

DWA Aluminum Composites

Material Safety Data Sheet (MSDS-001)

COMPANY/PLANT: DWA Aluminum Composites 21100 Superior Street Chatsworth, CA 91311		ISSUE DATE: 1 January, 1992 REVISION DATE: 17 August, 2005
TRADE NAME (COMMON NAME OR SYNONYM): 1) Discontinuously Reinforced Aluminum (DRA) 2) Particulate Reinforced Metal-Matrix-Composite (MMC)		EMERGENCY PHONE NUMBER: +1-818-998-1504
CHEMICAL NAME: Aluminum + Ceramic Particle Reinforcement	FORMULA: Al + SiC	DOT ID NUMBER: N/A

I. INGREDIENTS

Base Metal	CAS Number	% Composition by Weight	ACGIH TWA (mg/m ³)	OSHA1900.1000 TWA (mg/m ³)
Aluminum, Al	7429-90-5	50.0-100.0	10.0 as metal dust & oxide 5.0 as welding fume	15.0 as total dust 5.0 as respirable fraction
Alloying Elements	CAS Number	% Composition by Weight	ACGIH TWA (mg/m ³)	OSHA1900.1000 TWA (mg/m ³)
Copper, Cu	7440-50-8	1.0-10.0	0.2 as fume 1.0 as dust	0.1 as fume 1.0 as dust
Iron, Fe	1309-37-1	0.0-1.0	5.0 as oxide fume	10.0 as oxide dust & fume
Magnesium, Mg	1309-48-4	0.0-4.0	10.0 as oxide fume	15.0 as oxide fume
Manganese, Mn	7439-96-5	0.0-1.0	5.0 ceiling, as dust 1.0 ceiling, as fume	5.0 ceiling as dust & fume
Silicon, Si	7440-21-3	0.0-4.0	10.0 as total dust	15.0 as dust
Zinc, Zn	1314-13-2	0.0-8.0	10.0 as dust 5.0 as fume	5.0 as oxide fume
Reinforcing Particles	CAS Number	% Composition by Weight	ACGIH TWA (mg/m ³)	OSHA1900.1000 TWA(mg/m ³)
Silicon Carbide, SiC	409-21-2	0.0-50.0	10.0 as total dust	15.0 as dust

Note: Aluminum alloys may be comprised of various combinations of the elements shown above. No Permissible Exposure Limits (PEL) or Threshold Limit Values (TLV) exists for aluminum alloys; the limits shown are for the component elements. In addition, welding aluminum alloys may produce the byproducts listed in Section VII.

II. PHYSICAL DATA

Physical Form: Solid under normal conditions	Boiling Point: N/A
Appearance & Odor: Metallic, odorless	Vapor Pressure: N/A
Density: 2.5-2.9 gm/cm ³	Vapor Density: N/A
Melting Point: 440-1220°F	PH: N/A
Solubility in Water: Negligible	% Volatility: N/A

III. FIRE & EXPLOSION DATA

Flashpoint: N/A	Auto-ignition: N/A	Flammability Limits in Air: N/A
<ol style="list-style-type: none"> 1) Forgings, extrusions, sheet and billets do not present fire or explosion hazards under normal conditions. Use fire fighting methods and materials that are appropriate for surrounding fire. 2) Small Chips, fine turnings and dust may ignite readily. Use coarse water spray on chips and turnings. Use Class D extinguishing agents or dry sand on dust. DO NOT use halogenated extinguishing agents. 3) Firefighters should wear self-contained breathing apparatus and full protective clothing where appropriate. 4) Molten Aluminum may react violently with water and metal oxides. 		

IV. HEALTH HAZARD DATA

Applicable Statutory Recommended Occupational Exposure Limits: No Threshold Limit Value (TLV) or Permissible Exposure Limit (PEL) exists for aluminum alloys. See Section 1, Ingredients, for listing of individual constituents.
Effects of Overexposure: 1) Acute: Dust or fume may cause irritation to the eyes, nose or throat; leave a metallic taste in the mouth; result in metal fume fever; or produce flu-like symptoms. 2) Chronic: a) Aluminum may initiate fibrotic changes to lung tissue; b) Chromium may initiate skin ulceration, irritative dermatitis, allergic reaction, ulceration of the mucous membranes, perforation of the nasal septum, bronchial carcinoma, adenocarcinoma, mutagen (?) listed NTPARC and IARC monographs; c) Copper- no chronic debilitating symptoms indicated; d) Iron may initiate siderosis; e) Manganese may initiate bronchitis, pneumonitis and lack of coordination; f) Zinc- chromosomal anomalies in leucocytes reported. Arthritis, lameness and inflammation of the gastrointestinal tract reported from animal studies.
Medical Conditions Aggravated by Exposure: Individuals with chronic respiratory disorders (e.g., asthma, chronic bronchitis, emphysema, etc.) may be adversely affected by any fume or airborne particulate matter exposure.
Emergency and First Aid Procedures: In event of acute exposure, remove to fresh air, administer oxygen and seek a doctor's assistance.

V. REACTIVITY DATA

Stability: Stable under normal conditions of use, storage and transportation.
For Finely Divided Aluminum (e.g., Small Chips or Fines): 1) With Water: Slowly generates hydrogen and heat. Water/aluminum mixtures may be hazardous when confined. 2) With Heat: Oxidizes at a temperature-dependent rate. 3) With Strong Oxidizers: A violent reaction may occur with much heat generated.

VI. ENVIRONMENTAL DATA

Spill or Leak Procedures: N/A
Waste Disposal Methods: Used or unused product should be tested to determine hazard status and disposal requirements under Federal, State and local laws and regulations. Disposer must comply with Federal, State and local disposal and discharge laws.

VII. ADDITIONAL INFORMATION

1) Halogen acids and sodium hydroxide react in contact with aluminum and may generate explosive mixtures of hydrogen.
2) Finely divided aluminum will form explosive mixtures in air. It will also form explosive mixtures in air in the presence of bromates, iodates or ammonium nitrate.
3) When remelting aluminum scrap, entrapped moisture or the presence of strong oxidizers such as ammonium nitrate could cause an explosion. This applies to the collection of moisture in sow cavities as well. Moisture must be driven off prior to remelting.
4) Do not touch heated aluminum products without knowing the metal temperature. Aluminum experiences no color change during heating. <i>If hot metal is touched, burns can result.</i>
5) Aluminum powders must be packaged and shipped as a Flammable Solid, UN1396.
6) The welding of aluminum alloys may generate carbon monoxide, carbon dioxide, ozone, nitrogen oxides, infrared radiation and ultraviolet radiation.
7) Several common aluminum alloys contain chromium, Cr, at levels above 0.1%. In formulating the equivalent aluminum matrices used in the DRA or MMC material produced, the chromium content has been reduced to less than 0.05%.