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S A F E T Y D A T A S H E E T

SECTION 1. CHEMICAL IDENTIFICATION

CATALOG #:	34528
NAME:	(R)-(+)-Limonene, sum of enantiomers
SYNONYMS:	(R)-(+)-4-Isopropenyl-1-methylcyclohexene
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 3), H226

SKIN IRRITATION (CATEGORY 2), H315

SKIN SENSITISATION (CATEGORY 1), H317

ASPIRATION HAZARD (CATEGORY 1), H304

SHORT-TERM (ACUTE) AQUATIC HAZARD (CATEGORY 1), H400

LONG-TERM (CHRONIC) AQUATIC HAZARD (CATEGORY 1), H410

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)

H226 FLAMMABLE LIQUID AND VAPOUR.
H304 MAY BE FATAL IF SWALLOWED AND ENTERS AIRWAYS.
H315 CAUSES SKIN IRRITATION.
H317 MAY CAUSE AN ALLERGIC SKIN REACTION.
H410 VERY TOXIC TO AQUATIC LIFE WITH LONG LASTING EFFECTS.

PRECAUTIONARY STATEMENT(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 DISCHARGE.
P261 AVOID BREATHING DUST/ FUME/ GAS/ MIST/ VAPOURS/ SPRAY.
P264 WASH SKIN THOROUGHLY AFTER HANDLING.
P272 CONTAMINATED WORK CLOTHING MUST NOT BE ALLOWED OUT OF THE WORKPLACE.
P273 AVOID RELEASE TO THE ENVIRONMENT.
P280 WEAR PROTECTIVE GLOVES/ EYE PROTECTION/ FACE PROTECTION.
P301 + P310 IF SWALLOWED: IMMEDIATELY CALL A POISON CENTER/DOCTOR.
P303 + P361 + P353 IF ON SKIN (OR HAIR): TAKE OFF IMMEDIATELY ALL CONTAMINATED CLOTHING. RINSE SKIN WITH WATER/SHOWER.
P331 DO NOT INDUCE VOMITING.
P333 + P313 IF SKIN IRRITATION OR RASH OCCURS: GET MEDICAL ADVICE/ ATTENTION.
P362 TAKE OFF CONTAMINATED CLOTHING AND WASH 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 OTHERWISE

NONE

**CLASSIFIED
(HNOC) OR NOT
COVERED BY GHS**

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

MF: C₁₀H₁₆
MW: 136.24
CAS-NO. 5989-27-5
PURITY: 99 - 100% (GC)

HAZARDOUS COMPONENTS

COMPONENT	CLASSIFICATION	CONCENTRATION
(R)-(+)-LIMONENE, SUM OF ENANTIOMERS		
	FLAM. LIQ. 3; SKIN IRRIT. 2; SKIN SENS. 1; ASP. TOX. 1; AQUATIC ACUTE 1; AQUATIC CHRONIC 1; H226, H315, H317, H304, H400, H410 M-FACTOR - AQUATIC ACUTE: 1 - AQUATIC CHRONIC: 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	SHOW THIS SAFETY DATA SHEET TO THE DOCTOR IN ATTENDANCE.
IF INHALED	AFTER INHALATION: FRESH AIR.
IN CASE OF SKIN CONTACT	IN CASE OF SKIN CONTACT: TAKE OFF IMMEDIATELY ALL CONTAMINATED CLOTHING. RINSE SKIN WITH WATER/ SHOWER. CONSULT A PHYSICIAN.
IN CASE OF EYE CONTACT	AFTER EYE CONTACT: RINSE OUT WITH PLENTY OF WATER. REMOVE CONTACT LENSES.
IF SWALLOWED	AFTER SWALLOWING: CAUTION IF VICTIM VOMITS. RISK OF ASPIRATION! KEEP AIRWAYS FREE. PULMONARY FAILURE POSSIBLE AFTER ASPIRATION OF VOMIT. CALL A PHYSICIAN IMMEDIATELY
MOST IMPORTANT SYMPTOMS AND	THE MOST IMPORTANT KNOWN SYMPTOMS AND EFFECTS ARE DESCRIBED IN THE LABELLING (SEE

EFFECTS, BOTH ACUTE AND DELAYED	SECTION 2.2) AND/OR IN SECTION 11.
PROTECTION OF FIRST-AIDERS	FOR PERSONAL PROTECTION SEE SECTION 8.
INDICATION OF ANY IMMEDIATE MEDICAL ATTENTION AND SPECIAL TREATMENT NEEDED	NO DATA AVAILABLE

SECTION 5. FIRE AND EXPLOSION DATA

EXTINGUISHING MEDIA

SUITABLE EXTINGUISHING MEDIA	SUITABLE EXTINGUISHING MEDIA CARBON DIOXIDE (CO2) FOAM DRY POWDER UNSUITABLE EXTINGUISHING MEDIA FOR THIS SUBSTANCE/MIXTURE NO LIMITATIONS OF EXTINGUISHING AGENTS ARE GIVEN.
SPECIFIC HAZARDS DURING FIRE FIGHTING	COMBUSTIBLE. VAPOURS ARE HEAVIER THAN AIR AND MAY SPREAD ALONG FLOORS. FORMS EXPLOSIVE MIXTURES WITH AIR AT ELEVATED TEMPERATURES. DEVELOPMENT OF HAZARDOUS COMBUSTION GASES OR VAPOURS POSSIBLE IN THE EVENT OF FIRE.
HAZARDOUS COMBUSTION PRODUCTS	CARBON OXIDES
SPECIFIC EXTINGUISHING METHODS	NO DATA AVAILABLE
SPECIAL PROTECTIVE EQUIPMENT FOR FIREFIGHTERS	STAY IN DANGER AREA ONLY WITH SELF-CONTAINED BREATHING APPARATUS. PREVENT SKIN CONTACT BY KEEPING A SAFE DISTANCE OR BY WEARING SUITABLE PROTECTIVE CLOTHING.
FURTHER INFORMATION	REMOVE CONTAINER FROM DANGER ZONE AND COOL WITH WATER. PREVENT FIRE EXTINGUISHING WATER FROM CONTAMINATING SURFACE WATER OR THE GROUND WATER SYSTEM.

SECTION 6. ACCIDENTAL RELEASE MEASURES

PERSONAL PRECAUTIONS, PROTECTIVE EQUIPMENT AND EMERGENCY PROCEDURES	ADVICE FOR NON-EMERGENCY PERSONNEL: DO NOT BREATHE VAPOURS, AEROSOLS. AVOID SUBSTANCE CONTACT. ENSURE ADEQUATE VENTILATION. KEEP AWAY FROM HEAT AND SOURCES OF IGNITION. EVACUATE THE DANGER AREA, OBSERVE EMERGENCY PROCEDURES, CONSULT AN EXPERT. ADVICE FOR EMERGENCY RESPONDERS: FOR PERSONAL PROTECTION SEE SECTION 8.
ENVIRONMENTAL PRECAUTIONS	DO NOT LET PRODUCT ENTER DRAINS. RISK OF EXPLOSION.
METHODS AND MATERIALS FOR CONTAINMENT AND CLEANING UP	COVER DRAINS. COLLECT, BIND, AND PUMP OFF SPILLS. OBSERVE POSSIBLE MATERIAL RESTRICTIONS (SEE SECTIONS 7 AND 10). TAKE UP CAREFULLY WITH LIQUID-ABSORBENT MATERIAL (E.G. CHEMIZORB®). DISPOSE OF PROPERLY. CLEAN UP AFFECTED AREA.
REFERENCE TO OTHER SECTIONS	FOR DISPOSAL SEE SECTION 13.

SECTION 7. HANDLING AND STORAGE

PRECAUTIONS FOR SAFE HANDLING	KEEP AWAY FROM OPEN FLAMES, HOT SURFACES AND SOURCES OF IGNITION. TAKE PRECAUTIONARY MEASURES AGAINST STATIC DISCHARGE.
CONDITIONS FOR SAFE STORAGE, INCLUDING ANY INCOMPATIBILITIES	KEEP CONTAINER TIGHTLY CLOSED IN A DRY AND WELL VENTILATED PLACE. KEEP AWAY FROM HEAT AND SOURCES OF IGNITION. STORAGE CLASS : 3, FLAMMABLE LIQUIDS 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**INGREDIENTS WITH WORKPLACE CONTROL PARAMETERS**

COMPONENT	CAS-NO.	INGREDIENTS WITH WORKPLACE CONTROL PARAMETERS	CONTROL PARAMETERS / PERMISSIBLE CONCENTRATION	BASIS
(R)-(+)- LIMONENE	5989-27-5	TWA	30 PPM	US WEEL

EXPOSURE CONTROLS**APPROPRIATE
ENGINEERING
CONTROLS**

NO DATA AVAILABLE

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: DERMATRIL® (KCL 730, SIZE M)

SPLASH CONTACT

MATERIAL: NITRILE RUBBER

MINIMUM LAYER THICKNESS: 0.2 MM

BREAK THROUGH TIME: 16 MIN

MATERIAL TESTED: CAMATRIL® (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.

RESPIRATORY PROTECTION

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

APPEARANCE	CLEAR, COLORLESS LIQUID
ODOUR	CHARACTERISTIC
ODOUR THRESHOLD	NO DATA AVAILABLE
PH	NO DATA AVAILABLE
MELTING	-73.97 °C
POINT/FREEZING POINT	METHOD: OECD TEST GUIDELINE 102
BOILING POINT	176 °C
FLASH POINT	51 °C (1,013 HPA)
	METHOD: CLOSED CUP
EVAPOURATION RATE	NO DATA AVAILABLE
FLAMMABILITY (SOLID, GAS)	NO DATA AVAILABLE
UPPER/LOWER	UPPER EXPLOSION LIMIT: 6.1 %(V)
FLAMMABILITY OR	LOWER EXPLOSION LIMIT: 0.7 %(V)
EXPLOSIVE LIMITS	
VAPOUR PRESSURE	2 MMHG AT 20 °C
VAPOUR DENSITY	4.70
	(AIR = 1.0)
RELATIVE DENSITY	0.8400 - 0.8440 (20 °C)
WATER SOLUBILITY	0.00569 G/L AT 20 °C (68 °F) - OECD TEST GUIDELINE 105
PARTITION	LOG POW: 4.38 AT 37 °C (99 °F) - POTENTIAL
COEFFICIENT: N-OCTANOL/WATER	BIOACCUMULATION
AUTO-IGNITION	255 °C
TEMPERATURE	
DECOMPOSITION	NO DATA AVAILABLE
TEMPERATURE	
VISCOSITY	NO DATA AVAILABLE
EXPLOSIVE	NOT CLASSIFIED AS EXPLOSIVE.
PROPERTIES	
SELF-IGNITION	245 °C
	995.44 HPA
	GLP: YES
OXIDIZING PROPERTIES	NO DATA AVAILABLE

OTHER SAFETY INFORMATION

RELATIVE VAPOUR DENSITY	4.70 - (AIR = 1.0)
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SECTION 10. STABILITY AND REACTIVITY

REACTIVITY	VAPOUR/AIR-MIXTURES ARE EXPLOSIVE AT INTENSE WARMING.
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CHEMICAL STABILITY	THE PRODUCT IS CHEMICALLY STABLE UNDER STANDARD AMBIENT CONDITIONS (ROOM TEMPERATURE).
POSSIBILITY OF HAZARDOUS REACTIONS	VIOLENT REACTIONS POSSIBLE WITH: STRONG OXIDIZING AGENTS ACIDS
CONDITIONS TO AVOID	HEATING.
INCOMPATIBLE MATERIALS	NO DATA AVAILABLE
HAZARDOUS DECOMPOSITION PRODUCTS	IN THE EVENT OF FIRE: SEE SECTION 5

SECTION 11. TOXICOLOGICAL INFORMATION

INFORMATION ON TOXICOLOGICAL EFFECTS

ACUTE TOXICITY	LD50 ORAL - RAT - MALE AND FEMALE - > 2,000 MG/KG (OECD TEST GUIDELINE 423) INHALATION: NO DATA AVAILABLE LD50 DERMAL - RABBIT - > 5,000 MG/KG REMARKS: (RTECS) NO DATA AVAILABLE
SKIN CORROSION/IRRITATION	SKIN – RABBIT RESULT: MILD SKIN IRRITATION - 4 H (OECD TEST GUIDELINE 404) REMARKS: CLASSIFIED ACCORDING TO REGULATION (EU) 1272/2008, ANNEX VI (TABLE 3.1/3.2)
SERIOUS EYE DAMAGE/EYE IRRITATION	EYES - RABBIT RESULT: NO EYE IRRITATION (OECD TEST GUIDELINE 405)
RESPIRATORY OR SKIN SENSITISATION	LOCAL LYMPH NODE ASSAY (LLNA) – MOUSE RESULT: MAY CAUSE SENSITISATION BY SKIN CONTACT. (OECD TEST GUIDELINE 429)

**GERM CELL
MUTAGENICITY**

TEST TYPE: IN VITRO MAMMALIAN CELL GENE
MUTATION TEST
TEST SYSTEM: MOUSE LYMPHOMA CELLS
METABOLIC ACTIVATION: WITH AND WITHOUT
METABOLIC ACTIVATION
METHOD: OECD TEST GUIDELINE 476
RESULT: NEGATIVE

TEST TYPE: SISTER CHROMATID EXCHANGE ASSAY
TEST SYSTEM: CHINESE HAMSTER OVARY CELLS
METABOLIC ACTIVATION: WITH AND WITHOUT
METABOLIC ACTIVATION
METHOD: OECD TEST GUIDELINE 479
RESULT: NEGATIVE

TEST TYPE: AMES TEST
TEST SYSTEM: S. TYPHIMURIUM
METABOLIC ACTIVATION: WITH AND WITHOUT
METABOLIC ACTIVATION
METHOD: OECD TEST GUIDELINE 471
RESULT: NEGATIVE

TEST TYPE: CHROMOSOME ABERRATION TEST IN VITRO
TEST SYSTEM: CHINESE HAMSTER OVARY CELLS
METABOLIC ACTIVATION: WITH AND WITHOUT
METABOLIC ACTIVATION
METHOD: OECD TEST GUIDELINE 473
RESULT: NEGATIVE

TEST TYPE: COMET ASSAY
SPECIES: RAT
APPLICATION ROUTE: ORAL
RESULT: NEGATIVE

CARCINOGENICITY

IARC:

NTP:

OSHA:

THIS PRODUCT IS OR CONTAINS A COMPONENT THAT IS
NOT CLASSIFIABLE AS TO ITS CARCINOGENICITY BASED
ON ITS IARC, ACGIH, NTP, OR EPA CLASSIFICATION.
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**

REPEATED DOSE TOXICITY - MOUSE - MALE AND
FEMALE - NO OBSERVED ADVERSE EFFECT LEVEL - 1,650
MG/KG - LOWEST OBSERVED ADVERSE EFFECT LEVEL -
3,300 MG/KG
RTECS: GW6360000

TO THE BEST OF OUR KNOWLEDGE, THE CHEMICAL,
PHYSICAL, AND TOXICOLOGICAL PROPERTIES HAVE
NOT BEEN THOROUGHLY INVESTIGATED.

LIVER - IRREGULARITIES - BASED ON HUMAN EVIDENCE

SECTION 12. ECOLOGICAL INFORMATION

TOXICITY

TOXICITY TO FISH

LC50 (PIMEPHALES PROMELAS (FATHEAD MINNOW)):
0.72 MG/L
END POINT: MORTALITY
EXPOSURE TIME: 96 H
TEST TYPE: FLOW-THROUGH TEST
ANALYTICAL MONITORING: YES
METHOD: OECD TEST GUIDELINE 203
GLP: YES

**TOXICITY TO DAPHNIA
AND OTHER AQUATIC
INVERTEBRATES**

EC50 (DAPHNIA MAGNA (WATER FLEA)): 0.307 MG/L
END POINT: IMMOBILIZATION
EXPOSURE TIME: 48 H
TEST TYPE: SEMI-STATIC TEST
ANALYTICAL MONITORING: YES
METHOD: OECD TEST GUIDELINE 202
GLP: YES

TOXICITY TO ALGAE/AQUATIC PLANTS	ERC50 (PSEUDOKIRCHNERIELLA SUBCAPITATA (GREEN ALGAE)): 0.32 MG/L EXPOSURE TIME: 72 H TEST TYPE: STATIC TEST ANALYTICAL MONITORING: YES METHOD: OECD TEST GUIDELINE 201 GLP: YES EC10 (PSEUDOKIRCHNERIELLA SUBCAPITATA (GREEN ALGAE)): 0.174 MG/L EXPOSURE TIME: 72 H TEST TYPE: STATIC TEST ANALYTICAL MONITORING: YES METHOD: OECD TEST GUIDELINE 201 GLP: YES
M-FACTOR (ACUTE AQUATIC TOXICITY) TOXICITY TO DAPHNIA AND OTHER AQUATIC INVERTEBRATES (CHRONIC TOXICITY)	1 NOEC (DAPHNIA MAGNA (WATER FLEA)): 0.08 MG/L EXPOSURE TIME: 21 D TEST TYPE: SEMI-STATIC TEST ANALYTICAL MONITORING: YES METHOD: OECD TEST GUIDELINE 211 GLP: YES
M-FACTOR (CHRONIC AQUATIC TOXICITY) TOXICITY TO MICROORGANISMS	1 EC50 (SLUDGE TREATMENT): 3.94 MG/L METHOD: OECD TEST GUIDELINE 209 REMARKS: (EXTERNAL MSDS)
ECOTOXICOLOGY ASSESSMENT	
ACUTE AQUATIC TOXICITY	VERY TOXIC TO AQUATIC LIFE.
CHRONIC AQUATIC TOXICITY	VERY TOXIC TO AQUATIC LIFE WITH LONG LASTING EFFECTS.
PERSISTENCE AND DEGRADABILITY	
BIODEGRADABILITY	AEROBIC CONCENTRATION: 10 MG/L RESULT: READILY BIODEGRADABLE. BIODEGRADATION: 71.4 % EXPOSURE TIME: 28 D METHOD: OECD TEST GUIDELINE 301B GLP: YES
BIOACCUMULATIVE POTENTIAL	
PARTITION COEFFICIENT: NOCTANOL/WATER	LOG POW: 4.38 (99 °F / 37 °C) PH: 7.2 METHOD: OECD TEST GUIDELINE 117 REMARKS: POTENTIAL BIOACCUMULATION
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

OZONE-DEPLETION
POTENTIAL

REGULATION: 40 CFR PROTECTION OF ENVIRONMENT;
PART 82 PROTECTION OF STRATOSPHERIC OZONE -
CAA SECTION 602 CLASS I SUBSTANCES
REMARKS: THIS PRODUCT NEITHER CONTAINS, NOR
WAS MANUFACTURED WITH A CLASS I OR CLASS II
ODS AS DEFINED BY THE U.S. CLEAN AIR ACT
SECTION 602 (40 CFR 82, SUBPT. A, APP.A + B).

SECTION 13. DISPOSAL CONSIDERATIONS

WASTE TREATMENT METHODS

WASTE FROM RESIDUES WASTE MATERIAL MUST BE DISPOSED OF IN
ACCORDANCE WITH THE NATIONAL AND LOCAL
REGULATIONS. LEAVE CHEMICALS IN ORIGINAL
CONTAINERS. NO MIXING WITH OTHER WASTE. HANDLE
UNCLEANED CONTAINERS LIKE THE PRODUCT ITSELF.

**CONTAMINATED
PACKAGING** DISCHARGE INTO THE ENVIRONMENT MUST BE
AVOIDED.

SECTION 14. TRANSPORT INFORMATION

DOT (US)

PROPER SHIPPING NAME: DIPENTENE
UN NUMBER: 2052
CLASS: 3
PACKING GROUP: III
REPORTABLE QUANTITY
(RQ):
POISON INHALATION HAZARD NO

IMDG

PROPER SHIPPING NAME: DIPENTENE
UN NUMBER: 2052
CLASS: 3
PACKING GROUP: III
EMS-NO: F-E, S-E
MARINE POLLUTANT: YES

IATA

PROPER SHIPPING NAME: DIPENTENE
UN NUMBER: 2052
CLASS: 3
PACKING GROUP: III

SPECIAL PRECAUTIONS FOR USER

THE TRANSPORT CLASSIFICATION(S) PROVIDED HEREIN ARE FOR INFORMATIONAL PURPOSES ONLY, AND SOLELY BASED UPON THE PROPERTIES OF THE UNPACKAGED MATERIAL AS IT IS DESCRIBED WITHIN THIS SAFETY DATA SHEET. TRANSPORTATION CLASSIFICATIONS MAY VARY BY MODE OF TRANSPORTATION, PACKAGE SIZES, AND VARIATIONS IN REGIONAL OR COUNTRY REGULATIONS.

SECTION 15. REGULATORY INFORMATION

CERCLA REPORTABLE QUANTITY

THIS MATERIAL DOES NOT CONTAIN ANY COMPONENTS WITH A CERCLA RQ.

SARA 304 EXTREMELY HAZARDOUS SUBSTANCES REPORTABLE QUANTITY

THIS MATERIAL DOES NOT CONTAIN ANY COMPONENTS WITH A SECTION 304 EHS RQ.

SARA 302 EXTREMELY HAZARDOUS SUBSTANCES THRESHOLD PLANNING QUANTITY

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

SARA 311/312 HAZARDS

FIRE HAZARD

ACUTE HEALTH HAZARD

CHRONIC HEALTH HAZARD

SARA 313

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.

CLEAN AIR ACT

THIS PRODUCT NEITHER CONTAINS, NOR WAS MANUFACTURED WITH A CLASS I OR CLASS II ODS AS DEFINED BY THE U.S. CLEAN AIR ACT SECTION 602 (40 CFR 82, SUBPT. A, APP.A + B).

THIS PRODUCT DOES NOT CONTAIN ANY HAZARDOUS AIR POLLUTANTS (HAP), AS DEFINED BY THE U.S. CLEAN AIR ACT SECTION 112 (40 CFR 61).

THIS PRODUCT DOES NOT CONTAIN ANY CHEMICALS LISTED UNDER THE U.S. CLEAN AIR ACT SECTION 112(R) FOR ACCIDENTAL RELEASE PREVENTION (40 CFR 68.130, SUBPART F).

THIS PRODUCT DOES NOT CONTAIN ANY CHEMICALS LISTED UNDER THE U.S. CLEAN AIR ACT SECTION 111 SOCM I INTERMEDIATE OR FINAL VOC'S (40 CFR 60.489).

CLEAN WATER ACT

THIS PRODUCT DOES NOT CONTAIN ANY HAZARDOUS SUBSTANCES LISTED UNDER THE U.S. CLEANWATER ACT, SECTION 311, TABLE 116.4A.

THIS PRODUCT DOES NOT CONTAIN ANY HAZARDOUS CHEMICALS LISTED UNDER THE U.S. CLEANWATER ACT, SECTION 311, TABLE 117.3.

THIS PRODUCT DOES NOT CONTAIN ANY TOXIC POLLUTANTS LISTED UNDER THE U.S. CLEAN WATER ACT SECTION 307

THIS PRODUCT DOES NOT CONTAIN ANY PRIORITY POLLUTANTS RELATED TO THE U.S. CLEAN WATER ACT

US STATE REGULATIONS**MASSACHUSETTS RIGHT TO KNOW**

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

MAINE CHEMICALS OF HIGH CONCERN

PRODUCT DOES NOT CONTAIN ANY LISTED CHEMICALS

VERMONT CHEMICALS OF HIGH CONCERN

PRODUCT DOES NOT CONTAIN ANY LISTED CHEMICALS

WASHINGTON CHEMICALS OF HIGH CONCERN

PRODUCT DOES NOT CONTAIN ANY LISTED CHEMICAL

THE COMPONENTS OF THIS PRODUCT ARE REPORTED IN THE FOLLOWING INVENTORIES:

US TSCA ALL SUBSTANCES LISTED AS ACTIVE ON THE TSCA INVENTORY

TSCA LIST

NO SUBSTANCES ARE SUBJECT TO A SIGNIFICANT NEW USE RULE.

NO SUBSTANCES ARE SUBJECT TO TSCA 12(B) EXPORT NOTIFICATION REQUIREMENTS

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.
H315	CAUSES SKIN IRRITATION.
H317	MAY CAUSE AN ALLERGIC SKIN REACTION.
H410	VERY 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)

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