# **Chem-Impex International Inc.**

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# SAFETY DATA SHEET

(S)-(-)-4-Isopropenyl-1-methylcyclohexene

## SECTION 1. CHEMICAL IDENTIFICATION

CATALOG #: 37430

NAME: (S)-(-)-Limonene

SYNONYMS:

(-)-p-Mentha-1,8-diene

24 HOUR EMERGENCY (800) 535-5053(USA) TELEPHONE:

352-323-3500 (INTERNATIONAL)

TO REQUEST AN MSDS: (800) 869-9290

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# SECTION 2. HAZARDS IDENTIFICATION

## CLASSIFICATION OF THE SUBSTANCE OR MIXTURE

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

FLAMMABLE LIQUIDS (CATEGORY 3), H226 SKIN SENSITISATION (CATEGORY 1), H317 ASPIRATION HAZARD (CATEGORY 1), H304 SHORT-TERM (ACUTE) AQUATIC HAZARD (CATEGORY 1), H400

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

# GHS LABEL ELEMENTS, INCLUDING PRECAUTIONARY STATEMENTS



SIGNAL WORD

PICTOGRAM

HAZARD STATEMENT(S)		
H226	FLAMMABLE LIQUID AND VAPOUR.	
H304	MAY BE FATAL IF SWALLOWED AND ENTERS AIRWAYS.	
H317	MAY CAUSE AN ALLERGIC SKIN REACTION.	
H400	VERY TOXIC TO AQUATIC LIFE.	
PRECAUTIONARY STAT	ΓEMENT(S)	
P210	KEEP AWAY FROM HEAT/SPARKS/OPEN FLAMES/HOT SURFACES. - NO SMOKING.	
P233	KEEP CONTAINER TIGHTLY CLOSED.	
P240	GROUND/BOND CONTAINER AND RECEIVING EQUIPMENT	
P241	USE EXPLOSION-PROOF ELECTRICAL/ VENTILATING/ LIGHTING	
	EQUIPMENT.	
P242	USE ONLY NON-SPARKING TOOLS	
P243	TAKE PRECAUTIONARY MEASURES AGAINST STATIC	
1215	DISCHARGE.	
P261	AVOID BREATHING DUST/ FUME/ GAS/ MIST/ VAPOURS/ SPRAY.	
P272	CONTAMINATED WORK CLOTHING MUST NOT BE ALLOWED	
12/2	OUT OF THE WORKPLACE.	
P273	AVOID RELEASE TO THE ENVIRONMENT.	
P280	WEAR PROTECTIVE GLOVES/ EYE PROTECTION/ FACE	
	PROTECTION.	
$D_{201} + D_{210}$	IE SWALLOWED, IMMEDIATELY CALL A DORON	
P301 + P310	IF SWALLOWED: IMMEDIATELY CALL A POISON CENTER/DOCTOR.	
P303 + P361 + P353	IF ON SKIN (OR HAIR): TAKE OFF IMMEDIATELY ALL	
1505 + 1501 + 1555	CONTAMINATED CLOTHING. RINSE SKIN WITH WATER/SHOWER.	
P331	DO NOT INDUCE VOMITING.	
P333 + P313	IF SKIN IRRITATION OR RASH OCCURS: GET MEDICAL ADVICE/	
1555 1515	ATTENTION.	
P363	WASH CONTAMINATED CLOTHING BEFORE REUSE.	
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.	
P405	STORE LOCKED UP.	
P501	DISPOSE OF CONTENTS/ CONTAINER TO AN APPROVED WASTE	
	DISPOSAL PLANT.	
HAZARDS NOT	NONE	

OTHERWISE CLASSIFIED (HNOC) OR NOT COVERED BY GHS

# SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

MF:	$\mathrm{C_{10}H_{16}}$
MW:	136.23
CAS-NO.	5989-54-8
PURITY:	$\geq$ 95% (GC)

## HAZARDOUS COMPONENTS

COMPONENT	CLASSIFICATION	CONCENTRATION
(S)-(-)-Limonene		
	FLAM. LIQ. 3; SKIN SENS. 1; ASP. TOX. 1; AQUATIC ACUTE 1; H226, H317, H304, H400 M-FACTOR - AQUATIC ACUTE: 1	<= 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	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.

# SECTION 5. FIRE AND EXPLOSION DATA

## **EXTINGUISHING MEDIA**

SUITABLE EXTINGUISHING MEDIA	SUITABLE EXTINGUISHING MEDIA DRY POWDER DRY SAND
	UNSUITABLE EXTINGUISHING MEDIA DO NOT USE WATER JET.
SPECIAL HAZARDS ARISING FROM THE SUBSTANCE OR MIXTURE	CARBON 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 BREATHING VAPOURS, MIST OR GAS. ENSURE ADEQUATE VENTILATION. REMOVE ALL SOURCES OF IGNITION. EVACUATE PERSONNEL TO SAFE AREAS. BEWARE OF VAPOURS ACCUMULATING TO FORM EXPLOSIVE CONCENTRATIONS. VAPOURS CAN ACCUMULATE IN LOW AREAS.
	FOR PERSONAL PROTECTION SEE SECTION 8.
ENVIRONMENTAL PRECAUTIONS	PREVENT FURTHER LEAKAGE OR SPILLAGE IF SAFE TO DO SO. DO NOT LET PRODUCT ENTER DRAINS. DISCHARGE INTO THE ENVIRONMENT MUST BE AVOIDED.
METHODS AND MATERIALS FOR CONTAINMENT AND CLEANING UP	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).

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

# SECTION 7. HANDLING AND STORAGE

PRECAUTIONS FOR SAFE HANDLING	AVOID CONTACT WITH SKIN AND EYES. 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.
CONDITIONS FOR SAFE STORAGE, INCLUDING ANY INCOMPATIBILITIES	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. 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** 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: 0.4 MM BREAK THROUGH TIME: 480 MIN MATERIAL TESTED:CAMATRIL (KCL 730, SIZE M)
	SPLASH CONTACT MATERIAL: NITRILE RUBBER MINIMUM LAYER THICKNESS: 0.2 MM BREAK THROUGH TIME: 60 MIN MATERIAL TESTED:DERMATRIL P (KCL 743, 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, AND THE TYPE OF PROTECTIVE EQUIPMENT MUST BE SELECTED ACCORDING TO THE CONCENTRATION AND AMOUNT OF THE DANGEROUS SUBSTANCE AT THE SPECIFIC WORKPLACE.
<b>RESPIRATORY</b> <b>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).
CONTROL OF ENVIRONMENTAL EXPOSURE	PREVENT FURTHER LEAKAGE OR SPILLAGE IF SAFE TO DO SO. DO NOT LET PRODUCT ENTER DRAINS. DISCHARGE INTO THE ENVIRONMENT MUST BE AVOIDED.

# SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

#### INFORMATION ON BASIC PHYSICAL AND CHEMICAL PROPERTIES

	SICT III I SICAL AND CHEMICAL I KOI EKI
APPEARANCE	Slight yellow transparent liquid
ODOUR	NO DATA AVAILABLE
ODOUR THRESHOLD	NO DATA AVAILABLE
PH	NO DATA AVAILABLE
MELTING	
POINT/FREEZING POIN	Г
BOILING POINT	? 170 °C
FLASH POINT	
EVAPOURATION RATE	NO DATA AVAILABLE
FLAMMABILITY (SOLII	D, NO DATA AVAILABLE
GAS)	
UPPER/LOWER	UPPER EXPLOSION LIMIT: 6.1 %(V)
FLAMMABILITY OR	LOWER EXPLOSION LIMIT: 0.7 %(V)
EXPLOSIVE LIMITS	
VAPOUR PRESSURE	< 4 HPA AT 14.4 C
VAPOUR DENSITY	4.7 - (AIR = 1.0)
RELATIVE DENSITY	0.8400 - 0.8600 g/mL at 20 °C
WATER SOLUBILITY	NO DATA AVAILABLE
PARTITION COEFFICIEN	NT: NO DATA AVAILABLE
N- OCTANOL/WATER	
AUTO-IGNITION	NO DATA AVAILABLE
TEMPERATURE	
DECOMPOSITION	NO DATA AVAILABLE
TEMPERATURE	
VISCOSITY	NO DATA AVAILABLE
EXPLOSIVE PROPERTIE	ES NO DATA AVAILABLE
OXIDIZING PROPERTIE	S NO DATA AVAILABLE
OTHED CAPETV INFO	DMATION

## **OTHER SAFETY INFORMATION**

RELATIVE VAPOUR	4.7 - (AIR = 1.0)
DENSITY	

# 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.

HAZARDOUSHAZARDOUS DECOMPOSITION PRODUCTS FORMED UNDERDECOMPOSITIONFIRE CONDITIONS. - CARBON OXIDESPRODUCTSOTHER DECOMPOSITION PRODUCTS - NO DATA AVAILABLE<br/>IN THE EVENT OF FIRE: SEE SECTION 5

## SECTION 11. TOXICOLOGICAL INFORMATION

### INFORMATION ON TOXICOLOGICAL EFFECTS

ACUTE TOXICITY LD50 ORAL - RAT - > 5,000 MG/KG

INHALATION: NO DATA AVAILABLE

LD50 DERMAL - RABBIT - > 5,000 MG/KG

NO DATA AVAILABLE

SKIN	SKIN - RABBIT
CORROSION/IRRITATION	<b>RESULT: NO SKIN IRRITATION</b>
	(OECD TEST GUIDELINE 404)

SERIOUS EYE	EYES - RABBIT
DAMAGE/EYE IRRITATION	<b>RESULT: NO EYE IRRITATION</b>
	(OECD TEST GUIDELINE 405)

<b>RESPIRATORY OR SKIN</b>	- MOUSE
SENSITISATION	MAY CAUSE ALLERGIC SKIN REACTION.
	(OECD TEST GUIDELINE 429)

GERM CELL NO DATA AVAILABLE

MUTAGENICITY

**CARCINOGENICITY** IARC:

NTP:

OSHA:

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 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	ASPIRATION MAY CAUSE PULMONARY OEDEMA AND PNEUMONITIS.
ADDITIONAL INFORMATION	RTECS: OS8350000
	TO THE BEST OF OUR KNOWLEDGE, THE CHEMICAL, PHYSICAL, AND TOXICOLOGICAL PROPERTIES HAVE NOT BEEN THOROUGHLY INVESTIGATED.

# SECTION 12. ECOLOGICAL INFORMATION

TOXICITY TOXICITY TO FISH	LC50 - PIMEPHALES PROMELAS (FATHEAD MINNOW) - 0.702 MG/L - 96 H
	(OECD TEST GUIDELINE 203)
PERSISTENCE AND DEGRADABILITY	
BIODEGRADABILITY	AEROBIC - EXPOSURE TIME 28 D RESULT: 85 % - READILY BIODEGRADABLE. (OECD TEST GUIDELINE 301D)
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	AN ENVIRONMENTAL HAZARD CANNOT BE EXCLUDED IN THE EVENT OF UNPROFESSIONAL HANDLING OR DISPOSAL. VERY TOXIC TO AQUATIC LIFE.

# 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.

# CONTAMINATEDDISPOSE OF AS UNUSED PRODUCT.PACKAGING

## SECTION 14. TRANSPORT INFORMATION

DOT (US) PROPER SHIPPING NAME: UN NUMBER: CLASS: PACKING GROUP: REPORTABLE QUANTITY (PO):	DIPENTENE 2052 3 III
(RQ): POISON INHALATION HAZARD	NO
IMDG PROPER SHIPPING NAME: UN NUMBER: CLASS: PACKING GROUP: EMS-NO: MARINE POLLUTANT:	DIPENTENE 2052 3 III F-E, S-E YES
IATA PROPER SHIPPING NAME: UN NUMBER: CLASS: PACKING GROUP:	DIPENTENE 2052 3 III

# SECTION 15. REGULATORY INFORMATION

**SARA 302 COMPONENTS** THIS MATERIAL DOES NOT CONTAIN ANY COMPONENTS WITH A SECTION 302 EHS TPQ.

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

CAS #

5989-54-8

**REVISION DATE** 

(S)-(-)-Limonene

# SECTION 16. OTHER INFORMATION

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

H226	FLAMMABLE LIQUID AND VAPOUR.
H304	MAY BE FATAL IF SWALLOWED AND ENTERS AIRWAYS.
H317	MAY CAUSE AN ALLERGIC SKIN REACTION.
H400	VERY TOXIC TO AQUATIC LIFE.

#### **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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