

1. Identification

Product identifier SHOT BLAST DUST
Other means of identification
SDS number KWAR-11
Version # 01
Revision date Not Applicable
Recommended use Recycling, metal recovery
Recommended restrictions For industrial use only.

Manufacturer/Importer/Supplier/Distributor information**Manufacturer**

Kaiser Aluminum Warrick LLC
4000 W. State Route 66
Newburgh, IN 47629

Emergency Information

CHEMTREC: +1-703-527-3887 +1-800-424-9300 (24 Hour Emergency Telephone, multiple languages spoken); Kaiser Warrick +1-877-335-9886 (24 Hour Emergency Telephone, only English spoken)

Website

For a current Safety Data Sheet, refer to Kaiser Aluminum website:
<https://www.kaiseraluminum.com/customer-portal/safety-data-sheets/>

2. Hazard(s) identification**Classification**

This product is considered hazardous under 29 CFR 1910.1200 (Hazard Communication).

Potential health effects

The following statements summarize the health effects generally expected in cases of overexposures. User specific situations should be assessed by a qualified individual. Additional health information can be found in Section 11.

Physical hazards Not classified.
Health hazards Not classified.
Environmental hazards Hazardous to the ozone layer Not applicable
OSHA defined hazards Combustible dust

Label elements

Hazard symbol None.
Signal word Warning
Hazard statement May form combustible dust concentrations in air.
Precautionary statement
Prevention Prevent dust accumulation to minimize explosion hazard.
Response Not assigned.
Storage Store in accordance with local/regional/national/international regulation.
Disposal Dispose of contents/container in accordance with local/regional/national/international regulations.

Hazard(s) not otherwise classified (HNOC) None known.

Supplemental information

Direct contact: Can cause mechanical irritation of the eyes and skin. Dust: Can cause irritation of the upper respiratory tract.

Additional health effects from elevated temperature processing (e.g., melting): Dust and fume from processing: Acute overexposure: Can cause metal fume fever (nausea, fever, chills, shortness of breath and malaise). Chronic overexposures: Can cause benign lung disease (siderosis), central nervous system damage, secondary Parkinson's disease and reproductive harm in males.

Material will burn if ignited. Heavily concentrated dusts in air can be explosive if subjected to a strong ignition source. Contact of molten metal with water or moisture can result in a rapid generation of steam which may produce a violent splattering of molten metal.

3. Composition/information on ingredients**Composition comments**

Complete composition is provided below and may include some components classified as non-hazardous.

Mixtures

Chemical name	Common name and synonyms	CAS number	%
Iron		7439-89-6	99
Manganese		7439-96-5	<= 1
Silicon		7440-21-3	<1
Chromium		7440-47-3	<= 0.2
Nickel		7440-02-0	<= 0.1

Additional Information

Additional compounds which may be formed (during melting) are listed in Section 8.

4. First-aid measures**Eye contact**

Rinse eyes with plenty of water or saline for at least 15 minutes. Consult a physician.

Skin contact

Wash with soap and water for at least 15 minutes. Get medical attention if irritation develops or persists.

Inhalation

Remove to fresh air. Check for clear airway, breathing, and presence of pulse. If breathing is difficult, provide oxygen. Loosen any tight clothing on neck or chest. Provide cardiopulmonary resuscitation for persons without pulse or respirations. Consult a physician.

Ingestion

If swallowed, dilute by drinking water. Recommend quantities up to 30 mL (~1 oz.) in children and 250 mL (~9 oz.) in adults. Never give anything by mouth to a victim who is unconscious or is having convulsions. Do NOT induce vomiting. Consult a physician.

Most important symptoms/effects, acute and delayed

Can cause irritation of the eyes, skin and upper respiratory tract. See Section 11 of the SDS for additional information on health hazards.

Medical conditions aggravated by exposure

Asthma, chronic lung disease, Secondary Parkinson's disease and skin rashes.

Indication of immediate medical attention and special treatment needed

Provide general supportive measures and treat symptomatically.

General information

Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves.

5. Fire-fighting measures**Suitable extinguishing media**

Otherwise, use fire fighting methods and materials that are appropriate for surrounding fire.

Unsuitable extinguishing media

DO NOT USE water in fighting fires around molten metal.

Specific hazards arising from the chemical

Heavily concentrated dusts in air can be explosive if subjected to a strong ignition source. Contact of molten metal with water or moisture can result in a rapid generation of steam which may produce a violent splattering of molten metal.

Special protective equipment and precautions for firefighters

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

General fire hazards

Material will burn if ignited.

Explosion data

Sensitivity to mechanical impact	Not sensitive.
Sensitivity to static discharge	Take precautionary measures against static discharges when there is a risk of dust explosion.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures Pellets or granules can lead to serious, same level slips and falls. Use personal protection recommended in Section 8 of the SDS.

Personal precautions, protective equipment and emergency procedures
For emergency responders Pellets or granules can lead to serious, same level slips and falls. Use personal protection recommended in Section 8 of the SDS.

Evacuation procedures None necessary.

Methods and materials for containment and cleaning up Collect scrap for recycling.
If molten: Use dry sand to contain the flow of material. All tooling (e.g., shovels or hand tools) and containers which come in contact with molten metal must be preheated or specially coated and approved for such use. Allow the spill to cool before remelting as scrap.

Environmental precautions No special environmental precautions required.

7. Handling and storage

Handling Avoid contact with skin and eyes. Avoid generating dust. Keep material dry. Use personal protection recommended in Section 8 of the SDS.

Storage Store in accordance with local/regional/national/international regulation.

Requirements for Remelting of Scrap Material or Ingot Molten metal and water can be an explosive combination. The risk is greatest when there is sufficient molten metal to entrap or seal off the water. Water and other forms of contamination on or contained in scrap or remelt ingot are known to have caused explosions in melting operations.

All tooling and containers which come in contact with molten metal must be preheated or specially coated and approved for such use. Molds and ladles must be preheated or oiled prior to casting. Any surfaces that may contact molten metal (i.e., concrete) should be specially coated.

During melting operations, the following minimum guidelines should be observed:

- Inspect all materials prior to furnace charging and completely remove surface contamination such as water, ice, snow, deposits of grease and oil or other surface contamination resulting from weather exposure, shipment, or storage.
- Store materials in dry, heated areas with any cracks or cavities pointed downwards.

8. Exposure controls/personal protection

Occupational exposure limits

U.S. - OSHA Components

Components	Type	Value	Form
Chromium (CAS 7440-47-3)	TWA	1 mg/m3	
Manganese (CAS 7439-96-5)	Ceiling	5 mg/m3	Fume
Nickel (CAS 7440-02-0)	TWA	1 mg/m3	
Silicon (CAS 7440-21-3)	TWA	5 mg/m3 15 mg/m3	Respirable fraction. Total dust

ACGIH

Components

Components	Type	Value	Form
Manganese (CAS 7439-96-5)	TWA (inhalable fraction)	0.2 mg/m3	(inhalable fraction)
	TWA (respirable fraction)	0.02 mg/m3	(respirable fraction)

US ACGIH Threshold Limit Values: Time Weighted Average (TWA): mg/m3, non-standard units

Components	Type	Value	Form
Chromium (CAS 7440-47-3)	TWA	0.5 mg/m3	
Manganese (CAS 7439-96-5)	TWA	0.1 mg/m3	Inhalable fraction.
		0.02 mg/m3	Respirable fraction.

US ACGIH Threshold Limit Values: Time Weighted Average (TWA): mg/m3, non-standard units

Components	Type	Value	Form
Nickel (CAS 7440-02-0)	TWA	1.5 mg/m3	Inhalable fraction.
Components	Type	Value	Form
Manganese (CAS 7439-96-5)	TWA	0.05 mg/m3	Total dust.
Nickel (CAS 7440-02-0)	TWA	0.02 mg/m3 1 mg/m3	Respirable fraction.

General

The need for personal protective equipment should be based upon a hazard assessment and recommendations from health / safety professionals.

Personnel who handle and work with molten metal should utilize primary protective clothing like polycarbonate face shields, fire resistant tapper's jackets, neck shades (snoods), leggings, spats and similar equipment to prevent burn injuries. In addition to primary protection, secondary or day-to-day work clothing that is fire resistant and sheds metal splash is recommended for use with molten metal. Synthetic materials should never be worn even as secondary clothing (undergarments).

Appropriate engineering controls

Use with adequate ventilation to meet the limits listed in Section 8.

Individual protection measures, such as personal protective equipment**Eye/face protection**

Wear safety glasses with side shields.

Skin protection**Hand protection**

Wear appropriate gloves to avoid any skin injury. The most suitable glove must be chosen in consultation with the gloves supplier, who can inform about the breakthrough time of the glove material.

Other

No special protective equipment required.

Respiratory protection

Use NIOSH-approved respiratory protection as specified by an Industrial Hygienist or other qualified professional if concentrations exceed the limits listed in Section 8. Suggested respiratory protection: N95.

Thermal hazards

Contact with molten material can cause thermal burns.

General hygiene considerations

Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and immediately after handling the product. When using, do not eat, drink or smoke.

Control parameters

Follow standard monitoring procedures.

9. Physical and chemical properties**Form**

Solid, fines to spherical pellets.

Color

Metallic.

Odor

Odorless

Odor threshold

Not available.

pH

Not applicable

Density

> 7.60 g/cm3

Melting point/freezing point

2499.8 - 2701.4 °F (1371 - 1483 °C)

Initial boiling point and boiling range

5162 - 5702 °F (2850 - 3150 °C)

Flash point

Not available.

Evaporation rate

Not available.

Flammability (solid, gas)

Not applicable.

Upper/lower flammability or explosive limits**Flammability limit - upper (%)**

Not available.

Flammability limit - lower (%)

Not available.

Explosive properties

Not available.

Vapor pressure

Not available.

Vapor density	Not available.
Relative density	Not available.
Solubility(ies)	Insoluble
Partition coefficient (n-octanol/water)	Not available.
Auto-ignition temperature	Not available.
Decomposition temperature	Not available.
Viscosity	Not available.

10. Stability and reactivity

Reactivity	The product is stable and non-reactive under normal conditions of use, storage and transport.
Chemical stability	Stable under normal conditions of use, storage, and transportation.
Possibility of hazardous reactions	Hazardous polymerization does not occur.
Conditions to avoid	Contact of molten metal with water or moisture can result in a rapid generation of steam which may produce a violent splattering of molten metal.
Incompatible materials	None known.
Hazardous decomposition products	No hazardous decomposition products are known.

11. Toxicological information

Health effects associated with ingredients

Silicon (inert dusts): Chronic overexposures: Can cause chronic bronchitis and narrowing of airways.

Chromium dust and fumes: Can cause irritation of eye, skin and respiratory tract. Metallic chromium and trivalent chromium: Not classifiable as to their carcinogenicity to humans by IARC.

Nickel dust and fume: Can cause irritation of eyes, skin and respiratory tract. Eye contact: Can cause inflammation of the eyes and eyelids (conjunctivitis). Skin contact: Can cause sensitization and allergic contact dermatitis. Chronic overexposures: Can cause perforation of the nasal septum, inflammation of the nasal passages (sinusitis), respiratory sensitization, asthma and scarring of the lungs (pulmonary fibrosis). Nickel alloys IARC/NTP: Reviewed and not recommended for listing by NTP. Listed as possibly carcinogenic to humans by IARC (Group 2B).

Health effects associated with compounds formed during processing

Iron oxide: Chronic overexposures: Can cause benign lung disease (siderosis). Ingestion: Can cause irritation of gastrointestinal tract, bleeding, changes in the pH of the body fluids (metabolic acidosis) and liver damage.

Silica, amorphous: Acute overexposures: Can cause dryness of eyes, nose and upper respiratory tract.

Manganese oxide fumes: Can cause irritation of the eyes, skin, and respiratory tract. Acute overexposures: Can cause metal fume fever (nausea, fever, chills, shortness of breath and malaise).

Manganese compounds: Chronic overexposures: Can cause inflammation of the lung tissues, scarring of the lungs (pulmonary fibrosis), central nervous system damage, Secondary Parkinson's Disease and reproductive harm in males.

Information on likely routes of exposure

Eye contact	Can cause mechanical irritation.
Skin contact	Can cause mechanical irritation.
Inhalation	Can cause irritation of the upper respiratory tract.

Additional health effects from elevated temperature processing (e.g., melting): Dust and fumes from processing: Acute overexposure: Can cause metal fume fever (nausea, fever, chills, shortness of breath and malaise). Can cause benign lung disease (siderosis), central nervous system damage, secondary Parkinson's disease and reproductive harm in males.

Ingestion Can cause irritation of the gastrointestinal tract.

Symptoms related to the physical, chemical and toxicological characteristics Can cause irritation of the eyes, skin and upper respiratory tract.

Information on toxicological effects

Components	Species	Test Results
Nickel (CAS 7440-02-0)		
Acute		
Oral		
LD50	Rat	> 9000 mg/kg
Acute toxicity	Based on available data, the classification criteria are not met.	
Skin corrosion/irritation	Based on available data, the classification criteria are not met.	
Serious eye damage/eye irritation	Based on available data, the classification criteria are not met.	
Respiratory or skin sensitization		
Respiratory sensitization	Based on available data, the classification criteria are not met.	
Skin sensitization	Based on available data, the classification criteria are not met.	
Germ cell mutagenicity	Based on available data, the classification criteria are not met.	
Pre-existing conditions aggravated by exposure	Asthma, chronic lung disease, Secondary Parkinson's disease and skin rashes.	
Carcinogenicity	Based on available data, the classification criteria are not met.	
IARC Monographs. Overall Evaluation of Carcinogenicity		
Chromium (CAS 7440-47-3)		3 Not classifiable as to carcinogenicity to humans.
Nickel (CAS 7440-02-0)		1 Carcinogenic to humans.
US OSHA Hazard Categories (10)		
Not regulated.		
US OSHA Hazard Categories (9)		
Not regulated.		
US. National Toxicology Program (NTP) Report on Carcinogens		
Nickel (CAS 7440-02-0)		Known To Be Human Carcinogen. Reasonably Anticipated to be a Human Carcinogen.
US. OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)		
Not regulated.		
Reproductive toxicity	Based on available data, the classification criteria are not met.	
Specific target organ toxicity - single exposure	Based on available data, the classification criteria are not met.	
Specific target organ toxicity - repeated exposure	Based on available data, the classification criteria are not met.	
Aspiration hazard	Not an aspiration hazard.	

12. Ecological information

Ecotoxicity This material is not expected to be harmful to aquatic life.

Components	Species	Test Results
Chromium (CAS 7440-47-3)		
Aquatic		
Crustacea	EC50	Water flea (Daphnia magna)
		0.01 - 0.7 mg/l, 48 hours
Fish	LC50	Carp (Cyprinus carpio)
		14.3 mg/l, 96 hours
Iron (CAS 7439-89-6)		
Aquatic		
Crustacea	LC50	Cockle (Cerastoderma edule)
		100 - 330 mg/l, 48 hours
		Common shrimp, sand shrimp (Crangon crangon)
		33 - 100 mg/l, 48 hours
Fish	LC50	Channel catfish (Ictalurus punctatus)
		> 500 mg/l, 96 hours
Manganese (CAS 7439-96-5)		
Aquatic		
Crustacea	EC50	Water flea (Daphnia magna)
		40 mg/l, 48 hours

Components	Species	Test Results
Nickel (CAS 7440-02-0)		
Aquatic		
Crustacea	EC50	Water flea (Daphnia magna) 1 mg/l, 48 hours
Fish	LC50	Fathead minnow (Pimephales promelas) 2.923 mg/l, 96 hours
Persistence and degradability	The product contains inorganic compounds which are not biodegradable.	
Bioaccumulative potential	The product does not contain any substances expected to be bioaccumulating.	
Mobility in soil	No data available.	
Other adverse effects	None known.	

13. Disposal considerations

Disposal instructions	Reuse or recycle material whenever possible. If reuse or recycling is not possible, disposal must be made according to local or governmental regulations.
Waste codes	RCRA Status: Must be determined at the point of waste generation. If material is disposed as a waste, it must be characterized under RCRA according to 40 CFR, Part 261, or state equivalent in the U.S. TCLP testing is recommended for Chromium in a waste disposal scenario.
Waste from residues / unused products	If reuse or recycling is not possible, disposal must be made according to local or governmental regulations.
Contaminated packaging	Dispose of in accordance with local regulations.

14. Transport information

General Shipping Information

Basic Shipping Information

ID number	-
Proper shipping name	Not regulated
Hazard class	-
Packing group	-

General Shipping Notes

- When "Not regulated", enter the proper freight classification, SDS Number and Product Name onto the shipping paperwork.

DOT Alternate Basic Shipping Description #1

Basic Shipping Information

ID number	NA3077
Proper shipping name	Hazardous waste, solid, n.o.s.
Technical name	CHROMIUM
Hazard class	9
Packing group	III

Notes for Alternate DOT Description

- Classification applies to shipments within the domestic U.S. when declared a waste product and meeting the TCLP criteria for chromium.
- Add D007 to Section 13 of the Hazardous Waste Manifest.
- Delete "RQ" reference when containing less than 10lbs (D007) per packaging.

Disclaimer

This section provides basic classification information and, where relevant, information with respect to specific modal regulations, environmental hazards and special precautions. Otherwise, it is presumed that the information is not available/not relevant

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.
This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

TSCA Section 12(b) Export Notification (40 CFR 707, Subpart D)

Not regulated.

CERCLA Hazardous Substance List (40 CFR 302.4)

Chromium (CAS 7440-47-3)	Listed.
Manganese (CAS 7439-96-5)	Listed.
Nickel (CAS 7440-02-0)	Listed.

Other information

- Guide to Occupational Exposure Values 2012, Compiled by the American Conference of Governmental Industrial Hygienists (ACGIH).
- NIOSH Pocket Guide to Chemical Hazards, U.S. Department of Health and Human Services, September 2005.
- expub, Expert Publishing, LLC., www.expub.com,
- Ariel, 3E Company, www.3Ecompany.com
- Aluminum Association's Bulletin F-1, "Guidelines for Handling Aluminum Fines Generated During Various Aluminum Fabricating Operations." The Aluminum Association, 1525 Wilson Boulevard, Suite 600, Arlington, Virginia 22209, www.aluminum.org.
- Aluminum Association, "Guidelines for Handling Molten Aluminum, The Aluminum Association, 1525 Wilson Boulevard, Suite 600, Arlington, Virginia 22209, www.aluminum.org.
- NFPA 484, Standard for Combustible Metals (NFPA phone: 800-344-3555)
- NFPA 654, Standard for the Prevention of Fire and Dust Explosions from the Manufacturing, Processing, and Handling of Combustible Particulate Solids
- NFPA 70, Standard for National Electrical Code (Electrical Equipment, Grounding and Bonding)
- NFPA 77, Standard for Static Electricity

Key/Legend:

AICS	Australian Inventory of Chemical Substances
CAS	Chemical Abstract Services
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	Code of Federal Regulations
CPR	Cardio-pulmonary Resuscitation
DOT	Department of Transportation
DSL	Domestic Substances List (Canada)
EC	Effective Concentration
ED	Effective Dose
EINECS	European Inventory of Existing Commercial Chemical Substances
ENCS	Japan - Existing and New Chemical Substances
EWC	European Waste Catalogue
EPA	Environmental Protective Agency
IARC	International Agency for Research on Cancer
LC	Lethal Concentration
LD	Lethal Dose
MAK	Maximum Workplace Concentration (Germany) "maximale Arbeitsplatz-Konzentration"
NDSL	Non-Domestic Substances List (Canada)
NIOSH	National Institute for Occupational Safety and Health
NTP	National Toxicology Program
OEL	Occupational Exposure Limit
OSHA	Occupational Safety and Health Administration
PIN	Product Identification Number
PMCC	Pensky Marten Closed Cup
RCRA	Resource Conservation and Recovery Act
SARA	Superfund Amendments and Reauthorization Act
SIMDUT	Système d'Information sur les Matières Dangereuses Utilisées au Travail
STEL	Short Term Exposure Limit
TCLP	Toxic Chemicals Leachate Program
TDG	Transportation of Dangerous Goods
TLV	Threshold Limit Value
TSCA	Toxic Substances Control Act TWA Time Weighted Average
WHMIS	Workplace Hazardous Materials Information System
m	meter,
cm	centimeter,
mm	millimeter,
in	inch,
g	gram,
kg	kilogram,
lb	pound,
µg	microgram,
ppm	parts per million,
ft	feet

*** End of SDS ***

Hazard statement

May form combustible dust concentrations in air.

Precautionary statement

Prevention

Prevent dust accumulation to minimize explosion hazard.

Response

Not assigned.

Storage

Store in accordance with local/regional/national/international regulation.

Disposal

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

Warning

Supplemental information

Direct contact: Can cause mechanical irritation of the eyes and skin. Dust: Can cause irritation of the upper respiratory tract.

Additional health effects from elevated temperature processing (e.g., melting): Dust and fume from processing: Acute overexposure: Can cause metal fume fever (nausea, fever, chills, shortness of breath and malaise). Chronic overexposures: Can cause benign lung disease (siderosis), central nervous system damage, secondary Parkinson's disease and reproductive harm in males.

Material will burn if ignited. Heavily concentrated dusts in air can be explosive if subjected to a strong ignition source. Contact of molten metal with water or moisture can result in a rapid generation of steam which may produce a violent splattering of molten metal.

FIRE FIGHTING MEASURES:

Otherwise, use fire fighting methods and materials that are appropriate for surrounding fire.

IN CASE OF SPILL:

Collect scrap for recycling.

If molten: Use dry sand to contain the flow of material. All tooling (e.g., shovels or hand tools) and containers which come in contact with molten metal must be preheated or specially coated and approved for such use. Allow the spill to cool before remelting as scrap.

Chemtrec: +1-703-527-3887 +1-800-424-9300 (24 Hour Emergency Telephone, multiple languages spoken)

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