:** Contaminated residues, e.g. wastewater must be neutralized to correct its pH-value to pH 6 – 7, and sludge containing heavy metals should be removed. Neutralize with Avesta Neutralizing Agent or slaked lime.

**Contaminated packing:** Triple rinse with plenty of water.

**Additional information:** A filtration system for rinse water is recommended. Effluent must be separated and disposed of as acidic waste. Consult with your local authorized and licensed waste disposal company and your State's Department of Environment.

## 14. TRANSPORTATION INFORMATION

**Proper shipping name:** Corrosive liquid, toxic N.O.S. (hydrofluoric acid, nitric acid)

**Hazard Class:** 8

**Packaging Group:** II

**UN Classification #:** 2922

**ERG** 157

**DOT Placard:** Corrosive, Toxic

## 15. REGULATORY INFORMATION

<b>OSHA</b>	United States	Included
<b>TSCA</b>	United States	Included
<b>DSL</b>	Canada	Included

### California Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65)

This product is not known to contain any chemicals currently listed as carcinogens or reproductive toxins under California Proposition 65.

**EPCRA / SARA Section 302, 304, 311/312 and 313**

Component	CAS #	Section 302 EHS	Section 304 Spill	Section 311/312 Hazard classes	Section 312 SARA Tier II	Section 313 Form R
			Reporting Quantity, lbs.		Threshold Planning Quantity, lbs.	By weight %
Nitric acid	7697-37-2	EHS	1,000	Immediate health hazard	1,000	15 - 20
Hydrofluoric acid	7664-39-3	EHS	100	Immediate health hazard	100	2 - 6

**16. OTHER INFORMATION****Training advice:**

The AvestaPolarit "Handbook for the pickling and cleaning of stainless steel" and "Guidelines for Planning and Designing a Pickling Workshop".

**Recommended applications and restrictions:**

Only for the cleaning of stainless steels and aluminum, not to be used on other metals.

**Basic information used to draw up this information:**

European version Material Safety Data Sheet I 001005 Ver.9  
Standard practice for cleaning of stainless steel, ASTM A-380.  
ACGIH, TLVs and BEIs, 2005

National Toxicology Program, 11<sup>th</sup> Report on Carcinogens, 2005

International Agency for Research on Cancer. 'IARC Monographs on the Evaluation of Carcinogenic Risks to Humans', vol. 1- 88

OSHA, Standards 29 CFR.1910.1000 –1200  
EPA Consolidated List of Chemicals Subject to the Emergency Planning and Community-Right-to-Know Act (EPCRA) and section 112(r) of the Clean Air Act.

DOT, Standards 49 CFR.172.101-102

**This MSDS replaces:**

AvestaPolarit Pickling Chemicals, Rev. 7

**Prepared by:**

Elisabeth Torsner  
Vice President Technology  
Outokumpu Stainless Inc.

