



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

REACH ONLY REPRESENTATIVE ..... EXPERIEN CHEMICAL SERVICES (EUROPE) LIMITED  
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PREPARED BY..... REGULATORY AFFAIRS

PREPARATION DATE..... November 2, 2009

PRODUCT NAME..... DL MALIC ACID

CHEMICAL NAME & SYNONYMS:..... HYDROXYBUTANEDIOIC ACID.

CHEMICAL FORMULA..... C4H6O5.

PRODUCT USE..... FOOD ACIDULANT, CHELATING AGENT.

EMERGENCY PHONE NO..... 1-905-662-8830.

**SECTION 02: HAZARDS IDENTIFICATION**

HAZARD INFORMATION..... POSSIBLE DUST DISPERSION COULD CAUSE DUST EXPLOSION; SUBSTANCE IS  
 GENERALLY RECOGNIZED AS SAFE.

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.

**SECTION 03: COMPOSITION/INFORMATION ON INGREDIENTS**

HAZARDOUS INGREDIENTS	%	EXPOSURE LIMIT	C.A.S.#	LD/50, ROUTE,SPECIES	LC/50 ROUTE,SPECIES
DL MALIC ACID	>99	SEE SECTION 8	6915-15-7	SEE SECTION 11	SEE SECTION 11

**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.

**SECTION 05: FIRE FIGHTING MEASURES**

SUITABLE EXTINGUISHING MEDIA..... WATER, CARBON DIOXIDE, DRY CHEMICALS.

UNSUITABLE EXTINGUISHING MEDIA..... N.A.V.

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.

**PRODUCT: DL MALIC ACID**

**SECTION 07: HANDLING AND STORAGE**

HANDLING..... INITIATE NORMAL SAFETY PROCEDURES. AVOID DUST FORMATION. AVOID ALL DIRECT CONTACT WITH THIS MATERIAL. LAUNDER 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 LIKELY.

HAND PROTECTION..... PROTECTIVE GLOVES RECOMMENDED.

SKIN PROTECTION..... WEAR APPROVED PROTECTIVE WORK BOOTS, 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).

BOILING POINT/BOILING RANGE..... N.A.P.

FREEZING/MELTING POINT..... 130 (C).

FLASH POINT..... N.A.P.

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).

VISCOSITY..... N.A.V.

EVAPORATION RATE..... N.A.P.

PARTITION COEFFICIENT ..... N.A.P.  
(N-OCTANOL/WATER)

**SECTION 10: STABILITY AND REACTIVITY**

STABILITY..... STABLE AT NORMAL TEMPERATURES.

CONDITIONS TO AVOID..... TEMPERATURES OVER 80 (C) AND MOISTURE.

MATERIALS TO AVOID..... 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**

LC 50 OF MATERIAL, SPECIES & ROUTE.. N.AV.

LD 50 OF MATERIAL, SPECIES & ROUTE.. LD50 (ORAL, MOUSE): 1600-3200 MG/KG; LD50 (INTRAPERITONEAL, RAT): 100-200 MG/KG.

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**

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.

ECOTOXICITY..... TOXICITY TO FISH LC=295 MG/L.

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**SECTION 13: DISPOSAL CONSIDERATIONS**

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

**SECTION 14: TRANSPORT INFORMATION**

UN NUMBER..... N.AP.  
 CLASSIFICATION..... NOT REGULATED.  
 PACKING GROUP..... N.AP.  
 PROPER SHIPPING NAME..... N.AP.  
 OTHER APPLICABLE INFORMATION..... NO RESTRICTIONS FOR LAND, AIR, SEA AND INLAND WATERWAYS.

**SECTION 15: REGULATORY INFORMATION**

EINECS..... 230-022-8  
 HAZARD DESIGNATION..... XI - IRRITANT.   
 SYMBOLS..... XI.  
 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.  
 NATIONAL AND INTERNATIONAL REGULATIONS ..... LISTED IN EC: 296. LISTED IN STANDARD TRADE INTERNATIONAL TRADE 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 OTHER MANUFACTURERS IN COMBINATION WITH ITS PRODUCT, MAY BE USED. IT IS THE USERS' RESPONSIBILITY TO ENSURE SAFE CONDITIONS FOR HANDLING, STORAGE AND DISPOSAL OF THE PRODUCT, AND TO ASSUME LIABILITY FOR LOSS, INJURY, DAMAGE OR EXPENSE DUE TO IMPROPER USE. THIS INFORMATION IS GIVEN IN GOOD FAITH, BUT NO WARRANTY, EXPRESS OR IMPLIED IS MADE.

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