

## Safety Data Sheet (SDS)

OSHA Hazard Communication Standard 29 CFR 1910.1200. Prepared to GHS Rev.04

### \*\*\* Section 1 - Product and Company Identification \*\*\*

**Material Name:** Aluminum Skim and Dross

**Trade Name and/or synonyms:**

Black Dross, Aluminum Skim Dross, Rich Dross, Dross Dust, Dross Fines

**Recommended use:**

Recycling, Waste, Reuse

### MANUFACTURER INFORMATION

TST, INC.

Timco Division, Standard Metals Division, and Tandem Division, ALPASE Division

11601 Etiwanda Avenue, Fontana, CA 92337

**Emergency telephone number:** (951) 727-3199

### \*\*\* Section 2 - Hazards Identification \*\*\*

#### GHS CLASSIFICATION:

Substances and mixtures which, in contact with water, emit flammable gases – Category 3

Skin corrosion/irritation - Category 2

Serious eye damage/eye irritation - Category 2

Carcinogenicity - Category 2

Sensitization, respiratory - Category 1

Sensitization, skin - Category 1

Specific target organ toxicity, repeated exposure (inhalation) - Category 1 (lungs, central nervous system, system toxicity)

Reproductive toxicity - Category 1B

#### OSHA DEFINED HAZARDS:

Combustible Dust

#### GHS LABEL ELEMENTS

Symbol(s)



#### Signal Word

Danger

#### Hazard Statement(s):

In contact with water releases flammable and/or toxic gases.

Causes skin irritation.

Causes serious eye irritation.

May cause allergy or asthma symptoms or breathing difficulties if inhaled.

May cause an allergic skin reaction.

Suspected of causing cancer by inhalation.

May damage fertility or the unborn child.

Causes damage to organs through prolonged or repeated exposure.

May form combustible dust concentrations in air.

#### Precautionary Statement(s):

**Prevention**

- P232: Protect from moisture.
- P201: Obtain special instructions before use.
- P280: Wear protective gloves/protective clothing/eye protection/face protection.
- P260: Do not breathe dust/fumes/gas/mist/vapors/spray.
- P272: Contaminated work clothing should not be allowed out of the workplace.
- P264: Wash thoroughly after handling.

**Response**

- P370: In case of fire: Use Class D agent to extinguish.
- P305: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists get medical advice/attention.
- P304: IF INHALED: If breathing is difficult, remove victim to fresh air and keep at rest in a position comfortable for breathing. If experiencing respiratory symptoms: Call a poison center/doctor.
- P302: IF ON SKIN: Wash with plenty of soap and water. If skin irritation or rash occurs: Get medical advice/attention. Wash contaminated clothing before reuse.
- P308: If exposed or concerned: Get medical advice/attention.

**Storage**

- P402: Store in a dry place. Protect from moisture, especially in enclosed areas.

**Disposal**

- P501: Dispose of contents/container in accordance with local/regional/national/international regulations

**\*\*\* Section 3 - Composition/Information on Ingredients \*\*\***

CAS #	Component	Percent Content	ACGIH		OSHA
			TLV	STEL	PEL
7429-90-5	Aluminum	10-90	10	5	15
7440-21-3	Silicon	0-23	10	-	10
7440-50-8	Copper	0-11	0.2*	-	0.1**
7440-66-6	Zinc	0-11	5	10	5
7439-95-4	Magnesium	0-30	10	-	15
7440-02-0	Nickel	0-5	1.5	-	1
7439-89-6	Iron	0-10	-	-	-
7439-96-5	Manganese	0-5	0.2	-	5
7440-31-5	Tin	0-7	2	-	2
7440-47-3	Chromium	≤1	0.5	-	1
1309-48-4	Magnesium Oxide	0-20	10	-	15
1344-28-1	Aluminum Oxide (non-fibrous)	10-90	1	-	15
N/A	Metal Chloride Salts	0-40	-	-	-
N/A	Metal Nitrides	0-10	-	-	-
N/A	Metal Carbides	0-10	-	-	-

Percentages of each constituent will vary depending on procedure or container from which product is removed. Additional compounds that may form when exposed to water are listed in Section 8. **Exposure Limits are in TWA in mg/m<sup>3</sup>.**

\* Fume concentrations TWA; dusts and mists, as Cu: 1 mg/m<sup>3</sup>.

\*\* Fume, as Cu: 0.1 mg/m<sup>3</sup> TWA; dusts and mists, as Cu: 1 mg/m<sup>3</sup> TW

**\*\*\* Section 4 - First-Aid Measures \*\*\***

**First Aid: Eyes**

Flush with tepid water for at least 20 minutes holding the eyelids wide open. Seek medical attention if irritation develops.

**First Aid: Skin**

Wash thoroughly with mild soap and water for at least 15 minutes. Seek medical attention if irritation develops. Remove any contaminated clothing and launder thoroughly before reuse.

**First Aid: Inhalation**

Remove exposed person to fresh air. If breathing is difficult, oxygen may be administered. If breathing has stopped, artificial respiration should be started immediately. Seek medical Attention.

**First Aid: Ingestion**

Not expected to be an important route of entry into the body. If large amounts of product are ingested, seek medical attention and advise physician.

**First Aid: Notes to Physician**

Symptoms may be delayed. May cause sensitization of susceptible persons. Treat symptomatically. Dust and fumes from processing can cause irritation of the upper respiratory tract. Chronic exposure can cause reduction in the number of red blood cells, skin abnormalities, respiratory sensitization, scarring of lungs, central nervous system damage, secondary Parkinson's Disease and reproductive harm. Health effects from additional compounds that may be formed on contact with water include difficulty breathing and the accumulation of fluid in the lungs (pulmonary edema). Chronic exposure can cause lung and liver damage.

**\*\*\* Section 5 - Fire-Fighting Measures \*\*\***

**General Fire Hazards:**

This product does not present fire or explosion hazards as shipped. Hot dross dust above 1290°F or 700°C may ignite readily. Contact with water can generate flammable and toxic gases (ammonia, phosphine, hydrogen, and methane). These gases could present an explosion hazard in confined or poorly ventilated areas.

**Specific Hazards:**

Small chunks, dusts, or fines in contact with water can generate flammable or toxic gas. These gases could present an explosion hazard in confined or poorly ventilated spaces. Molten metal in contact with water/moisture or certain metal oxides (e.g. rust). Moisture entrapped by molten metal can be explosive. Contact of molten aluminum with certain metal oxides can initiate a thermite reaction. Finely divided metals (e.g. powders) may have enough surface oxide to produce a thermite reaction/explosion.

**Extinguishing Media:**

Use coarse water spray on chips and fines. Use Class D extinguishing agents on dusts, fines or molten metal. Apply extinguishing media carefully to avoid creating airborne dust.

**Unsuitable Extinguishing Media:**

DO NOT USE: Halogenated agents on small chips, dusts or fines. DO NOT USE: water for extinguishing fires involving molten metal. These extinguishing agents will react with burning material.

**Fire Fighting Equipment/Instructions:**

Fire Fighters should wear NIOSH approved, positive pressure, self-contained breathing apparatus and full protective clothing when appropriate.

**\*\*\* Section 6 - Accidental Release Measures \*\*\***

**Materials and Methods for Clean-Up:**

Avoid dust formation. Protect from water run-on, including precipitation. For dust or fines, pick up released product with appropriate implements and return to original container if reusable. If not reusable, place in appropriate containers for disposal. If material is molten, contain the flow using dry sand or salt flux as a dam. Do not use shovels or hand tools to handle the flow of molten metal. Allow the spill to cool and harden, then follow above.

**Environmental Precautions:**

Prevent further leakage or spillage if it is safe to do so. Prevent product from entering drains. Do not flush into surface water or sanitary sewer system.

**Personal Precautions and Protective Equipment:**

Avoid generating dust. Avoid contact with skin and eyes. Avoid contact with sharp edges or hot metal. Avoid breathing dust/fumes/vapors/gas/mists/sprays. Ensure adequate ventilation. Appropriate personal protective equipment cited in Section 8 should be worn during all clean-up operations.

**\*\*\* Section 7 - Handling and Storage \*\*\***

**Handling:**

Product should be kept dry. Avoid generating dust. Avoid contact with sharp edges or hot metal. Avoid contact with skin and eyes. Appropriate personal protective equipment cited in Section 8 should be worn during handling. Good housekeeping practices must be maintained. If wetted, remove to open area. Wash hands thoroughly after handling. Prior to shipment, material should be cooled to ambient temperature and dry. Avoid release to the environment. Use appropriate personal protective equipment cited in section 8.

Local ventilation and vacuum systems must be designed to handle explosive dusts. Dry vacuums and electrostatic precipitators must not be used, unless specifically approved for use with flammable/explosive dusts. Dust collection systems must be dedicated to aluminum dust only and should be clearly labeled as such. Do not co-mingle fines of aluminum with fines of iron, iron oxide (rust) or other metal oxides.

**Storage:**

Keep containers tightly closed in a dry and well-ventilated area. Keep material dry. If wetted, remove to an open area.

**Incompatibilities:**

Acids. Alkalis. Water. Halogenated compounds. Metal oxides. Iron powder and water: may cause an explosive reaction forming hydrogen gas when heated above 1470°F (800°C).

**\*\*\* Section 8 - Exposure Controls / Personal Protection \*\*\***

**Engineering Controls:**

For fume exposure, use with local exhaust ventilation to meet the exposure limits as listed in Section 2. If engineering controls fail to mitigate exposure to limits listed, use NIOSH approved respiratory protection. Use with adequate explosion-proof ventilation to meet the limits listed in Section 7.

**Personal Protective Equipment: Respiratory**

Dust and fumes from processing: Use NIOSH-approved respiratory protection as specified by an Industrial Hygienist or other qualified professional if concentrations exceed the limits listed in Section 2. Suggested respiratory protection: N95, Full face mask for ammonia, Supplied air respirators for phosphine.

**Personal Protective Equipment: Eyes**

Use tight fitting goggles if excessive levels of dust are generated. Wear a full-face respirator, if needed. If molten: Goggles/face shield are recommended.

**Personal Protective Equipment: Hands**

The need for personal protective equipment (gloves) should be based upon a hazard assessment and recommendations from health / safety professionals. Wear appropriate gloves to avoid any skin injury. When material is heated, wear gloves to protect against thermal burns.

**Personal Protective Equipment: Skin and Body**

The need for personal protective equipment should be based upon a hazard assessment and recommendations from health / safety professionals. Wear appropriate gloves and clothing to avoid direct skin contact. Contact with molten material can cause thermal burns. Flame retardant protective clothing is recommended.

**Personal Protective Equipment: Hygiene Measures**

Do not breathe vapors/dust. When using, do not eat, drink, or smoke. Provide regular cleaning of equipment, work area, and clothing. Avoid contact with skin, eyes, and clothing. Wash hands before breaks and immediately after handling the product. Keep away from food and drink.

**\*\*\* Section 9 - Physical and Chemical Properties \*\*\***

<b>Appearance:</b>	Solid, silver to gray, dust to large chunks
<b>Boiling Point:</b>	Not applicable
<b>Freeze-Melt Point:</b>	899.6°-1202°F (482° – 650° C)
<b>Vapor Pressure (mm):</b>	Not applicable
<b>Vapor Density (air = 1):</b>	Not applicable
<b>Solubility in Water:</b>	Slightly soluble
<b>Specific Gravity/Bulk Density:</b>	Not applicable
<b>Evaporation Rate (Butyl Acetate=1):</b>	Not applicable
<b>pH:</b>	<11.5 (saturated aqueous solution)
<b>Odor:</b>	Slight ammonia odor
<b>Coefficient of water/oil Distribution:</b>	Not applicable
<b>% Volatile by Volume:</b>	Not volatile as shipped
<b>Flash Point:</b>	Not applicable
<b>Upper Explosive Limit (UEL):</b>	Not applicable
<b>Lower Explosive Limit (LEL):</b>	Not applicable

**\*\*\* Section 10 - Stability and Reactivity \*\*\***

**Chemical Stability:**

Stable and non-reactive if handled and stored as directed.

**Conditions to Avoid:**

Small chunks, dust or fines and molten metal are considerably more reactive with the following:  
 Water: Slowly generates flammable/explosive hydrogen gas and heat. Generation rate is greatly increased with smaller particles (e.g., fines and dusts). Molten metal can react violently/explosively with water or moisture. Heat: Oxidizes at a rate dependent upon temperature and particle size.

**Incompatible Materials:**

Strong oxidizers. Acids. Alkalis. Water. Halogenated compounds. Metal oxides. Iron powder and water: may cause an explosive reaction forming hydrogen gas when heated above 1470°F (800°C).

**Hazardous Decomposition Products:**

No hazardous decomposition products are known.

**\*\*\* Section 11 - Toxicological Information \*\*\***

**Acute toxicity:**

**Component Analysis:**

**Aluminum (7429-90-5)**

Oral LD50 Rat >2000 mg/kg

**Aluminum Oxide (1344-28-1)**

Oral LD50 Rat >5000 mg/kg

**Nickel (7440-02-0)**

Oral LD50 Rat >9000 mg/kg

**Zinc (7440-66-6)**

Oral LD50 Rat 630 mg/kg

**Ammonia (7664-41-7)**

Oral LD50 Rat 350 mg/kg

**Phosphine (7803-51-2)**

Inhalation LC50 Rat 11 mg/l, 4 hours

**Potential Health Effects: Skin Corrosion Property/ Stimulativeness**

Non-corrosive. Causes severe irritation of eyes, skin and mucous membranes.

**Potential Health Effects: Eye Critical Damage/ Stimulativeness**

Dust and fume from processing: dust in the eyes causes severe eye irritation.

**Potential Health Effects: Ingestion**

May be harmful if swallowed. May cause additional affects as listed under "Inhalation".

**Potential Health Effects: Inhalation**

Dust and fumes from processing contain nickel. May produce allergic reaction.

**Respiratory Organs Sensitization/ Skin Sensitization**

May cause allergy or asthma symptoms or breathing difficulties if inhaled. May cause an allergic skin reaction.

**General Cell Mutagenicity**

Suspected of causing genetic defects.

**Carcinogenicity**

Dust and fume from processing can present cancer hazard (nickel).

**A: General Product Information**

May cause cancer.

**B: Component Carcinogenicity**

**Aluminum (7429-90-5)**

ACGIH: A5 - Not Suspected as a Human Carcinogen

**Aluminum Oxide (1344-28-1)**

ACGIH: A4 - Not Classifiable as a Human Carcinogen

**Nickel (7440-02-0)**

ACGIH: A4 - Not Classifiable as a Human Carcinogen

NIOSH: Potential occupational carcinogen

Reasonably Anticipated to be a human carcinogen (possible select carcinogen)

IARC: Monograph 49 [1990]; Supplement 7 [1987] (Group 2b (possibly carcinogenic to humans))  
**Chromium (7440-47-3)**  
ACGIH: A4 - Not Classifiable as a Human Carcinogen  
IARC: Monograph 49 [1990] (listed under chromium and chromium compounds); Supplement

**\*\*\* Section 12 - Ecological Information \*\*\***

**General Product Information**

No data available for this product.

**Persistence/Degradability**

Not inherently biodegradable.

**Bioaccumulation**

This product does not contain any substances expected to be bioaccumulating.

**Mobility in Soil**

Not considered mobile.

**\*\*\* Section 13 - Disposal Considerations \*\*\***

**Waste Disposal Instructions**

See Section 7 for Handling Procedures. See Section 8 for Personal Protective Equipment recommendations. Reuse or recycle material whenever possible. If reuse or recycling is not possible, disposal must be made according to local or governmental regulations.

**Disposal of Contaminated Containers or Packaging**

Dispose of contents/container in accordance with local/regional/national/international regulations.

**\*\*\* Section 14 - Transport Information \*\*\***

**ID Number:** UN3170

**Proper Shipping Name:** Aluminum remelting by-products

**Hazard Class:** 4.3

**Packing Group:** III

**DOT Specific Notes:**

- Per United States transportation regulations 49 CFR 173.241(c), sift-proof, non-Department of Transportation specification, portable tanks suitable for transport of liquids (including totes) are authorized for Packing Group III solids in the domestic U.S.
- See Special Provision B115 for sift-proof, non-specification bulk packaging provisions in the U.S.
- Insert "RQ & Zinc & Nickel" reference when in packages greater than 2000 lbs. of pieces of metal having a diameter smaller than 100 micrometers (0.004 inches).
- Insert "RQ & Zinc & Nickel" reference when the Zinc & Nickel concentration by weight in the dross is greater than 20,000ppm (2%) and 2,000ppm (0.2%) respectively.
- In the U.S., loading and utilizing non-DOT specification integral gaskets, liners, non-structural additional packaging materials, bins, packaging, flexible bags, drums, etc. may be considered "non structural additional packaging components" only if necessary to render a bulk packaging (e.g.; Trailer, rail car, bulk bin) a sift-proof closed vehicle. Shipping papers for units so loaded should reflect one unit(e.g.; 1 trailer, 1 rail car, etc), and not the number of packaging pieces or components utilized-even if an LTL or LCL. RQ's when applicable, are to be based on the net weight of the load. Marking, labeling and placarding rules are applicable to the vehicle and not the additional packaging components (RE: DOT May 2, 1994 interpretation).

\*\*\* Section 15 - Regulatory Information \*\*\*

### US Federal Regulations

In reference to Title VI of the Clean Air Act of 1990, this material does not contain nor was it manufactured using ozone-depleting chemicals. All electrical equipment must be suitable for use in hazardous atmospheres involving aluminum powder in accordance with 29 CFR 1910.307. The National Electrical Code, NFPA 70, contains guidelines for determining the type and design of equipment and installation which will meet this requirement. This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

CERCLA HAZARDOUS SUBSTANCES: (40 CFR 302.4) See below.

TSCA STATUS: Not regulated.

SARA TITLE III: Section 311/312 Hazardous Categories: Immediate hazard, delayed hazard, reactivity hazard.

### Component Analysis

This material contains one or more of the following chemicals required to be identified under SARA Section 302 (40 CFR 355 Appendix A), SARA Section 313 (40 CFR 372.65) and/or CERCLA (40 CFR 302.4).

#### Aluminum (7429-90-5)

SARA 313: Form R reporting required for 1.0% de minimis concentration (fume or dust only)

#### Aluminum Oxide (1344-28-1)

SARA 313: Form R reporting required for 1.0% de minimis concentration (fume or dust only)

#### Copper (7440-50-8)

SARA 313: Form R reporting required for 1.0% de minimis concentration

CERCLA: Final RQ 5000 pounds (2270 kg) (no reporting of releases of this hazardous substance is required if the diameter of the pieces of the solid metal released is equal to or exceeds 0.004 inches)

#### Zinc (7440-66-6)

SARA 313: Form R reporting required for 1.0% de minimis concentration (only fume or dust)

CERCLA: Final RQ = 1000 pounds (454 kg) (no reporting of releases of this hazardous substance is required if the diameter of the solid metal released is equal to or exceeds 0.004 inches)

#### Nickel (7440-02-0)

SARA 313: Form R reporting required for 0.1% de minimis concentration

CERCLA: Final RQ = 100 pounds (45.4 kg) (no reporting of releases of this hazardous substance is required if the diameter of the pieces of the solid metal released is equal to or exceeds 0.004 inches).

#### Manganese (7439-96-5)

SARA 313: form R reporting required for 1.0% de minimis concentration

#### Chromium (7440-47-3)

SARA 313: Form R reporting required for 1.0% de minimis concentration

CERLA: Final RQ = 5000 pounds (2270 kg) (no reporting of releases of this hazardous material is required if the diameter of the pieces of the solid metal released is equal to or exceeds 0.004 inches)

#### Beryllium (7440-41-7)

SARA 313: Form R reporting required for 0.1% de minimis concentration

CERLA: Final RQ = 10 pounds (4.54 kg) (no reporting of releases of this hazardous substance is required if the diameter of the pieces of the solid metal released is equal to or exceeds 0.004 inches)

**SARA 311/312 Physical and Health Hazard Categories:**

**Immediate (acute) Health Hazard:** Yes, if particulates/fumes generated during processing.

**Delayed (chronic) Health Hazard:** Yes, if particulates/fumes generated during processing.

**Fire Hazard:** No

**Sudden Release of Pressure:** No



**Reactive:** Yes, if molten

**State Regulations**

**A. General Product Information**

Pennsylvania” Special Hazardous Substances”: Chromium, Chromium compounds, hexavalent, Nickel. Chemicals known to the State of California to cause cancer: Chromium (hexavalent compounds), Cobalt metal powder, Nickel and certain nickel compounds, Lead and lead compounds. Chemical(s) known to the State of California to cause reproductive/development effects: Lead.

**B: Component Analysis-State**

The following components appear on one or more of the State Hazardous Substances Lists:

CAS #	Component	CA	FL	MA	MN	NJ	PA
7429-90-5	Aluminum	Yes	No	Yes	Yes	Yes	Yes
1344-28-1	Aluminum Oxide	Yes	No	Yes	No	Yes	Yes
7440-21-3	Silicon	No	No	Yes	Yes	Yes	Yes
7440-50-8	Copper	Yes	No	Yes	Yes	Yes	Yes
7440-66-6	Zinc	Yes	No	Yes	No	Yes	Yes
7439-95-4	Magnesium	Yes	No	Yes	No	Yes	Yes
7440-02-0	Nickel	Yes	No	Yes	Yes	Yes	Yes
7439-89-6	Iron	Yes	No	No	No	No	No
7439-96-5	Manganese	Yes	No	Yes	Yes	Yes	Yes
7440-31-5	Tin	No	No	No	No	No	No
7440-47-3	Chromium	Yes	No	Yes	Yes	Yes	Yes
7440-41-7	Beryllium	Yes	No	No	No	Yes	No
7440-32-6	Chromium	Yes	No	Yes	Yes	Yes	Yes
7439-92-1	Beryllium	Yes	No	No	No	Yes	No

The following statement(s) are provided under the California State Drinking Water and Toxic Enforcement Act of 1986. (Proposition 65)

Warning: This product contains a chemical known to the State of California to cause cancer.  
 Warning: This product contains a chemical know to the State of California to cause reproductive/developmental effects.

**\*\*\* Section 16 - Other Information \*\*\***

**Abbreviations and Acronyms:**

ACGIH = American Conference of Governmental Industrial Hygienists; IARC = International Agency for Research on Cancer; NFPA = National Fire Protection Association; NTP = National Toxicology Program; STEL = Short-term Exposure Limit; TLV = Threshold Limit Value; TSCA = Toxic Substances Control Act; TWA = Time Weighted Average; OSHA = Occupational Health and Safety Administration; PEL = Permissible Exposure Limit; NIOSH = National Institute for Occupational Safety and Health; LD50 = Lethal Dose, 50%; CERCLA = Comprehensive Environmental Response, Compensation, and Liability Act of 1980; SARA = Superfund Amendments and Reauthorization Act

**References:**

Available upon request.