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SAFETY DATA SHEET

SECTION 1. CHEMICAL IDENTIFICATION

CATALOG #: 36873

NAME: Zirconium(II) hydride, -325 mesh

SYNONYMS: Zirconium dihydride

24 HOUR EMERGENCY TELEPHONE: (800) 535-5053(USA)
352-323-3500 (INTERNATIONAL)

TO REQUEST AN MSDS: (800) 869-9290

CUSTOMER SERVICE: (630) 766-2112

SECTION 2. HAZARDS IDENTIFICATION

CLASSIFICATION OF THE SUBSTANCE OR MIXTURE

GHS CLASSIFICATION IN ACCORDANCE WITH 29 CFR 1910 (OSHA HCS)

FLAMMABLE SOLIDS (CATEGORY 1), H228

SKIN IRRITATION (CATEGORY 2), H315

EYE IRRITATION (CATEGORY 2A), H319

SPECIFIC TARGET ORGAN TOXICITY - SINGLE EXPOSURE (CATEGORY 3), RESPIRATORY SYSTEM, H335

FOR THE FULL TEXT OF THE H-STATEMENTS MENTIONED IN THIS SECTION, SEE SECTION 16.

GHS LABEL ELEMENTS, INCLUDING PRECAUTIONARY STATEMENTS

PICTOGRAM



SIGNAL WORD

DANGER

HAZARD STATEMENT(S)

H228 FLAMMABLE SOLID.
H315 CAUSES SKIN IRRITATION.
H319 CAUSES SERIOUS EYE IRRITATION.
H335 MAY CAUSE RESPIRATORY IRRITATION.

PRECAUTIONARY STATEMENT(S)

P210 KEEP AWAY FROM HEAT/SPARKS/OPEN FLAMES/HOT SURFACES. NO SMOKING.
P240 GROUND/BOND CONTAINER AND RECEIVING EQUIPMENT.
P241 USE EXPLOSION-PROOF ELECTRICAL/ VENTILATING/ LIGHTING EQUIPMENT.
P261 AVOID BREATHING DUST/ FUME/ GAS/ MIST/ VAPOURS/ SPRAY.
P264 WASH SKIN THOROUGHLY AFTER HANDLING.
P271 USE ONLY OUTDOORS OR IN A WELL-VENTILATED AREA.
P280 WEAR PROTECTIVE GLOVES/ EYE PROTECTION/ FACE PROTECTION.
P302 + P352 IF ON SKIN: WASH WITH PLENTY OF SOAP AND WATER.
P304 + P340 + P312 IF INHALED: REMOVE PERSON TO FRESH AIR AND KEEP COMFORTABLE FOR BREATHING. CALL A POISON CENTER/DOCTOR IF YOU FEEL UNWELL.
P305 + P351 + P338 IF IN EYES: RINSE CAUTIOUSLY WITH WATER FOR SEVERAL MINUTES. REMOVE CONTACT LENSES, IF PRESENT AND EASY TO DO. CONTINUE RINSING.
P332 + P313 IF SKIN IRRITATION OCCURS: GET MEDICAL ADVICE/ ATTENTION.
P337 + P313 IF EYE IRRITATION PERSISTS: GET MEDICAL ADVICE/ ATTENTION.
P362 TAKE OFF CONTAMINATED CLOTHING AND WASH BEFORE REUSE.
P370 + P378 IN CASE OF FIRE: USE DRY SAND, DRY CHEMICAL OR ALCOHOL-RESISTANT FOAM TO EXTINGUISH.
P403 + P233 STORE IN A WELL-VENTILATED PLACE. KEEP CONTAINER TIGHTLY CLOSED.
P405 STORE LOCKED UP.
P501 DISPOSE OF CONTENTS/ CONTAINER TO AN APPROVED WASTE DISPOSAL PLANT.

HAZARDS NOT OTHERWISE CLASSIFIED (HNOC) OR NOT COVERED BY GHS NONE

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

MF:

ZrH₂

MW: 93.24
 CAS-NO. 7704-99-6
 PURITY: \geq 99% (Gravimetric analysis)

HAZARDOUS COMPONENTS

COMPONENT	CLASSIFICATION	CONCENTRATION
Zirconium(II) hydride, -325 mesh		
	FLAM. SOL. 1; SKIN IRRIT. 2; EYE IRRIT. 2A; STOT SE 3; H228, H315, H319, H335	\leq 100 %

FOR THE FULL TEXT OF THE H-STATEMENTS MENTIONED IN THIS SECTION, SEE SECTION 16.

SECTION 4. FIRST-AID MEASURES

DESCRIPTION OF FIRST AID MEASURES

GENERAL ADVICE	CONSULT A PHYSICIAN. SHOW THIS SAFETY DATA SHEET TO THE DOCTOR IN ATTENDANCE.MOVE OUT OF DANGEROUS AREA.
IF INHALED	IF BREATHED IN, MOVE PERSON INTO FRESH AIR. IF NOT BREATHING, GIVE ARTIFICIAL RESPIRATION. CONSULT A PHYSICIAN.
IN CASE OF SKIN CONTACT	WASH OFF WITH SOAP AND PLENTY OF WATER. CONSULT A PHYSICIAN.
IN CASE OF EYE CONTACT	RINSE THOROUGHLY WITH PLENTY OF WATER FOR AT LEAST 15 MINUTES AND CONSULT A PHYSICIAN.
IF SWALLOWED	DO NOT INDUCE VOMITING. NEVER GIVE ANYTHING BY MOUTH TO AN UNCONSCIOUS PERSON. RINSE MOUTH WITH WATER. CONSULT A PHYSICIAN.
MOST IMPORTANT SYMPTOMS AND EFFECTS, BOTH ACUTE AND DELAYED	THE MOST IMPORTANT KNOWN SYMPTOMS AND EFFECTS ARE DESCRIBED IN THE LABELLING (SEE SECTION 2.2) AND/OR IN SECTION 11
INDICATION OF ANY IMMEDIATE MEDICAL ATTENTION AND SPECIAL TREATMENT NEEDED	NO DATA AVAILABLE

SECTION 5. FIRE AND EXPLOSION DATA

EXTINGUISHING MEDIA

**SUITABLE
EXTINGUISHING MEDIA** USE WATER SPRAY, ALCOHOL-RESISTANT FOAM, DRY
CHEMICAL OR CARBON DIOXIDE.

**SPECIAL HAZARDS
ARISING FROM THE
SUBSTANCE OR MIXTURE** ZIRCONIUM OXIDES

**ADVICE FOR
FIREFIGHTERS** WEAR SELF-CONTAINED BREATHING APPARATUS FOR
FIREFIGHTING IF NECESSARY.

FURTHER INFORMATION USE WATER SPRAY TO COOL UNOPENED CONTAINERS.

SECTION 6. ACCIDENTAL RELEASE MEASURES

**PERSONAL
PRECAUTIONS,
PROTECTIVE EQUIPMENT
AND EMERGENCY
PROCEDURES** USE PERSONAL PROTECTIVE EQUIPMENT. AVOID DUST
FORMATION. AVOID BREATHING VAPOURS, MIST OR GAS.
ENSURE ADEQUATE VENTILATION. REMOVE ALL SOURCES
OF IGNITION. EVACUATE PERSONNEL TO SAFE AREAS.
AVOID BREATHING DUST.

FOR PERSONAL PROTECTION SEE SECTION 8.

**ENVIRONMENTAL
PRECAUTIONS** PREVENT FURTHER LEAKAGE OR SPILLAGE IF SAFE TO DO
SO. DO NOT LET PRODUCT ENTER DRAINS.

**METHODS AND
MATERIALS FOR
CONTAINMENT AND
CLEANING UP** SWEEP UP AND SHOVEL. CONTAIN SPILLAGE, AND THEN
COLLECT WITH AN ELECTRICALLY PROTECTED VACUUM
CLEANER OR BY WET-BRUSHING AND PLACE IN
CONTAINER FOR DISPOSAL ACCORDING TO LOCAL
REGULATIONS (SEE SECTION 13). KEEP IN SUITABLE,
CLOSED CONTAINERS FOR DISPOSAL. CONTAIN SPILLAGE,
PICK UP WITH AN ELECTRICALLY PROTECTED VACUUM
CLEANER OR BY WET-BRUSHING AND TRANSFER TO A
CONTAINER FOR DISPOSAL ACCORDING TO LOCAL
REGULATIONS (SEE SECTION 13).

**REFERENCE TO OTHER
SECTIONS** FOR DISPOSAL SEE SECTION 13.

SECTION 7. HANDLING AND STORAGE

PRECAUTIONS FOR SAFE HANDLING	<p>AVOID CONTACT WITH SKIN AND EYES. AVOID FORMATION OF DUST AND AEROSOLS.FURTHER PROCESSING OF SOLID MATERIALS MAY RESULT IN THE FORMATION OF COMBUSTIBLE DUSTS. THE POTENTIAL FOR COMBUSTIBLE DUST FORMATION SHOULD BE TAKEN INTO CONSIDERATION BEFORE ADDITIONAL PROCESSING OCCURS.</p> <p>PROVIDE APPROPRIATE EXHAUST VENTILATION AT PLACES WHERE DUST IS FORMED.KEEP AWAY FROM SOURCES OF IGNITION - NO SMOKING.TAKE MEASURES TO PREVENT THE BUILD UP OF ELECTROSTATIC CHARGE.</p> <p>FOR PRECAUTIONS SEE SECTION 2.2.</p>
CONDITIONS FOR SAFE STORAGE, INCLUDING ANY INCOMPATIBILITIES	<p>KEEP CONTAINER TIGHTLY CLOSED IN A DRY AND WELL-VENTILATED PLACE.</p> <p>KEEP IN A DRY PLACE.</p> <p>Store at RT, under nitrogen</p>
SPECIFIC END USE(S)	<p>APART FROM THE USES MENTIONED IN SECTION 1.2 NO OTHER SPECIFIC USES ARE STIPULATED.</p>

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

CONTROL PARAMETERS

COMPONENTS WITH WORKPLACE CONTROL PARAMETERS

COMPONENT	CAS-NO.	VALUE	CONTROL PARAMETERS	BASIS
Zirconium(II) hydride, -325 mesh	7704-99-6	TWA	5 MG/M3	USA. OCCUPATIONAL EXPOSURE LIMITS (OSHA) - TABLE Z-1 LIMITS FOR AIR CONTAMINANTS
		TWA	5 MG/M3	USA. ACGIH THRESHOLD LIMIT VALUES (TLV)
	REMARKS	RESPIRATORY IRRITATION NOT CLASSIFIABLE AS A HUMAN CARCINOGEN		
		STEL	10 MG/M3	USA. ACGIH THRESHOLD LIMIT VALUES (TLV)
		RESPIRATORY IRRITATION NOT CLASSIFIABLE AS A HUMAN CARCINOGEN		
		TWA	5 MG/M3	USA. NIOSH RECOMMENDED EXPOSURE LIMITS
		ST	10 MG/M3	USA. NIOSH RECOMMENDED EXPOSURE LIMITS
		PEL	5 MG/M3	CALIFORNIA PERMISSIBLE EXPOSURE LIMITS FOR CHEMICAL CONTAMINANTS
		STEL	10 MG/M3	CALIFORNIA PERMISSIBLE EXPOSURE LIMITS FOR CHEMICAL CONTAMINANTS

EXPOSURE CONTROLS

APPROPRIATE ENGINEERING CONTROLS HANDLE IN ACCORDANCE WITH GOOD INDUSTRIAL HYGIENE AND SAFETY PRACTICE. WASH HANDS BEFORE BREAKS AND AT THE END OF WORKDAY.

PERSONAL PROTECTIVE EQUIPMENT

EYE/FACE PROTECTION SAFETY GLASSES WITH SIDE-SHIELDS CONFORMING TO EN166 USE EQUIPMENT FOR EYE PROTECTION TESTED AND APPROVED UNDER APPROPRIATE GOVERNMENT STANDARDS SUCH AS NIOSH (US) OR EN 166(EU).

SKIN PROTECTION HANDLE WITH GLOVES. GLOVES MUST BE INSPECTED PRIOR TO USE. USE PROPER GLOVE REMOVAL TECHNIQUE (WITHOUT TOUCHING GLOVE'S OUTER SURFACE) TO AVOID SKIN CONTACT WITH THIS PRODUCT. DISPOSE OF CONTAMINATED GLOVES AFTER USE IN ACCORDANCE WITH APPLICABLE LAWS AND GOOD LABORATORY PRACTICES. WASH AND DRY HANDS.

BODY PROTECTION IMPERVIOUS CLOTHING, FLAME RETARDANT ANTISTATIC PROTECTIVE CLOTHING. THE TYPE OF PROTECTIVE EQUIPMENT MUST BE SELECTED ACCORDING TO THE CONCENTRATION AND AMOUNT OF THE DANGEROUS SUBSTANCE AT THE SPECIFIC WORKPLACE.

RESPIRATORY PROTECTION

WHERE RISK ASSESSMENT SHOWS AIR-PURIFYING RESPIRATORS ARE APPROPRIATE USE A FULLFACE PARTICLE RESPIRATOR TYPE N100 (US) OR TYPE P3 (EN 143) RESPIRATOR CARTRIDGES AS A BACKUP TO ENGINEERING CONTROLS. IF THE RESPIRATOR IS THE SOLE MEANS OF PROTECTION, USE A FULL-FACE SUPPLIED AIR RESPIRATOR. USE RESPIRATORS AND COMPONENTS TESTED AND APPROVED UNDER APPROPRIATE GOVERNMENT STANDARDS SUCH AS NIOSH (US) OR CEN (EU).

CONTROL OF ENVIRONMENTAL EXPOSURE

PREVENT FURTHER LEAKAGE OR SPILLAGE IF SAFE TO DO SO. DO NOT LET PRODUCT ENTER DRAINS.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

INFORMATION ON BASIC PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE	Grey solid
ODOUR	NO DATA AVAILABLE
ODOUR THRESHOLD	NO DATA AVAILABLE
PH	NO DATA AVAILABLE
MELTING POINT/FREEZING POINT	
BOILING POINT	
FLASH POINT	
EVAPOURATION RATE	NO DATA AVAILABLE
FLAMMABILITY (SOLID, GAS)	THE SUBSTANCE OR MIXTURE IS A FLAMMABLE SOLID WITH THE CATEGORY 1.
UPPER/LOWER FLAMMABILITY OR EXPLOSIVE LIMITS	
VAPOUR PRESSURE	NO DATA AVAILABLE
VAPOUR DENSITY	NO DATA AVAILABLE
RELATIVE DENSITY	
WATER SOLUBILITY	NO DATA AVAILABLE
PARTITION COEFFICIENT: N- OCTANOL/WATER	NO DATA AVAILABLE
AUTO-IGNITION TEMPERATURE	NO DATA AVAILABLE
DECOMPOSITION TEMPERATURE	NO DATA AVAILABLE
VISCOSITY	NO DATA AVAILABLE
EXPLOSIVE PROPERTIES	NO DATA AVAILABLE
OXIDIZING PROPERTIES	NO DATA AVAILABLE

OTHER SAFETY INFORMATION

NO DATA AVAILABLE

SECTION 10. STABILITY AND REACTIVITY

REACTIVITY	NO DATA AVAILABLE
CHEMICAL STABILITY	STABLE UNDER RECOMMENDED STORAGE CONDITIONS.
POSSIBILITY OF HAZARDOUS REACTIONS	NO DATA AVAILABLE
CONDITIONS TO AVOID	HEAT, FLAMES AND SPARKS.
INCOMPATIBLE MATERIALS	ACIDS, STRONG OXIDIZING AGENTS
HAZARDOUS DECOMPOSITION PRODUCTS	HAZARDOUS DECOMPOSITION PRODUCTS FORMED UNDER FIRE CONDITIONS. - ZIRCONIUM OXIDES OTHER DECOMPOSITION PRODUCTS - NO DATA AVAILABLE IN THE EVENT OF FIRE: SEE SECTION 5

SECTION 11. TOXICOLOGICAL INFORMATION

INFORMATION ON TOXICOLOGICAL EFFECTS

ACUTE TOXICITY	NO DATA AVAILABLE INHALATION: NO DATA AVAILABLE DERMAL: NO DATA AVAILABLE NO DATA AVAILABLE
SKIN CORROSION/IRRITATION	NO DATA AVAILABLE
SERIOUS EYE DAMAGE/EYE IRRITATION	NO DATA AVAILABLE
RESPIRATORY OR SKIN SENSITISATION	NO DATA AVAILABLE
GERM CELL MUTAGENICITY	NO DATA AVAILABLE
CARCINOGENICITY	

IARC:	NO COMPONENT OF THIS PRODUCT PRESENT AT LEVELS GREATER THAN OR EQUAL TO 0.1% IS IDENTIFIED AS PROBABLE, POSSIBLE OR CONFIRMED HUMAN CARCINOGEN BY IARC.
NTP:	NO COMPONENT OF THIS PRODUCT PRESENT AT LEVELS GREATER THAN OR EQUAL TO 0.1% IS IDENTIFIED AS A KNOWN OR ANTICIPATED CARCINOGEN BY NTP.
OSHA:	NO COMPONENT OF THIS PRODUCT PRESENT AT LEVELS GREATER THAN OR EQUAL TO 0.1% IS ON OSHA S LIST OF REGULATED CARCINOGENS.
REPRODUCTIVE TOXICITY	NO DATA AVAILABLE
SPECIFIC TARGET ORGAN TOXICITY - SINGLE EXPOSURE	INHALATION - MAY CAUSE RESPIRATORY IRRITATION.
SPECIFIC TARGET ORGAN TOXICITY - REPEATED EXPOSURE	NO DATA AVAILABLE
ASPIRATION HAZARD	NO DATA AVAILABLE
ADDITIONAL INFORMATION	RTECS: ZH8015000 TO THE BEST OF OUR KNOWLEDGE, THE CHEMICAL, PHYSICAL, AND TOXICOLOGICAL PROPERTIES HAVE NOT BEEN THOROUGHLY INVESTIGATED.

SECTION 12. ECOLOGICAL INFORMATION

TOXICITY	NO DATA AVAILABLE
PERSISTENCE AND DEGRADABILITY	NO DATA AVAILABLE
BIOACCUMULATIVE POTENTIAL	NO DATA AVAILABLE
MOBILITY IN SOIL	NO DATA AVAILABLE
RESULTS OF PBT AND VPVB ASSESSMENT	PBT/VPVB ASSESSMENT NOT AVAILABLE AS CHEMICAL SAFETY ASSESSMENT NOT REQUIRED/NOT CONDUCTED
OTHER ADVERSE EFFECTS	NO DATA AVAILABLE

SECTION 13. DISPOSAL CONSIDERATIONS

WASTE TREATMENT METHODS

PRODUCT	OFFER SURPLUS AND NON-RECYCLABLE SOLUTIONS TO A LICENSED DISPOSAL COMPANY. BURN IN A CHEMICAL INCINERATOR EQUIPPED WITH AN AFTERBURNER AND SCRUBBER BUT EXERT EXTRA CARE IN IGNITING AS THIS MATERIAL IS HIGHLY FLAMMABLE. CONTACT A LICENSED PROFESSIONAL WASTE DISPOSAL SERVICE TO DISPOSE OF THIS MATERIAL.
CONTAMINATED PACKAGING	DISPOSE OF AS UNUSED PRODUCT.

SECTION 14. TRANSPORT INFORMATION

DOT (US)

PROPER SHIPPING NAME:	ZIRCONIUM HYDRIDE
UN NUMBER:	1437
CLASS:	4.1
PACKING GROUP:	II
REPORTABLE QUANTITY (RQ):	
POISON INHALATION HAZARD:	NO

IMDG

PROPER SHIPPING NAME:	ZIRCONIUM HYDRIDE
UN NUMBER:	1437
CLASS:	4.1
PACKING GROUP:	II
EMS-NO:	F-A, S-G

IATA

PROPER SHIPPING NAME:	ZIRCONIUM HYDRIDE
UN NUMBER:	1437
CLASS:	4.1
PACKING GROUP:	II

SECTION 15. REGULATORY INFORMATION

SARA 302 COMPONENTS NO CHEMICALS IN THIS MATERIAL ARE SUBJECT TO THE REPORTING REQUIREMENTS OF SARA TITLE III, SECTION 302.

SARA 313 COMPONENTS THIS MATERIAL DOES NOT CONTAIN ANY CHEMICAL COMPONENTS WITH KNOWN CAS NUMBERS THAT EXCEED THE THRESHOLD (DE MINIMIS) REPORTING LEVELS ESTABLISHED BY SARA TITLE III, SECTION 313.

SARA 311/312 HAZARDS FIRE HAZARD, ACUTE HEALTH HAZARD

MASSACHUSETTS RIGHT TO KNOW COMPONENTS

NO COMPONENTS ARE SUBJECT TO THE MASSACHUSETTS RIGHT TO KNOW ACT.

PENNSYLVANIA RIGHT TO KNOW COMPONENTS

	CAS NO.	REVISION DATE
Zirconium(II) hydride, -325 mesh	7704-99-6	09-09-2016

SECTION 16. OTHER INFORMATION

FULL TEXT OF H-STATEMENTS REFERRED TO UNDER SECTIONS 2 AND 3.

H228	FLAMMABLE SOLID.
H315	CAUSES SKIN IRRITATION.
H319	CAUSES SERIOUS EYE IRRITATION.
H335	MAY CAUSE RESPIRATORY IRRITATION.

MSDS LEGEND

MW:	MOLECULAR WEIGHT
MF:	MOLECULAR FORMULA
VOC:	VOLATILE ORGANIC COMPOUNDS
ACGIH:	AMERICAN CONFERENCE OF GOVERNMENTAL INDUSTRIAL HYGINISTS
CAS:	CHEMICAL ABSTRACTS SERIVE REGISTRY NUMBER
OSHA:	OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION
PEL:	PERMISSIBLE EXPOSURE LIMIT (OSHA)
TLV:	THRESHOLD LIMIT VALUE (ACGIH)

IMPORTANT:

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