

IN CASE OF A DANGEROUS GOODS EMERGENCY CALL CANUTEC AT THE 24-HOUR NUMBER 613-996-6666

MATERIAL SAFETY DATA SHEET

1. PRODUCT IDENTIFICATION AND MANUFACTURER/SUPPLIER IDENTIFICATION		
Product Name:	Maleic Anhydride	Bartek Ingredients Inc. 421 Seaman Street Stoney Creek, Ontario Canada L8E 3J4 IN CASE OF A DANGEROUS GOODS EMERGENCY CALL CANUTEC AT THE 24-HOUR NUMBER 613-996-6666
Synonyms:	cis-Butenedioic Anhydride	
Product Use:	Chemical Synthesis, intermediate,	
CAS NUMBER:	108-31-6	
EINECS-NR.	203-571-6	
Chemical Formulation:	C ₄ H ₂ O ₃	
Product Identification Number:	78800/MANBRI	
2. COMPOSITION OF INGREDIENTS		
Chemical Name:	Cas. no.	% by wt
Maleic Anhydride	108-31-6	99.5 % min
3. HAZARDS IDENTIFICATION		
<p>DANGER! CORROSIVE - CAUSES EYE AND SKIN BURNS HARMFUL OR FATAL IF SWALLOWED HARMFUL IF ABSORBED THROUGH SKIN GRINDING MAY PRODUCE FLAMMABLE DUST/AIR MIXTURES MOLTEN PRODUCT CAN CAUSE THERMAL BURNS CAUSES RESPIRATORY TRACT IRRITATION AND CAN CAUSE DAMAGE MAY CAUSE ALLERGIC SKIN AND RESPIRATORY (ASTHMA LIKE) REACTION</p> <p>HMIS Hazard Ratings Health - 3, Flammability - 1, Chemical Reactivity - 1</p>		
4. FIRST AID MEASURES		
Ingestion:	Do not induce vomiting. Have a conscious person drink several glasses of water or milk. Seek immediate medical attention.	
Inhalation:	Allow the victim to rest in a well ventilated area. Seek immediate medical attention.	
Skin Contact:	After contact with skin, wash immediately with plenty of water. If irritation persists seek medical attention. Wash contaminated clothing before reusing.	
Eyes:	Immediately flush with water for at least 15 minutes, keeping eyelids open. Seek medical attention.	
5. FIRE FIGHTING MEASURES		
Extinguishing Media:	Small fire: Carbon dioxide, water, foam.	
	Large fire: Water spray, fog or foam, do not use water jet.	
	DO NOT USE DRY CHEMICAL: Large volumes of gases could be produced by reaction with Maleic Anhydride.	
Special Fire-Fighting Procedures:	Wear self-contained breathing apparatus with full face piece operated in the positive pressure demand mode and full body protection when fighting fires	
Hazardous Combustion Products:	Carbon Dioxide, Carbon Monoxide.	
Unusual Fire and Explosion Hazards:	Unstable, or air-reactive or water-reactive chemical involved (see Section 10). Vapors from melted material can be ignited. Keep melted material away from ignition sources. May form flammable dust-air mixtures when finely divided. Prevent dust buildup by providing adequate ventilation during grinding or milling operations.	
6. ACCIDENTAL RELEASE MEASURES		
Personal precautions:	Avoid breathing dust. Pressure demand air supplied respirators should always be worn when the airborne concentration of the contaminant or oxygen is unknown. Otherwise, wear respiratory protection and other personal protective equipment as appropriate for the potential exposure hazard. Wear gloves, goggles, and protective clothing to avoid contact with eyes, skin, or clothing.	

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Personal precautions cont'd:	Recycle, if possible. Use appropriate tools to put the spilled solid in a waste disposal container. If necessary, neutralize the residue with a dilute solution of sodium hydroxide. Do not dry sweep or use methods that increase dusting. Prevent entry into sewers and waterways.		
7. HANDLING AND STORAGE			
Handling:	Eye wash and safety shower should be available nearby when this product is handled or used. Minimum feasible handling temperatures should be maintained. Avoid generating mist or dust. Exercise care when opening bleeders and sampling ports. Do not breathe gas, fumes, vapor or spray. Do not ingest. Avoid contact with skin and eyes. After handling, always wash hands thoroughly with soap and water.		
Storage:	Store away from incompatible materials. Store at temperatures not exceeding 70°C (158°F). Contains moisture sensitive material -- store in a dry place.		
8. EXPOSURE CONTROLS/PERSONAL PROTECTION			
Eye/Face Protection	Avoid eye contact. Chemical type goggles with face shield must be worn. Do not wear contact lenses.		
Skin Protection	Protective clothing such as coveralls or lab coats must be worn. Gloves resistant to chemicals and petroleum distillates required. When handling large quantities, impervious suits, gloves, and rubber boots must be worn. Remove and dry-clean or launder clothing soaked or spoiled with this material before reuse. Dry cleaning of contaminated clothing may be more effective than normal laundering. Inform individuals responsible for cleaning of potential hazards associated with handling contaminated clothing.		
Respiratory Protection	Airborne concentrations should be kept to the lowest levels possible. If vapor, mist or dust is generated and the occupational exposure limit of the product is exceeded, use appropriate NIOSH or MSHA approved air purifying or air supplied respirator after determining the airborne concentration of the contaminant. Air supplied respirators should always be worn when airborne concentration of the contaminant or oxygen content is unknown.		
Ventilation	Adequate to meet occupational exposure limits (see below)		
Exposure Limits	TLV-TWA: 0.1 ppm 8 hours (ACGIH TLV, United States, 2002) TWA: 0.25 ppm 8 hours (OSHA PEL, United States, 1971) TWA: 1 mg/m ³ 8 hours (OSHA PEL, United States, 1971)		
9. PHYSICAL PROPERTIES			
Physical Form:	Molten liquid	Color	Water white
Odor	Strong irritating acrid odor	Odor Threshold	0.5 ppm
Specific Gravity	Molten: 1.3 at 70°C (water = 1.0); Solid: 1.48 at 20°C (water = 1.0)	Vapor Pressure	0.2 mm Hg at 25°C
Vapor Density	3.38 (Air = 1.0)	Melting Point	52.5°C (126.5°F)
Boiling Point	202°C (395°F)	Solubility in Water	Very soluble (40gm/100ml)
pH	2.42 (0.01 M solution)	Solubility in Other Solvents	Chloroform, acetone, ethyl acetate, benzene, hydrocarbons, dioxane
Flash Point	102°C (215°F) (PMCC)	Flammable Limits	LFL: 1.4% UFL: 7.1%
Autoignition Temperature	477°C (890°F)	Thermal Decomposition Temperature	>150°C

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10. STABILITY & REACTIVITY			
Chemical Stability	The product is stable except when in contact with water		
Conditions to Avoid	Incompatible materials, moisture		
Incompatible materials	May react violently with amines, alkali metal ions such as Sodium or Potassium, and bases. At temperatures above 150°C, these materials, at concentrations as low as 200 ppm., can trigger a rapid decomposition and polymerization reaction that would produce heat and gas and cause equipment to rupture.		
Hazardous Decomposition Products	Toxic levels of Carbon monoxide, carbon dioxide, irritating aldehydes and ketones may be formed on burning. Heating in air may produce irritating aldehydes, acids, and ketones.		
Hazardous Polymerization	Will not self-polymerize but can undergo uncontrolled co-polymerization in the presence of other monomers and catalysts (see Incompatible Materials, above).		
11. TOXICOLOGICAL INFORMATION			
Oral LD-50 (rat)	1030 mg/kg	Dermal LD-50 (rabbit)	2620 mg/kg
Skin irritation (rabbit)	corrosive	Eye irritation (rabbit)	extremely irritating
Sensitization	The limited number of animal studies investigating the dermal or respiratory sensitization potential of maleic anhydride have not shown conclusive evidence of sensitization potential. Although there have been reports of human dermal or respiratory sensitization from maleic anhydride exposures, the number of reports has been low when compared to the number of potentially exposed individuals. Maleic anhydride has a low potential for human dermal or respiratory sensitization.		
Effects of Acute Exposure	Extremely dangerous in case of skin contact (corrosive, irritant), of eye contact (irritant) and inhalation. Very dangerous in case of ingestion. Slightly dangerous in case of skin contact (sensitizer). Eye contact can result in corneal damage or blindness. Inhalation of dust will produce irritation to gastro-intestinal or respiratory tract, characterized by burning, sneezing and coughing.		
Effects of Chronic Exposure:	Carcinogenic effects Not available. Mutagenic effects: Not available. Teratogenic Effects: Not available. Toxicity of the product to the Reproductive system: Not available. Repeated exposure of the eyes to low level dust can produce irritation. Repeated skin exposure can cause local skin destruction or dermatitis. Repeated inhalation can cause a varying degree of respiratory irritation or lung damage. Repeated exposure to a highly toxic material may produce general deterioration of health by accumulation in one or many human organs		
12. ECOLOGICAL INFORMATION			
Aquatic Toxicity	LC50 - 96hr 230 mg/liter (mosquito fish) practically nontoxic LC50 - 24hr 150 mg/liter (blue gill sunfish) practically nontoxic		
Mobility	This product is not likely to volatilize rapidly into the air because of its low vapor pressure.		
Bioaccumulative potential	This product is not expected to bioaccumulate through food chains in the environment.		
Remarks	This product will hydrolyze rapidly to the acid. Expected to be slightly toxic to aquatic species because of acidity.		
13. DISPOSAL CONSIDERATIONS			
Waste Disposal Methods	Recycle if possible. Consult your local authorities. This product has the RCRA characteristics of corrosivity, and is identified under RCRA as Maleic Anhydride. If discarded in its present form, it would have the hazardous waste numbers D002 and U147. Under RCRA, it is the responsibility of the user of the product to determine, at the time of disposal, whether the product meets RCRA criteria for hazardous waste.		
Remarks	Do not allow to enter drains or sewers. Do not allow to drain into surface waters.		

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14. TRANSPORT INFORMATION	
TDG Classification	Maleic Anhydride Class 8, UN 2215, PG III, Label: Corrosive
DOT Classification	Maleic Anhydride Class 8, UN 2215, PG III, Label: Corrosive, Reportable Quantity: 5000 Lbs (2268 Kg)
15. REGULATORY INFORMATION	
WHMIS Classification	Class D, Div 1, Subdiv B: Material causing immediate and serious toxic effects (TOXIC) Class D, Div 2, Subdiv A and B: Material causing other toxic effects (VERY TOXIC) Class E: Corrosive Solid
SARA Title III	Section 302: This product is not regulated under Section 302 of SARA and 40CFR Part 355 Section 311: Maleic Anhydride, Immediate (Acute) Health Hazard, Delayed (Chronic) Health Hazard Section 313: Maleic Anhydride 100%
CERCLA 102a	Maleic Anhydride 100%, RQ 5000 lbs.
State Regulations	Pennsylvania RTK: Maleic Anhydride (environmental hazard, generic environmental hazard) Massachusetts RTK: Maleic Anhydride New Jersey RTK: Maleic Anhydride Connecticut RTK: Maleic Anhydride Florida RTK: Maleic Anhydride Illinois RTK: Maleic Anhydride Rhode Island RTK: Maleic Anhydride California prop. 65: no products were found
Inventories	Canada Inventory (DSL): listed on inventory US Inventory (TSCA): listed on inventory
16. OTHER 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.	