

\*\*\*SODIUM BICARBONATE\*\*

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MATERIAL SAFETY DATA SHEET

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SUBSTANCE IDENTIFICATION

CAS-NUMBER 144-55-8

SUBSTANCE: \*\*\*SODIUM BICARBONATE\*\*

TRADE NAMES/SYNONYMS:

SODIUM BICARBONATE (1:1); MONOSODIUM CARBONATE; SODIUM HYDROGEN CARBONATE;  
SODIUM ACID CARBONATE; BICARBONATE OF SODA; BAKING SODA;  
CARBONIC ACID, MONOSODIUM SALT; CARBONIC ACID SODIUM SALT (1:1);  
MONOSODIUM HYDROGEN CARBONATE; SODIUM CARBONATE (NA(HCO3)); SODA MINT; SODA;  
MEYLON; SOLUDAL; S-233; S-631; CHNAO3;

CHEMICAL FAMILY:  
INORGANIC SALT

MOLECULAR FORMULA: C-H-NA-O3

MOLECULAR WEIGHT: 84.00

CERCLA RATINGS (SCALE 0-3): HEALTH=2 FIRE=0 REACTIVITY=0 PERSISTENCE=0  
NFPA RATINGS (SCALE 0-4): HEALTH=2 FIRE=0 REACTIVITY=0

COMPONENTS AND CONTAMINANTS

COMPONENT: SODIUM BICARBONATE

PERCENT: 100

OTHER CONTAMINANTS: NONE

EXPOSURE LIMITS:  
NO OCCUPATIONAL EXPOSURE LIMITS ESTABLISHED BY OSHA, ACGIH, OR NIOSH.

PHYSICAL DATA

DESCRIPTION: WHITE CRYSTALLINE POWDER OR GRANULES.

MELTING POINT: 518 F (270 C) SPECIFIC GRAVITY: 2.159

PH: 8.3 (0.1 M SOLUTION) SOLUBILITY IN WATER: 6.9% @ 0 C

SOLVENT SOLUBILITY: SLIGHTLY SOLUBLE IN ALCOHOL.

FIRE AND EXPLOSION DATA

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

FIREFIGHTING MEDIA:  
DRY CHEMICAL, CARBON DIOXIDE, WATER SPRAY OR FOAM

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

FIREFIGHTING:  
NO ACUTE HAZARD. MOVE CONTAINER FROM FIRE AREA IF POSSIBLE. AVOID BREATHING VAPORS OR DUSTS; KEEP UPWIND.

TOXICITY

SODIUM BICARBONATE:  
30 MG/3 DAYS INTERMITTENT SKIN-HUMAN MILD IRRITATION; 100 MG RINSED EYE-RABBIT MILD IRRITATION; 1260 MG/KG ORAL-INFANT TDLO; 4220 MG/KG ORAL-RAT LD50;  
REPRODUCTIVE EFFECTS DATA (RTECS).  
CARCINOGEN STATUS: NONE.

SODIUM BICARBONATE MAY BE IRRITATING TO THE EYES, SKIN AND MUCOUS MEMBRANES. POISONING MAY CAUSE SYSTEMIC ALKALOSIS, PARTICULARLY IN PERSONS WITH RENAL INSUFFICIENCY. CONCURRENT USE OF VARIOUS DRUGS AND SODIUM BICARBONATE MAY CAUSE ADVERSE EFFECTS: SALICYLATE LEVELS AND EFFECTS MAY BE DECREASED DUE TO INCREASED RENAL ELIMINATION; ABSORPTION AND EFFECTIVENESS OF ANTICHOLINERGICS, CIMETIDINE, TETRACYCLINES AND BETA BLOCKERS MAY BE DECREASED; INCREASED RENAL ABSORPTION LEADING TO TOXICITY OF AMPHETAMINES, MECAMYLAMINE, PROCAINAMIDE, PSEUDOPHEDRINE, AND QUINIDINE/GUNINE MAY OCCUR; ALKALINIZATION OF THE URINE FROM SODIUM BICARBONATE MAY CAUSE METHENAMINE TO

\*\*\*SODIUM BICARBONATE\*\*\*  
BECOME INEFFECTIVE; ABSORPTION OF IRON SALTS MAY BE DECREASED. INGESTION OF  
LARGE QUANTITIES OF MILK OR OTHER DAIRY PRODUCTS ALONG WITH SODIUM  
BICARBONATE MAY CAUSE A "MILK-ALKALI SYNDROME" OF HYPERCALCEMIA.

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HEALTH EFFECTS AND FIRST AID

INHALATION:

SODIUM BICARBONATE:

ACUTE EXPOSURE- INHALATION MAY CAUSE IRRITATION WITH SORE THROAT AND  
COUGHING.

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.  
TREAT SYMPTOMATICALLY AND SUPPORTIVELY. GET MEDICAL ATTENTION IMMEDIATELY.

SKIN CONTACT:

SODIUM BICARBONATE:

ACUTE EXPOSURE- NO ADVERSE EFFECTS HAVE BEEN REPORTED.

CHRONIC EXPOSURE- HUMAN EXPOSED INTERMITTENTLY FOR 3 DAYS EXPERIENCED ONLY  
MILD IRRITATION. ALKALOSIS HAS BEEN REPORTED FROM APPLICATION OF TOPICAL  
OINTMENTS CONTAINING SODIUM BICARBONATE.

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 BICARBONATE:

ACUTE EXPOSURE- DIRECT CONTACT WITH THE EYES MAY CAUSE IRRITATION WITH  
REDNESS AND PAIN. APPLICATION OF A 0.1 M SOLUTION, ADJUSTED TO PH 7.0-7.5  
AND MADE 0.46 OSMOLAR WITH SODIUM CHLORIDE OR SUCROSE, CONTINUOUSLY FOR  
3 HOURS RESULTED IN NO DISTURBANCE OF THE CORNEA IN RABBITS.

CHRONIC EXPOSURE- REPEATED OR PROLONGED EXPOSURE MAY CAUSE CONJUNCTIVITIS.

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:

SODIUM BICARBONATE:

ACUTE EXPOSURE- SODIUM BICARBONATE IS COMMONLY USED AS AN ANTACID IN DOSES  
OF 1-4 GRAMS IN ADULTS. IN NEUTRALIZING GASTRIC ACID, DISTENTION AND  
POSSIBLE DAMAGE AND RUPTURE OF THE STOMACH DUE TO THE RELEASE OF CARBON  
DIOXIDE MAY OCCUR. LARGE DOSES, ESPECIALLY IN PERSONS WITH RENAL  
INSUFFICIENCY, MAY CAUSE SYSTEMIC ALKALOSIS AND EDEMA. INGESTION OF  
>1 G/KG MAY CAUSE RENAL INJURY. SODIUM BICARBONATE HAS CAUSED FRANK  
HYPOCALCEMIC TETANY WITH HYPOGLYCEMIA IN A CHILD, AND INCREASED URINE  
OUTPUT AND SODIUM IMBALANCE IN AN INFANT.

CHRONIC EXPOSURE- THE FOOD AND DRUG ADMINISTRATION LISTS IT AS A DIRECT  
FOOD SUBSTANCE AFFIRMED AS GENERALLY RECOGNIZED AS SAFE. PROLONGED  
INGESTION OF LARGE AMOUNTS OF CALCIUM WITH THIS SUBSTANCE MAY CAUSE A  
"MILK ALKALI SYNDROME" OF HYPERCALCEMIA WITH ABDOMINAL PAIN, ANOREXIA,  
NAUSEA, VOMITING, DIARRHEA, AND POSSIBLE MUSCLE WEAKNESS IN PATIENTS WITH  
PEPTIC ULCER DISEASE. DAILY DOSES OF UP TO 25 MEQ/KG TO HUMANS FOR 3 WEEKS  
RESULTED IN WEIGHT GAIN AND CHANGES IN THE PLASMA ELECTROLYTE  
CONCENTRATION. ONE OF THE ADULTS DEVELOPED ALBUMINURIA AND HEMATURIA;  
HOWEVER, IT IS THOUGHT THAT DEHYDRATION WITH CONSEQUENT RENAL ISCHEMIA,  
RATHER THAN ALKALOSIS OR FLUID RETENTION, WAS THE PRIMARY CAUSE OF  
COMPLICATIONS.

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.

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REACTIVITY

REACTIVITY:

STABLE UNDER NORMAL TEMPERATURES AND PRESSURES.

INCOMPATIBILITIES:

SODIUM BICARBONATE:

ACIDS (STRONG): MAY REACT VIOLENTLY AND RELEASE CARBON DIOXIDE.

CARBON AND WATER: POSSIBLE EXOTHERMIC REACTION WITH RELEASE OF CARBON  
DIOXIDE.

2-FURALDEHYDE: POSSIBLE IGNITION HAZARD.

MONOAMMONIUM PHOSPHATE: SELF-PROPAGATING REACTION.

SODIUM-POTASSIUM ALLOY + WATER: VIOLENT REACTION.

DECOMPOSITION:

THERMAL DECOMPOSITION PRODUCTS MAY INCLUDE TOXIC OXIDES OF CARBON.

POLYMERIZATION:

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

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STORAGE AND DISPOSAL

OBSERVE ALL FEDERAL, STATE AND LOCAL REGULATIONS WHEN STORING OR DISPOSING  
OF THIS SUBSTANCE. FOR ASSISTANCE, CONTACT THE DISTRICT DIRECTOR OF THE

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CONDITIONS TO AVOID

NONE REPORTED.

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SPILL AND LEAK PROCEDURES

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

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PROTECTIVE EQUIPMENT

VENTILATION:  
PROVIDE LOCAL EXHAUST OR GENERAL DILUTION 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:

DUST AND MIST RESPIRATOR WITH A FULL FACEPIECE.

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

POWERED AIR-PURIFYING RESPIRATOR WITH A TIGHT-FITTING FACEPIECE AND HIGH-EFFICIENCY PARTICULATE FILTER.

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.

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