Chem-Impex International Inc.

Tel: (630) 766-2112
E-mail: sales@chemimpex.com
Shipping and Correspondence:
935 Dillon Drive
Wood Dale, IL 60191 USA

Fax: (630) 766-2218
Web site: www.chemimpex.com
Manufacturing site:
825 Dillon Drive
Wood Dale, IL 60191 USA

SAFETY DATA SHEET

SECTION 1. CHEMICAL IDENTIFICATION

CATALOG #: 35484

NAME: Chromium(III) fluoride tetrahydrate

SYNONYMS: Chromium trifluoride tetrahydrate

Chromic fluoride tetrahydrate

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)

ACUTE TOXICITY, ORAL (CATEGORY 4), H302 ACUTE TOXICITY, INHALATION (CATEGORY 4), H332 ACUTE TOXICITY, DERMAL (CATEGORY 4), H312 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)

H302 + H312 + H332 HARMFUL IF SWALLOWED, IN CONTACT WITH SKIN OR IF

INHALED.

H314 CAUSES SEVERE SKIN BURNS AND EYE DAMAGE.

PRECAUTIONARY STATEMENT(S)

P260 DO NOT BREATHE DUST OR MIST.

P264 WASH SKIN THOROUGHLY AFTER HANDLING. P270 DO NOT EAT, DRINK OR SMOKE WHEN USING THIS

PRODUCT.

P271 USE ONLY OUTDOORS OR IN A WELL-VENTILATED AREA.
P280 WEAR PROTECTIVE GLOVES/ PROTECTIVE CLOTHING/ EYE

PROTECTION/ FACE PROTECTION.

P301 + P312 IF SWALLOWED: CALL A POISON CENTER/DOCTOR IF YOU

FEEL UNWELL.

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 IF INHALED: REMOVE VICTIM TO FRESH AIR AND KEEP AT

REST IN A POSITION COMFORTABLE FOR BREATHING.

P305 + P351 + P338 IF IN EYES: RINSE CAUTIOUSLY WITH WATER FOR SEVERAL

MINUTES. REMOVE CONTACT LENSES, IF PRESENT AND

EASY TO DO. CONTINUE RINSING.

P310 IMMEDIATELY CALL A POISON CENTER/DOCTOR.

P322 SPECIFIC MEASURES (SEE SUPPLEMENTAL FIRST AID

INSTRUCTIONS ON THIS LABEL).

P363 WASH CONTAMINATED CLOTHING BEFORE REUSE.

P405 STORE LOCKED UP.

P501 DISPOSE OF CONTENTS/ CONTAINER TO AN APPROVED

WASTE DISPOSAL PLANT.

HAZARDS NOT STRONG HYDROGEN FLUORIDE-RELEASER

OTHERWISE

CLASSIFIED (HNOC) OR NOT COVERED

BY GHS

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

MF: CrF_3 ·4H₂O

MW: 181.05

CAS-NO. 123333-98-2

PURITY: ≥97% Metals basis (Cr : 27.7 - 29.7 %)

HAZARDOUS COMPONENTS

COMPONENT	CLASSIFICATION	CONCENTRATION			
Chromium(III) fluoride tetrahydrate					
	ACUTE TOX. 4; SKIN CORR.	<= 100 %			
	1B; EYE DAM. 1; H302, H332,				
	H312, H314, H318				

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.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 ARISING FROM THE

SUBSTANCE OR MIXTURE

HYDROGEN FLUORIDE, CHROMIUM OXIDES

ADVICE FOR WEAR SELF CONTAINED BREATHING APPARATUS FOR

FIREFIGHTERS FIRE FIGHTING IF NECESSARY.

FURTHER INFORMATION NO DATA AVAILABLE

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. EVACUATE PERSONNEL TO SAFE AREAS. AVOID BREATHING DUST.

FOR PERSONAL PROTECTION SEE SECTION 8.

ENVIRONMENTAL PRECAUTIONS

DO NOT LET PRODUCT ENTER DRAINS.

METHODS AND MATERIALS FOR CONTAINMENT AND CLEANING UP PICK UP AND ARRANGE DISPOSAL WITHOUT CREATING DUST. SWEEP UP AND SHOVEL. KEEP IN SUITABLE,

CLOSED CONTAINERS FOR DISPOSAL.

REFERENCE TO OTHER SECTIONS

FOR DISPOSAL SEE SECTION 13.

SECTION 7. HANDLING AND STORAGE

PRECAUTIONS FOR SAFE

AVOID CONTACT WITH SKIN AND EYES. AVOID

HANDLING

FORMATION OF DUST AND AEROSOLS.

PROVIDE APPROPRIATE EXHAUST VENTILATION AT

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

CONDITIONS FOR SAFE STORAGE, INCLUDING

KEEP CONTAINER TIGHTLY CLOSED IN A DRY AND

WELL-VENTILATED PLACE.

ANY INCOMPATIBILITIES KEEP IN A DRY PLACE. 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	

Chromium(III)	123333-98-2	TWA	0.5 MG/M3	USA. OCCUPATIONAL	
fluoride				EXPOSURE LIMITS (OSHA) -	
tetrahydrate				TABLE Z-1 LIMITS FOR AIR	
J				CONTAMINANTS	
		TWA	2.5 MG/M3	USA. OCCUPATIONAL	
				EXPOSURE LIMITS (OSHA) -	
				TABLE Z-1 LIMITS FOR AIR	
				CONTAMINANTS	
	REMARKS	CAS NUM	BER VARIES	WITH COMPOUND	
		TWA	2.5 MG/M3	USA, ACGIH THRESHOLD	
				LIMIT VALUES (TLV)	
		BONE DAMAGE			
		FLUOROSIS SUBSTANCES FOR WHICH THERE IS A BIOLOGICAL EXPOSURE INDEX NOT CLASSIFIABLE AS A HUMAN CARCINOGEN			
		VARIES			
		TWA	0.5 MG/M3	USA. NIOSH RECOMMENDED	
				EXPOSURE LIMITS	
		CHROMIUM (III) COMPOUNDS INCLUDE SOLUBLE			
		CHROMIC SALTS.			
		SEE APPENDIX C			
		PEL	0.5 MG/M3	CALIFORNIA PERMISSIBLE	
				EXPOSURE LIMITS FOR	
				CHEMICAL CONTAMINANTS	
				(TITLE 8, ARTICLE 107)	
		PEL	2.5 MG/M3	CALIFORNIA PERMISSIBLE	
				EXPOSURE LIMITS FOR	
				CHEMICAL CONTAMINANTS	
				(TITLE 8, ARTICLE 107)	
	l .	1	1	(,)	

BIOLOGICAL OCCUPATIONAL EXPOSURE LIMITS

COMPONENT	CAS-NO.	PARAMETERS	VALUE	BIOLOGICAL	BASIS
				SPECIMEN	
Chromium(III)	123333-98-2	FLUORIDE	2 MG/L	URINE	ACGIH -
fluoride					Biological
tetrahydrate					Exposure
					Indices (BEI)
	REMARKS	PRIOR TO SHIF	Γ (16 HOUI	RS AFTER EXPO	SURE CEASES)
		FLUORIDE	3 MG/L	URINE	ACGIH -
					BIOLOGICAL
					EXPOSURE
					INDICES (BEI)
		END OF SHIFT (AS SOON AS POSSIBLE AFTER EXPOSURE			
		CEASES)			

EXPOSURE CONTROLS

APPROPRIATEHANDLE IN ACCORDANCE WITH GOOD INDUSTRIALENGINEERINGHYGIENE AND SAFETY PRACTICE. WASH HANDS BEFORE

CONTROLS BREAKS AND AT THE END OF WORKDAY.

PERSONAL PROTECTIVE EQUIPMENT

EYE/FACE PROTECTION

FACE SHIELD AND SAFETY GLASSES 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

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 Dark green powder
ODOUR NO DATA AVAILABLE
ODOUR THRESHOLD NO DATA AVAILABLE
PH NO DATA AVAILABLE

MELTING

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

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, STRONG ACIDSGLASS

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

CHROMIUM 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 NO DATA AVAILABLE

CORROSION/IRRITATION

SERIOUS EYE NO DATA AVAILABLE

DAMAGE/EYE IRRITATION

RESPIRATORY OR SKIN NO DATA AVAILABLE SENSITISATION

GERM CELL NO DATA AVAILABLE 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 NO DATA AVAILABLE

TOXICITY - SINGLE

EXPOSURE

EALOSUKE

EXPOSURE

SPECIFIC TARGET ORGAN NO DATA AVAILABLE

TOXICITY - REPEATED

ASPIRATION HAZARD NO DATA AVAILABLE

ADDITIONAL **INFORMATION** RTECS: NOT AVAILABLE

FLUORIDE ION CAN REDUCE SERUM CALCIUM LEVELS POSSIBLY CAUSING FATAL HYPOCALCEMIA. MATERIAL IS EXTREMELY DESTRUCTIVE TO TISSUE OF THE MUCOUS MEMBRANES AND UPPER

RESPIRATORY TRACT, EYES, AND SKIN., SPASM,

INFLAMMATION AND EDEMA OF THE LARYNX, SPASM,

INFLAMMATION AND EDEMA OF THE BRONCHI, PNEUMONITIS, PULMONARY EDEMA, BURNING SENSATION, COUGH, WHEEZING, LARYNGITIS, SHORTNESS OF BREATH, HEADACHE, NAUSEA

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

ASSESSMENT

RESULTS OF PBT AND VPVB 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, CONTACT A LICENSED PROFESSIONAL WASTE DISPOSAL SERVICE TO DISPOSE OF THIS MATERIAL. DISSOLVE OR MIX THE MATERIAL WITH A COMBUSTIBLE SOLVENT AND BURN IN A CHEMICAL INCINERATOR EOUIPPED WITH AN

AFTERBURNER AND SCRUBBER.

CONTAMINATED **PACKAGING**

DISPOSE OF AS UNUSED PRODUCT.

SECTION 14. TRANSPORT INFORMATION

DOT (US)

PROPER SHIPPING NAME: CHROMIC FLUORIDE, SOLID

UN NUMBER: 1756 CLASS: 8 PACKING GROUP: II

REPORTABLE QUANTITY

(RQ):

POISON INHALATION NO

HAZARD:

IMDG

PROPER SHIPPING NAME: CHROMIC FLUORIDE, SOLID

UN NUMBER: 1756
CLASS: 8
PACKING GROUP: II
EMS-NO: F-A, S-B

IATA

PROPER SHIPPING NAME: CHROMIC FLUORIDE, SOLID

UN NUMBER: 1756 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

THE FOLLOWING COMPONENTS ARE SUBJECT TO REPORTING LEVELS ESTABLISHED

BY SARA TITLE III, SECTION 313:

CAS-NO. REVISION DATE

Chromium(III) fluoride 123333-98-2 03/01/2007

tetrahydrate

SARA 311/312 HAZARDS

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

Chromium(III) fluoride 123333-98-2 03/01/2007

tetrahydrate

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.

H302 + H312 + H332 HARMFUL IF SWALLOWED, IN CONTACT WITH SKIN

OR IF INHALED.

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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