

# *Chem-Impex International Inc.*

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## SAFETY DATA SHEET

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### SECTION 1. CHEMICAL IDENTIFICATION

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CATALOG #:	34440
NAME:	Isobutyraldehyde
SYNONYMS:	Isobutyraldehyde 2-Methylpropionaldehyde
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

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#### CLASSIFICATION OF THE SUBSTANCE OR MIXTURE

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

FLAMMABLE LIQUIDS (CATEGORY 2), H225  
EYE IRRITATION (CATEGORY 2A), H319  
ACUTE AQUATIC TOXICITY (CATEGORY 3), H402

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)

H225 HIGHLY FLAMMABLE LIQUID AND VAPOUR.  
H319 CAUSES SERIOUS EYE IRRITATION.  
H402 HARMFUL TO AQUATIC LIFE.

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.  
P264 WASH SKIN THOROUGHLY AFTER HANDLING.  
P273 AVOID RELEASE TO THE ENVIRONMENT.  
P280 WEAR PROTECTIVE GLOVES/ EYE PROTECTION/ FACE PROTECTION.  
P303 + P361 + P353 IF ON SKIN (OR HAIR): REMOVE/ TAKE OFF IMMEDIATELY ALL CONTAMINATED CLOTHING. RINSE SKIN WITH WATER/ SHOWER.  
P305 + P351 + P338 IF IN EYES: RINSE CAUTIOUSLY WITH WATER FOR SEVERAL MINUTES. REMOVE CONTACT LENSES, IF PRESENT AND EASY TO DO. CONTINUE RINSING.  
P337 + P313 IF EYE IRRITATION PERSISTS: GET MEDICAL ADVICE/ ATTENTION.  
P370 + P378 IN CASE OF FIRE: USE DRY SAND, DRY CHEMICAL OR ALCOHOL-RESISTANT FOAM FOR EXTINCTION.  
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) OR NOT COVERED BY GHS**

STENCH.

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**SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS**

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MF:

C<sub>4</sub>H<sub>8</sub>O

MW: 72.11  
CAS-NO. 78-84-2  
PURITY: 98 - 100% (GC)

#### HAZARDOUS COMPONENTS

COMPONENT	CLASSIFICATION	CONCENTRATION
Isobutyraldehyde	FLAM. LIQ. 2; EYE IRRIT. 2A; AQUATIC ACUTE 3; H225, H319, H402	<= 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

<b>GENERAL ADVICE</b>	CONSULT A PHYSICIAN. SHOW THIS SAFETY DATA SHEET TO THE DOCTOR IN ATTENDANCE.MOVE OUT OF DANGEROUS AREA.
<b>IF INHALED</b>	IF BREATHED IN, MOVE PERSON INTO FRESH AIR. IF NOT BREATHING, GIVE ARTIFICIAL RESPIRATION. CONSULT A PHYSICIAN.
<b>IN CASE OF SKIN CONTACT</b>	WASH OFF WITH SOAP AND PLENTY OF WATER. CONSULT A PHYSICIAN.
<b>IN CASE OF EYE CONTACT</b>	RINSE THOROUGHLY WITH PLENTY OF WATER FOR AT LEAST 15 MINUTES AND CONSULT A PHYSICIAN.
<b>IF SWALLOWED</b>	DO NOT INDUCE VOMITING. NEVER GIVE ANYTHING BY MOUTH TO AN UNCONSCIOUS PERSON. RINSE MOUTH WITH WATER. CONSULT A PHYSICIAN.
<b>MOST IMPORTANT SYMPTOMS AND EFFECTS, BOTH ACUTE AND DELAYED</b>	THE MOST IMPORTANT KNOWN SYMPTOMS AND EFFECTS ARE DESCRIBED IN THE LABELLING (SEE SECTION 2.2) AND/OR IN SECTION 11
<b>INDICATION OF ANY IMMEDIATE MEDICAL ATTENTION AND SPECIAL TREATMENT NEEDED</b>	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

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

**FURTHER INFORMATION** USE WATER SPRAY TO COOL UNOPENED CONTAINERS.

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## **SECTION 6. ACCIDENTAL RELEASE MEASURES**

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**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 AN ELECTRICALLY PROTECTED VACUUM CLEANER OR BY WET-BRUSHING AND PLACE IN CONTAINER FOR DISPOSAL ACCORDING TO LOCAL REGULATIONS (SEE SECTION 13).

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

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## **SECTION 7. HANDLING AND STORAGE**

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**PRECAUTIONS FOR SAFE HANDLING** AVOID CONTACT WITH SKIN AND EYES. AVOID INHALATION OF VAPOUR OR MIST. USE EXPLOSION-PROOF EQUIPMENT. 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. STENCH. AIR SENSITIVE. STORE UNDER INERT GAS.

Store at 2 - 8 °C

**SPECIFIC END USE(S)** 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

COMPONENT	CAS-NO.	VALUE	CONTROL PARAMETERS	BASIS
Isobutyraldehyde	78-84-2	TWA	25.000000 PPM	USA. WORKPLACE ENVIRONMENTAL EXPOSURE LEVELS (WEEL)

### EXPOSURE CONTROLS

**APPROPRIATE ENGINEERING CONTROLS** HANDLE IN ACCORDANCE WITH GOOD INDUSTRIAL 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.

**SPLASH CONTACT**

MATERIAL: BUTYL-RUBBER

MINIMUM LAYER THICKNESS: 0.3 MM

BREAK THROUGH TIME: 30 MIN

MATERIAL TESTED: BUTOJECT (KCL 897, 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 INDUSTRIA SITUATION OF ANTICIPATED USE BY OUR CUSTOMERS. IT SHOULD NOT BE CONSTRUED AS OFFERING AN APPROVAL FOR ANY SPECIFIC USE SCENARIO.

**BODY PROTECTION**

IMPERVIOUS CLOTHING, 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 (US) OR TYPE AXBEK (EN 14387) RESPIRATOR CARTRIDGES AS A BACKUP TO ENGINE 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.

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**SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES**

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**INFORMATION ON BASIC PHYSICAL AND CHEMICAL PROPERTIES**

APPEARANCE

Colorless liquid

ODOUR

UNPLEASANT

ODOUR THRESHOLD	NO DATA AVAILABLE
PH	NO DATA AVAILABLE
MELTING POINT/FREEZING POINT	
INITIAL BOILING POINT AND BOILING RANGE	63 - 65 °C
FLASH POINT	-16 °C
EVAPORATION RATE	NO DATA AVAILABLE
FLAMMABILITY (SOLID, GAS)	NO DATA AVAILABLE
UPPER/LOWER FLAMMABILITY OR EXPLOSIVE LIMITS	UPPER EXPLOSION LIMIT: 11 %(V) LOWER EXPLOSION LIMIT: 1.6 %(V)
VAPOUR PRESSURE	88 HPA AT 4.4 C
VAPOUR DENSITY	2.49 - (AIR = 1.0)
RELATIVE DENSITY	0.79
WATER SOLUBILITY	60 G/L AT 25 C
PARTITION COEFFICIENT: N- OCTANOL/WATER	LOG POW: 0.77
AUTO-IGNITION TEMPERATURE	180 C AT 1,013.25 HPA
DECOMPOSITION TEMPERATURE	NO DATA AVAILABLE
VISCOSITY	NO DATA AVAILABLE
EXPLOSIVE PROPERTIES	NO DATA AVAILABLE
OXIDIZING PROPERTIES	NO DATA AVAILABLE

**OTHER SAFETY INFORMATION**

RELATIVE VAPOUR DENSITY	2.49 - (AIR = 1.0)
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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>	VAPOURS MAY FORM EXPLOSIVE MIXTURE WITH AIR.
<b>CONDITIONS TO AVOID</b>	HEAT, FLAMES AND SPARKS
<b>INCOMPATIBLE MATERIALS</b>	OXIDIZING AGENTS, STRONG ACIDS, STRONG BASES, STRONG REDUCING AGENTS.

**HAZARDOUS  
DECOMPOSITION  
PRODUCTS**

HAZARDOUS DECOMPOSITION PRODUCTS FORMED  
UNDER FIRE CONDITIONS. - CARBON 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>	LD50 ORAL - RAT - FEMALE - 3,730 MG/KG  LC50 INHALATION - RAT - MALE - 4 H - > 23.9 MG/L  LD50 DERMAL - RABBIT - MALE - 5,630 MG/KG  NO DATA AVAILABLE
<b>SKIN CORROSION/IRRITATION</b>	SKIN - RABBIT RESULT: NO SKIN IRRITATION - 4 H
<b>SERIOUS EYE DAMAGE/EYE IRRITATION</b>	EYES RABBIT RESULT: IRRITATING TO EYES. - 24 H
<b>RESPIRATORY OR SKIN SENSITISATION</b>	IN VIVO ASSAY - MOUSE RESULT: DOES NOT CAUSE SKIN SENSITISATION.
<b>GERM CELL MUTAGENICITY</b>	AMES TEST S. TYPHIMURIUM RESULT: NEGATIVE MOUSE - MALE RESULT: NEGATIVE
<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 IDENTIFIED AS A CARCINOGEN OR POTENTIAL CARCINOGEN BY OSHA.



<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>	<p>REPEATED DOSE TOXICITY - RAT - MALE AND FEMALE - INHALATION (VAPOUR)</p> <p>RTECS: NQ4025000</p> <p>TO THE BEST OF OUR KNOWLEDGE, THE CHEMICAL, PHYSICAL, AND TOXICOLOGICAL PROPERTIES HAVE NOT BEEN THOROUGHLY INVESTIGATED.</p>

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## SECTION 12. ECOLOGICAL INFORMATION

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<b>TOXICITY</b>	
TOXICITY TO FISH	STATIC TEST LC50 - PIMEPHALES PROMELAS (FATHEAD MINNOW) - 23 MG/L - 96 H
TOXICITY TO DAPHNIA AND OTHER AQUATIC INVERTEBRATES	STATIC TEST EC50 - DAPHNIA MAGNA (WATER FLEA) - 277 MG/L - 48 H
TOXICITY TO ALGAE	STATIC TEST EC50 - DESMODESMUS SUBSPICATUS (SCENEDESMUS SUBSPICATUS) - 83.7 MG/L - 72 H
TOXICITY TO BACTERIA	GROWTH INHIBITION EC50 - PSEUDOMONAS PUTIDA - 468 MG/L - 17 H
<b>PERSISTENCE AND DEGRADABILITY</b>	
BIODEGRADABILITY	AEROBIC - EXPOSURE TIME 14 D RESULT: 80 - 90 % - READILY BIODEGRADABLE.
<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.

**OTHER ADVERSE EFFECTS** AN ENVIRONMENTAL HAZARD CANNOT BE EXCLUDED IN THE EVENT OF UNPROFESSIONAL HANDLING OR DISPOSAL. HARMFUL TO AQUATIC LIFE.

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**SECTION 13. DISPOSAL CONSIDERATIONS**

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**WASTE TREATMENT METHODS**

**PRODUCT** BURN IN A CHEMICAL INCINERATOR EQUIPPED WITH AN AFTERBURNER AND SCRUBBER B HIGHLY FLAMMABLE. OFFER SURPLUS AND NONRECYCLABLE SOLUTIONS TO A LICENSED DISPOSAL COMPANY. CONTACT A LICENSED PROFESSIONAL WASTE DISPOSAL SERVICE TO DISPOSE OF THIS MATERIAL.

**CONTAMINATED PACKAGING** DISPOSE OF AS UNUSED PRODUCT.

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**SECTION 14. TRANSPORT INFORMATION**

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**DOT (US)**

PROPER SHIPPING NAME: ISOBUTYL ALDEHYDE N.O.S. (Isobutyraldehyde)  
UN NUMBER: 2045  
CLASS: 3  
PACKING GROUP: II  
POISON INHALATION HAZARD: NO

**IMDG**

PROPER SHIPPING NAME: ISOBUTYL ALDEHYDE N.O.S. (Isobutyraldehyde)  
UN NUMBER: 2045  
CLASS: 3  
PACKING GROUP: II  
EMS-NO: F-E, S-D

**IATA**

PROPER SHIPPING NAME: ISOBUTYL ALDEHYDE N.O.S. (Isobutyraldehyde)  
UN NUMBER: 2045  
CLASS: 3  
PACKING GROUP: II

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**SECTION 15. REGULATORY INFORMATION**

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**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
Isobutyraldehyde	78-84-2	07-01-2007

**SARA 311/312 HAZARDS** FIRE HAZARD, ACUTE HEALTH HAZARD

**MASSACHUSETTS RIGHT TO KNOW COMPONENTS**

	CAS-NO.	REVISION DATE
Isobutyraldehyde	78-84-2	07-01-2007

**PENNSYLVANIA RIGHT TO KNOW COMPONENTS**

	CAS-NO.	REVISION DATE
Isobutyraldehyde	78-84-2	07-01-2007

**NEW JERSEY RIGHT TO KNOW COMPONENTS**

	CAS-NO.	REVISION DATE
Isobutyraldehyde	78-84-2	07-01-2007

**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.**

H225	HIGHLY FLAMMABLE LIQUID AND VAPOUR.
H319	CAUSES SERIOUS EYE IRRITATION.
H402	HARMFUL TO AQUATIC LIFE.

**HMIS RATING**

HEALTH HAZARD:	2
CHRONIC HEALTH HAZARD:	
FLAMMABILITY:	3
PHYSICAL HAZARD	0

**NFPA RATING**

HEALTH HAZARD:	2
FIRE HAZARD:	3
REACTIVITY HAZARD:	0

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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