

SODIUM NITRITE

PAGE 01 OF 07

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MATERIAL SAFETY DATA SHEET

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SUBSTANCE IDENTIFICATION

SUBSTANCE: SODIUM NITRITE

CAS-NUMBER 7632-00-0

TRADE NAMES/SYNONYMS:

DIAZOTIZING SALTS; ANTI-RUST; ERINITRIT; FILMERINE; SYNFAT 1004;
NITROUS ACID, SODIUM SALT; DUSITAN SODNY; STCC 4918747; UN 1500; S-338;
S-347; ACC21410

CHEMICAL FAMILY:
INORGANIC SALT

MOLECULAR FORMULA: N-02.NA

MOLECULAR WEIGHT: 69.00

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

COMPONENTS AND CONTAMINANTS

COMPONENT: SODIUM NITRITE

PERCENT: 100

OTHER CONTAMINANTS: NONE

EXPOSURE LIMITS:

SODIUM NITRITE:

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

100 POUNDS CERCLA SECTION 103 REPORTABLE QUANTITY

PHYSICAL DATA

DESCRIPTION: ODORLESS, WHITE OR SLIGHTLY YELLOW HYGROSCOPIC GRANULES, RODS OR POWDERS.

BOILING POINT: 608 F (320 C) DECOMPOSES ABOVE 320 C

MELTING POINT: 520 F (271 C) SPECIFIC GRAVITY: 2.168

PH: 9.0 AQUEOUS SOLUTION SOLUBILITY IN WATER: 82% @ 15 C

SOLVENT SOLUBILITY: SOLUBLE IN AMMONIA; SLIGHTLY SOLUBLE IN ETHER AND ALCOHOL

FIRE AND EXPLOSION DATA

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

FIREFIGHTING MEDIA:
DRY CHEMICAL, CARBON DIOXIDE, HALON OR WATER SPRAY
(1987 EMERGENCY RESPONSE GUIDEBOOK, DOT P 5800.4).

FOR LARGER FIRES, USE WATER SPRAY OR FOG
(1987 EMERGENCY RESPONSE GUIDEBOOK, DOT P 5800.4).

FIREFIGHTING:
MOVE CONTAINERS FROM FIRE AREA IF POSSIBLE. COOL CONTAINERS EXPOSED TO FLAMES WITH WATER FROM SIDE UNTIL WELL AFTER FIRE IS OUT. STAY AWAY FROM STORAGE TANK ENDS. FOR MASSIVE FIRE IN STORAGE AREA, USE UNMANNED HOSE HOLDER OR MONITOR NOZZLES; ELSE WITHDRAW FROM AREA AND LET FIRE BURN (1987 EMERGENCY RESPONSE GUIDEBOOK, DOT P 5800.4, GUIDE PAGE 35)

FLOODING WITH WATER. COOL CONTAINERS WITH FLOODING QUANTITIES OF WATER, APPLY FROM AS FAR A DISTANCE AS POSSIBLE. AVOID BREATHING HAZARDOUS VAPORS, KEEP UPWIND. EVACUATE TO A RADIUS OF 2500 FEET FOR UNCONTROLLABLE FIRES.

TRANSPORTATION DATA

DEPARTMENT OF TRANSPORTATION HAZARD CLASSIFICATION 49CFR172.101:
OXIDIZER

DEPARTMENT OF TRANSPORTATION LABELING REQUIREMENTS 49CFR172.101 AND 172.402:
OXIDIZER

DEPARTMENT OF TRANSPORTATION PACKAGING REQUIREMENTS: 49CFR173.234
EXCEPTIONS: 49CFR173.153

TOXICITY

SODIUM NITRITE:

500 MG/24 HOURS EYE-RABBIT MILD IRRITATION; 71 MG/KG ORAL-HUMAN LDLO; 22 MG/KG ORAL-CHILD LDLO; 14 MG/KG ORAL-HUMAN TDLO; 1714 UG/KG/70 MINUTES ORAL-MAN TDLO; 85 MG/KG ORAL-RAT LD50; 175 MG/KG ORAL-MOUSE LD50; 330 MG/KG ORAL-DOG LDLO; 1500 MG/KG ORAL-CAT LDLO; 186 MG/KG ORAL-RABBIT LD50; 158 MG/KG INTRAPERITONEAL-MOUSE LD50; 10 MG/KG SUBCUTANEOUS-RAT LDLO; 150 MG/KG SUBCUTANEOUS-MOUSE LDLO; 60 MG/KG SUBCUTANEOUS-DOG LDLO; 35 MG/KG SUBCUTANEOUS-CAT LDLO; 60 MG/KG SUBCUTANEOUS-RABBIT LDLO; 80 MG/KG INTRAVENOUS-RABBIT LDLO; 65 MG/KG INTRAVENOUS-RAT LD50; 15 MG/KG INTRAVENOUS-DOG LDLO; MUTAGENIC DATA (RTECS); REPRODUCTIVE EFFECTS DATA (RTECS); TUMORIGENIC DATA (RTECS); CARCINOGEN STATUS: NONE.

SODIUM NITRITE IS A TOXIC EYE, SKIN AND MUCOUS MEMBRANE IRRITANT AND A METHEMOGLOBIN FORMER.

HEALTH EFFECTS AND FIRST AID

INHALATION:
SODIUM NITRITE:
IRRITANT.

ACUTE EXPOSURE- HIGH CONCENTRATIONS OF DUST OR MIST MAY IRRITATE THE NOSE, THROAT AND RESPIRATORY TRACT WITH SORE THROAT AND SHORTNESS OF BREATH. IT IS UNCLEAR IF LARGE QUANTITIES CAN BE ABSORBED, BUT IF SO, HYPOTENSION AND METHEMOGLOBIN FORMATION WITH CYANOSIS, HEADACHE, DIZZINESS, WEAKNESS, AND DYSPNEA MAY OCCUR.

CHRONIC EXPOSURE- NO DATA AVAILABLE.

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

SKIN CONTACT:
SODIUM NITRITE:
IRRITANT.

ACUTE EXPOSURE- MAY CAUSE REDNESS AND IRRITATION. IT IS UNCLEAR WHETHER AMOUNTS SUFFICIENT TO CAUSE SYSTEMIC EFFECTS MAY BE ABSORBED THROUGH INTACT SKIN. ONE INDUSTRIAL ACCIDENT INVOLVING THREE MEN WHO WERE BURNED OVER 30-70% OF THEIR BODIES WITH A MOLTEN MIXTURE OF SODIUM AND POTASSIUM NITRATES RESULTED IN METHEMOGLOBINEMIA IN ALL THREE. DUE TO THE HIGH TEMPERATURE OF THE MIXTURE, THERE IS A POSSIBILITY THAT THE NITRATES WERE CONVERTED TO NITRITES, THUS IT IS NOT CERTAIN WHICH WAS RESPONSIBLE FOR THE METHEMOGLOBINEMIA.

CHRONIC EXPOSURE- REPEATED OR PROLONGED CONTACT MAY CAUSE DERMATITIS.

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:
SODIUM NITRITE:
IRRITANT.

ACUTE EXPOSURE- MAY CAUSE IRRITATION OF THE EYES. IN ONE STUDY SODIUM NITRITE WAS FOUND TO BE SEVERELY IRRITATING TO RABBITS' EYES, HOWEVER OTHER DATA INDICATED THAT TESTING DONE ON RABBIT EYES CAUSED NO DISTURBANCES OF THE CORNEA OR LOCAL INJURY.

CHRONIC EXPOSURE- PROLONGED EXPOSURE MAY CAUSE CONJUNCTIVITIS.

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

INGESTION:**SODIUM NITRITE:****METHEMOGLOBIN FORMER/TOXIC.**

ACUTE EXPOSURE- MAY CAUSE GASTROINTESTINAL IRRITATION WITH NAUSEA, VOMITING, DIARRHEA, AND ABDOMINAL PAINS, DILATION OF PUPILS, VERTIGO, TACHYCARDIA, ROARING SOUND IN THE EARS, GENERALIZED TINGLING SENSATION, VISUAL DISTURBANCES, PROMPT HYPOTENSION, AND PERIPHERAL CIRCULATORY FAILURE. METHEMOGLOBINEMIA MAY OCCUR. THE FIRST SYMPTOMS, WHICH MAY BE DELAYED FOR SEVERAL HOURS, ARE CYANOSIS AND PERSISTENT, INCREASINGLY SEVERE, THROBBING HEADACHE. AS THE CONCENTRATION OF METHEMOGLOBIN INCREASES, SHALLOW RESPIRATION AND DIZZINESS MAY APPEAR FOLLOWED BY CONFUSION, LETHARGY AND STUPOR. AT CONCENTRATIONS OF 70% OR HIGHER, CONVULSIONS OR COMA MAY OCCUR WITH THE POSSIBILITY OF DEATH DUE TO CIRCULATORY COLLAPSE.

CHRONIC EXPOSURE- RATS FED REPEATED DOSES WHICH, IN TOTAL, RANGED FROM 40 TO 183 GM/KG FOR PERIODS VARYING FROM 56-104 WEEKS, DEVELOPED SKIN/APPENDAGE, LIVER AND GASTROINTESTINAL TUMORS. CHRONIC INGESTION BY RATS FROM THE 1ST-14TH OR 21ST DAYS OF PREGNANCY AND, IN SOME CASES, UP TO 21 DAYS POSTPARTUM, RESULTED IN EFFECTS ON THE EMBRYO, FETUS OR NEWBORN. FETAL DEVELOPMENTAL ABNORMALITIES WERE REPORTED IN THE OFFSPRING OF MICE FED A TOTAL OF 280 MG/KG FROM THE 1ST-14TH DAYS OF PREGNANCY.

FIRST AID- IF VICTIM IS CONSCIOUS, IMMEDIATELY GIVE 2 TO 4 GLASSES OF WATER, AND INDUCE VOMITING BY TOUCHING FINGER TO BACK OF THROAT. GET MEDICAL ATTENTION IMMEDIATELY.

ANTIDOTE:

METHEMOGLOBINEMIA- (WHEN METHEMOGLOBIN CONCENTRATION IS OVER 40% OR IN PRESENCE OF SYMPTOMS.) GIVE METHYLENE BLUE, 1% SOLUTION, 0.1 ML/KG INTRAVENOUSLY OVER A 10-MINUTE PERIOD. IF METHYLENE BLUE IS NOT AVAILABLE, GIVE ASCORBIC ACID, 1 GM SLOWLY INTRAVENOUSLY. ABSOLUTE BED REST MUST BE ENFORCED IF METHEMOGLOBINEMIA IS ABOVE 40%. CONTINUE OXYGEN THERAPY FOR AT 2 HOURS AFTER METHYLENE BLUE HAS BEEN GIVEN. ANTIDOTE MUST BE GIVEN BY QUALIFIED MEDICAL PERSONNEL. (DREISBACH, HANDBOOK OF POISONING, 11TH EDITION).

REACTIVITY**REACTIVITY:****SODIUM NITRITE:**

STABLE UNDER NORMAL CONDITIONS. MAY INCREASE BURNING RATE OF COMBUSTIBLE MATERIALS.

INCOMPATIBILITIES:**SODIUM NITRITE:**

AMINOGUANIDINE: FORMS EXPLOSIVE COMPOUND.

AMMONIUM SALTS: REACT VIOLENTLY ON MELTING.

1,3-BUTADIENE: IGNITABLE BLACK SLUDGE MAY FORM.

CELLULOSE: BURNS FIERCELY.

CYANIDE + CHLORATES: REACT VIOLENTLY ON MELTING.

LITHIUM: FORMS EXPLOSIVE COMPOUNDS.

METAL AMIDOSULFATES: VIOLENTLY EXPLOSIVE.

METAL CYANIDE: EXPLODES ON HEATING.

PHENOL: REACT EXPLODES ON HEATING.

PHTHALIC ACID: EXPLODES VIOLENTLY.

SODIUM NITRITE

PHTHALIC ANHYDRIDE: REACTS EXPLOSIVELY.
 POTASSIUM + AMMONIA OR HYDRAZINE: REACTS VIOLENTLY ON MELTING.
 REDUCING AGENTS: INCOMPATIBLE.
 SODIUM AMIDE: VIOLENTLY EXPLODES.
 SODIUM DISULPHITE: EXOTHERMIC REACTION.
 SODIUM THIOCYANATE: REACTS EXPLOSIVELY ON HEATING.
 SODIUM THIOSULFATE: RESIDUE EXPLODES ON HEATING.
 UREA: REACTS EXPLOSIVELY ON HEATING.

DECOMPOSITION:

SODIUM NITRITE:

THERMAL-OXIDATIVE DEGRADATION OR REACTION WITH ACIDS PRODUCES TOXIC NITROGEN OXIDES AND SODIUM OXIDE.

POLYMERIZATION:

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

 CONDITIONS TO AVOID

MAY IGNITE OTHER COMBUSTIBLE MATERIALS (WOOD, PAPER, OIL, ETC.). REACTION WITH FUELS MAY BE VIOLENT. RUNOFF TO SEWER MAY CREATE FIRE OR EXPLOSION HAZARD.

CONSULT NFPA PUBLICATION 43A, STORAGE OF LIQUID AND SOLID OXIDIZING MATERIALS, FOR STORAGE REQUIREMENTS.

 SPILL AND LEAK PROCEDURES

SOIL SPILL:

DIG HOLDING AREA SUCH AS LAGOON, POND OR PIT FOR CONTAINMENT.

USE PROTECTIVE COVER SUCH AS A PLASTIC SHEET TO PREVENT MATERIAL FROM DISSOLVING IN FIRE EXTINGUISHING WATER OR RAIN.

WATER SPILL:

NEUTRALIZE WITH CAUSTIC SODA.

ADD CALCIUM HYPOCHLORITE TO SPILL.

ADD SUITABLE AGENT TO NEUTRALIZE SPILLED MATERIAL TO PH-7.

OCCUPATIONAL SPILL:

KEEP COMBUSTIBLES (WOOD, PAPER, OIL, ETC) AWAY FROM SPILLED MATERIAL. DO NOT TOUCH SPILLED MATERIAL. FOR SMALL DRY SPILLS, WITH CLEAN SHOVEL PLACE MATERIAL INTO CLEAN, DRY CONTAINER AND COVER; MOVE CONTAINERS FROM SPILL AREA. FOR SMALL LIQUID SPILLS, TAKE UP WITH SAND, EARTH OR OTHER ABSORBENT MATERIAL AND PLACE INTO CONTAINERS FOR LATER DISPOSAL. FOR LARGER SPILLS, DIKE FAR AHEAD OF SPILL FOR LATER DISPOSAL. KEEP UNNECESSARY PEOPLE AWAY. ISOLATE HAZARD AREA AND DENY ENTRY.

REPORTABLE QUANTITY (RQ): 100 POUNDS

THE SUPERFUND AMENDMENTS AND REAUTHORIZATION ACT (SARA) SECTION 304 REQUIRES THAT A RELEASE EQUAL TO OR GREATER THAN THE REPORTABLE QUANTITY FOR THIS SUBSTANCE BE IMMEDIATELY REPORTED TO THE LOCAL EMERGENCY PLANNING COMMITTEE AND THE STATE EMERGENCY RESPONSE COMMISSION (40 CFR 355.40). IF THE RELEASE OF

THIS SUBSTANCE IS REPORTABLE UNDER CERCLA SECTION 103, THE NATIONAL RESPONSE CENTER MUST BE NOTIFIED IMMEDIATELY AT (800) 424-8802 OR (202) 426-2675 IN THE METROPOLITAN WASHINGTON, D.C. AREA (40 CFR 302.6).

PROTECTIVE EQUIPMENT

VENTILATION:

PROVIDE LOCAL EXHAUST OR PROCESS ENCLOSURE VENTILATION SYSTEM.

RESPIRATOR:

THE SPECIFIC RESPIRATOR SELECTED MUST BE BASED ON THE CONTAMINATION LEVELS FOUND IN THE WORK PLACE, MUST NOT EXCEED THE WORKING LIMITS OF THE RESPIRATOR AND BE JOINTLY APPROVED BY THE NATIONAL INSTITUTE FOR OCCUPATIONAL SAFETY AND HEALTH AND THE MINE SAFETY AND HEALTH ADMINISTRATION.

THE FOLLOWING RESPIRATORS ARE RECOMMENDED BASED ON THE DATA FOUND IN THE PHYSICAL DATA, HEALTH EFFECTS AND TOXICITY SECTIONS. THEY ARE RANKED IN ORDER FROM MINIMUM TO MAXIMUM RESPIRATORY PROTECTION:

CHEMICAL CARTRIDGE RESPIRATOR WITH AN ORGANIC VAPOR CARTRIDGE(S) WITH A HIGH-EFFICIENCY PARTICULATE FILTER AND FULL FACEPIECE.

HIGH-EFFICIENCY PARTICULATE RESPIRATOR WITH A FULL FACEPIECE.

POWERED AIR-PURIFYING RESPIRATOR WITH A HIGH-EFFICIENCY FILTER WITH A FULL FACEPIECE.

TYPE 'C' SUPPLIED-AIR RESPIRATOR WITH A FULL FACEPIECE OPERATED IN PRESSURE-DEMAND OR OTHER POSITIVE PRESSURE MODE OR WITH A FULL FACEPIECE, HELMET OR HOOD OPERATED IN CONTINUOUS-FLOW MODE.

SELF-CONTAINED BREATHING APPARATUS WITH A FULL FACEPIECE OPERATED IN PRESSURE-DEMAND OR OTHER POSITIVE PRESSURE MODE.

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

SELF-CONTAINED BREATHING APPARATUS WITH FULL FACEPIECE OPERATED IN PRESSURE DEMAND OR OTHER POSITIVE PRESSURE MODE.

SUPPLIED-AIR RESPIRATOR WITH FULL FACEPIECE AND OPERATED IN 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:

EMPLOYEE MUST WEAR APPROPRIATE PROTECTIVE (IMPERVIOUS) CLOTHING AND EQUIPMENT TO PREVENT REPEATED OR PROLONGED SKIN CONTACT WITH THIS SUBSTANCE.

GLOVES:

EMPLOYEE MUST WEAR APPROPRIATE PROTECTIVE GLOVES TO PREVENT CONTACT WITH THIS SUBSTANCE.

EYE PROTECTION:

EMPLOYEE MUST WEAR SPLASH-PROOF OR DUST-RESISTANT SAFETY GOGGLES TO PREVENT EYE CONTACT WITH THIS SUBSTANCE. CONTACT LENSES SHOULD NOT BE WORN.

AUTHORIZED - FISHER SCIENTIFIC GROUP, INC.
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-ADDITIONAL INFORMATION-

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