

DATE: 08/14/93 ACCT: 888235-01
 INDEX: 05912870140 CAT NO: BP220-212 PO NBR: N/A

SUCROSE
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MATERIAL SAFETY DATA SHEET

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SUBSTANCE IDENTIFICATION

SUBSTANCE: **SUCROSE** CAS-NUMBER 57-50-1

TRADE NAMES/SYNONYMS:

SACCHAROSE; SUGAR; CANE SUGAR; BEET SUGAR; CONFECTIONER'S SUGAR;
 BETA-D-FRUCTOTARANOSYL-ALPHA-D-GLUCOPYRANOSIDE; SACCHARUM; GRANULATED SUGAR;
 (ALPHA-D-GLYCOSIDO)-BETA-D-FRUCTOFURANOSIDE; ROCK CANDY;
 ALPHA-D-GLUCOPYRANOSYL BETA-D-FRUCTOFURANOSIDE; NCI-C56597; AMERFOND;
 MICROSE; MANALOX AS; WHITE SUGAR; SUCRALOX; D-(-)-SACCHAROSE; D-(+)-SUCROSE;
 S-5; BP220; ACC22174

CHEMICAL FAMILY:
 GLYCOSIDE

MOLECULAR FORMULA: C12-H22-O11

MOLECULAR WEIGHT: 342.34

CERCLA RATINGS (SCALE 0-3): HEALTH=1 FIRE=1 REACTIVITY=0 PERSISTENCE=0
 NFPA RATINGS (SCALE 0-4): HEALTH=U FIRE=1 REACTIVITY=0

COMPONENTS AND CONTAMINANTS

COMPONENT: SUCROSE PERCENT: 100.0
 CAS# 57-50-1

OTHER CONTAMINANTS: NONE.

EXPOSURE LIMITS:

SUCROSE:
 5 MG/M3 OSHA TWA (RESPIRABLE FRACTION); 15 MG/M3 OSHA TWA (TOTAL DUST)
 10 MG/M3 ACGIH TWA

**OSHA REVOKED THE FINAL RULE LIMITS OF JANUARY 19, 1989 IN RESPONSE TO THE
 11TH CIRCUIT COURT OF APPEALS DECISION (AFL-CIO V. OSHA) EFFECTIVE
 JUNE 30, 1993. SEE 29 CFR 1910.1000 (58 FR 35338)**

PHYSICAL DATA

DESCRIPTION: ODORLESS, HYGROSCOPIC, DRY, MONOCLINIC, SPHENOIDAL CRYSTALS,
 LUMPS OR POWDERS WITH A SWEET TASTE.

MELTING POINT: 338-367 F (170-186 C) DECOMPOSES SPECIFIC GRAVITY: 1.5877

PH: NEUTRAL IN SOLUTION SOLUBILITY IN WATER: SOLUBLE

SOLVENT SOLUBILITY: SOLUBLE IN AQUEOUS ALCOHOL AND METHANOL; MODERATELY
 SOLUBLE IN AQUEOUS GLYCEROL, PYRIDINE, DIMETHYLFORMAMIDE, DIMETHYL SULFOXIDE;
 INSOLUBLE IN ETHER, CHLOROFORM, ANHYDROUS ETHANOL, AND ANHYDROUS GLYCEROL.

FIRE AND EXPLOSION DATA

FIRE AND EXPLOSION HAZARD:
 SLIGHT FIRE HAZARD WHEN EXPOSED TO HEAT OR FLAME.

DUST-AIR MIXTURES MAY IGNITE OR EXPLODE.

FIREFIGHTING MEDIA:
 DRY CHEMICAL, CARBON DIOXIDE, WATER SPRAY OR REGULAR FOAM
 (1990 EMERGENCY RESPONSE GUIDEBOOK, DOT P 5800.5).

FOR LARGER FIRES, USE WATER SPRAY, FOG OR REGULAR FOAM

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(1990 EMERGENCY RESPONSE GUIDEBOOK, DOT P 5800.5).

FIREFIGHTING:
 MOVE CONTAINER FROM FIRE AREA IF YOU CAN DO IT WITHOUT RISK. DO NOT SCATTER
 SPILLED MATERIAL WITH HIGH-PRESSURE WATER STREAMS. DIKE FIRE-CONTROL WATER FOR
 LATER DISPOSAL (1990 EMERGENCY RESPONSE GUIDEBOOK, DOT P 5800.5, GUIDE
 PAGE 31).

USE AGENTS SUITABLE FOR TYPE OF SURROUNDING FIRE. AVOID BREATHING HAZARDOUS
 VAPORS, KEEP UPWIND.

TOXICITY

SUCROSE:
 TOXICITY DATA: 29,700 MG/KG ORAL-RAT LD50; 40 GM/KG ORAL-DOMESTIC ANIMAL
 LDLO; 14,000 MG/KG INTRAPERITONEAL-MOUSE LD50; MUTAGENIC DATA (RTECS);
 REPRODUCTIVE EFFECTS DATA (RTECS).
 CARCINOGEN STATUS: NONE.
 ACUTE TOXICITY LEVEL: RELATIVELY NON-TOXIC BY INGESTION.
 TARGET EFFECTS: NO DATA AVAILABLE.
 AT INCREASED RISK FROM EXPOSURE: PERSONS WITH DIABETES OR LUNG CONDITIONS.*

* MAY BE BASED ON GENERAL INFORMATION ON NUISANCE DUSTS.

HEALTH EFFECTS AND FIRST AID

INHALATION:

SUCROSE:
 ACUTE EXPOSURE- MAY CAUSE IRRITATION OF THE UPPER RESPIRATORY TRACT.
 CHRONIC EXPOSURE- INHALATION OF SUGAR CANE DUST HAS BEEN REPORTED TO
 PRODUCE COUGH, DYSPNEA, HEMOPTYSIS, CHILLS, FEVER, WEAKNESS AND WEIGHT
 LOSS.

FIRST AID- REMOVE FROM EXPOSURE AREA TO FRESH AIR IMMEDIATELY. IF BREATHING
 HAS STOPPED, PERFORM ARTIFICIAL RESPIRATION. KEEP PERSON WARM AND AT REST.
 TREAT SYMPTOMATICALLY AND SUPPORTIVELY. GET MEDICAL ATTENTION IMMEDIATELY.

SKIN CONTACT:

SUCROSE:
 ACUTE EXPOSURE- MAY CAUSE IRRITATION.
 CHRONIC EXPOSURE- NO DATA AVAILABLE.

FIRST AID- REMOVE CONTAMINATED CLOTHING AND SHOES IMMEDIATELY. WASH AFFECTED
 AREA WITH SOAP OR MILD DETERGENT AND LARGE AMOUNTS OF WATER UNTIL NO
 EVIDENCE OF CHEMICAL REMAINS (APPROXIMATELY 15-20 MINUTES). GET MEDICAL
 ATTENTION IMMEDIATELY.

EYE CONTACT:

SUCROSE:
 ACUTE EXPOSURE- MAY CAUSE IRRITATION. A NEUTRAL AQUEOUS SOLUTION APPLIED TO
 THE CORNEAS OF RABBITS FOR 3-7 HOURS PRODUCED NO TOXICITY.
 CHRONIC EXPOSURE- NO DATA AVAILABLE.

FIRST AID- WASH EYES IMMEDIATELY WITH LARGE AMOUNTS OF WATER OR NORMAL SALINE,
 OCCASIONALLY LIFTING UPPER AND LOWER LIDS, UNTIL NO EVIDENCE OF CHEMICAL
 REMAINS (APPROXIMATELY 15-20 MINUTES). GET MEDICAL ATTENTION IMMEDIATELY.

INGESTION:

SUCROSE:
 ACUTE EXPOSURE- RATS WERE GIVEN DOSES RANGING FROM 5-80 GM/KG. NO
 DEATHS OCCURRED BELOW 24 GM/KG. SYMPTOMS VARIED DEPENDING ON THE DOSE
 AND INCLUDED ANOREXIA, POLYDIPSIA, HYPO- OR HYPERTHERMIA, DIARRHEA,
 LOSS OF WEIGHT, POLYURIA, GLYCOSURIA, HYPOKINESIA, PROSTRATION AND
 CYANOSIS. DEATH FROM THE LARGEST DOSES OCCURRED WITHIN 10 HOURS
 FOLLOWING TONIC-CLONIC CONVULSIONS, STUPOR, AND RESPIRATORY FAILURE.
 PATHOLOGIC FINDINGS INCLUDED GASTROENTERITIS, ENCEPHALITIS, MARKED
 TUBULAR NEPHRITIS, ARTERIOLITIS, FOCAL MYOCARDIAL NECROSIS, MYOCARDITIS,
 ADRENAL HYPERTROPHY, INHIBITION OF SPERMATOGENESIS, AND CAPILLARY
 AND VENOUS CONGESTION OF THE BRAIN AND MENINGES.
 CHRONIC EXPOSURE- RATS FED A DIET OF 100% SUCROSE FOR 4 WEEKS SHOWED A
 LOSS OF 30% OF THEIR BODY WEIGHT. 80% FOR 26 WEEKS PRODUCED HYPERTROPHY
 OF THE LIVER WITH DECREASED PROTEIN AND INCREASED FAT DEPOSITION,
 HYPERCHOLESTEROLEMIA AND HYPERTROPHY OF THE KIDNEYS AND HEART. MATERNAL
 FEEDING OF 5-10 GM/KG DURING THE LATTER HALF OF PREGNANCY PRODUCED
 SKELETAL CHANGES IN THE GUINEA PIG FETUS. NO EFFECTS WERE NOTED IN
 THE FIRST LITTER OF RABBITS FED 5-7 GM/KG DURING PREGNANCY. HOWEVER,
 THE SECOND AND THIRD LITTERS SHOWED CATARACT, MICROPHTHALMIA AND
 HYDROCEPHALUS. OTHER REPRODUCTIVE EFFECTS HAVE BEEN REPORTED IN ANIMALS.

FIRST AID- TREAT SYMPTOMATICALLY AND SUPPORTIVELY. GET MEDICAL ATTENTION
 IMMEDIATELY. IF VOMITING OCCURS, KEEP HEAD LOWER THAN HIPS TO PREVENT
 ASPIRATION.

ANTIDOTE:
 NO SPECIFIC ANTIDOTE. TREAT SYMPTOMATICALLY AND SUPPORTIVELY.

REACTIVITY

REACTIVITY:
STABLE UNDER NORMAL TEMPERATURES AND PRESSURES.

INCOMPATIBILITIES:
SUCROSE:
NITRIC ACID: VIGOROUS ACTION WITH FORMATION OF CARBON MONOXIDE AND CARBON DIOXIDE.
OXIDIZERS (STRONG): FIRE AND EXPLOSION HAZARD.
SULFURIC ACID: VIGOROUS REACTION WITH FORMATION OF CARBON MONOXIDE AND CARBON DIOXIDE.

DECOMPOSITION:
THERMAL DECOMPOSITION PRODUCTS MAY INCLUDE TOXIC OXIDES OF CARBON.

POLYMERIZATION:
HAZARDOUS POLYMERIZATION HAS NOT BEEN REPORTED TO OCCUR UNDER NORMAL TEMPERATURES AND PRESSURES.

STORAGE AND DISPOSAL

OBSERVE ALL FEDERAL, STATE AND LOCAL REGULATIONS WHEN STORING OR DISPOSING OF THIS SUBSTANCE.

STORAGE

STORE AWAY FROM INCOMPATIBLE SUBSTANCES.

CONDITIONS TO AVOID

MAY BURN BUT DOES NOT IGNITE READILY. AVOID CONTACT WITH STRONG OXIDIZERS, EXCESSIVE HEAT, SPARKS, OR OPEN FLAME.

SPILL AND LEAK PROCEDURES

OCCUPATIONAL SPILL:
SWEEP UP AND PLACE IN SUITABLE CLEAN, DRY CONTAINERS FOR RECLAMATION OR LATER DISPOSAL. DO NOT FLUSH SPILLED MATERIAL INTO SEWER. KEEP UNNECESSARY PEOPLE AWAY.

PROTECTIVE EQUIPMENT

VENTILATION:
PROVIDE LOCAL EXHAUST VENTILATION TO MEET PUBLISHED EXPOSURE LIMITS. VENTILATION EQUIPMENT MUST BE EXPLOSION-PROOF.

RESPIRATOR:
THE FOLLOWING RESPIRATORS ARE RECOMMENDED BASED ON INFORMATION FOUND IN THE PHYSICAL DATA, TOXICITY AND HEALTH EFFECTS SECTIONS. THEY ARE RANKED IN ORDER FROM MINIMUM TO MAXIMUM RESPIRATORY PROTECTION.
THE SPECIFIC RESPIRATOR SELECTED MUST BE BASED ON CONTAMINATION LEVELS FOUND IN THE WORK PLACE. MUST BE BASED ON THE SPECIFIC OPERATION, MUST NOT EXCEED THE WORKING LIMITS OF THE RESPIRATOR AND MUST BE JOINTLY APPROVED BY THE NATIONAL INSTITUTE FOR OCCUPATIONAL SAFETY AND HEALTH AND THE MINE SAFETY AND HEALTH ADMINISTRATION (NIOSH-MSHA).

ANY DUST AND MIST RESPIRATOR.

ANY AIR-PURIFYING RESPIRATOR WITH A HIGH-EFFICIENCY PARTICULATE FILTER.

ANY POWERED AIR-PURIFYING RESPIRATOR WITH A DUST AND MIST FILTER.

ANY POWERED AIR-PURIFYING RESPIRATOR WITH A HIGH-EFFICIENCY PARTICULATE FILTER.

ANY TYPE 'C' SUPPLIED-AIR RESPIRATOR OPERATED IN THE PRESSURE-DEMAND OR OTHER POSITIVE PRESSURE OR CONTINUOUS-FLOW MODE.

ANY SELF-CONTAINED BREATHING APPARATUS.

FOR FIREFIGHTING AND OTHER IMMEDIATELY DANGEROUS TO LIFE OR HEALTH CONDITIONS:

ANY SELF-CONTAINED BREATHING APPARATUS THAT HAS A FULL FACEPIECE AND IS OPERATED IN A PRESSURE-DEMAND OR OTHER POSITIVE-PRESSURE MODE.

ANY SUPPLIED-AIR RESPIRATOR THAT HAS A FULL FACEPIECE AND IS OPERATED IN A PRESSURE-DEMAND OR OTHER POSITIVE-PRESSURE MODE IN COMBINATION WITH AN AUXILIARY SELF-CONTAINED BREATHING APPARATUS OPERATED IN PRESSURE-DEMAND OR OTHER POSITIVE-PRESSURE MODE.

CLOTHING:
PROTECTIVE CLOTHING NOT REQUIRED. AVOID REPEATED OR PROLONGED CONTACT WITH THIS SUBSTANCE.

GLOVES:
PROTECTIVE GLOVES ARE NOT REQUIRED BUT RECOMMENDED.

EYE PROTECTION:
EYE PROTECTION NOT REQUIRED, BUT ADVISABLE.

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