Chem-Impex International Inc.

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SAFETY DATA SHEET

SECTION 1. CHEMICAL IDENTIFICATION

CATALOG #:	36793
NAME:	Titanium(IV) chloride tetrahydrofuran complex
SYNONYMS:	Tetrachlorobis(tetrahydrofuran)titanium
24 HOUR EMERGENCY	(800) 535-5053(USA)
TELEPHONE:	352-323-3500 (INTERNATIONAL)
TO DECLIEST AN MSDS.	(800) 860 0200
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 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

HAZARD STATEMENT	(S)
H228	FLAMMABLE SOLID.
H314	CAUSES SEVERE SKIN BURNS AND EYE DAMAGE.
H318	CAUSES SERIOUS EYE DAMAGE.
PRECAUTIONARY STA	TEMENT(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.
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 VICTIM TO FRESH AIR AND KEEP AT
	REST IN A POSITION COMFORTABLE FOR BREATHING.
	IMMEDIATELY CALL A POISON CENTER OR DOCTOR/
	PHYSICIAN.
P305 + P351 + P338 +	IF IN EYES: RINSE CAUTIOUSLY WITH WATER FOR SEVERAL
P310	MINUTES. REMOVE CONTACT LENSES, IF PRESENT AND
	EASY TO DO. CONTINUE RINSING. IMMEDIATELY CALL A
	POISON CENTER/DOCTOR.
P363	WASH CONTAMINATED CLOTHING BEFORE REUSE.
P370 + P378	IN CASE OF FIRE: USE DRY SAND, DRY CHEMICAL OR
	ALCOHOL-RESISTANT FOAM FOR EXTINCTION.
P405	STORE LOCKED UP.
P501	DISPOSE OF CONTENTS/ CONTAINER TO AN APPROVED
	WASTE DISPOSAL PLANT.
HAZARDS NOT	REACTS VIOLENTLY WITH WATER.
OTHERWISE	
CLASSIFIED (HNOC)	
OR NOT COVERED	

OR NOT COVERED BY GHS

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

MF:	$C_8H_{16}Cl_4O_2Ti$
MW:	333.89
CAS-NO.	31011-57-1
PURITY:	\geq 97% (Assay by titration)

COMPONENT	CLASSIFICATION	CONCENTRATION
Titanium(IV) chloride tet	rahydrofuran complex	
	FLAM. SOL. 1; SKIN CORR. 1B;	<= 100 %
	EYE DAM. 1; H228, 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.
IF INHALED	IF BREATHED IN, MOVE PERSON INTO FRESH AIR. IF NOT BREATHING, GIVE ARTIFICIAL RESPIRATION. CONSULT A PHYSICIAN.
IN CASE OF SKIN	TAKE OFF CONTAMINATED CLOTHING AND SHOES
CONTACT	IMMEDIATELY. 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.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

SECTION 5. FIRE AND EXPLOSION DATA

EXTINGUISHING MEDIA

SUITABLE EXTINGUISHING MEDIA	DRY POWDER
SPECIAL HAZARDS ARISING FROM THE SUBSTANCE OR MIXTURE	HYDROGEN CHLORIDE GAS, HYDROGEN FLUORIDE, TITANIUM/TITANIUM OXIDES
ADVICE FOR FIREFIGHTERS	WEAR SELF-CONTAINED BREATHING APPARATUS FOR FIREFIGHTING IF NECESSARY.
FURTHER INFORMATION	NO DATA AVAILABLE

SECTION 6. ACCIDENTAL RELEASE MEASURES

PERSONAL	USE PERSONAL PROTECTIVE EQUIPMENT. AVOID
PRECAUTIONS,	DUST FORMATION. AVOID BREATHING VAPOURS, MIST
PROTECTIVE	OR GAS. ENSURE ADEQUATE VENTILATION. REMOVE
EQUIPMENT AND	ALL SOURCES OF IGNITION. EVACUATE PERSONNEL
EMERGENCY	TO SAFE AREAS. AVOID BREATHING DUST.
PROCEDURES	FOR PERSONAL PROTECTION SEE SECTION 8.
ENVIRONMENTAL	PREVENT FURTHER LEAKAGE OR SPILLAGE IF SAFE
PRECAUTIONS	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). DO NOT FLUSH WITH WATER. KEEP IN SUITABLE, CLOSED CONTAINERS FOR DISPOSAL.
REFERENCE TO OTHER SECTIONS	FOR DISPOSAL SEE SECTION 13.

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.KEEP AWAY FROM SOURCES OF IGNITION - NO SMOKING.TAKE MEASURES TO PREVENT THE BUILD UP OF ELECTROSTATIC CHARGE. FOR PRECAUTIONS SEE SECTION 2.2.
CONDITIONS FOR SAFE STORAGE, INCLUDING ANY INCOMPATIBILITIES	KEEP CONTAINER TIGHTLY CLOSED IN A DRY AND WELL-VENTILATED PLACE. NEVER ALLOW PRODUCT TO GET IN CONTACT WITH WATER DURING STORAGE. AIR SENSITIVE. REACTS VIOLENTLY WITH WATER. KEEP IN A DRY PLACE.
SPECIFIC END USE(S)	Store at 2 - 8 °C, under nitrogen 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 CONTAINS NO SUBSTANCES WITH OCCUPATIONAL EXPOSURE LIMIT VALUES.

EXPOSURE CONTROLS

APPROPRIATE	HANDLE IN ACCORDANCE WITH GOOD INDUSTRIAL
ENGINEERING CONTROLS	HYGIENE AND SAFETY PRACTICE. WASH HANDS
	BEFORE 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.
	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, 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	Off-white or pale yellow powder
ODOUR	NO DATA AVAILABLE
ODOUR THRESHOLD	NO DATA AVAILABLE
PH	NO DATA AVAILABLE
MELTING	126 - 128 °C
POINT/FREEZING POINT	
INITIAL BOILING POINT	
AND BOILING RANGE	
FLASH POINT	-17 °C
EVAPORATION RATE	NO DATA AVAILABLE
FLAMMABILITY (SOLID,	THE SUBSTANCE OR MIXTURE IS A FLAMMABLE SOLID
GAS)	WITH THE CATEGORY 1.
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	REACTS VIOLENTLY WITH WATER.
CONDITIONS TO AVOID	HEAT, FLAMES AND SPARKS. EXPOSURE TO MOISTURE
INCOMPATIBLE MATERIALS	STRONG OXIDIZING AGENTS
HAZARDOUS DECOMPOSITION PRODUCTS	HAZARDOUS DECOMPOSITION PRODUCTS FORMED UNDER FIRE CONDITIONS HYDROGEN CHLORIDE GAS, HYDROGEN FLUORIDE, TITANIUM/TITANIUM OXIDES OTHER DECOMPOSITION PRODUCTS - NO DATA AVAILABLE IN THE EVENT OF FIRE: SEE SECTION 5

SECTION 11. TOXICOLOGICAL INFORMATION

INFORMATION ON TOXICOLOGICAL EFFECTS

NO DATA AVAILABLE
INHALATION: NO DATA AVAILABLE
DERMAL: NO DATA AVAILABLE
NO DATA AVAILABLE
NO DATA AVAILABLE
NO DATA AVAILABLE
NO DATA AVAILABLE
NO DATA AVAILABLE
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. NO COMPONENT OF THIS PRODUCT PRESENT AT LEVELS GREATER THAN OR EQUAL TO 0.1% IS IDENTIFIED AS A CARCINOGEN OR POTENTIAL CARCINOGEN BY ACGIH.

NTP: OSHA:	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. 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: NOT AVAILABLE MATERIAL IS EXTREMELY DESTRUCTIVE TO TISSUE
	OF THE MUCOUS MEMBRANES AND UPPER RESPIRATORY TRACT, EYES, AND SKIN, COUGH, SHORTNESS OF BREATH, HEADACHE, NAUSEA

SECTION 12. ECOLOGICAL INFORMATION

ΤΟΧΙCITY	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

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

CONTAMINATEDDISPOSE OF AS UNUSED PRODUCT.PACKAGING

SECTION 14. TRANSPORT INFORMATION

DOT (US) PROPER SHIPPING NAME: UN NUMBER: CLASS: PACKING GROUP: REPORTABLE QUANTITY (RQ): POISON INHALATION HAZARD:	FLAMMABLE SOLID, CORROSIVE, ORGANIC, N.O.S. (TITANIUM TETRACHLORIDE TETRAHYDROFURAN COMPLEX) 2925 4.1 (8) II
IMDG PROPER SHIPPING NAME: UN NUMBER: CLASS: PACKING GROUP: EMS-NO:	FLAMMABLE SOLID, CORROSIVE, ORGANIC, N.O.S. (TITANIUM TETRACHLORIDE TETRAHYDROFURAN COMPLEX) 2925 4.1 (8) II F-A, S-G
IATA PROPER SHIPPING NAME: UN NUMBER: CLASS: PACKING GROUP:	FLAMMABLE SOLID, CORROSIVE, ORGANIC, N.O.S. (TITANIUM TETRACHLORIDE TETRAHYDROFURAN COMPLEX) 2925 4.1 (8) II

SECTION 15. REGULATORY INFORMATION

SARA 302 COMPONENTS		IS MATERIAL ARE SUBJECT TO JIREMENTS OF SARA TITLE III,
SARA 313 COMPONENTS	COMPONENTS WITH K EXCEED THE THRESH	NOT CONTAIN ANY CHEMICAL NOWN CAS NUMBERS THAT OLD (DE MINIMIS) REPORTING D 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
Titanium(IV) chloride	31011-57-1	
tetrahydrofuran complex		

NEW JERSEY RIGHT TO KNOW COMPONENTS

CAS-NO. Titanium(IV) chloride 31011-57-1 tetrahydrofuran complex

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.

REVISION DATE

SECTION 16. OTHER INFORMATION

FULL TEXT OF H-STATEMENTS REFERRED TO UNDER SECTIONS 2 AND 3.		
H228	FLAMMABLE SOLID.	
H314	CAUSES SEVERE SKIN BURNS AND EYE DAMAGE.	
H318	CAUSES SERIOUS 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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