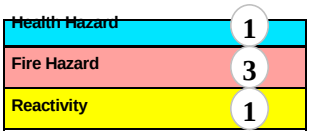
SPECTRUM®

GARDENA, CA
NEW BRUNSWICK, NJ

Material Safety Data Sheet

NFPA	HMIS	Personal Protective Equipment
		 See Section 15.

Section 1. Chemical Product and Company Identification

Common Name/ Trade Name	**Aluminum Metal Powder or Granules**
Manufacturer	SPECTRUM LABORATORY PRODUCTS INC. 14422 S. SAN PEDRO STREET GARDENA, CA 90248
Commercial Name(s)	Not available.
Synonym	Aluminum Metal, Powder 200 mesh; Aluminum Metal, Granular
Chemical Name	Aluminum
Chemical Family	Metal. (Inert material.)
Chemical Formula	Al
Supplier	SPECTRUM LABORATORY PRODUCTS INC. 14422 S. SAN PEDRO STREET GARDENA, CA 90248

Catalog Number(s).	A1050, A1045
CAS#	7429-90-5
RTECS	BD0330000
TSCA	TSCA 8(b) inventory: Aluminum
CI#	Not applicable.

IN CASE OF EMERGENCY
CHEMTREC (24hr) 800-424-9300

CALL (310) 516-8000

Section 2.Composition and Information on Ingredients

		Exposure Limits			
Name	**CAS #**	**TWA (mg/m^3)**	**STEL (mg/m^3)**	**CEIL (mg/m^3)**	**% by Weight**
1) Aluminum	7429-90-5	10			100

Toxicological Data on Ingredients

Aluminum
LD50: Not available.
LC50: Not available.

Section 3. Hazards Identification

Potential Acute Health Effects

Slightly hazardous in case of skin contact (irritant), of eye contact (irritant), of inhalation. Non-hazardous in case of ingestion.

Potential Chronic Health Effects

CARCINOGENIC EFFECTS: A4 (Not classifiable for human or animal.) by ACGIH.
MUTAGENIC EFFECTS: Not available.
TERATOGENIC EFFECTS: Not available.
DEVELOPMENTAL TOXICITY: Not available.
The substance may be toxic to lungs.
Repeated or prolonged exposure to the substance can produce target organs damage. Repeated exposure to a highly toxic material may produce general deterioration of health by an accumulation in one or many human organs.

Continued on Next Page

Section 4. First Aid Measures

Eye Contact	Check for and remove any contact lenses. In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Get medical attention if irritation occurs.
Skin Contact	Wash with soap and water. Cover the irritated skin with an emollient. Get medical attention if irritation develops.
Serious Skin Contact	Not available.
Inhalation	If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention immediately.
Serious Inhalation	Not available.
Ingestion	Do NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. If large quantities of this material are swallowed, call a physician immediately. Loosen tight clothing such as a collar, tie, belt or waistband.
Serious Ingestion	Not available.

Section 5. Fire and Explosion Data

Flammability of the Product	Flammable.
Auto-Ignition Temperature	Not available.
Flash Points	Not available.
Flammable Limits	Not available.
Products of Combustion	Some metallic oxides.
Fire Hazards in Presence of Various Substances	Highly flammable in presence of heat. Flammable in presence of open flames and sparks. Slightly flammable to flammable in presence of moisture. Non-flammable in presence of shocks.
Explosion Hazards in Presence of Various Substances	Risks of explosion of the product in presence of mechanical impact: Not available. Risks of explosion of the product in presence of static discharge: Not available. Explosive in presence of oxidizing materials.
Fire Fighting Media and Instructions	SMALL FIRE: Use DRY chemical powder. LARGE FIRE: Use water spray, fog or foam. Do not use water jet.
Special Remarks on Fire Hazards	A violent reaction or flamming is likely in the reaction of Chromic anhydride and Aluminum powder. Aluminum powder and Iodine in close contact will ignite spontaneously. Ignition may occur if powders are mixed with halogens, carbon disulfide, or methyl chloride. Finely divided aluminum dust is easily ignited. Bulk dust when damp with water may heat spontaneously. Hazard is greater as fineness increases. Contact with water may liberate heat and flammable hydrogen gas. Material in powder form, capable of creating a dust explosion.
Special Remarks on Explosion Hazards	Avoid generating dust. Fine dust dispersed in air in sufficient concentrations, and in the presence of an ignition source is a potential dust explosion hazard. An explosion may occur when aluminum is mixed with ammonium nitrate, ammonium persulfate, bismuth trioxide, bromates, carbon tetrachloride, chlorinated hydrocarbons, chlorine trifluoride, chloroform, copper oxide, fluorochloro-lubricants, lead oxides, magnesium and potassium perchlorate, and methyl bromide. An explosion may occur when aluminum powder is mixed with nitrate-nitrite and organic matter, nitrates, performic acid, silver chloride, sodium carbonate, sodium peroxide and carbon dioxide, sodium sulfate, sulfates, trichloroethylene, zinc peroxide.

Continued on Next Page

Section 6. Accidental Release Measures

Small Spill	Use appropriate tools to put the spilled solid in a convenient waste disposal container.
Large Spill	Flammable solid that, in contact with water, emits flammable gases. Dust deposits should not be allowed to accumulate on surfaces, as these may form an explosive mixture if they are released into the atmosphere in sufficient concentration. Avoid dispersal of dust in the air(i.e clearing dust surfaces with compressed air). Nonsparking tools should be used. Stop leak if without risk. Do not get water inside container. Do not touch spilled material. Cover with dry earth, sand or other non-combustible material. Prevent entry into sewers, basements or confined areas; dike if needed. Eliminate all ignition sources. Call for assistance on disposal. Be careful that the product is not present at a concentration level above TLV. Check TLV on the MSDS and with local authorities.

Section 7. Handling and Storage

Precautions	Keep away from heat. Keep away from sources of ignition. Minimize dust generation and accumulation. Routine housekeeping should be instituted to ensure that dusts do not accumulate on surfaces. Dry powders can build static electricity charges when subjected to the friction of transfer and mixing operations. Ground all equipment containing material. Do not ingest. Do not breathe dust. Wear suitable protective clothing. If ingested, seek medical advice immediately and show the container or the label. Keep away from incompatibles such as oxidizing agents, acids, alkalis.
Storage	Keep container tightly closed. Keep container in a cool, well-ventilated area. Moisture sensitive.

Section 8. Exposure Controls/Personal Protection

Engineering Controls	Use process enclosures, local exhaust ventilation, or other engineering controls to keep airborne levels below recommended exposure limits. If user operations generate dust, fume or mist, use ventilation to keep exposure to airborne contaminants below the exposure limit. It is recommended that all dust control equipment such as exhaust ventilation and material transport systems involved in the handling of this product contain explosion relief vents or an explosion suppression system or an oxygen-deficient environment. Ensure that dust-handling systems (such as ducts, dust collectors, vessels, and processing equipment) are designed in a manner to prevent the escape of dust into the work area (i.e. that there is no leakage from the equipment).
Personal Protection	Safety glasses. Lab coat. Dust respirator. Be sure to use an approved/certified respirator or equivalent. Gloves.
Personal Protection in Case of a Large Spill	Splash goggles. Full suit. Dust respirator. Boots. Gloves. A self contained breathing apparatus should be used to avoid inhalation of the product. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.
Exposure Limits	TWA: 1 (mg/m^3) from ACGIH (TLV) [United States] Inhalation Respirable. TWA: 15 (mg/m^3) from OSHA (PEL) [United States] Inhalation Total. TWA: 10 (mg/m^3) from NIOSH [United States] Inhalation Total. TWA: 5 (mg/m^3) from NIOSH [United States] Inhalation Respirable. TWA: 5 (mg/m^3) from OSHA (PEL) [United States] Inhalation Respirable. TWA: 10 STEL: 20 (mg/m^3) [Canada] Inhalation Total. TWA: 1 (mg/m^3) [Canada] Inhalation Respirable. TWA: 10 STEL: 30 (mg/m^3) [United Kingdom (UK)] Inhalation Total. TWA: 4 STEL: 12 (mg/m^3) [United Kingdom (UK)] Inhalation Respirable. Consult local authorities for acceptable exposure limits.

Section 9. Physical and Chemical Properties

Physical state and appearance	Solid.	**Odor**	Odorless.
Molecular Weight	26.98 g/mole	**Taste**	Not available.
pH (1% soln/water)	Not applicable.	**Color**	Silver-white. Grey.
Boiling Point	2327℃ (4220.6℉)		
Melting Point	660℃ (1220℉)		
Critical Temperature	Not available.		
Specific Gravity	Density: 2.7 (Water = 1)		
Vapor Pressure	Not applicable.		

Continued on Next Page

Vapor Density	Not available.
Volatility	Not available.
Odor Threshold	Not available.
Water/Oil Dist. Coeff.	Not available.
Ionicity (in Water)	Not available.
Dispersion Properties	Not available.
Solubility	Insoluble in cold water, hot water. Soluble in alkalies, Sulfuric acid, Hydrochloric acid. Insoluble in concentrated Nitric Acid, hot Acetic acid.

Section 10. Stability and Reactivity Data

Stability	The product is stable.
Instability Temperature	Not available.
Conditions of Instability	Incompatible materials, exposure to moist air or water.
Incompatibility with various substances	Reactive with oxidizing agents, acids, alkalis. Slightly reactive to reactive with moisture. The product reacts violently with water to emit flammable but non toxic gases.
Corrosivity	Not available.
Special Remarks on Reactivity	Moisture sensitive. Aluminum reacts vigorously with Sodium Hydroxide. Aluminum is also incompatible with strong oxdizers, acids, chromic anhydride, iodine, carbon disulfide, methyl chloride, and halogenated hydrocarbons, acid chlorides, ammonium nitrate, ammonium persulfate, antimony, arsenic oxides, barium bromate, barium chlorate, barium iodate, metal salts
Special Remarks on Corrosivity	In moist air, oxide film forms which protects metal from corrosion. Aluminum is strongly electropositive so that it corrodes rapidly in contact with other metals.
Polymerization	Will not occur.

Section 11. Toxicological Information

Routes of Entry	Inhalation. Ingestion.
Toxicity to Animals	Not available
Chronic Effects on Humans	**CARCINOGENIC EFFECTS**: A4 (Not classifiable for human or animal.) by ACGIH. May cause damage to the following organs: lungs.
Other Toxic Effects on Humans	Slightly hazardous in case of skin contact (irritant), of inhalation. Non-hazardous in case of ingestion.
Special Remarks on Toxicity to Animals	Not available.
Special Remarks on Chronic Effects on Humans	Not available.
Special Remarks on other Toxic Effects on Humans	Acute Potential Health Effects: Skin: Exposure to aluminum dust or granules may cause skin irritation by mechanical action. Eyes: Exposure to aluminum dust or granules may cause eye irritation by mechanical action. Aluminum particles deposited in the eye are generally innocous. Inhalation: Inhalation of aluminum dust or fume (if heated) may cause respiratory tract irritation. Heating Aluminum can release Aluminum Oxide fumes and cause fume metal fever when inhaled. This is a flu-like illness with symptoms of metallic taste, fever, chills, aches, chest tightness, and cough. Ingestion: Acute aluminum toxicity is unlikely. Chronic Potential Health Effects: Skin: Contact dermatitis occurs rarely after aluminum exposure. Most cases of aluminum toxicity in humans are in one of two categories: patients with chronic renal failure, or people exposed to aluminum in the workplace. The main source of aluminum in people with chronic renal failure was in the high aluminum content of the water for the dialysate used for dialysis in the 1970's. Even

Continued on Next Page

though this problem was recognized and corrected, aluminum toxicity continues to occur in some individuals with renal who chronically ingest aluminum-containing phosphate binders or antacids.
Inhalation: Chronic exposure to aluminum dust may cause dyspnea, cough, asthma, chronic obstructive lung disease, pulmonary fibrosis, pneumothorax, pneumoconiosis, encephalopathy, weakness, incoordination and epileptiform seizures and other neurological symptoms similar to that described for chronic ingestion. Hepatic necrosis is also a reported effect of exposure to airborne particulates carrying aluminum.
Ingestion: Chronic ingestion of aluminum may cause Aluminum Related Bone Disease or aluminum-induced Osteomalacia with fracturing Osteodystrophy, microcytic anemia, weakness, fatigue, visual and auditory hallucinations, memory loss, speech and language impairment (dysarthria, stuttering, stammering, anomia, hypofluency, aphasia and eventually, mutism), epileptic seizures(focal or grand mal), motor disturbance(tremors, myoclonic jerks, ataxia, convulsions, asterixis, motor apraxia, muscle fatigue), and dementia (personality changes, altered mood, depression, diminished alertness, lethargy, 'clouding of the sensorium', intellectual deterioration, obtundation, coma), and altered EEG.

Section 12. Ecological Information

Ecotoxicity	Not available.
BOD5 and COD	Not available.
Products of Biodegradation	Possibly hazardous short term degradation products are not likely. However, long term degradation products may arise.
Toxicity of the Products of Biodegradation	The products of degradation are less toxic than the product itself.
Special Remarks on the Products of Biodegradation	Not available.

Section 13. Disposal Considerations

Waste Disposal Waste must be disposed of in accordance with federal, state and local environmental control regulations.

Section 14. Transport Information

DOT Classification	CLASS 4.3: Dangerous when wet material.
Identification	UNNA: 1396 : Aluminum powder, uncoated PG: II
Special Provisions for Transport	Not available.
DOT (Pictograms)	

Section 15. Other Regulatory Information and Pictograms

Federal and State Regulations
Pennsylvania RTK: Aluminum Metal Powder or Granules
Minnesota: Aluminum Metal Powder or Granules
Massachusetts RTK: Aluminum Metal Powder or Granules
New Jersey: Aluminum Metal Powder or Granules
New Jersey spill list: Aluminum Metal Powder or Granules
California Director's List of Hazardous Substances: Aluminum Metal Powder or Granules
TSCA 8(b) inventory: Aluminum Metal Powder or Granules
SARA 313 toxic chemical notification and release reporting: Aluminum Metal Powder or Granules

California Proposition 65 Warnings
California prop. 65: This product contains the following ingredients for which the State of California has found to cause cancer which would require a warning under the statute: No products were found.
California prop. 65: This product contains the following ingredients for which the State of California has found to cause birth defects which would require a warning under the statute: No products were found.

Other Regulations

Continued on Next Page

OSHA: Hazardous by definition of Hazard Communication Standard (29 CFR 1910.1200).
EINECS: This product is on the European Inventory of Existing Commercial Chemical Substances (EINECS No. 231-072-3).
Canada: Listed on Canadian Domestic Substance List (DSL).
China: Listed on National Inventory.
Japan: Not listed on National Inventory (ENCS).
Korea: Listed on National Inventory (KECI).
Philippines: Listed on National Inventory (PICCS).
Australia: Listed on AICS.

Other Classifications

WHMIS (Canada) CLASS B-6: Reactive and very flammable material.

DSCL (EEC)

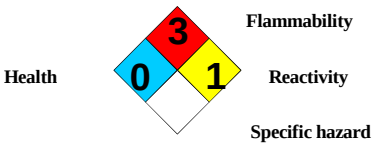
R15- Contact with water liberates extremely flammable gases.
R17- Spontaneously flammable in air.

S7/8- Keep container tightly closed and dry.
S43- In case of fire, use [***]

HMIS (U.S.A.)

Health Hazard	1
Fire Hazard	3
Reactivity	1
Personal Protection	E

National Fire Protection Association (U.S.A.)



WHMIS (Canada) (Pictograms)

DSCL (Europe) (Pictograms)

TDG (Canada) (Pictograms)

ADR (Europe) (Pictograms)

Protective Equipment

Gloves.

Lab coat.

Dust respirator. Be sure to use an approved/certified respirator or equivalent.

Safety glasses.

Continued on Next Page

Section 16. Other Information

MSDS Code	**A3566**
References	Not available.
Other Special Considerations	Not available.

Validated by Sonia Owen on 5/16/2012.

Verified by Sonia Owen.
Printed 7/2/2012.

CALL (310) 516-8000

Notice to Reader

All chemicals may pose unknown hazards and should be used with caution. This Material Safety Data Sheet (MSDS) applies only to the material as packaged. If this product is combined with other materials, deteriorates, or becomes contaminated, it may pose hazards not mentioned in this MSDS. It shall be the user's responsibility to develop proper methods of handling and personal protection based on the actual conditions of use. While this MSDS is based on technical data judged to be reliable, Spectrum Quality Products, Inc. assumes no responsibility for the completeness or accuracy of the information contained herein.