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MATERIAL SAFETY DATA SHEET

I. MATERIAL IDENTIFICATION

MATERIAL NAME: ZINC ALLOY

A.K.A.: #5 ZINC DIE CAST INGOT

II. HAZARDOUS INGREDIENTS

<u>ELEMENT</u>	<u>CAS NUMBER</u>	<u>%</u>		<u>PEL</u>	<u>TLV</u>
ZINC	7440-66-6	>94	(DUST)	5 mg/ m ³	10 mg/ m3
			(FUME)	5 mg/ m ³	5 mg/ m3
				(as zinc oxide)	
ALUMINUM	7429-90-5	<4.3	(DUST)	5 mg/ m ³	10 mg/ m3
			(FUME)	5 mg/ m ³	5 mg/ m3
COPPER	7440-50-8	<1.25	(DUST)	1 mg/ m3	1 mg/ m3
			(FUME)	0.1 mg/ m3	.2 mg/ m3

SUPERFUND AMENDMENTS & REAUTHORIZATION ACT- TITLE III APPLICABILITY

SECTION 312

40 CFR 370.40

PHYSICAL HAZARD:

- FIRE
 RELEASE OF PRESSURE
 REACTIVITY

HEALTH HAZARD:

- ACUTE
 CHRONIC

SECTION 313

40 CFR 372.85

COPPER (7440-50-8)
ZINC COMPOUNDS

THIS MATERIAL OR THE COMPONENTS OF THIS MATERIAL ARE INCLUDED IN THE TOXIC CHEMICAL INVENTORY AS REQUIRED IN SECTION 8(b) OF THE TOXIC SUBSTANCE CONTROL ACT (PUBLIC LAW 94-469) & IS CODIFIED IN 40 CFR 720.

III. PHYSICAL DATA

MELTING POINT (OF ZINC):	420 C	VAPOR PRESSURE (OF ZINC):	1 mm Hg @ 487 C
SPECIFIC GRAVITY	6.6- 7.18	SOLUBILITY IN H₂O:	INSOLUBLE
BOILING POINT (OF ZINC):	908 C		
APPEARANCE & ODOR:	GREY TO SILVER METALLIC INGOTS		

IV. FIRE & EXPLOSION DATA

FLASH POINT:	N/A
AUTOIGNITION:	NO DATA
EXTINGUISHING MEDIA:	DRY CHEMICAL, CARBON DIOXIDE, HALON, OR ALCOHOL FOAM. WATER MAY BE INEFFECTIVE AS AN EXTINGUISHING AGENT, BUT WATER SPRAY OR FOG MAY BE USED AS A COOLING AGENT FOR CLOSED CONTAINERS.
SPECIAL:	SEE SECTION 5 FOR DECOMPOSITION PRODUCTS. WHEN DEALING WITH KNOWN OR UNKNOWN THERMAL DECOMPOSITION PRODUCTS THE USE OF SELF- CONTAINED BREATHING APPARATUS AND STRUCTURAL FIRE FIGHTER'S PROTECTIVE CLOTHING WILL PROVIDE LIMITED PROTECTION.

V. REACTIVITY DATA

MATERIAL IS STABLE UNDER NORMAL PRESSURES AND TEMPERATURES.

THERMAL DECOMPOSITION:	MAY RELEASE TOXIC AND HAZARDOUS FUMES OF ZINC, ALUMINUM AND COPPER.	
HAZARDOUS POLYMERIZATION:	HAS NOT BEEN REPORTED TO OCCUR UNDER NORMAL TEMPERATURES AND PRESSURES.	
INCOMPATIBLE MATERIALS:	ZnO	CHLORINATED RUBBER
	Cu DUST	ACETYLENE GAS, MAGNESIUM METAL
	Cu FUME	ACETYLENE GAS
CONDITIONS TO AVOID:	SEE INCOMPATIBLE MATERIALS	

VI. SPILL, LEAK, AND DISPOSAL INFORMATION

NO RESPIRATORY PROTECTION OR PROTECTIVE CLOTHING IS REQUIRED IN RESPONDING TO SPILLS. PROVIDE ADEQUATE VENTILATION. DO NOT LET MATERIAL GET INTO SEWERS OR WATER SHEDS. USE MECHANICAL OR MANUAL MEANS TO PICK UP MATERIAL. PLACE RETRIEVED MATERIAL IN A CLEAN, DRY CONTAINER AND COVER. KEEP UNNECESSARY PEOPLE AWAY. ISOLATE HAZARD AREA AND DENY ENTRY.

DISPOSE OF WASTE AND UNUSED MATERIAL IN ACCORDANCE WITH FEDERAL, STATE AND LOCAL DISPOSAL REGULATIONS. CONSULT YOUR ATTORNEY OR APPROPRIATE REGULATORY OFFICIALS FOR INFORMATION ON SUCH DISPOSALS.

EPA HAZARDOUS WASTE NUMBER: (40 CFR 261.33)- N/A
EPA REPORTABLE QUANTITY: (40 CFR 117.3)- N/A
AQUATIC TOXICITY: NO DATA

VII. HEALTH HAZARD INFORMATION

ROUTE OF ENTRY: INGESTION, INHALATION

TARGET:	ZINC OXIDE:	RESPIRATORY SYSTEM
	ALUMINUM:	NONE KNOWN
	COPPER:	RESPIRATORY SYSTEM, SKIN, LIVER, KIDNEYS.

ACUTE EXPOSURE:

SKIN CONTACT:	ZINC:	MARKED IRRITATION
	COPPER:	MILD IRRITATION
	COPPER FUME:	MODERATE IRRATION
EYE CONTACT:	ZINC:	MARKED IRRITATION
	COPPER:	MILD IRRITATION
	COPPER FUME:	MODERATE IRRATION
INGESTION:		NONE KNOWN
INHALATION:	ZINC FUME & ZINC OXIDE:	METAL FUME FEVER (COUGH, FEVER CHILLS, HEADACHE, TIGHT CHEST, NAUSEA) SWEET METAL TASTE, DRY THROAT. LUNG DAMAGE/ EDEMA.
	COPPER & COPPER FUME:	METAL FUME FEVER (COUGH, FEVER CHILLS, HEADACHE, TIGHT CHEST, NAUSEA) SWEET METAL TASTE, DRY THROAT. UPPER RESPIRATORY IRRITATION. LUNG DAMAGE/ EDEMA.

CHRONIC EXPOSURE:

SKIN CONTACT:		MAY CAUSE DERMATITIS
EYE CONTACT:		MAY CAUSE CONJUNCTIVITIS
INGESTION:		NONE KNOWN
INHALATION:	ZINC FUME & ZINC OXIDE:	LOW PULMONARY FUNCTIONING, DYSPNEA RALES, FATIGUE, BLURRED VISION, BACK PAIN.
	COPPER & COPPER FUME:	IRRITATION OF MUCOUS MEMBRANES AND PHARYNX. NASAL PERFORATION, DISCOLORATION OF SKIN AND HAIR.

LISTED AS A SUSPECTED OR CONFIRMED CARCINOGEN BY: N/A

FIRST AID:

- SKIN CONTACT:** REMOVE CONTAMINATED CLOTHING. WASH AFFECTED AREA WITH SOAP OR MILD DETERGENT AND LARGE AMOUNTS OF WATER. SEEK MEDICAL ATTENTION.
- EYE CONTACT:** WASH EYES WITH LARGE AMOUNTS OF WATER (15 MIN.).
SEEK MEDICAL ATTENTION.
- INGESTION:** IF VICTIM IS CONSCIOUS, INDUCE VOMITING.
SEEK MEDICAL ATTENTION.
- INHALATION:** REMOVE VICTIM TO FRESH AIR ENVIRONMENT. IF BREATHING IS DIFFICULT, ADMINISTER OXYGEN. IF BREATHING HAS STOPPED, ADMINISTER ARTIFICIAL RESPIRATION. KEEP VICTIM WARM & CALM. SEEK MEDICAL ATTENTION.

VIII. PERSONAL PROTECTIVE EQUIPMENT

- VENTILATION:** PROVIDE LOCAL EXHAUST OR PROCESS ENCLOSURE VENTILATION TO MAINTAIN EXPOSURES BELOW OSHA GUIDELINES .
(29 CFR 1910.1000 SUBPART Z).
- RESPIRATORS:** IF EXPOSURES CANNOT BE MAINTAINED AT OR BELOW ESTABLISHED OSHA GUIDELINES, RESPIRATORY PROTECTION MUST BE PROVIDED IN ACCORDANCE WITH 29 CR 1910.134 REQUIREMENTS.

GENERAL GUIDELINES

KNOWN CONCENTRATIONS < PEL WITH OXYGEN LEVELS > 19.5%

NO RESPIRATOR REQUIRED.

KNOWN CONCENTRATIONS > PEL <IDLH WITH OXYGEN LEVELS > 19.5%

AIR- PURIFYING FULL FACE PIECE RESPIRATOR WITH HIGH EFFICIENT FILTERS.

UNKNOWN CONCENTRATIONS AND/OR > IDLH AND/OR OXYGEN LEVELS < 19.5%

SELF CONTAINED BREATHING APPARATUS WITH FULL FACE PIECE OPERATED IN PRESSURE- DEMAND OR OTHER POSITIVE PRESSURE MODE. SUPPLIED- AIR RESPIRATOR WITH FULL FACE PIECE OPERATED IN PRESSURE DEMAND OR THEIR POSITIVE PRESSURE MODE IN COMBINATION WITH AN AUXILIARY SELF- CONTAINED BREATHING APPARATUS OPERATED IN PRESSURE- DEMAND OR OTHER POSITIVE PRESSURE MODE.

SKIN PROTECTION:

WEAR APPROPRIATE PROTECTIVE CLOTHING AND CHEMICAL RESISTANT AS NEEDED TO PREVENT SKIN CONTACT. CONSULT MANUFACTURER TO DETERMINE APPROPRIATE TYPE OF GLOVES OR CLOTHING FOR YOUR GIVEN APPLICATION. CLEAN CONTAMINATED CLOTHING AND PROTECTIVE EQUIPMENT BEFORE REUSE. WASH THOROUGHLY AFTER HANDLING MATERIAL.

EYE PROTECTION:

WHERE THERE IS A POTENTIAL FOR EYE CONTACT, WEAR SPLASH PROOF OR DUST PROOF SAFETY GOGGLES.

OTHER:

AS DEEMED NECESSARY BY IN-HOUSE HEALTH & SAFETY STAFF.

IX. SPECIAL PRECAUTIONS AND COMMENTS

STORAGE:

METAL INGOTS MAY CONTAIN VOIDS THAT COULD BE SITES OF WATER ACCUMULATION FROM CONDENSATION AND/ OR PRECIPITATION. IF INGOT ARE REMELTED WITH SUCH ACCUMULATION, A POTENTIALLY HAZARDOUS SITUATION COULD EXIST. STORAGE TO AVOID SUCH ACCUMULATION SHOULD BE UTILIZED.

ZINC IS INCOMPATIBLE WITH: AMMONIUM NITRATE, BARIUM DIOXIDE, BARIUM DINITRATE, CHLORATES, CHLORIDES, FLUORIDES, CHLORINE TRIFLOURIDE, CHROMIC TRIOXIDE, HYDRAZINE MONONITRATE, HYDROXYLAMINE, PERFORMIC ACID, POTASSIUM NITRATE, TELLURIUM, SULFUR, WATER, SODIUM HYDROXIDE, NITROBENZENE, OXIDANTS.

TRANSPORTATION DATA		
	HAZARD CLASS	PACKAGE GROUP
49 CFR	HAZARDOUS MATERIAL DESCRIPTION/ SHIPPING NAME	
172.101	NOT LISTED	
ID NUMBER		LABELS:
GUIDE NUMBER		