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

Product name: *Alumat d.o.o*

Application: *Aluminium welding materials*

Supplier: *Alumat d.o.o.*
Partizanska 38
Slovenska Bistrica
Slovenija

2. HAZARDS IDENTIFICATION

HMIS Ratings: Health: 1 Fire: 1 Physical Hazard: 1

Physical and Chemical Hazards:	Improper use of the product or inadequate preparation of the conductors, moulds or surroundings can result in aggressive reactions. Self-propagating high temperature reaction will occur if heated above ignition temperature. Generates molten metal in excess of 1370ºC,slag and dense, dusty smoke.
Human health:	Burns from contact with reaction or reaction products are possible. Inhalation of powder or fumes may cause metal fume fever. Exposure to reaction by-products: See section 8.
Environment:	Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Name	CAS #	% by weight	UN number
Aluminum	7429-90-5	87 - 98	UN1309
Silicium Powder, Amorphous	7440-21-3	4 - 13	UN1346
Copper Metal Powder	7440-50-8	0.1 - 6	Not regulated.
Magnesium Metal Powder	7439-95-4	0.1 - 5	UN2950
Manganese	7439-96-5	<1.5	Not regulated.
Chromium, Metal	7440-47-3	<0.5	Not regulated.

The fumes emitted by the electrodes, in use, are hazardous. This MSDS is written for workers using these electrodes.
See Section 8 for Exposure Limits of the oxides found in the welding fumes.

4. FIRST-AID MEASURES

Molten product will cause skin burns and if in contact with eyes while in a molten state may cause serious damage. Burns (in contact with molten metal, slag or hot equipment): Flush with water immediately. While flushing, remove clothes which do not adhere to affected area. Call an ambulance. Continue flushing during transport to hospital.

Inhalation:	Inhalation of welding fumes: / Dust inhalation: Move into fresh air and keep at rest. In case of persistent throat irritation or coughing: Seek medical attention and take along these instructions.
Skin contact:	Remove contaminated clothes and rinse skin thoroughly with water. If material is hot, treat for thermal burns and get immediate medical attention.
Eye contact:	Dust in the eyes: Do not rub eye. Immediately flush with plenty of water for up to 15 minutes. Remove any contact lenses and open eyelids widely. If irritation persists: Seek medical attention and bring these instructions
Ingestion:	Immediately rinse mouth and drink plenty of water. Keep person under observation. If person becomes uncomfortable seek hospital and bring these instructions.

5. FIRE-FIGHTING MEASURES

Extinguishing media: Extinguish with dry sand and/or flood with large amounts of water. Use fire-extinguishing media appropriate for surrounding materials. Extinguishing media which are not suitable: Hand water buckets or hand storage pumps. Molten metal contact with water can cause small pockets of superheated steam.

Specific hazards: During fire, health hazardous gases may be formed. Ignition temperature: > 950 °C Ignition of large quantities of exothermic materials may result in large volumes of dense smoke.

Protective equipment for fire-fighters: Selection of respiratory protection for fire fighting: follow the general fire precautions indicated in the workplace

6. ACCIDENTAL RELEASE MEASURES

Personal precautions Follow precautions for safe handling described in this safety data sheet. Avoid inhalation of
dust. Do not breathe fumes. Avoid contact with skin and eyes. For personal protection, see
section 8.
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Environmental precautions:: Precaution should be taken to prevent hot material and reaction byproducts from contact with
combustible materials in surrounding areas. Avoid spreading dust or contaminated materials.
Avoid discharge to the aquatic environment. Contact local authorities in case of spillage to
drain/aquatic environment

Methods for cleaning up: Sweep up spilled substance and remove to safe place. For waste disposal, see section 13

7. HANDLING AND STORAGE

Handling : Avoid breathing dusts, vapors or fumes from burning materials. Use only with adequate ventilation. Avoid contact with eyes, skin and clothing. Do not ingest. Keep container closed. Wash thoroughly after handling.

Storage : unopened containers should be kept in a relatively dry storage area at temperatures between 15°C (60°F) and 30°C (80°F) and 50% maximum relative humidity.

8. Exposure Controls, Personal Protection

Engineering controls: Use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits. If user operations generate dust, fumes or mist, use ventilation to keep exposure to airborne contaminants below the exposure limit.

Eyes : Safety glasses with side shields. Face shield with radiation shielding. Body : Full suit. (Fire resistant.)

Respiratory : Dust respirator. Be sure to use an approved/certified respirator or equivalent. Wear a canister breathing apparatus (respirator) or a supplied-air respirator, when required, to weld in a confined space or when room

Hands: Gloves. (Fire resistant.)

Feet: Metal cap, safety boots.

Occupational exposure limits		TWA (8 hours)			STEL (15 mins)			Ceiling			
Ingredient	List name	ppm	mg/m³	Other	ppm	mg/m³	Other	ppm	mg/m³	Other	Notations
Aluminium powder (pyrophoric)	US ACGIH 2/2010	-	1	-	-	-	-	-	-	-	[a]
	AB 4/2009	-	10	-	-	-	-	-	-	-	[3] [b]
	BC 10/2009	-	1	-	-	-	-	-	-	-	[c]
	ON 7/2010	-	1	-	-	-	-	-	-	-	[a]
Aluminium powder (pyrophoric), as Al	QC 6/2008	-	10	-	-	-	-	-	-	-	[A]
Silicon	BC 10/2009	-	3	-	-	-	-	-	-	-	[d]
		-	10	-	-	-	-	-	-	-	[e]
	ON 7/2010	-	10	-	-	-	-	-	-	-	
	QC 6/2008	-	10	-	-	-	-	-	-	-	[f]
Copper	US ACGIH 2/2010	-	0.2	-	-	-	-	-	-	-	[g][B]
		-	1	-	-	-	-	-	-	-	[C]
Copper, as Cu	AB 4/2009	-	1	-	-	-	-	-	-	-	[h][C]
		-	0.2	-	-	-	-	-	-	-	[g][C]
	BC 10/2009	-	1	-	-	-	-	-	-	-	[i][C]
		-	0.2	-	-	-	-	-	-	-	[g][C]
Copper	ON 7/2010	-	1	-	-	-	-	-	-	-	[j]
		-	0.2	-	-	-	-	-	-	-	
Copper, as Cu	QC 6/2008	-	1	-	-	-	-	-	-	-	[k][C]
		-	0.2	-	-	-	-	-	-	-	[l][C]
Manganese, as Mn	US ACGIH 2/2010	-	0.2	-	-	-	-	-	-	-	[D]
	AB 4/2009	-	0.2	-	-	-	-	-	-	-	
	BC 10/2009	-	0.2	-	-	-	-	-	-	-	[D]
	ON 7/2010	-	0.2	-	-	-	-	-	-	-	
	QC 6/2008	-	1	-	-	3	-	-	-	-	[l][D]
Chromium, measured as Cr	US ACGIH 2/2010	-	0.5	-	-	-	-	-	-	-	[m][E]
Chromium, as Cr	AB 4/2009	-	0.5	-	-	-	-	-	-	-	[3]
Chromium	BC 10/2009	-	0.5	-	-	-	-	-	-	-	
Chromium, as Cr	ON 7/2010	-	0.5	-	-	-	-	-	-	-	
Chromium	QC 6/2008	-	0.5	-	-	-	-	-	-	-	

3]Skin sensitization **Form:** [a]Respirable fraction; see Appendix C [b]Metal Dust [c]Respirable [d]Respirable dust [e]Total dust [f]Total dust. [g]Fume [h]Dusts and Mists [i]Dusts and mists [j]dust and mists [k]dusts & mists [l]fume [m]Inorganic **Notes:** [A]as Al [B]Substances for which the TLV is higher than the OSHA Permissible Exposure Limit (PEL) and/or the NIOSH Recommended Exposure Limit (REL). See CFR 58(124) :36338-33351, June 30, 1993, for revised OSHA PEL. Adopted Values enclosed are those for which changes are proposed. Consult the Notice of Intended Changes for current proposal. See Notice of Intended changes. [C]as Cu [D]as Mn [E]measured as Cr

9. Physical and Chemical Properties

Physical state and Appearance	Solid.
Color	Reddish-brown. Grayish-white.
Odor	Odorless.
Melting/freezing point	1540 to 2030°C (2804 to 3686°F)
Specific gravity	Not available.
Solubility	Insoluble in the following materials: cold water, hot water.

10. Stability and Reactivity

Stability and reactivity	The product is stable.
Hazardous decomposition products	Metallic oxides. Carbon oxides (CO, CO2). Arc radiation can support the production of ozone and nitrogen oxides.
Hazardous polymerization	Under normal conditions of storage and use, hazardous polymerization will not occur.

11. Toxicological Information

Product/ingredient name	Result	Species	Dose	Exposure
Silicon	LD50 Oral	Rat	3160 mg/kg	-
Manganese	LD50 Oral	Rat	9 g/kg	-

CARCINOGENIC EFFECTS: See Section 2.

Chronic effects and other toxic effects on humans

Contains material which causes damage to the following organs: blood, kidneys, lungs, liver, upper respiratory tract, skin, central nervous system (CNS), eye, lens or cornea.

Acute exposure to welding fumes may result in discomfort such as: dizziness, nausea or dryness of nose, throat or the eyes

12. Ecological Information

Product/ingredient name	Result	Species	Exposure
Aluminum powder (pyrophoric)	Acute LC50 120 ug/L Fresh water	Fish - Oncorhynchus mykiss - EMBRYO	96 hours
Copper	Acute EC50 4.1 ug/L Fresh water	Crustaceans - Simocephalus vetulus Juvenile (Fledgling, Hatchling, Weanling) - <48 hours	48 hours
	Acute EC50 1 ug/L Fresh water	Daphnia - Ceriodaphnia dubia - Juvenile (Fledgling, Hatchling, Weanling) - <24 hours	48 hours
	Acute LC50 9.4 ug/L Fresh water	Fish - Pimephales promelas - Juvenile (Fledgling, Hatchling, Weanling) - <1 months	96 hours
	Chronic NOEC 7.43 ug/L Fresh water	Fish - Salmo trutta - IMMATURE - 14 cm 26.3 g	4 days
Manganese	Acute EC50 40000 ug/L Fresh water	Daphnia - Daphnia magna	48 hours
	Chronic NOEC 28000 ug/L Fresh water	Daphnia - Daphnia magna	48 hours
Chromium	Acute LC50 50 to 65 ug/L Fresh water	Crustaceans - Simocephalus vetulus <24 hours	48 hours
	Acute LC50 22 ug/L Fresh water	Daphnia - Daphnia magna - <24 hours	48 hours
	Acute LC50 14.3 ppm Fresh water	Fish - Cyprinus carpio	96 hours
Priduction of Degradation	Some metallic oxides.		

13. Disposal Considerations

Waste information : Waste must be disposed of in accordance with federal, state and local environmental control regulations. Recycle, if possible.

14. Transport Information

No transport class is found applicable to this product.

15. Regulatory Information

EUROPEAN COMMUNITY: All components are listed on European Core inventory (ECOIN).

U.S. FEDERAL: Regulations : Safety and Health standards, 29 CFR 1910, available from U.S. Government printing office, Washington, D.C. 20402-0001

16. Other Information

- RID = Regulations concerning the international carriage of dangerous good by rail.
- ADR = European agreement concerning the international carriage of dangerous goods by road.
- DoT49CFR = U.S. Department of transportation 49 code of Federal Regulations.
- ADNR = Regulations concerning the carriage of dangerous goods on the Rhine.
- IMDG code = International Maritime Dangerous Goods Code.
- ICAO -TI = International Civil Aviation Organization - Technical Instructions.
- IATA-DGR = International Air Transport Association – Dangerous Goods Regulations.
- ACGIH = American Conference of Governmental Industrial Hygienists.
- CAS = Chemical Abstract Service.
- CERCLA = Comprehensive Environmental Response, Compensation, and Liability Act.
- CFR = Code of Federal Regulations.
- DSL = Domestic Substances List (Canada)
- EINECS = European Inventory of Existing Commercial Chemical Substances.
- EPA = Environmental Protection Administration.
- TCLP = Toxic Chemicals Leachate Program.
- IARC = International Agency for Research on Cancer.
- NIOSH =National Institute for Occupational Safety and Health.
- NTP = National Toxicology Program.
- OSHA = Occupational Safety and Health Administration.
- PEL = Permissible Exposure Limit.
- STEL = Short Term Exposure Limit.
- TLV = Threshold Limit Value.
- TSCA = Toxic Substances Control Act.