# Chem-Impex International Inc.

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# SAFETY DATA SHEET

# SECTION 1. CHEMICAL IDENTIFICATION

CATALOG #: 01448

NAME: Fumaric acid

SYNONYMS: trans-2-Butenedioic acid

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) EYE IRRITATION (CATEGORY 2A), H319

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

# GHS LABEL ELEMENTS, INCLUDING PRECAUTIONARY STATEMENTS

**PICTOGRAM** 

WARNING

SIGNAL WORD WARNING

## **HAZARD STATEMENT(S)**

H319 CAUSES SERIOUS EYE IRRITATION.

## PRECAUTIONARY STATEMENT(S)

P264 WASH SKIN THOROUGHLY AFTER HANDLING. P280 WEAR EYE PROTECTION/ FACE PROTECTION.

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.

NONE

HAZARDS NOT

**OTHERWISE** 

CLASSIFIED (HNOC) OR NOT COVERED BY

**GHS** 

# SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

MF:  $C_4H_4O_4$ 

MW: 116.07

CAS-NO. 110-17-8

PURITY: 99.5 - 100.5% (Assay)

## **HAZARDOUS COMPONENTS**

COMPONENT	CLASSIFICATION	CONCENTRATION
Fumaric acid		
	EYE IRRIT. 2A; H319	<= 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 BREATHED IN, MOVE PERSON INTO FRESH AIR. IF IF INHALED

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** 

RINSE THOROUGHLY WITH PLENTY OF WATER FOR AT LEAST 15 MINUTES AND CONSULT A PHYSICIAN.

IF SWALLOWED 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

## SECTION 5. FIRE AND EXPLOSION DATA

**EXTINGUISHING MEDIA** 

USE WATER SPRAY, ALCOHOL-RESISTANT FOAM, DRY **SUITABLE** 

EXTINGUISHING MEDIA CHEMICAL OR CARBON DIOXIDE.

SPECIAL HAZARDS ARISING FROM THE

SUBSTANCE OR MIXTURE

CARBON OXIDES

ADVICE FOR WEAR SELF-CONTAINED BREATHING APPARATUS FOR

**FIREFIGHTERS** FIREFIGHTING IF NECESSARY.

FURTHER INFORMATION NO DATA AVAILABLE

# SECTION 6. ACCIDENTAL RELEASE MEASURES

PERSONAL
PRECAUTIONS,
PROTECTIVE
EQUIPMENT AND
EMERGENCY
PROCEDURES

USE PERSONAL PROTECTIVE EQUIPMENT. AVOID DUST FORMATION. AVOID BREATHING VAPOURS, MIST OR GAS. ENSURE ADEQUATE VENTILATION. AVOID

BREATHING DUST.

FOR PERSONAL PROTECTION SEE SECTION 8.

ENVIRONMENTAL PRECAUTIONS

DO NOT LET PRODUCT ENTER DRAINS.

METHODS AND MATERIALS FOR CONTAINMENT AND CLEANING UP PICK UP AND ARRANGE DISPOSAL WITHOUT CREATING DUST. SWEEP UP AND SHOVEL. 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 CONTACT WITH SKIN AND EYES. 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.

FOR PRECAUTIONS SEE SECTION 2.2.

CONDITIONS FOR SAFE STORAGE, INCLUDING ANY INCOMPATIBILITIES KEEP CONTAINER TIGHTLY CLOSED IN A DRY AND

WELL-VENTILATED PLACE.

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. HAZARDOUS COMPONENTS WITHOUT WORKPLACE CONTROL PARAMETERS

# DERIVED NO EFFECT LEVEL (DNEL)

APPLICATION	<b>EXPOSURE ROUTES</b>	HEALTH EFFECT	VALUE
AREA			
WORKERS	INHALATION	LONG-TERM SYSTEMIC	175 MG/M3
		EFFECTS	
WORKERS	INHALATION	ACUTE SYSTEMIC EFFECTS	175 MG/M3
CONSUMERS	INHALATION	LONG-TERM SYSTEMIC	53 MG/M3
		EFFECTS	
CONSUMERS	INHALATION	ACUTE SYSTEMIC EFFECTS	53 MG/M3

# PREDICTED NO EFFECT CONCENTRATION (PNEC)

COMPARTMENT	VALUE
MARINE WATER	0.01 MG/L
FRESH WATER	0.1 MG/L
SEWAGE TREATMENT PLANT	3 MG/L
AQUATIC INTERMITTENT RELEASE	1 MG/L

## **EXPOSURE CONTROLS**

APPROPRIATEHANDLE IN ACCORDANCE WITH GOOD INDUSTRIALENGINEERINGHYGIENE AND SAFETY PRACTICE. WASH HANDSCONTROLSBEFORE BREAKS AND AT THE END OF WORKDAY.

# PERSONAL PROTECTIVE EQUIPMENT

EYE/FACE PROTECTION 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).

#### 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**

IMPERVIOUS 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

FOR NUISANCE EXPOSURES USE TYPE P95 (US) OR TYPE P1 (EU EN 143) PARTICLE RESPIRATOR.FOR HIGHER LEVEL PROTECTION USE TYPE OV/AG/P99 (US) OR TYPE ABEK-P2 (EU EN 143) RESPIRATOR CARTRIDGES. USE RESPIRATORS AND COMPONENTS TESTED AND APPROVED UNDER APPROPRIATE GOVERNMENT STANDARDS SUCH AS NIOSH (US) OR CEN (EU).

CONTROL OF ENVIRONMENTAL EXPOSURE DO NOT LET PRODUCT ENTER DRAINS.

# SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

INFORMATION ON BASIC PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE White to off-white crystalline powder

ODOUR ODOURLESS

ODOUR THRESHOLD NO DATA AVAILABLE PH 2.1 AT 4.9 G/L AT 20 C MELTING 287 - 310 °C (Lit.)

POINT/FREEZING POINT INITIAL BOILING POINT AND BOILING RANGE

FLASH POINT 273 °C

EVAPORATION RATE NO DATA AVAILABLE FLAMMABILITY (SOLID, NO DATA AVAILABLE

GAS)

UPPER/LOWER UPPER EXPLOSION LIMIT: 40 %(V) FLAMMABILITY OR LOWER EXPLOSION LIMIT: 3 %(V)

EXPLOSIVE LIMITS

VAPOUR PRESSURE 2.2 HPA AT 165 C VAPOUR DENSITY NO DATA AVAILABLE

RELATIVE DENSITY

WATER SOLUBILITY 0.006 G/L AT 25 C - OECD TEST GUIDELINE 105 -

**INSOLUBLE** 

PARTITION COEFFICIENT: LOG POW: 0.45 - 0.47 AT 20 C

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 NO DATA AVAILABLE

**CONDITIONS TO AVOID** NO DATA AVAILABLE

**INCOMPATIBLE** STRONG OXIDIZING AGENTS, AMINES, STRONG BASES **MATERIALS** 

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

#### SECTION 11. TOXICOLOGICAL INFORMATION

#### INFORMATION ON TOXICOLOGICAL EFFECTS

ACUTE TOXICITY LD50 ORAL - RAT - FEMALE - 9,300 MG/KG

(OECD TEST GUIDELINE 401)

LC50 INHALATION - RAT - MALE AND FEMALE - 4 H - >

1,306 MG/L

(OECD TEST GUIDELINE 403)

REMARKS: (ECHA)

LD50 DERMAL - RABBIT - FEMALE - 20,000 MG/KG

(OECD TEST GUIDELINE 402)

REMARKS: (IUCLID)

NO DATA AVAILABLE

**SKIN** SKIN - RABBIT

**CORROSION/IRRITATION** RESULT: NO SKIN IRRITATION - 4 H

(OECD TEST GUIDELINE 404)

**SERIOUS EYE** EYES - RABBIT

**DAMAGE/EYE IRRITATION** RESULT: CAUSES SERIOUS EYE IRRITATION.

(OECD TEST GUIDELINE 405)

MAXIMISATION TEST - GUINEA PIG

RESPIRATORY OR SKIN

**SENSITISATION** RESULT: NEGATIVE

(OECD TEST GUIDELINE 406)

GERM CELL IN VITRO MAMMALIAN CELL GENE MUTATION TEST

MUTAGENICITY MOUSE LYMPHOMA CELLS

RESULT: NEGATIVE

MUTAGENICITY (MAMMAL CELL TEST):

CHROMOSOME ABERRATION. CHINESE HAMSTER LUNG CELLS

RESULT: NEGATIVE

**CARCINOGENICITY** 

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.

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.

REPRODUCTIVE TOXICITY NO DATA AVAILABLE

SPECIFIC TARGET ORGAN TOXICITY - SINGLE

EXPOSURE

ACUTE ORAL TOXICITY - AFTER UPTAKE OF LARGE QUANTITIES: IRRITATION OF MUCOUS MEMBRANES,

**NAUSEA** 

ACUTE INHALATION TOXICITY - POSSIBLE DAMAGES: IRRITATION SYMPTOMS IN THE

RESPIRATORY TRACT.

SPECIFIC TARGET ORGAN TOXICITY - REPEATED

**EXPOSURE** 

NO DATA AVAILABLE

**ASPIRATION HAZARD** NO DATA AVAILABLE

ADDITIONAL INFORMATION

REPEATED DOSE TOXICITY - RAT - MALE - ORAL - 2 YR - NO OBSERVED ADVERSE EFFECT LEVEL - 600

MG/KG

RTECS: LS9625000

GASTROINTESTINAL DISTURBANCE

TO THE BEST OF OUR KNOWLEDGE, THE CHEMICAL, PHYSICAL, AND TOXICOLOGICAL PROPERTIES HAVE

NOT BEEN THOROUGHLY INVESTIGATED.

OTHER DANGEROUS PROPERTIES CAN NOT BE

EXCLUDED.

HANDLE IN ACCORDANCE WITH GOOD INDUSTRIAL

HYGIENE AND SAFETY PRACTICE.

STOMACH - IRREGULARITIES - BASED ON HUMAN

**EVIDENCE** 

### **SECTION 12. ECOLOGICAL INFORMATION**

**TOXICITY** 

TOXICITY TO FISH SEMI-STATIC TEST LC50 - DANIO RERIO (ZEBRA FISH)

- > 100 MG/L - 96 H

(OECD TEST GUIDELINE 203)

TOXICITY TO DAPHNIA AND SEMI-STATIC TEST EC50 - DAPHNIA MAGNA (WATER

OTHER AQUATIC FLEA) -> 100 MG/L - 48 H (OECD TEST GUIDELINE 202)

TOXICITY TO ALGAE STATIC TEST EC50 - PSEUDOKIRCHNERIELLA

SUBCAPITATA - > 100 MG/L - 72 H (OECD TEST GUIDELINE 201)

STATIC TEST NOEC - PSEUDOKIRCHNERIELLA SUBCAPITATA (GREEN ALGAE) - 100 MG/L - 72 H

(OECD TEST GUIDELINE 201)

TOXICITY TO BACTERIA STATIC TEST EC50 - ACTIVATED SLUDGE - > 300 MG/L -

3 H

(OECD TEST GUIDELINE 209)

PERSISTENCE AND DEGRADABILITY

BIODEGRADABILITY AEROBIC - EXPOSURE TIME 28 D

RESULT: CA.67.5 % - READILY BIODEGRADABLE.

(OECD TEST GUIDELINE 301B)

THEORETICAL OXYGEN 827 MG/G

DEMAND REMARKS: (LIT.)

RATIO BOD/THBOD 34 %

REMARKS: (LIT.)

**BIOACCUMULATIVE** 

**POTENTIAL** 

NO DATA AVAILABLE

MOBILITY IN SOIL NO DATA AVAILABLE

**RESULTS OF PBT AND** PBT/VPVB ASSESSMENT NOT AVAILABLE AS

VPVB ASSESSMENT CHEMICAL SAFETY ASSESSMENT NOT

REQUIRED/NOT CONDUCTED

OTHER ADVERSE EFFECTS DISCHARGE INTO THE ENVIRONMENT MUST BE

AVOIDED.

## SECTION 13. DISPOSAL CONSIDERATIONS

### WASTE TREATMENT METHODS

**PRODUCT** OFFER SURPLUS AND NON-RECYCLABLE 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.

### **SECTION 14.** TRANSPORT INFORMATION

DOT (US)

PROPER SHIPPING NAME: ENVIRONMENTALLY HAZARDOUS SUBSTANCE,

SOLID, N.O.S. (Fumaric acid)

UN NUMBER: 3077 CLASS: 9 PACKING GROUP: III

REPORTABLE QUANTITY 5000 LBS

(RQ):

POISON INHALATION

HAZARD:

NO

IMDG NOT DANGEROUS GOODS

IATA NOT DANGEROUS GOODS

### SECTION 15. REGULATORY INFORMATION

SARA 302 COMPONENTS NO CHEMICALS IN THIS MATERIAL ARE SUBJECT TO

THE REPORTING REQUIREMENTS OF SARA TITLE III,

SECTION 302.

SARA 313 COMPONENTS THIS MATERIAL DOES NOT CONTAIN ANY CHEMICAL

COMPONENTS WITH KNOWN CAS NUMBERS THAT EXCEED THE THRESHOLD (DEMINIMIS) REPORTING LEVELS ESTABLISHED BY SARA TITLE III, SECTION 313.

SARA 311/312 HAZARDS ACUTE HEALTH HAZARD, CHRONIC 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

Fumaric acid 110-17-8 03-01-2007

NEW JERSEY RIGHT TO KNOW COMPONENTS

CAS-NO. REVISION DATE

Fumaric acid 110-17-8 03-01-2007

**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.

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

H319 CAUSES SERIOUS EYE IRRITATION.

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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