



BARTEK INGREDIENTS INC.
 421 SEAMAN STREET
 STONEY CREEK; ONTARIO; L8E 3J4
 CANADA

PRODUCT: DL – MALIC ACID

SECTION 01: CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

MANUFACTURER/SUPPLIER..... BARTEK INGREDIENTS INC.
 421 SEAMAN STREET
 STONEY CREEK
 ONTARIO
 CANADA, L8E 3J4
 905-662-3292
 PREPARED BY REGULATORY AFFAIRS – (EMAIL ADDRESS: Jadwiga.Dera@bartek.ca)
 PREPARATION DATE DECEMBER 10, 2010
 PRODUCT NAME DL - MALIC ACID
 CHEMICAL NAME & SYNONYMS..... HYDROXYBUTANEDIOIC ACID
 CHEMICAL FORMULA C4H6O5.
 PRODUCT USE FOOD ACIDULANT.
 EMERGENCY PHONE NO 1-905-662-8830 (CANADA)

SECTION 02: HAZARDS IDENTIFICATION

SIGNAL WORD..... WARNING
 HAZARD STATEMENT H319: CAUSES SERIOUS EYE IRRITATION.
 PRECAUTIONARY STATEMENT P264, WASH HANDS THOROUGHLY AFTER HANDLING. P280, WEAR PROTECTIVE GLOVES/PROTECTIVE CLOTHING/EYE PROTECTION/FACE PROTECTION. P305, P351, IF IN EYES: RINSE CAUTIOUSLY WITH WATER FOR SEVERAL MINUTES. P338, REMOVE CONTACT LENSES, IF PRESENT AND EASY TO DO. CONTINUE RINSING. P337, P313: IF EYE IRRITATION PERSISTS: GET MEDICAL ADVICE/ATTENTION.
 HAZARD CLASSIFICATION T - TOXIC (EYE AND SKIN IRRITANT)
 R - PHRASE(S) R36 - IRRITATING TO EYES.
 S - PHRASE(S) S26 - IN CASE OF CONTACT WITH EYES, RINSE IMMEDIATELY WITH PLENTY OF WATER AND SEEK MEDICAL ADVICE.
 HAZARD INFORMATION..... WARNING: CAUSES SEVERE EYE IRRITATION. MAY FORM FLAMMABLE DUST-AIR MIXTURE. IGNITION OF A FLAMMABLE PRODUCT DUST-AIR MIXTURE BY STATIC DISCHARGE IS POSSIBLE. PRODUCT IS GENERALLY RECOGNIZED AS SAFE.
 LABEL ELEMENTS PICTOGRAM



OTHER HAZARDS..... N.A.V.

SECTION 03: COMPOSITION/INFORMATION ON INGREDIENTS

NAME:%	BY WEIGHT	C.A.S.#	EINECS #	SIGNAL WORD:	PRECAUTIONARY STATEMENTS:
DL MALIC ACID (HAZARD SYMBOL: XI)	>99	6915-15-7	230-022-8	H319 WARNING	P264, P280, P305, P351, P338, P337, P313

SECTION 04: FIRST AID MEASURES

INHALATION..... REMOVE PERSON FROM THE AREA OF CONTAMINATION TO FRESH AIR.
 EYE CONTACT FLUSH EYES WITH CLEAN WATER, LIFTING EYELIDS OCASIONALLY, FLUSH WITH WATER FOR 15 MINUTES.
 SKIN CONTACT..... WASH AFFECTED BODY AREAS WITH LARGE VOLUMES OF WATER, IF IRRITATION PERSISTS, SEE A PHYSICIAN.
 INGESTION..... OBTAIN MEDICAL ATTENTION IMMEDIATELY.
 ACUTE EFFECTS HAZARDOUS IN CASE OF EYE CONTACT (IRRITANT), OF INHALATION (LUNG IRRITANT). SLIGHTLY HAZARDOUS IN CASE OF SKIN CONTACT (IRRITANT, SENSITIZER),OR INGESTION. THE AMOUNT OF TISSUE DAMAGE DEPENDS ON LENGTH OF CONTACT. EYE CONTACT CAN RESULT IN CORNEAL DAMAGE. SKIN CONTACT CAN PRODUCE INFLAMATION AND BLISTERING. SEVERE OVER-EXPOSURE CAN PRODUCE LUNG DAMAGE, CHOKING, AND UNCONSCIOUSNESS.

PRODUCT: DL – MALIC ACID

DELAYED EFFECTS SLIGHTLY HAZARDOUS IN CASE OF SKIN CONTACT (SENSITIZER) REPEATED PROLONGED EXPOSURE TO A LOW LEVEL OF PRODUCT DUST CAN PRODUCE EYE IRRITATION, LOCAL SKIN DESTRUCTION, OR DERMATITIS. REPEATED INHALATION OF PRODUCT DUST CAN PRODUCE VARYING DEGREE OF RESPIRATORY IRRITATION OR LUNG DAMAGE.

SPECIAL TREATMENT N.AV.

SECTION 05: FIRE FIGHTING MEASURES

SUITABLE EXTINGUISHING MEDIA WATER, CARBON DIOXIDE, DRY CHEMICALS.

UNSUITABLE EXTINGUISHING MEDIA N.AV.

FIRE FIGHTING PROCEDURES FIREFIGHTERS SHOULD WEAR PROPER PROTECTIVE EQUIPMENT AND SELF-CONTAINED BREATHING APPARATUS.

EXPLOSIVE HAZARD THIS MATERIAL MAY FORM FLAMMABLE DUST-AIR MIXTURES WHEN FINELY DIVIDED. PREVENT DUST BUILDUP BY PROVIDING ADEQUATE VENTILATION.

HAZARDOUS COMBUSTION PRODUCTS.. TOXIC FUMES OF CARBON MONOXIDE, CARBON DIOXIDE.

SECTION 06: ACCIDENTAL RELEASE MEASURES

PERSONAL PRECAUTIONS USE APPROPRIATE PROTECTION (SEE SECTION 8).

ENVIRONMENTAL PRECAUTIONS AVOID RUN-OFFS TO SEWERS OR WATERWAYS.

METHODS FOR CLEANING UP SWEEP UP WITH BROOM OR VACUUM. IN CASE OF ACID SOLUTION, NEUTRALISE WITH EXCESS SODA ASH OR SODIUM BICARBONATE, MIX AND SCOOP UP SLURRY. WASH RESIDUAL MATERIAL WITH WATER. EMPTY CONTAINERS SHOULD BE TRANSPORTED/DELIVERED USING A REGISTERED WASTE CARRIER FOR LOCAL RECYCLING OR WASTE DISPOSAL.

SECTION 07: HANDLING AND STORAGE

HANDLING..... INITIATE NORMAL SAFETY PROCEDURES. AVOID DUST FORMATION. AVOID ALL DIRECT CONTACT WITH THIS MATERIAL. LAUNDRY CONTAMINATED CLOTHING BEFORE REUSE. USE GOOD PERSONAL HYGIENE AND GOOD HOUSEKEEPING.

STORAGE DO NOT STORE WITH OXIDANTS, STRONG BASES, AMINES, CARBONATE, AND ALKALI METALS. STORE IN A COOL DRY PLACE. KEEP CONTAINERS SEALED TO AVOID CONTAMINATION AND SPILLAGE.

TYPE OF PACKAGING MATERIAL PAPER BAGS AND FIBRE BULK BAGS.

SECTION 08: EXPOSURE CONTROLS/PERSONAL PROTECTION

EXPOSURE LIMIT VALUES ACGIH (2008): N.AV.

RESPIRATORY PROTECTION USE NIOSH/OSHA APPROVED RESPIRATOR.

EYE PROTECTION SAFETY GLASSES WITH SIDE-SHIELDS; CHEMICAL GOGGLES IF CONTACT IS LIKELY.

HAND PROTECTION CHEMICAL RESISTANT GLOVES RECOMMENDED.

SKIN PROTECTION WEAR APPROVED PROTECTIVE WORK BOOTS AND WORK CLOTHING. SOME FORM OF HAT OR HAIR COVERING.

ENGINEERING CONTROLS PREVENT DUST BUILDUP BY PROVIDING ADEQUATE VENTILATION.

HYGIENE MEASURES WASH HANDS BEFORE CONSUMPTION OF FOOD OR DRINK.

OTHER..... MAINTAIN EYE WASH FACILITY IN WORK AREA.

SECTION 09: PHYSICAL AND CHEMICAL PROPERTIES

PHYSICAL STATE SOLID.

APPEARANCE WHITE, CRYSTALLINE POWDER OR GRANULES.

ODOUR NO ODOUR.

PH 1.95 FOR A 5% W/V SOLUTION AT 25 (C).

FREEZING/MELTING POINT 130 (C)

BOILING POINT/BOILING RANGE N.AP.

FLASH POINT N.AP.

EVAPORATION RATE N.AP.

FLAMMABILITY NON-FLAMMABLE.

UPPER FLAMMABLE LIMIT UNKNOWN.

LOWER FLAMMABLE LIMIT 0.091 G/L.

AUTO-IGNITION TEMPERATURE 339 (C)

SENSITIVITY TO IMPACT NIL

SENSITIVITY TO STATIC DISCHARGE..... POSSIBLE.

VAPOUR PRESSURE (MMHG)..... <0.1MM @ 20 C.

VAPOUR DENSITY (AIR=1) 4.6

SPECIFIC GRAVITY (WATER=1)..... 1.601.

SOLUBILITY IN WATER (% W/W)..... 58% W/W AT 25 (C)

PARTITION COEFFICIENT N.AP.

PRODUCT: DL – MALIC ACID

(N-OCTANOL/WATER)..... N.AV.
 VISCOSITY
 EXPLOSIVE PROPERTIES SEE SECTION 5
 OXIDIZING PROPERTIES N.AV.

SECTION 10: STABILITY AND REACTIVITY

REACTIVITY STABLE AT NORMAL TEMPERATURES.
 CHEMICAL STABILITY STABLE AT NORMAL TEMPERATURES.
 POSSIBLE HAZARDOUS N.AV.
 REACTIONS
 CONDITIONS TO AVOID..... TEMPERATURES OVER 80 (C) AND MOISTURE
 IMCOMPATIBLE MATERIALS STRONG OXIDANTS, STRONG BASES, ALKALI METALS, AMINES AND CARBONATES.
 HAZARDOUS PRODUCTS OF MALEIC ACID, MALEIC ANHYDRIDE, CARBON MONOXIDE, AND CARBON DIOXIDE.
 DECOMPOSITION

SECTION 11: TOXICOLOGICAL INFORMATION

ACUTE TOXICITY..... EYE AND SKIN IRRITATION.
 CHRONIC TOXICITY N.AV.
 IRRITANCY OF MATERIAL SKIN IRRITATION (RABBIT): MODERATE. EYE IRRITATION (RABBIT): SEVERE.

SECTION 12: ECOLOGICAL CONSIDERATIONS

ECOTOXICITY TOXICITY TO FISH LC=295 MG/L.
 BIODEGRADATION PART OF THE KREBS CYCLE.
 BOD (BIOCHEMICAL OXYGEN DEMAND).. 1% SOLUTION 15000 MG/L; 10% SOLUTION 31500 MG/L; 30% SOLUTION 63000 MG/L.
 COD (CHEMICAL OXYGEN DEMAND)..... RATING 0.981 O2/MG.
 BIOACCUMULATIVE POTENTIAL N.AV.
 MOBILITY IN SOIL N.AV.
 RESULTS OF PBT & vPvB ASSESSMENT.. N.AV.
 OTHER ADVERSE EFFECTS N.AV.

SECTION 13: DISPOSAL CONSIDERATIONS

WASTE DISPOSAL..... DISPOSE IN ACCORDANCE WITH ALL APPLICABLE REGULATIONS.

SECTION 14: TRANSPORT INFORMATION

UN NUMBER..... N.AP.
 PROPER SHIPPING NAME N.AP.
 CLASSIFICATION NOT REGULATED.
 PACKING GROUP N.AP.
 ENVIROMENTAL HAZARDS N.AV.
 SPECIAL PRECUATIONS FOR USER N.AP.
 TRANSPORTATION IN BULK N.AP.
 ACCORDING TO ANNEX II OF N.AP.
 MARPOL73/78 & IBC CODE

SECTION 15: REGULATORY INFORMATION

EINECS 230-022-8
 SIGNAL WORD..... WARNING
 HAZARD STATEMENT H319: CAUSES SERIOUS EYE IRRITATION.
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 NATIONAL AND INTERNATIONAL LISTED IN EC: 296. LISTED IN STANDARD TRADE INTERNATIONAL TRADE REGULATIONS. CLASSIFICATION: 512.53. BRUSSELS NOMENCLATURE: 2918.19. FOOD AND DRUG ADMINISTRATION: 21 CFR 184.1069.

SECTION 16: OTHER INFORMATION

ADDITIONAL INFORMATION..... BARTEK INGREDIENTS INC. CANNOT ANTICIPATE ALL CONDITIONS UNDER WHICH THIS INFORMATION AND ITS PRODUCT, OR THE PRODUCTS OF OTHERMANUFACTURERS IN COMBINATOR WITH ITS PRODUCT, MAY BE USED. IT IS THE USERS' RESPONSIBILITY TO ENSURE SAFE CONDITIONS FOR HANDLINGSTORAGE AND DISPOSAL OF THE PRODUCT, AND TO ASSUME

PRODUCT: DL – MALIC ACID

LIABILITY FOR LOSS, INJURY, DAMAGE OR EXPENSE DUE TO IMPROPER USE.
THIS INFORMATION IS PROVIDED IN GOOD FAITH, AND WITHOUT WARRANTY.

N.AP.=NOT APPLICABLE
N.AV.=NOT AVAILABLE