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MATERIAL SAFETY DATA SHEET

Section 1- PRODUCT IDENTIFICATION

COMPOSITION	PRODUCT NAME
Al	**Aluminum**

Section 2- HAZARDOUS INGREDIENTS

Note: Products under normal conditions do not represent an inhalation, ingestion or contact health hazard.

MATERIAL OR COMPONENT	CAS NUMBER	WT%	EXPOSURE LIMITS	
			OSHA PEL (Mg/M3)	ACGIH TLV(MG/M3)
Aluminum	**7429-90-5**			**10 MG/M3**

Section 3- PHYSICAL DATA

MATERIAL IS (AT NORMAL CONDITIONS)	APPERANCE AND ODOR
□ **Liquid** □ **Solid** □ **Gas** □ **Other**	**Silvery-white, ductile metal with a bluish tint**
MELTING POINT (BASE METAL)	SPECIFIC GRAVITY
1220F	**2.7**

Section 4- FIRE AND EXPLOSION

Flash Point (Method Used)	Flammable Limits	LEL	UEL

EXTINGUISHING MEDIA
Dry chemical, carbon dioxide, water spray or regular foam

SPECIAL FIRED FIGHTING PROCEDURES
No acute hazard. Move container from fire area if possible. Avoid breathing vapors or dusts; keep upwind.

UNUSUAL FIRE AND EXPLOSION HAZARDS
None

Section 5- REACTIVITY DATA

STABILITY	INCOMPATABILITY (MATERIALS TO AVOID)
Stable under normal temperatures and pressures.	**See Attached List**

CONDITIONS TO AVOID

None Reported

HAZARDOUS DECOMPOISTION PRODUCTS

Thermal decomposition may release acid smoke and irritating fumes.

Section 6- HEALTH HAZARD GUIDE

MAJOR EXPOSURE HAZARD

□Inhalation □Skin □Skin Absorption □Eye Contact □Ingestion

EFFECTS OF OVEREXPOSURE

INHALATION: Acute exposure- the only reported inhalation effects are for the dust, powder of fumes forms.
SKIN CONTACT: Acute exposure- A sliver of aluminum penetrating the skin may form aluminum salts, which induce local irritation and possible secondary infections. Contact with rough or sharp edges may cause cuts or abrasions.
EYE CONTACT: Acute exposure-Small metal particles have been observed in the eyes of humans on or near the retina and are usually non-irritation and well tolerated.
INGESTION: Acute exposure- The actual effects may be determined by the form of the aluminum that is ingested. Generally it has a very low acute systemic toxicity due to its poor absorption from the gastrointestinal tract. Massive doses may cause gastrointestinal irritation and may be toxic. Chronic exposure- large amounts may interfere with intestinal absorption of phosphates leading to rickets. Certain disease states influence the concentration of aluminum in organs, for example, Alzheimer's disease in which excessive levels have been found in the brain.

EMERGENCY & FIRST AID PROCEDURES

INHALATION: Remove from exposed area to fresh air immediately. If breathing has stopped, perform artificial respiration. Keep person warm and at rest. Treat symptomatically and supportively. Get medical attention immediately.
SKIN CONTACT: Remove contaminated clothing and shoes immediately. Wash affected area with soap or mild detergent and large amounts of water until no evidence of the chemical remains. Get medical attention immediately.
EYE CONTACT: Wash eyes immediately with large amounts of water or normal saline, occasionally lifting upper and lower lids, until no evidence of the chemical remains. Get medical attention immediately.
INGESTION: Treat symptomatically and supportively. Get medical attention immediately. If vomiting occurs, keep head lower than hips to prevent aspiration. No specific antidote.

Section 7- SPILL OR LEAK PROCEDURES

SPILL OR LEAK PROCUDRES

No special precautions indicated

WASTE DISPOSAL METHODS

Observe all federal, state and local regulations when storing or disposing of this substance.

Section 8- SPECIAL PROTECTION

RESPIRATORY

Specific respirators must be based on contamination levels found in the workplace. The following are ranked minimum to maximum: dust, mist and fumes respirator, powered air-purify respirator. A helmet or hood, self-contained breathing apparatus with a full-face piece operated in pressure demand or other positive pressure mode must be worn.

VENTILATION

Provide local exhaust ventilation and/or general dilution ventilation to meet published exposure limits.

EYE PROTECTION & PROTECTIVE CLOTHING

Eye protection is not required, but advisable. Protective gloves are not required but recommended. Protective clothing not required. Avoid repeated or prolonged contact with this substance.

Section 9- SPECIAL PRECAUTIONS

Incompatibilities:
(Aluminum other than powder)

Arsenic trioxide, sodium arsenate and sodium hydroxide: The alkaline attack on the metal produced flammable hydrogen, which in turn generated toxic arsine gas.
Barium Sulfate: Violent explosion.
Bromates (Barium, Calcium, Magnesium, Potassium, Sodium or Zinc): When finely divided the mixture can be exploded by heat, percussion, and sometimes, light friction.
Bromine: The foil reacts with the liquid at 15° C and incandescence occurs on warming in the vapor.
Butanol: Severely attacked the metal in an autoclave at around 100° C liberating flammable hydrogen and causing a sharp rise in pressure. Other alcohols would behave similarly.
Calcium Sulfate: Violent Explosion.
Chlorates (Barium, Calcium, Magnesium, Potassium, Sodium or Zinc): When finely divided the mixture can be exploded by heat, percussion, and sometimes, light friction.
Chlorine Fluoride: Possible ignition.
Chlorine Trifluoride & Carbon: Violent reaction.
Chlorofluorohydrocarbons: Contact with fresh metal surfaces may result in intense exothermic reactions.
Chloromethane (liquefied): Possible ignition due to formation of an alkylaluminum compound.
Copper and Sulfate: Possible exploding in a silica vacuum tube @900-1000° C.
Copper Oxide: Strong explosion on heating.
Diborane: Interaction gives complex hydrides, which may ignite in air.
1,2-difluorotetrafluoroethane: Contact with fresh metal surfaces may result in intense exothermic reactions.
Ethylene Dichloride, Propylene Dichloride & Orthodichlorobenzene: Explosive reaction.
Fluorochloro Lubricants: Explosive reaction with fresh aluminum surfaces under pressure.
Hydrochloric Acid: The metal is attacked violently by the aqueous acid.
Hydrogen Chloride: Vigorous exothermic reaction.
Iodates (Barium, Calcium, Magnesium, Potassium, Sodium or Zinc): When finely divided the mixture can be exploded by heat, percussion, and sometimes, light friction.
Iodine: Violent reaction in the presence of water as liquid, vapor or that present in hydrated salts.
Iodine Monochloride: The metal foil ignites spontaneously and burns with a bluish-white flame after continued contact.
Iodine Heptafluoride: Interaction on heating with evolution of heat and light.
Iodine Pentafluoride: Ignition on prolonged contact.
Iron Oxide: Impact between an aluminum object and a rusty surface may cause sparks, possibly initiating an exothermic reaction.
Lead Oxide: Violent Reaction.

Mercury (II) salts: In contact with foil, in the presence of moisture, a vigorous amalgamation reaction ensues.
Methanol and Carbon Tetrachloride (9:1): Rapid Autocatalytic dissolution of the metal.
Methyl Bromide: Possible ignition and explosion.
Monobromotrifluoromethane: Contact with fresh metal surfaces may result in intense exothermic reactions.
Palladium: If an aluminum sheath surrounding a palladium core about .0025" diameter is heated to the melting point of aluminum, 600° C, and an alloying reaction takes place with production of a brilliant flash and a temperature of 2,800° C.
Platinum: Thin Layers on aluminum foil or wire are used as igniters due to the intense heat of alloy formation, which is sufficient to melt the intermetallic compounds.
Polytrifluoroethylene Greases or Oils: Explosive reaction with fresh aluminum surfaces under pressure.
Potassium Hydroxide: Vigorous reaction with evolution of flammable hydrogen.
Potassium Sulfate: Violent explosion on melting.
Propylene Dichloride: Rapid decomposition may occur.
Silicon & Lead Oxide: Explosion on heating.
Sodium Carbonate: Explosion when applied to the red-hot metal.
Sodium Hydroxide: Vigorous reaction with evolution of flammable hydrogen.
Sodium Peroxide: Ignition under high friction at 240° C, when the metal is finely divided.
Sulfuric Acid (hot, concentrated): Attacks the metal with evolution of flammable hydrogen.
Testrachloroethylene: Violent reaction.
Tetrafluoromethane: Contact with fresh metal surfaces may result in intense exothermic reactions.
1,1,1-Trichloroethane: Violent decomposition with evolution of hydrogen.

Decomposition:

Thermal decomposition may release acrid smoke and irritating fumes.

Polymerization:

Hazardous polymerization has not been reported to occur under normal temperatures and pressures.