



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

PRODUCT: FUMARIC 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
 PREPARATION DATE..... Mar08/10
 PRODUCT CODE.....
 PRODUCT NAME..... FUMARIC ACID
 CHEMICAL NAME & SYNONYMS..... TRANS BUTENEDIOIC ACID; TRANS-1, 2 ETHYLENEDICARBOXYLIC ACID.
 CHEMICAL FORMULA..... C4H4O4.
 PRODUCT USE..... FOOD ACIDULANT.
 EMERGENCY PHONE NO..... IN CASE OF A DANGEROUS GOODS EMERGENCY CALL CANUTEC AT THE
 24-HOUR NUMBER 613-996-6666.

Section 02: COMPOSITION/INFORMATION ON INGREDIENTS

Hazardous Ingredients	%	Exposure Limit	C.A.S.#	LD/50, Route, Species	LC/50 Route, Species
FUMARIC ACID	>99.5	SEE SECTION 11	110-17-8	SEE SECTION 11	SEE SECTION 11

Section 03: HAZARDS IDENTIFICATION

ROUTE OF ENTRY:
 SKIN CONTACT..... IRRITATING TO SKIN.
 SKIN ABSORPTION..... N.AV.
 EYE CONTACT..... IRRITATING TO EYES.
 INHALATION..... N.AV.
 INGESTION..... N.AV.
 EFFECTS OF ACUTE EXPOSURE..... SEE ABOVE.
 EFFECTS OF CHRONIC EXPOSURE..... N.AV.

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 OCCASIONALLY, 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.
 NOTES TO PHYSICIAN..... N.AV.

Section 05: FIRE FIGHTING MEASURES

FLAMMABILITY..... NON FLAMMABLE.
 IF YES, UNDER WHICH CONDITIONS?
 EXTINGUISHING MEDIA..... WATER, CARBON DIOXIDE, DRY CHEMICALS.
 FIRE FIGHTING PROCEDURES..... FIREFIGHTERS SHOULD WEAR PROPER PROTECTIVE EQUIPMENT AND
 SELF-CONTAINED BREATHING APPARATUS.
 FLASH POINT (C), METHOD..... N.AP.
 AUTO IGNITION TEMPERATURE..... 740 (C).
 UPPER FLAMMABLE LIMIT (% BY VOL.).... UNKNOWN.
 LOWER FLAMMABLE LIMIT (% BY VOL.)... 0.130 G/LITRE.
 SENSITIVITY TO STATIC DISCHARGE..... POSSIBLE.
 SENSITIVITY TO IMPACT..... NIL.
 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.

PRODUCT: FUMARIC ACID**Section 06: ACCIDENTAL RELEASE MEASURES**

PROCEDURES TO BE FOLLOWED IN CASE OF LEAK OR SPILL 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 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 PROCEDURES AND EQUIPMENT 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 NEEDS..... 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. PACKAGING MATERIALS: PAPER BAGS WITH POLYETHYLENE LINERS AND FIBRE BULK BAGS.

Section 08: EXPOSURE CONTROLS AND PERSONAL PROTECTION

EYE/FACE PROTECTION..... SAFETY GLASSES WITH SIDE SHIELDS, CHEMICAL GOGGLES IF CONTACT LIKELY.
SKIN PROTECTION..... PROTECTIVE GLOVES RECOMMENDED.
RESPIRATORY PROTECTION..... MAKE FACE MASKS AVAILABLE IF VENTILATION INADEQUATE.
RESPIRATORY/TYPE
PROTECTIVE CLOTHING..... WEAR APPROVED PROTECTIVE WORK BOOTS, WORK CLOTHING. SOME FORM OF HAT OR HAIR COVERING.
OTHER..... MAINTAIN EYE WASH FACILITY IN WORK AREA.
ENGINEERING CONTROLS..... PREVENT DUST BUILDUP BY PROVIDING ADEQUATE VENTILATION.
HYGIENE MEASURES..... WASH HANDS BEFORE CONSUMPTION OF FOOD OR DRINK.

Section 09: PHYSICAL AND CHEMICAL PROPERTIES

PHYSICAL STATE..... SOLID.
APPEARANCE..... WHITE, GRANULES OR CRYSTALLINE POWDER.
ODOUR..... NO ODOUR.
ODOUR THRESHOLD..... N.AV.
VAPOUR PRESSURE (MMHG)..... 1.7 MM @ 165 (C).
VAPOUR DENSITY (AIR=1)..... N.AP.
BY VOLUME
BY WEIGHT
EVAPORATION RATE..... N.AP.
BOILING POINT..... N.AP.
FREEZING/MELTING POINT..... 286 (C).
PH..... 2.24 FOR A 0.5% W/V SOLUTION AT 25 (C).
SPECIFIC GRAVITY (WATER=1)..... 1.635.
SOLUBILITY IN WATER (% W/W)..... 0.61% W/W AT 25 (C).
COEFFICIENT OF WATER/OIL DIST..... N.AP.

Section 10: STABILITY AND REACTIVITY

CHEMICAL STABILITY:..... STABLE AT NORMAL TEMPERATURES.
CONDITIONS TO AVOID:..... TEMPERATURES OVER 190 (C) AND MOISTURE.
INCOMPATIBILITY, MATERIALS TO AVOID:..... STRONG OXIDANTS, STRONG BASES, ALKALI METALS, AMINES, AND CARBONATES.
REACTIVITY CONDITIONS:..... SEE ABOVE.
HAZARDOUS PRODUCTS OF DECOMPOSITION MALEIC ACID, MALEIC ANHYDRIDE, CARBON MONOXIDE, AND CARBON DIOXIDE.
HAZARDOUS POLYMERIZATION..... WILL NOT OCCUR.

Section 11: TOXICOLOGICAL INFORMATION

EXPOSURE LIMIT OF MATERIAL..... ACGIH (2008): N.AV.
LC 50 OF MATERIAL, SPECIES & ROUTE.. N.AV.
LD 50 OF MATERIAL, SPECIES & ROUTE.. 9300 MG/KG (ORAL, RAT-RODENT). 100 MG/KG (INTRAPERITONEAL, MOUSE).
CARCINOGENICITY OF MATERIAL..... IARC: NOT LISTED.
REPRODUCTIVE EFFECTS..... N.AV.
TERATOGENICITY:..... N.AV.
MUTAGENICITY..... N.AV.
IRRITANCY OF MATERIAL..... SKIN IRRITATION (RABBIT): MILD. EYE IRRITATION (RABBIT): MODERATE.
SENSITIZING CAPABILITY OF MATERIAL. N.AV.
SYNERGISTIC MATERIALS..... N.AV.

PRODUCT: FUMARIC ACID**Section 12: ECOLOGICAL CONSIDERATIONS**

BIODEGRADATION..... PART OF THE KREBS CYCLE.
 BOD (BIOCHEMICAL OXYGEN DEMAND).. 0.1% SOLUTION 840 MG/L; 0.5% SOLUTION 2520 MG/L; 0.8% SOLUTION 3300 MG/L.
 ECOTOXICITY..... TOXICITY TO FISH LC=295 MG/L.

Section 13: DISPOSAL CONSIDERATIONS

WASTE DISPOSAL..... DISPOSE OF IN ACCORDANCE WITH ALL APPLICABLE FEDERAL,
 PROVINCIAL/STATE AND LOCAL REGULATIONS.

Section 14: TRANSPORT INFORMATION

USA:
 D.O.T. CLASSIFICATION:..... NOT REGULATED.
 D.O.T. SHIPPING NAME:..... N.AP.
 CANADA:
 TDG CLASSIFICATION:..... NOT REGULATED.
 PACKAGING GROUP:..... N.AP.
 PROPER SHIPPING NAME:..... N.AP.
 UN NUMBER..... N.AP.
 SPECIAL SHIPPING INSTRUCTIONS..... NONE.

Section 15: REGULATORY INFORMATION

US REGULATIONS:..... TSCA INVENTORY STATUS: Y.
 CANADIAN REGULATIONS:
 WHMIS CLASSIFICATION..... D2B.
 CPR COMPLIANCE..... THIS PRODUCT HAS BEEN CLASSIFIED IN ACCORDANCE WITH THE HAZARD
 CRITERIA OF THE CPR AND THE MSDS CONTAINS ALL THE INFORMATION
 REQUIRED BY THE CPR.
 DSL..... THIS MATERIAL IS LISTED ON THE CANADIAN DOMESTIC SUBSTANCES LIST.

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