

SAFETY DATA SHEET

SDS for ALUMINUM INGOT/SOW/FINES

NFPA	HMIS	PPE	Transport Symbol						
	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="background-color: blue; color: white; padding: 2px;">HEALTH</td> <td style="text-align: right; padding: 2px;">1</td> </tr> <tr> <td style="background-color: red; color: white; padding: 2px;">FLAMMABILITY</td> <td style="text-align: right; padding: 2px;">1</td> </tr> <tr> <td style="background-color: yellow; padding: 2px;">REACTIVITY</td> <td style="text-align: right; padding: 2px;">1</td> </tr> </table>	HEALTH	1	FLAMMABILITY	1	REACTIVITY	1	 Safety Glasses Gloves	Not Regulated
HEALTH	1								
FLAMMABILITY	1								
REACTIVITY	1								

SECTION 1. PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME: ALUMINUM INGOT/SOW/FINES
SYNONYMS: NONE

MANUFACTURER: IMPERIAL ALUMINUM
ADDRESS: 217 ROOSEVELT STREET MINERVA, OHIO 44657

EMERGENCY PHONE: 1-330-868-7765
CHEMTREC PHONE: 1-800-424-9300
FAX PHONE: 1-330-868-4308

CHEMICAL NAME: ALUMINUM

PRODUCT USE: PRESSURE DIE CASTINGS
PREPARED BY: MELISSA S. LIVINGSTON
PREPARATION DATE: FEBRUARY 18, 2015

SECTION 2. HAZARDS IDENTIFICATION

CLASSIFICATIONS: Not classified as dangerous
Other hazards
 The melting down of moist metal leads to explosion risks.
 Heated product causes burns

<u>NAME</u>	<u>CAS NUMBER</u>	<u>PERCENT</u>		<u>ACGIH - TLV</u>	<u>OSHA - PEL</u>
ALUMINUM #	7429-90-5	< 90%	Dust: Fume:	10.0 mg/m ³ 5.0 mgAl/m ³	15.0 mg/m ³ -----
COPPER ≡	7440-50-8	0.01-3.0%	Dust and Mist: Fume:	1.0 mgCu/m ³ 0.2 mg/m ³	1.0 mg/m ³ 0.1 mg/m ³
SILICON	7440-21-3	0.01-3.0%		10.0 mg/m ³	15.0 mg/m ³
MAGNESIUM	7439-95-4	0.01-3.0%		10.0 mg/m ³ as magnesium oxide (fume)	15.0 mg/m ³
ZINC #	7440-66-6	0.01-3.0%	Dust: Fume:	10.0 mg/m ³ 5.0 mg/m ³ as zinc oxide	15.0 mg/m ³ 5.0 mg/m ³

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IRON	7439-89-6	0.1-3.0%		5.0 mgFe/m ³ as iron oxide (fume and dust)	10.0 mgFe/m ³
NICKEL ≡	7440-02-0	0.01-1.0%		1.0 mg/m ³	1.0 mg/m ³
MANGANESE ≡	7439-96-5	0.01-3.0%	Dust Fume	5.0 mgMn/m ³ 1.0 mgMn/m ³	5.0 mgMn/m ³ 5.0 mgMn/m ³
LEAD ≡	7439-92-1	0.01-3.0%		0.15 mgPb/m ³	0.05 mg/m ³
CHROMIUM ≡	7440-47-3	0.01-0.5%		0.5 mgCr/m ³	1.0 mg/m ³

SUBJECT TO REQUIREMENTS OF SARA TITLE III, SECTION 313 REPORTING (40 CFR 372), ONLY IF IN A FUME OR DUST FORM AND THE DEMINIMIS VALUE IS EXCEEDED. PLEASE REFER TO THE CHEMICAL ANALYSIS OF YOUR SHIPMENT FOR REPORTING REQUIREMENTS.

≡ SUBJECT TO REQUIREMENTS OF SARA TITLE III, SECTION 313 REPORTING IF THE DEMINIMIS VALUE IS EXCEEDED.

NOTE: PRODUCT IS A SOLID MASS; HOWEVER, WARNINGS ARE BASED ON INHALATION OF DUST, MIST OR FUME EMISSIONS THAT ARE POSSIBLE DURING MANUFACTURING OR CHEMICAL REACTION.

PRECAUTIONARY STATEMENTS:

PREVENTION: THIS MATERIAL IS NOT HAZARDOUS TO HEALTH

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Hazardous Components	OSHA PEL			ACGIH	TWA	STEL	%
	TWA	Ceiling					
Aluminum							8.2 to 8.8
total dust	15	none	10		none		
fume, powder, resp, dust	5	none	5		none		
Iron							0.065
oxide fume	10	none	5		none		
oxide total dust	10	none	none		none		
Silicon							
total dust	15	none	10		none		
respirable dust	5	none	none		none		
Copper							< 0.01
fume	0.1	none	0.2		none		
total dust	1	none	1		none		
Magnesium							< 0.01
Lead	0.2	none	0.5		none		
Chromium	1	none	0.5		none		< 0.01
BOILING POINT:	3272 °F			VAPOR PRESSURE(MM HG):	N/A		
MELTING POINT:	900-1200 °F			VAPOR DENSITY(AIR = 1):	0.00		
SPECIFIC GRAVITY: (H ₂ O = 1)	2.5-2.9			EVAPORATION RATE: (BUTYL ACETATE = 1)	N/A		

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SOLUBILITY(H₂O): NEGLIGIBLE (<0.1%) % VOLATILE BY VOLUME: N/A

APPEARANCE & ODOR: SILVERY-WHITE, NO ODOR

SECTION 4. FIRST AID

INHALATION: AFTER INHALATION OF FUMES, MOVE VICTIM TO FRESH AIR. IF IRRITATION OR PULMONARY SYMPTOMS DEVELOP, CONSULT A PHYSICIAN.

SKIN AND EYES: RINSE IMMEDIATELY WITH WATER FOR FIFTEEN MINUTES. IF IRRITATION DEVELOPS, CONSULT A PHYSICIAN OR TAKE VICTIM TO OPHTHAMOLOGIST. IF MOLTEN METAL CONTACTS SKIN OR EYES, CALL A PHYSICIAN IMMEDIATELY. DO NOT TEAR OFF SOLIDIFIED PRODUCT FROM SKIN, COVER WITH STERILE BANDAGES AND SEEK MEDICAL ATTENTION IMMEDIATELY.

SECTION 5. FIRE AND EXPLOSION HAZARD DATA

FLASH POINT (CLOSED CUP): N/A

FLAMMABLE LIMITS: UPPER N/A %
LOWER N/A %

ALUMINUM DEOX DOES NOT PRESENT FIRE OR EXPLOSION HAZARDS UNDER NORMAL CONDITIONS. **USE FIREFIGHTING METHODS AND MATERIALS THAT ARE APPROPRIATE FOR SURROUNDING FIRE.** SMALL CHIPS, FINE TURNINGS, AND DUST MAY IGNITE READILY. USE CLASS D EXTINGUISHING AGENTS OR DRY SAND ON FINES. **DO NOT** USE HALOGENATED EXTINGUISHING AGENTS ON SMALL CHIPS/FINES.

DUST CLOUDS MAY BE EXPLOSIVE; PREVENT FORMATION OF A DUST CLOUD.

MOLTEN ALUMINUM AND WATER CAN BE AN EXPLOSIVE COMBINATION. MOLTEN ALUMINUM MAY EXPLODE ON CONTACT WITH WATER. IT MAY ALSO VIOLENTLY REACT WITH RUST AND CERTAIN METAL OXIDES.

ALUMINUM FINES WHEN MOIST MAY GENERATE HYDROGEN GAS. WATER/ALUMINUM MIXTURES IN CONFINED SPACES MAY GENERATE EXPLOSIVE HYDROGEN/AIR MIXTURES.

AVOID USE OF WATER IN FIGHTING FIRES AROUND MOLTEN ALUMINUM. DRY CHEMICAL, METAL OR OTHER SUCH AGENTS SHOULD BE USED.

FIREFIGHTERS SHOULD WEAR SELF-CONTAINED BREATHING APPARATUS AND FULL PROTECTIVE CLOTHING WHEN APPROPRIATE.

SECTION 6. ACCIDENTAL RELEASE MEASURES

SPILLS: USE APPROPRIATE TOOLS TO PUT THE SPILLED SOLID IN A WASTE DISPOSAL CONTAINER.

- METAL SPILLS MAY BE SWEEPED UP AND RETURNED TO THE FURNACE.
- MOLTEN SPILLS SHOULD BE CONTAINED USING SAND OR SALT FLUX AS A DAM. DO NOT ATTEMPT TO HALT THE FLOW OF METAL WITH SHOVELS OR HAND TOOLS. ALLOW SPILLS TO COOL, THEN REMELT AS SCRAP.

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WASTE DISPOSAL METHOD:

- SCRAP CAN BE RECYCLED.

SECTION 7. HANDLING AND STORAGE

- USE WITH ADEQUATE VENTILATION TO MEET EXPOSURE LIMITS AS LISTED IN SECTION 2. WHERE EXPOSURE LIMITS ARE OR MAY BE EXCEEDED, USE NIOSH APPROVED RESPIRATORY PROTECTION. SELECT THE APPROPRIATE RESPIRATOR (EX. DUST AND FUME RESPIRATOR) BASED ON CONCENTRATIONS OF ACTUAL OR POTENTIAL AIRBORNE CONTAMINANTS PRESENT.
- WHEN WORKING WITH MOLTEN METAL, WEAR APPROPRIATE PERSONAL PROTECTIVE EQUIPMENT AS NECESSARY (EX. SAFETY GLASSES WITH SIDE SHIELDS, FACE SHIELD, SAFETY SHOES, SPATS OR LEGGINGS, FLAME RETARDANT CLOTHING, ALUMINIZED JACKETS, APRONS, CHAPS, SLEEVES, GLOVES, AND HEAD PROTECTION) TO PREVENT SKIN AND EYE BURNS FROM THE MOLTEN METAL.
- PRODUCT SHOULD BE KEPT DRY.
- AVOID GENERATING DUST, CHIPS OR FINES.
- AVOID CONTACT WITH HEATED METAL AND SHARP EDGES.
- HEATED ALUMINUM DOES NOT VISUALLY CHANGE AT TEMPERATURES BELOW 500 DEGREES F. TREAT ALL ALUMINUM PRODUCTS AS IF THEY ARE EXTREMELY HOT.
- PREHEAT METAL IF IT BECOMES DAMP OR WET.

8. PROTECTIVE EQUIPMENT

VENTILATION: USE GENERAL OR LOCAL EXHAUST VENTILATION TO MEET TLV REQUIREMENTS.

RESPIRATORY PROTECTION: NONE REQUIRED WHERE ADEQUATE VENTILATION CONDITIONS EXIST. IF AIRBORNE CONCENTRATION IS HIGH, A DUST/MIST RESPIRATOR IS RECOMMENDED. IF CONCENTRATION EXCEEDS CAPACITY OF RESPIRATOR, A SELF-CONTAINED BREATHING APPARATUS IS ADVISED.

EYE/SKIN PROTECTION: SAFETY GLASSES WITH SIDE SHIELDS, PROPER GLOVES ARE RECOMMENDED.

FOOT PROTECTION: WEAR SAFETY BOOTS WITH STEEL TOES TO PROTECT AGAINST DROPPED PRODUCT.

GENERAL EXPOSURE GUIDELINES:
SEE SECTION 3.

SECTION 8. PHYSICAL AND CHEMICAL PROPERTIES

PHYSICAL CONTENTS

ATOMIC NUMBER	13
MOLECULAR WEIGHT	29.918539
APARENT DENSITY (g/c m ³)	2.699
BULK DENSITY (g/c m ³)	VARIES DEPENDING ON PRODUCT
SPECIFIC HEAT @25 CELCIUS DEGREES	.215
MELTING POINT (CELCIUS DEGREES)	660.1
BOILING POINT (CELCIUS DEGREES)	2497
VALENCE	3
THERMAL CONDUCTIVITY @25 CELCIUS DEGREES	.50

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MOHS HARDNESS @25 CELCIUS DEGREES	2 - 2.9
COEFFICIENT AND EXPANSION (20-100 deg. C K)	24.0
PARTICLE SHAPE	CONE OR PYRAMID
MODULUS OF ELASTICITY (MPax 10)	69
CRYSTALLOGRAPHY	CUBIC STRUCTURED, FACE CENTERED
SPECIFIC GRAVITY	2.6989
ODOR	NONE
APPEARANCE	SILVERY

SECTION 10. STABILITY AND REACTIVITY

STABLE UNDER NORMAL CONDITIONS OF USE, STORAGE, AND TRANSPORTATION. FOR FINELY DIVIDED ALUMINUM (SMALL CHIPS, FINES, ETC.):

WITH WATER: GENERATES HYDROGEN AND HEAT SLOWLY CAUSING EXLPOSIVE ATMOSPHERES. WATER/ALUMINUM MIXTURES MAY BE HAZARDOUS WHEN CONFINED.

WITH HEAT: OXIDIZES AT A TEMPERATURE-DEPENDENT RATE AND PARTICLE SIZE.

WITH STRONG OXIDIZERS: VIOLENT REACTION WITH MUCH HEAT GENERATION CAN CAUSE A VIOLENT THERMITE REACTION WITH A VERY WEAK IGNITION SOURCE.

WITH ACIDS AND ALKALIS: REACTS TO GENERATE HYDROGEN CAUSING FIRE OR EXPLOSION.

WITH HALOGENATED COMPOUNDS: HALOGENATED HYDROCARBONS CAN REACT VIOLENTLY WITH FINELY DIVIDED ALUMINUM POWDER OR DUST.

MOLTEN ALUMINUM MAY EXPLODE ON CONTACT WITH WATER. IT MAY ALSO REACT VIOLENTLY WITH RUST, AND CERTAIN METAL OXIDES, INCLUDING OXIDES OF COPPER, IRON, AND LEAD.

AVOID USE OF WATER IN FIGHTING FIRES AROUND MOLTEN ALUMINUM. DRY CHEMICAL, METAL OR OTHER AGENTS SHOULD BE USED.

SECTION 11. TOXICOLOGICAL INFORMATION

ROUTES OF ENTRY	INGESTION
TOXICITY TO ANIMALS	LD50: NOT AVAILABLE LC50: NOT AVAILABLE
ACUTE EFFECTS ON HUMANS:	NO INFORMATION AVAILABLE ON PRODUCT
CHRONIC EFFECTS ON HUMANS:	CARCINOGENIC EFFECTS: NOT AVAILABLE MUTAGENIC EFFECTS: NOT AVAILABLE TERATOGENIC EFFECTS: NOT AVAILABLE TOXICITY OF THE PRODUCT TO THE REPRODUCTIVE SYSTEM: NOT AVAILABLE. REPEATED OR PROLONGED EXPOSURE TO THE SUBSTANCE CAN PRODUCE TARGET ORGAN DAMAGE.

SECTION 12. ECOLOGICAL INFORMATION

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ECOTOXICITY NOT AVAILABLE
BODS AND COD NOT AVAILABLE
PRODUCTS OF BIODEGRADATION NOT APPLICABLE
SPECIAL REMARKS ON THE PRODUCTS OF BIODEGRADATION NO ADDITIONAL REMARKS

SECTION 13. DISPOSAL CONSIDERATION

DISPOSAL INSTRUCTIONS:

- REUSE OR RECYCLE MATERIAL IF POSSIBLE
- CONTACT PRODUCER TO DISCUSS THE POTENTIAL OF BUYING BACK SCRAP THAT IS NOT SUITABLE FOR USE.

SECTION 14. TRANSPORTATION INFORMATION

PRODUCT IS NOT REGULATED. ENTER PRODUCT NAME AND SDS NUMBER ON SHIPPING PAPERWORK

PIN: UN1383 PG:11

SPECIAL PROVISIONS FOR TRANSPORTATION: NOT APPLICABLE

SECTION 15. OTHER REGULATORY INFORMATION

OTHER REGULATIONS: NO KNOWN SPECIAL CONSIDERATIONS ON THIS PRODUCT

SECTION 16. OTHER INFORMATION

SDS HISTORY: ORIGINAL PREPARED MARCH 2010

PREPARED BY: IMPERIAL ALUMINUM-MINERVA, LLC

INFORMATION CONTACT: MELISSA S. LIVINGSTON, 330-868-7765 EXT. 1328