

# Chem-Impex International Inc.

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## SAFETY DATA SHEET

### SECTION 1. CHEMICAL IDENTIFICATION

CATALOG #: 39158  
NAME: (1*R*,4*R*,5*R*)-4,7,7-Trimethyl-6-thiabicyclo[3.2.1]octane  
SYNONYMS: exo(-)-4,7,7-Trimethyl-6-thiabicyclo[3.2.1]octane  
Isothiocineole  
exo(-)-4,7,7-Trimethyl-6-thiabicyclo[3.2.1]octane  
Isothiocineole  
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 LIQUIDS (CATEGORY 4), H227  
SHORT-TERM (ACUTE) AQUATIC HAZARD (CATEGORY 2), H401  
LONG-TERM (CHRONIC) AQUATIC HAZARD (CATEGORY 2), H411

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

#### GHS LABEL ELEMENTS, INCLUDING PRECAUTIONARY STATEMENTS

##### PICTOGRAM



SIGNAL WORD WARNING

##### HAZARD STATEMENT(S)

H227 COMBUSTIBLE LIQUID.  
H411 TOXIC TO AQUATIC LIFE WITH LONG LASTING EFFECTS.

##### PRECAUTIONARY STATEMENT(S)

P210 KEEP AWAY FROM HEAT/SPARKS/OPEN FLAMES/HOT SURFACES. NO SMOKING.  
P273 AVOID RELEASE TO THE ENVIRONMENT.  
P280 WEAR PROTECTIVE GLOVES/ PROTECTIVE CLOTHING/ EYE PROTECTION/ FACE PROTECTION.  
P370 + P378 IN CASE OF FIRE: USE DRY SAND, DRY CHEMICAL OR ALCOHOL-RESISTANT FOAM TO EXTINGUISH.  
P391 COLLECT SPILLAGE.  
P403 + P235 STORE IN A WELL-VENTILATED PLACE. KEEP COOL.  
P501 DISPOSE OF CONTENTS/ CONTAINER TO AN APPROVED WASTE DISPOSAL PLANT.

HAZARDS NOT OTHERWISE CLASSIFIED (HNOC) NONE

OR NOT COVERED  
BY GHS

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### SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

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MF: C<sub>10</sub>H<sub>18</sub>S  
MW: 170.31  
CAS-NO. 5718-75-2  
PURITY: ≥ 98% (Chiral purity)

#### HAZARDOUS COMPONENTS

COMPONENT	CLASSIFICATION	CONCENTRATION
(1 <i>R</i> ,4 <i>R</i> ,5 <i>R</i> )-4,7,7-Trimethyl-6-thiabicyclo[3.2.1]octane	FLAM. LIQ. 4; AQUATIC ACUTE 2; AQUATIC CHRONIC 2; H227, H401, H411	≤ 100 %

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

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### SECTION 4. FIRST-AID MEASURES

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#### 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** FLUSH EYES WITH WATER AS A PRECAUTION.

**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

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### SECTION 5. FIRE AND EXPLOSION DATA

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#### EXTINGUISHING MEDIA

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

**SPECIAL HAZARDS ARISING FROM THE SUBSTANCE OR MIXTURE** CARBON OXIDES, SULPHUR OXIDES

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

FURTHER INFORMATION USE WATER SPRAY TO COOL UNOPENED CONTAINERS.

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## SECTION 6. ACCIDENTAL RELEASE MEASURES

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<b>PERSONAL PRECAUTIONS, PROTECTIVE EQUIPMENT AND EMERGENCY PROCEDURES</b>	AVOID BREATHING VAPOURS, MIST OR GAS. ENSURE ADEQUATE VENTILATION. REMOVE ALL SOURCES OF IGNITION. BEWARE OF VAPOURS ACCUMULATING TO FORM EXPLOSIVE CONCENTRATIONS. VAPOURS CAN ACCUMULATE IN LOW AREAS. FOR PERSONAL PROTECTION SEE SECTION 8.
<b>ENVIRONMENTAL PRECAUTIONS</b>	PREVENT FURTHER LEAKAGE OR SPILLAGE IF SAFE TO DO SO. DO NOT LET PRODUCT ENTER DRAINS. DISCHARGE INTO THE ENVIRONMENT MUST BE AVOIDED.
<b>METHODS AND MATERIALS FOR CONTAINMENT AND CLEANING UP</b>	CONTAIN SPILLAGE, AND THEN COLLECT WITH NON-COMBUSTIBLE ABSORBENT MATERIAL, (E.G. SAND, EARTH, DIATOMACEOUS EARTH, VERMICULITE) AND PLACE IN CONTAINER FOR DISPOSAL ACCORDING TO LOCAL / NATIONAL REGULATIONS (SEE SECTION 13). KEEP IN SUITABLE, CLOSED CONTAINERS FOR DISPOSAL.
<b>REFERENCE TO OTHER SECTIONS</b>	FOR DISPOSAL SEE SECTION 13.

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## SECTION 7. HANDLING AND STORAGE

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<b>PRECAUTIONS FOR SAFE HANDLING</b>	AVOID INHALATION OF VAPOUR OR MIST. KEEP AWAY FROM SOURCES OF IGNITION - NO SMOKING.TAKE MEASURES TO PREVENT THE BUILD UP OF ELECTROSTATIC CHARGE. FOR PRECAUTIONS SEE SECTION 2.2.
<b>CONDITIONS FOR SAFE STORAGE, INCLUDING ANY INCOMPATIBILITIES</b>	KEEP CONTAINER TIGHTLY CLOSED IN A DRY AND WELL-VENTILATED PLACE. CONTAINERS WHICH ARE OPENED MUST BE CAREFULLY RESEALED AND KEPT UPRIGHT TO PREVENT LEAKAGE.  HANDLE UNDER INERT GAS. PROTECT FROM MOISTURE.
<b>SPECIFIC END USE(S)</b>	Store at 0 - 10 °C APART FROM THE USES MENTIONED IN SECTION 1.2 NO OTHER SPECIFIC USES ARE STIPULATED.

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## SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

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### CONTROL PARAMETERS

#### COMPONENTS WITH WORKPLACE CONTROL PARAMETERS

CONTAINS NO SUBSTANCES WITH OCCUPATIONAL EXPOSURE LIMIT VALUES.

### EXPOSURE CONTROLS

<b>APPROPRIATE ENGINEERING CONTROLS</b>	HANDLE IN ACCORDANCE WITH GOOD INDUSTRIAL HYGIENE AND SAFETY PRACTICE. WASH HANDS BEFORE BREAKS AND AT THE END OF WORKDAY.
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### PERSONAL PROTECTIVE EQUIPMENT

<b>EYE/FACE PROTECTION</b>	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).
<b>SKIN PROTECTION</b>	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.

<b>BODY PROTECTION</b>	IMPERVIOUS CLOTHING, THE TYPE OF PROTECTIVE EQUIPMENT MUST BE SELECTED ACCORDING TO THE CONCENTRATION AND AMOUNT OF THE DANGEROUS SUBSTANCE AT THE SPECIFIC WORKPLACE.
<b>RESPIRATORY PROTECTION</b>	WHERE RISK ASSESSMENT SHOWS AIR-PURIFYING RESPIRATORS ARE APPROPRIATE USE A FULLFACE RESPIRATOR WITH MULTI-PURPOSE COMBINATION (US) OR TYPE ABEK (EN 14387) 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).
<b>CONTROL OF ENVIRONMENTAL EXPOSURE</b>	PREVENT FURTHER LEAKAGE OR SPILLAGE IF SAFE TO DO SO. DO NOT LET PRODUCT ENTER DRAINS. DISCHARGE INTO THE ENVIRONMENT MUST BE AVOIDED.

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## SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

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### INFORMATION ON BASIC PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE	Colorless clear liquid
ODOUR	MILD
ODOUR THRESHOLD	NO DATA AVAILABLE
PH	NO DATA AVAILABLE
MELTING POINT/FREEZING POINT	
INITIAL BOILING POINT AND BOILING RANGE	84 °C / 5 mmHg
FLASH POINT	79 °C
EVAPORATION RATE	NO DATA AVAILABLE
FLAMMABILITY (SOLID, GAS)	NO DATA AVAILABLE
UPPER/LOWER FLAMMABILITY OR EXPLOSIVE LIMITS	NO DATA AVAILABLE
VAPOUR PRESSURE	NO DATA AVAILABLE
VAPOUR DENSITY	NO DATA AVAILABLE
RELATIVE DENSITY	1.00
WATER SOLUBILITY	NO DATA AVAILABLE
PARTITION COEFFICIENT: N- OCTANOL/WATER	LOG POW: 4.118
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

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## SECTION 10. STABILITY AND REACTIVITY

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<b>REACTIVITY</b>	NO DATA AVAILABLE
<b>CHEMICAL STABILITY</b>	STABLE UNDER RECOMMENDED STORAGE CONDITIONS.
<b>POSSIBILITY OF HAZARDOUS REACTIONS</b>	NO DATA AVAILABLE
<b>CONDITIONS TO AVOID</b>	HEAT, FLAMES AND SPARKS.
<b>INCOMPATIBLE MATERIALS</b>	STRONG OXIDIZING AGENTS

**HAZARDOUS  
DECOMPOSITION  
PRODUCTS**

HAZARDOUS DECOMPOSITION PRODUCTS FORMED UNDER  
FIRE CONDITIONS. - CARBON OXIDES, SULPHUR OXIDES  
OTHER DECOMPOSITION PRODUCTS - NO DATA AVAILABLE  
IN THE EVENT OF FIRE: SEE SECTION 5

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**SECTION 11. TOXICOLOGICAL INFORMATION**

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**INFORMATION ON TOXICOLOGICAL EFFECTS**

<b>ACUTE TOXICITY</b>	NO DATA AVAILABLE
	INHALATION: NO DATA AVAILABLE
	DERMAL: NO DATA AVAILABLE
	NO DATA AVAILABLE
<b>SKIN CORROSION/IRRITATION</b>	NO DATA AVAILABLE
<b>SERIOUS EYE DAMAGE/EYE IRRITATION</b>	NO DATA AVAILABLE
<b>RESPIRATORY OR SKIN SENSITISATION</b>	NO DATA AVAILABLE
<b>GERM CELL MUTAGENICITY</b>	NO DATA AVAILABLE
<b>CARCINOGENICITY</b>	
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.
ACGIH:	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:	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.
<b>REPRODUCTIVE TOXICITY</b>	NO DATA AVAILABLE
<b>SPECIFIC TARGET ORGAN TOXICITY - SINGLE EXPOSURE</b>	NO DATA AVAILABLE
<b>SPECIFIC TARGET ORGAN TOXICITY - REPEATED EXPOSURE</b>	NO DATA AVAILABLE
<b>ASPIRATION HAZARD</b>	NO DATA AVAILABLE
<b>ADDITIONAL INFORMATION</b>	RTECS: NOT AVAILABLE
	TO THE BEST OF OUR KNOWLEDGE, THE CHEMICAL, PHYSICAL, AND TOXICOLOGICAL PROPERTIES HAVE NOT BEEN THOROUGHLY INVESTIGATED.

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**SECTION 12. ECOLOGICAL INFORMATION**

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<b>TOXICITY</b>	NO DATA AVAILABLE
<b>PERSISTENCE AND DEGRADABILITY</b>	NO DATA AVAILABLE
<b>BIOACCUMULATIVE POTENTIAL</b>	NO DATA AVAILABLE

<b>MOBILITY IN SOIL</b>	NO DATA AVAILABLE
<b>RESULTS OF PBT AND VPVB ASSESSMENT</b>	PBT/VPVB ASSESSMENT NOT AVAILABLE AS CHEMICAL SAFETY ASSESSMENT NOT REQUIRED/NOT CONDUCTED
<b>OTHER ADVERSE EFFECTS</b>	AN ENVIRONMENTAL HAZARD CANNOT BE EXCLUDED IN THE EVENT OF UNPROFESSIONAL HANDLING OR DISPOSAL. TOXIC TO AQUATIC LIFE WITH LONG LASTING EFFECTS.

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### SECTION 13. DISPOSAL CONSIDERATIONS

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#### WASTE TREATMENT METHODS

<b>PRODUCT</b>	THIS COMBUSTIBLE MATERIAL MAY BE BURNED IN A CHEMICAL INCINERATOR EQUIPPED WITH AN AFTERBURNER AND SCRUBBER. OFFER SURPLUS AND NON-RECYCLABLE SOLUTIONS TO A LICENSED DISPOSAL COMPANY.
<b>CONTAMINATED PACKAGING</b>	DISPOSE OF AS UNUSED PRODUCT.

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### SECTION 14. TRANSPORT INFORMATION

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#### DOT (US)

PROPER SHIPPING NAME:	AVIATION REGULATED LIQUID, N.O.S. ( (1R,4R,5R)-4,7,7-Trimethyl-6-thiabicyclo[3.2.1]octane )
UN NUMBER:	3334
CLASS:	9
REPORTABLE QUANTITY (RQ):	
POISON INHALATION HAZARD:	NO

#### IMDG

PROPER SHIPPING NAME:	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. ( (1R,4R,5R)-4,7,7-Trimethyl-6-thiabicyclo[3.2.1]octane )
UN NUMBER:	3082
CLASS:	9
PACKING GROUP:	III
EMS-NO:	F-A, S-F
MARINE POLLUTANT :	YES

#### IATA

PROPER SHIPPING NAME:	AVIATION REGULATED LIQUID, N.O.S. ( (1R,4R,5R)-4,7,7-Trimethyl-6-thiabicyclo[3.2.1]octane )
UN NUMBER:	3334
CLASS:	9
PACKING GROUP:	III

#### FURTHER INFORMATION

EHS-MARK REQUIRED (IMDG CODE 2.10.3) FOR SINGLE PACKAGINGS AND COMBINATION PACKAGINGS CONTAINING INNER PACKAGINGS WITH DANGEROUS GOODS > 5L FOR LIQUIDS OR > 5KG FOR SOLIDS.

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### SECTION 15. REGULATORY INFORMATION

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<b>SARA 302 COMPONENTS</b>	NO CHEMICALS IN THIS MATERIAL ARE SUBJECT TO THE REPORTING REQUIREMENTS OF SARA TITLE III, SECTION 302.
<b>SARA 313 COMPONENTS</b>	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

**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
(1R,4R,5R)-4,7,7-Trimethyl-6-thiabicyclo[3.2.1]octane	5718-75-2	

**NEW JERSEY RIGHT TO KNOW COMPONENTS**

	CAS-NO.	REVISION DATE
(1R,4R,5R)-4,7,7-Trimethyl-6-thiabicyclo[3.2.1]octane	5718-75-2	

**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.

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**SECTION 16. OTHER INFORMATION**

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

H227	COMBUSTIBLE LIQUID.
H411	TOXIC TO AQUATIC LIFE WITH LONG LASTING EFFECTS.

**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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