

# MATERIAL SAFETY DATA SHEET

<b>DATE ISSUED :</b>	12/6/2011
<b>MSDS REF. No :</b>	0423

TT-P-320D Ty. I Cl. A Aluminum Powder

## 1. PRODUCT AND COMPANY INFORMATION

**PRODUCT NAME:** TT-P-320D Ty. I Cl. A Aluminum Powder  
**Inventory Code:** 0423

### MANUFACTURER INFORMATION

MACH-DYNAMICS  
494 Main Street  
Susquehanna, PA 18847  
**Phone:** (775) 278-9308  
**Fax:** (775) 599-4585  
**Contact :** Mark Gingerella

### 24 HR. EMERGENCY TELEPHONE NUMBER

**(US Transportation):** +1 (800) 392-7701  
**(International Transportation):** +001 (800) 392-7701

## 2. HAZARDS IDENTIFICATION

### EMERGENCY OVERVIEW

**PHYSICAL APPEARANCE :** Solid

**IMMEDIATE CONCERNS :** May cause eye, skin and respiratory tract irritation. May cause asphyxiation, or brain, lung or other organ injury if inhaled, swallowed or absorbed by the skin.

### POTENTIAL HEALTH EFFECTS

**EYES :** Liquid is severely irritating to the eyes. High vapor concentrations are also irritating.

**SKIN :** Aluminum dust can be eye and mucous membrane irritants.

**INGESTION :** Ingestion of aluminum powder is not considered toxic.

**INHALATION :** Prolonged exposure to airborne particulate may cause acute irritation of the nose and trachea resulting in a metallic taste or ulceration.

**CHRONIC :** No chronic health concerns known.

**CARCINOGENICITY :** This material is not currently known to have carcinogenic properties.

**MUTAGENICITY :** This material is not known to have mutagenic effects on genetic material.

**IRRITANCY:** This material may cause irritation to the eyes, skin, and respiratory tract. Use correct PPE when handling this material.

### REPRODUCTIVE TOXICITY

**REPRODUCTIVE EFFECTS :** This material is not known to cause any reproductive system damage.

**TERATOGENIC EFFECTS :** This material is not known to contain any teratogenic substances.

**3. COMPOSITION/CHEMICAL INFORMATION**

Chemical Name	CAS Number	Weight %
Aluminum	7429-90-5	75% to 100%
Stearic Acid	57-11-4	0% to 1%

\* Toxic chemical subject to the reporting requirements of section 313 of Title III and of 40 CFR 372.

**4. FIRST AID MEASURES**

**EYES** : Flush eyes with running water for at least 15 minutes. Seek medical attention if irritation persists.

**SKIN** : Wash skin thoroughly with soap and water.

**INGESTION** : Give 2-3 cups of water or milk if victim is conscious. Do NOT induce vomiting. Get medical attention immediately.

**INHALATION** : If breathing becomes difficult, leave area immediately and move to an area of fresh air. If breathing has stopped, begin artificial respiration procedures at once and immediately seek medical attention.

**NOTES TO PHYSICIAN**: None known.

**5. FIRE FIGHTING MEASURES**

**FLASH POINT AND METHOD** : 0 degrees Fahrenheit Tagliabue Closed Cup (TCC)

**FLAMMABLE LIMITS** : LOWER: 0.035 oz. per cubic foot      UPPER: Not Established

**AUTOIGNITION TEMPERATURE** : No data available.

**GENERAL HAZARD** : NEVER employ water as an extinguishing agent on an aluminum fire. Water and aluminum, when combined, form hydrogen gas which can rapidly spread fire. DO NOT use high velocity dry chemical extinguishing agents because they may disturb the burning powder to create a dangerous, potentially explosive, dust cloud. Sand or another inert material should be used to ring or dike the fire while allowing to burn contents to extinguish itself.

**EXTINGUISHING MEDIA** : DO NOT use high velocity dry chemical extinguishing agents because they may disturb the burning powder to create a dangerous, potentially explosive, dust cloud. Sand or another inert material should be used to ring or dike the fire while allowing to burn contents to extinguish itself.

**FIRE FIGHTING PROCEDURES** : Dry aluminum will not ignite spontaneously; but once ignited, may burn readily in air. DO NOT SPREAD MATERIAL. Smother dry and allow fire to go out. Wear self contained breathing apparatus.

**EXPLOSION HAZARD** : Bulk powder in Contact with water or damp air evolves hydrogen. The heat produced during this reaction could ignite the hydrogen, an explosive condition could exist if this happens in a confined space. Dry powder forms explosive mixtures in air, if ignited. Use extreme care when transferring contents and use this product in areas deemed as explosion proof.

## 6. ACCIDENTAL RELEASE MEASURES

**GENERAL PROCEDURES** : Small spills may be swept gently into a hazardous waste container. Avoid generating dust clouds. USE NON-SPARKING TOOLS. Large spills should be handled in a similar manner. Avoid run-off into sewers, drains, or other open bodies of water. Notify authorities if this has occurred.

## ENVIRONMENTAL PRECAUTIONS

**WATER SPILL** : Keep material out of storm sewers and ditches which lead to waterways.

**LAND SPILL** : Contact applicable authorities and determine applicable regulations based on MSDS information.

**AIR RELEASE** : Evacuate area immediately and contact applicable authorities and determine applicable regulations based on MSDS information. Dust clouds are extremely flammable, and may be explosive.

## 7. HANDLING AND STORAGE

**GENERAL PROCEDURES** : Personal Precaution: Wear approved respirator. If spilled, powder should be removed by gently sweeping to prevent heavy concentrations of airborne dust. Return all clean up material to properly labeled hazardous waste containers. Prohibit smoking and avoid all ignition sources.

**COMMENTS** : KEEP OUT OF REACH OF CHILDREN! Keep away from heat, sparks, open flames and oxidizing agents. Keep containers. Store in a cool, dry place with adequate ventilation.

## 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

### EXPOSURE GUIDELINES :

#### OSHA HAZARDOUS COMPONENTS (29 CFR 1910.1200)

CHEMICAL NAME	EXPOSURE LIMITS				
		OSHA PEL		ACGIH TLV	
		ppm	mg/m <sub>3</sub>	ppm	mg/m <sub>3</sub>
Aluminum	TWA	N/A	15	N/A	10
	STEL	N/A	NL	N/A	NL
Stearic Acid	TWA	N/A	15	N/A	10
	STEL	N/A	NL	N/A	NL

### OSHA TABLE COMMENTS:

NL = Not Listed

Ca = "WARNING: THIS PRODUCT CONTAINS CHEMICALS KNOWN TO THE STATE OF CALIFORNIA TO CAUSE CANCER AND BIRTH DEFECTS OR OTHER REPRODUCTIVE HARM."

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**ENGINEERING CONTROLS:** Provide exhaust ventilation sufficient to keep the airborne concentration of this product below its exposure limits. Exhaust air may need to be cleaned by scrubbers or filters to reduce environmental contamination.

### PERSONAL PROTECTIVE EQUIPMENT

**EYES AND FACE:** Use chemical safety goggles and/or full face shield. Contact lenses should not be worn when working with this material. Maintain eye wash fountain and quick-drench facilities in work areas.

**SKIN:** Wear resistant gloves (consult your safety equipment supplier). To prevent repeated or prolonged skin contact, wear impervious clothing and boots.

**RESPIRATORY:** If exposure may or does exceed occupational exposure limits (Section 8) use a NIOSH approved respirator to prevent overexposure. In accord with 29 CFR 1910.134, use either an atmosphere-supplying respirator or an air-purifying respirator for organic vapors.

**HYGIENIC WORK PRACTICES:** Use good personal hygiene when handling this product. Wash hands after use, before eating, drinking, smoking, or using the toilet.

**OTHER USE PRECAUTIONS:** Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower.

**COMMENTS:** May be harmful or fatal if swallowed. May irritate body tissues. Use with adequate ventilation. Avoid breathing vapor. Do not get in eyes, on skin, on clothing. Wash thoroughly after handling.

## 9. PHYSICAL AND CHEMICAL PROPERTIES

**PHYSICAL STATE :** Solid

**ODOR :** No odor.

**pH :** Not Applicable

**BOILING POINT :** 4766

**FREEZING POINT :** No data available

**VOLATILE ORGANIC COMPOUNDS:** 0 G/L (0 Lbs/Gal)  
(VOC Theoretical – As Packaged)

**SOLUBILITY IN WATER :** Insoluble in all solvents.

**EVAPORATION RATE :** No data available

**DENSITY :** 4 (Lbs/Gal)

## 10. STABILITY AND REACTIVITY

**STABLE :** Material is stable in bulk form. Dust may be flammable or explosive when in air. Aluminum will react slowly with water to create hydrogen gas and heat. This reaction can be hazardous when attempting to store combined product in a sealed container as a result of extreme pressure build-up.

**HAZARDOUS POLYMERIZATION :** Will not occur

**CONDITIONS TO AVOID :** See Above.

**POLYMERIZATION :** Avoid heat, flame, and other sources of ignition.

**HAZARDOUS DECOMPOSITION PRODUCTS:** Decomposition may yield hydrogen gas and noxious copper compounds.

**INCOMPATIBLE MATERIALS :** Strong alkalis, chlorates, bromates, mineral acids, strong oxidizing agents, silver chloride, iodates, chlorinated hydrocarbons, nitrites, nitrates, carbon disulfide, sodiu peroxide plus carbon dioxide, sulfur dichloride, palladium, manganese plus potassium chlorate, sodium carbonate, sulfates, diborane, etc.

#### 11. TOXICOLOGICAL INFORMATION

**GENERAL COMMENTS:** None identified.

#### 12. ECOLOGICAL INFORMATION

**ECOTOXICOLOGICAL INFORMATION:** Keep out of waterways.

#### 13. DISPOSAL INFORMATION

**DISPOSAL METHOD:** The preferred options for disposal are to send to licensed reclaimers, or to permitted incinerators. Any disposal practice must be in compliance with federal, state, and local regulations. Do not dump into sewers, ground, or any body of water.

**EMPTY CONTAINER:** KEEP OUT OF REACH OF CHILDREN! Empty containers retain product residue and can be dangerous. Do not pressurize, cut weld, braze, solder, drill, grind, or expose such containers to heat, flame, sparks static electricity, or other sources of ignition.

**RCRA/EPA WASTE INFORMATION:** Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. US EPA guidelines for the classification determination are listed in 40 CFR. Additionally, waste generators must consult state and local hazardous waste regulations to ensure complete and accurate classification.

#### 14. TRANSPORT INFORMATION

##### DOT (DEPARTMENT OF TRANSPORTATION)

**PROPER SHIPPING NAME :** UN1309, Aluminum Powder, coated, Class 4.1, PG II  
(UN#, Proper Shipping Name, Class, Packing Group)

\*\*\* MACH-DYNAMICS verifies that the material was supplied and shipped in the proper packages in accordance with DOT and federal regulations that are applicable to the mode of transportation selected. The shipper must verify that the packaging supplied is acceptable to be re-shipped in per the federal regulations applicable to the mode of transportation for re-shipment. Regulations may change depending on mode of transportation selected.\*\*\*

#### 15. REGULATORY INFORMATION

##### SARA TITLE III (SUPERFUND AMENDMENTS AND REAUTHORIZATION ACT)

**311/312 HAZARD CATEGORIES:** This product should be reported as an immediate (acute) health hazard, delayed (chronic) health hazard, and a fire hazard.

**FIRE :** Yes                      **PRESSURE GENERATING :** No  
**REACTIVITY :** Yes      **ACUTE :** Yes      **CHRONIC :** No

**0423**

**TT-P-320D Ty. I Cl. A Aluminum Powder**

**313 REPORTABLE INGREDIENTS:** To the best of our knowledge, this product is not listed as a toxic chemical.

**302/304 EMERGENCY PLANNING**

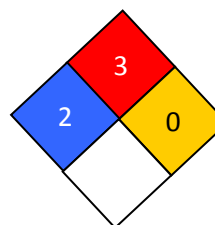
**EMERGENCY PLAN:** To the best of our knowledge, this material is not listed as an extremely hazardous substance.

**16. OTHER INFORMATION**

**APPROVED BY :** Mark Gingerella

**TITLE :** President / QC Manager

**NFPA CODES**



<b>HMIS RATING</b>	
Health :	2
Flammability :	3
Reactivity :	0
Personal Protection :	G

**MANUFACTURER DISCLAIMER :** The information contained herein is based on the data available to us and is believed to be accurate. However, MACH-DYNAMICS makes no warranty, expressed or implied regarding the accuracy of this data or the results to be obtained from the use thereof. MACH-DYNAMICS assumes no responsibility for injuries from the use of the product described herein.