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SAFETY DATA SHEET

SECTION 1. CHEMICAL IDENTIFICATION

CATALOG #: 35953

NAME: Zirconium(IV) fluoride

SYNONYMS: Zirconium tetrafluoride

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)

SKIN CORROSION (CATEGORY 1B), H314 SERIOUS EYE DAMAGE (CATEGORY 1), H318

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)

H314 CAUSES SEVERE SKIN BURNS AND EYE DAMAGE.

PRECAUTIONARY STATEMENT(S)

P260 DO NOT BREATHE DUST OR MIST.

P264 WASH SKIN THOROUGHLY AFTER HANDLING.

P280 WEAR PROTECTIVE GLOVES/ PROTECTIVE CLOTHING/ EYE

PROTECTION/ FACE PROTECTION.

P301 + P330 + P331 IF SWALLOWED: RINSE MOUTH. DO NOT INDUCE VOMITING. P303 + P361 + P353 IF ON SKIN (OR HAIR): REMOVE/ TAKE OFF IMMEDIATELY ALL

CONTAMINATED CLOTHING. RINSE SKIN WITH WATER/

SHOWER.

P304 + P340 + P310 IF INHALED: REMOVE PERSON TO FRESH AIR AND KEEP

COMFORTABLE FOR BREATHING. IMMEDIATELY CALL A

POISON CENTER/DOCTOR.

P305 + P351 + P338 +

P310

IF IN EYES: RINSE CAUTIOUSLY WITH WATER FOR SEVERAL MINUTES. REMOVE CONTACT LENSES, IF PRESENT AND EASY TO DO. CONTINUE RINSING. IMMEDIATELY CALL A POISON

CENTER/DOCTOR.

P363 WASH CONTAMINATED CLOTHING BEFORE REUSE.

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

STRONG HYDROGEN FLUORIDE-RELEASER

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

MF: ZrF_4

MW: 167.22

CAS-NO. 7783-64-4

PURITY: ≥99.9% Metals basis

HAZARDOUS COMPONENTS

COMPONENT	CLASSIFICATION	CONCENTRATION
Zirconium(IV) fluoride		
	SKIN CORR. 1B; EYE DAM. 1;	<= 100 %
	H314, H318	

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. HYDROFLUORIC (HF) ACID BURNS REQUIRE IMMEDIATE AND SPECIALIZED FIRST AID AND MEDICAL TREATMENT. SYMPTOMS MAY BE DELAYED UP TO 24 HOURS DEPENDING ON THE CONCENTRATION OF HF. AFTER DECONTAMINATION WITH WATER, FURTHER DAMAGE CAN OCCUR DUE TO PENETRATION/ABSORPTION OF THE FLUORIDE ION. TREATMENT SHOULD BE DIRECTED TOWARD BINDING THE FLUORIDE ION AS WELL AS THE EFFECTS OF EXPOSURE. SKIN EXPOSURES CAN BE TREATED WITH A 2.5% CALCIUM GLUCONATE GEL REPEATED UNTIL BURNING CEASES. MORE SERIOUS SKIN EXPOSURES MAY REQUIRE SUBCUTANEOUS CALCIUM GLUCONATE EXCEPT FOR DIGITAL AREAS UNLESS THE PHYSICIAN IS EXPERIENCED IN THIS TECHNIQUE, DUE TO THE POTENTIAL FOR TISSUE INJURY FROM INCREASED PRESSURE, ABSORPTION CAN READILY OCCUR THROUGH THE SUBUNGUAL AREAS AND SHOULD BE CONSIDERED WHEN UNDERGOING DECONTAMINATION. PREVENTION OF ABSORPTION OF THE FLUORIDE ION IN CASES OF INGESTION CAN BE OBTAINED BY GIVING MILK, CHEWABLE CALCIUM CARBONATE TABLETS OR MILK OF MAGNESIA TO CONSCIOUS VICTIMS. CONDITIONS SUCH AS HYPOCALCEMIA, HYPOMAGNESEMIA AND CARDIAC ARRHYTHMIAS SHOULD BE MONITORED FOR, SINCE THEY CAN OCCUR AFTER EXPOSURE.

IF INHALED

IF BREATHED IN, MOVE PERSON INTO FRESH AIR. IF NOT BREATHING, GIVE ARTIFICIAL RESPIRATION. CONSULT A PHYSICIAN.

IN CASE OF SKIN CONTACT

TAKE OFF CONTAMINATED CLOTHING AND SHOES IMMEDIATELY. WASH OFF WITH SOAP AND PLENTY OF WATER. CONSULT A PHYSICIAN.FIRST TREATMENT WITH CALCIUM GLUCONATE PASTE.

IN CASE OF EYE CONTACT

RINSE THOROUGHLY WITH PLENTY OF WATER FOR AT LEAST 15 MINUTES AND CONSULT A PHYSICIAN. CONTINUE RINSING EYES DURING TRANSPORT TO HOSPITAL.

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 USE WATER SPRAY, ALCOHOL-RESISTANT FOAM, DRY

EXTINGUISHING MEDIA CHEMICAL OR CARBON DIOXIDE.

SPECIAL HAZARDS HYDROGEN FLUORIDE, ZIRCONIUM OXIDES

ARISING FROM THE SUBSTANCE OR MIXTURE

ADVICE FOR WEAR SELF CONTAINED BREATHING APPARATUS FOR

FIREFIGHTERS FIRE FIGHTING IF NECESSARY.

FURTHER INFORMATION NO DATA AVAILABLE

SECTION 6. ACCIDENTAL RELEASE MEASURES

PERSONALUSE PERSONAL PROTECTIVE EQUIPMENT. AVOID DUSTPRECAUTIONS,FORMATION. AVOID BREATHING VAPOURS, MIST ORPROTECTIVEGAS. ENSURE ADEQUATE VENTILATION. EVACUATEEQUIPMENT ANDPERSONNEL TO SAFE AREAS. AVOID BREATHING DUST.EMERGENCYPERSONNEL TO SAFE AREAS. AVOID BREATHING DUST.

PROCEDURES FOR PERSONAL PROTECTION SEE SECTION 8.

ENVIRONMENTAL DO NOT LET PRODUCT ENTER DRAINS. **PRECAUTIONS**

METHODS ANDPICK UP AND ARRANGE DISPOSAL WITHOUT CREATINGMATERIALS FORDUST. SWEEP UP AND SHOVEL. KEEP IN SUITABLE,CONTAINMENT ANDCLOSED CONTAINERS FOR DISPOSAL.CLEANING UPCLOSED CONTAINERS FOR DISPOSAL.

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

SECTION 7. HANDLING AND STORAGE

PRECAUTIONS FOR SAFE

HANDLING

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.

PROVIDE APPROPRIATE EXHAUST VENTILATION AT

PLACES WHERE DUST IS FORMED. FOR PRECAUTIONS SEE SECTION 2.2.

CONDITIONS FOR SAFE STORAGE, INCLUDING ANY INCOMPATIBILITIES KEEP CONTAINER TIGHTLY CLOSED IN A DRY AND

WELL-VENTILATED PLACE.

HYGROSCOPIC KEEP IN A DRY PLACE. DO NOT STORE IN

GLASS

Store at RT

SPECIFIC END USE(S)

APART FROM THE USES MENTIONED IN SECTION 1.2 NO

OTHER SPECIFIC USES ARE STIPULATED.

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

CONTROL PARAMETERS

COMPONENTS WITH WORKPLACE CONTROL PARAMETERS

COMPONENT	CAS-NO.	VALUE	CONTROL	BASIS
			PARAMETERS	S
Zirconium(IV)	7783-64-4	TWA	5 MG/M3	USA. OCCUPATIONAL
fluoride			EXPOSURE LIMITS (OSHA)	
				- TABLE Z-1 LIMITS FOR
				AIR CONTAMINANTS
		TWA	2.5 MG/M3	USA. OCCUPATIONAL
				EXPOSURE LIMITS (OSHA)
				- TABLE Z-1 LIMITS FOR
				AIR CONTAMINANTS
	REMARKS	CAS NUMBER VARIES WITH COMPOUND		
		TWA	5 MG/M3	USA. ACGIH THRESHOLD
				LIMIT VALUES (TLV)
		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	2.5 MG/M3	USA. ACGIH THRESHOLD
				LIMIT VALUES (TLV)

BONE DAMAGE FLUOROSIS SUBSTANCES FOR WHICH THERE IS A BIOLOGICAL EXPOSURE INDEX OR INDICES (SEE BEI SECTION) NOT CLASSIFIABLE AS A HUMAN CARCINOGEN VARIES		
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
PEL	2.5 MG/M3	CALIFORNIA PERMISSIBLE EXPOSURE LIMITS FOR CHEMICAL CONTAMINANTS

BIOLOGICAL OCCUPATIONAL EXPOSURE LIMITS

COMPONENT	CAS-NO.	PARAMETERS	VALUE	BIOLOGICAL	BASIS
				SPECIMEN	
Zirconium(IV)	7783-64-4	FLUORIDE	2 MG/L	URINE	ACGIH -
fluoride					BIOLOGICAL
					EXPOSURE
					INDICES (BEI)
	REMARKS	PRIOR TO SHIF	T (16 HC	URS AFTER EX	(POSURE CEASES)
		FLUORIDE	3 MG/L	URINE	ACGIH -
					BIOLOGICAL
					EXPOSURE
					INDICES (BEI)
		END OF SHIFT	(AS SOO	N AS POSSIBLI	E AFTER EXPOSURE
		CEASES)			

EXPOSURE CONTROLS

HANDLE IN ACCORDANCE WITH GOOD INDUSTRIAL **APPROPRIATE ENGINEERING** HYGIENE AND SAFETY PRACTICE. WASH HANDS BEFORE

CONTROLS BREAKS AND AT THE END OF WORKDAY.

PERSONAL PROTECTIVE EQUIPMENT

EYE/FACE FACE SHIELD AND SAFETY GLASSES USE EQUIPMENT FOR **PROTECTION**

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.

FULL CONTACT

MATERIAL: NITRILE RUBBER

MINIMUM LAYER THICKNESS: 0.11 MM

BREAK THROUGH TIME: 480 MIN

MATERIAL TESTED: DERMATRIL (KCL 740, SIZE M)

SPLASH CONTACT

MATERIAL: NITRILE RUBBER

MINIMUM LAYER THICKNESS: 0.11 MM

BREAK THROUGH TIME: 480 MIN

MATERIAL TESTED: DERMATRIL (KCL 740, SIZE M)

IF USED IN SOLUTION, OR MIXED WITH OTHER

SUBSTANCES, AND UNDER CONDITIONS WHICH DIFFER

FROM EN 374, CONTACT THE SUPPLIER OF THE CE

APPROVED GLOVES. THIS RECOMMENDATION IS ADVISORY ONLY AND MUST BE EVALUATED BY AN INDUSTRIAL

HYGIENIST AND SAFETY OFFICER FAMILIAR WITH THE SPECIFIC SITUATION OF ANTICIPATED USE BY OUR

CUSTOMERS. IT SHOULD NOT BE CONSTRUED AS OFFERING

AN APPROVAL FOR ANY SPECIFIC USE SCENARIO.

BODY PROTECTION

COMPLETE SUIT PROTECTING AGAINST CHEMICALS, 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 DO NOT LET PRODUCT ENTER DRAINS.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

INFORMATION ON BASIC PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE White to off-white powder ODOUR NO DATA AVAILABLE ODOUR THRESHOLD NO DATA AVAILABLE PH NO DATA AVAILABLE

MELTING 910 °C

POINT/FREEZING POINT INITIAL BOILING POINT AND BOILING RANGE FLASH POINT

EVAPORATION RATE NO DATA AVAILABLE FLAMMABILITY (SOLID, NO DATA AVAILABLE

GAS)

UPPER/LOWER NO DATA AVAILABLE

FLAMMABILITY OR EXPLOSIVE LIMITS

VAPOUR PRESSURE NO DATA AVAILABLE VAPOUR DENSITY NO DATA AVAILABLE

RELATIVE DENSITY 4.43

WATER SOLUBILITY NO DATA AVAILABLE PARTITION COEFFICIENT: NO DATA AVAILABLE

N- OCTANOL/WATER

AUTO-IGNITION NO DATA AVAILABLE

TEMPERATURE

DECOMPOSITION NO DATA AVAILABLE

TEMPERATURE

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 AVOID MOISTURE.

REACTS DANGEROUSLY WITH GLASS.

INCOMPATIBLE MATERIALS STRONG OXIDIZING AGENTS GLASS

HAZARDOUS DECOMPOSITION PRODUCTS HAZARDOUS DECOMPOSITION PRODUCTS FORMED UNDER FIRE CONDITIONS. - HYDROGEN FLUORIDE,

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

NO DATA AVAILABLE

SKIN

CORROSION/IRRITATION

SERIOUS EYE NO DATA AVAILABLE

DAMAGE/EYE IRRITATION

NO DATA AVAILABLE

RESPIRATORY OR SKIN SENSITISATION

NO DATA AVAILABLE

GERM CELL MUTAGENICITY

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

NO DATA AVAILABLE

SPECIFIC TARGET ORGAN

TOXICITY - REPEATED

EXPOSURE

NO DATA AVAILABLE

ASPIRATION HAZARD NO DATA AVAILABLE

ADDITIONAL INFORMATION

RTECS: ZH7875000

FLUORIDE ION CAN REDUCE SERUM CALCIUM LEVELS

POSSIBLY CAUSING FATAL HYPOCALCEMIA.

COUGH, SHORTNESS OF BREATH, HEADACHE, NAUSEA,

VOMITING

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.

CONTAMINATED

PACKAGING

DISPOSE OF AS UNUSED PRODUCT.

SECTION 14. TRANSPORT INFORMATION

DOT (US)

PROPER SHIPPING NAME: CORROSIVE SOLID, ACIDIC, INORGANIC, N.O.S.

(ZIRCONIUM TETRAFLUORIDE)

UN NUMBER: 3260 CLASS: 8 PACKING GROUP: II

REPORTABLE QUANTITY

(RQ):

POISON INHALATION NO

HAZARD:

IMDG

PROPER SHIPPING NAME: CORROSIVE SOLID, ACIDIC, INORGANIC, N.O.S.

(ZIRCONIUM TETRAFLUORIDE)

UN NUMBER: 3260
CLASS: 8
PACKING GROUP: II
EMS-NO: F-A, S-B

IATA

PROPER SHIPPING NAME: CORROSIVE SOLID, ACIDIC, INORGANIC, N.O.S.

(ZIRCONIUM TETRAFLUORIDE)

UN NUMBER: 3260 CLASS: 8 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 ACUTE HEALTH HAZARD

MASSACHUSETTS RIGHTNO COMPONENTS ARE SUBJECT TO THETO KNOW COMPONENTSMASSACHUSETTS RIGHT TO KNOW ACT.

PENNSYLVANIA RIGHT TO KNOW COMPONENTS

CAS-NO. REVISION DATE Zirconium(IV) fluoride 7783-64-4 06-01-2008

NEW JERSEY RIGHT TO KNOW COMPONENTS

CAS-NO. REVISION DATE

Zirconium(IV) fluoride 7783-64-4 06-01-2008

CALIFORNIA PROP. 65 COMPONENTS

THIS PRODUCT DOES NOT CONTAIN ANY CHEMICALS KNOWN TO STATE OF CALIFORNIA TO CAUSE CANCER, BIRTH DEFECTS, OR ANY OTHER REPRODUCTIVE HARM.

SECTION 16. OTHER INFORMATION

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

H314 CAUSES SEVERE SKIN BURNS AND EYE DAMAGE.

MSDS LEGEND

MW: MOLECULAR WEIGHT MF: MOLECULAR FORMULA

VOC: VOLATILE ORGANIC COMPOUNDS

ACGIH: AMERICAN CONFERENCE OF GOVERNMENENTAL 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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