

Replaced 12-10-96

J.T.BAKER INC. 222 RED SCHOOL LANE, PHILLIPSBURG, NJ 08865

M A T E R I A L S A F E T Y D A T A S H E E T

24-HOUR EMERGENCY TELEPHONE -- (201) 859-2151

CHEMTREC # (800) 424-9300 -- NATIONAL RESPONSE CENTER # (800) 424-8802

N3660 D04

NITRIC ACID

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EFFECTIVE: 05/01/89

ISSUED: 05/16/89

J.T.BAKER INC., 222 RED SCHOOL LANE, PHILLIPSBURG, NJ 08865

SECTION I - PRODUCT IDENTIFICATION

PRODUCT NAME: NITRIC ACID  
 COMMON SYNONYMS: HYDROGEN NITRATE; AZOTIC ACID  
 CHEMICAL FAMILY: INORGANIC ACIDS  
 FORMULA: HNO3  
 FORMULA WT.: 63.01  
 CAS NO.: 7697-37-2  
 NIOSH/RTECS NO.: QU5775000  
 PRODUCT USE: LABORATORY REAGENT  
 PRODUCT CODES: 4801,9597,5113,9602,5371,9598,9605,9600,9616,6901,9606,9601

PRECAUTIONARY LABELING

BAKER SAF-T-DATA\* SYSTEM

HEALTH	-	3	SEVERE (POISON)
FLAMMABILITY	-	0	NONE
REACTIVITY	-	3	SEVERE (OXIDIZER)
CONTACT	-	4	EXTREME (CORROSIVE)

LABORATORY PROTECTIVE EQUIPMENT

GOGGLES & SHIELD; LAB COAT & APRON; VENT HOOD; PROPER GLOVES

U.S. PRECAUTIONARY LABELING

POISON DANGER  
 SPILLAGE MAY CAUSE FIRE OR LIBERATE DANGEROUS GAS. HARMFUL IF INHALED AND MAY CAUSE DELAYED LUNG INJURY. STRONG OXIDIZER. CONTACT WITH OTHER MATERIAL MAY CAUSE FIRE. LIQUID AND VAPOR CAUSE SEVERE BURNS. MAY BE FATAL IF SWALLOWED OR INHALED.  
 KEEP FROM CONTACT WITH CLOTHING AND OTHER COMBUSTIBLE MATERIALS. DO NOT STORE NEAR COMBUSTIBLE MATERIALS. DO NOT GET IN EYES, ON SKIN, ON CLOTHING. DO NOT BREATHE VAPOR. KEEP IN TIGHTLY CLOSED CONTAINER. USE WITH ADEQUATE VENTILATION. WASH THOROUGHLY AFTER HANDLING. IN CASE OF FIRE, USE WATER SPRAY. IN CASE OF SPILL, NEUTRALIZE WITH SODA ASH OR LIME.

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PRECAUTIONARY LABELING (CONTINUED)

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INTERNATIONAL LABELING

AVOID CONTACT WITH EYES. AFTER CONTACT WITH SKIN, WASH IMMEDIATELY WITH PLENTY OF WATER. KEEP CONTAINER TIGHTLY CLOSED.

SAF-T-DATA\* STORAGE COLOR CODE: YELLOW (REACTIVE)

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SECTION II - COMPONENTS

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COMPONENT	CAS NO.	WEIGHT %	OSHA/PEL	ACGIH/TLV
NITRIC ACID	7697-37-2	65-71	2 PPM	2 PPM
WATER	7732-18-5	29-35	N/E	N/E

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SECTION III - PHYSICAL DATA

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BOILING POINT: 121 C (249 F)  
(AT 760 MM HG)

VAPOR PRESSURE (MMHG): 9  
(20 C)

MELTING POINT: -42 C (-43 F)  
(AT 760 MM HG)

VAPOR DENSITY (AIR=1): N/A

SPECIFIC GRAVITY: 1.41  
(H2O=1)

EVAPORATION RATE: N/A

SOLUBILITY(H2O): COMPLETE (100%)

% VOLATILES BY VOLUME: 100  
(21 C)

PH: N/A

ODOR THRESHOLD (P.P.M.): N/A

PHYSICAL STATE: LIQUID

COEFFICIENT WATER/OIL DISTRIBUTION: N/A

APPEARANCE & ODOR: CLEAR, COLORLESS LIQUID. SUFFOCATING ODOR.

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SECTION IV - FIRE AND EXPLOSION HAZARD DATA

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FLASH POINT (CLOSED CUP): N/A                      NFPA 704M RATING: 3-0-0 OXY

AUTOIGNITION TEMPERATURE: N/A

FLAMMABLE LIMITS:    UPPER - N/A                      LOWER - N/A

FIRE EXTINGUISHING MEDIA  
USE WATER SPRAY.

SPECIAL FIRE-FIGHTING PROCEDURES

FIREFIGHTERS SHOULD WEAR PROPER PROTECTIVE EQUIPMENT AND SELF-CONTAINED BREATHING APPARATUS WITH FULL FACEPIECE OPERATED IN POSITIVE PRESSURE MODE. MOVE EXPOSED CONTAINERS FROM FIRE AREA IF IT CAN BE DONE WITHOUT RISK. USE WATER TO KEEP FIRE-EXPOSED CONTAINERS COOL; DO NOT GET WATER INSIDE CONTAINERS.

UNUSUAL FIRE & EXPLOSION HAZARDS

STRONG OXIDIZER. CONTACT WITH OTHER MATERIAL MAY CAUSE FIRE. REACTS WITH MOST METALS TO PRODUCE HYDROGEN GAS, WHICH CAN FORM AN EXPLOSIVE MIXTURE WITH AIR. A VIOLENT EXOTHERMIC REACTION OCCURS WITH WATER. SUFFICIENT HEAT MAY BE PRODUCED TO IGNITE COMBUSTIBLE MATERIALS.

TOXIC GASES PRODUCED

OXIDES OF NITROGEN, HYDROGEN

EXPLOSION DATA-SENSITIVITY TO MECHANICAL IMPACT

NONE IDENTIFIED.

EXPLOSION DATA-SENSITIVITY TO STATIC DISCHARGE

NONE IDENTIFIED.

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SECTION V - HEALTH HAZARD DATA

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THRESHOLD LIMIT VALUE (TLV/TWA): 5 MG/M3                      (2 PPM)

SHORT-TERM EXPOSURE LIMIT (STEL): 10 MG/M3                      (4 PPM)

PERMISSIBLE EXPOSURE LIMIT (PEL): 5 MG/M3                      (2 PPM)

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SECTION V - HEALTH HAZARD DATA (CONTINUED)  
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TOXICITY OF COMPONENTS

INTRAPERITONEAL MOUSE LD50 FOR WATER 190 G/KG  
INTRAVENOUS MOUSE LD50 FOR WATER 25 G/KG  
CARCINOGENICITY: NTP: NO IARC: NO Z LIST: NO OSHA REG: NO

CARCINOGENICITY  
NONE IDENTIFIED.

REPRODUCTIVE EFFECTS  
NONE IDENTIFIED.

EFFECTS OF OVEREXPOSURE

INHALATION: SEVERE IRRITATION OR BURNS OF RESPIRATORY SYSTEM,  
COUGHING, DIFFICULT BREATHING, CHEST PAINS, PULMONARY  
EDEMA, LUNG INFLAMMATION, UNCONSCIOUSNESS, AND MAY BE  
FATAL

SKIN CONTACT: SEVERE IRRITATION OR BURNS

EYE CONTACT: SEVERE IRRITATION OR BURNS

SKIN ABSORPTION: NONE IDENTIFIED

INGESTION: NAUSEA, VOMITING, SEVERE BURNS, ULCERATION - MOUTH,  
THROAT, STOMACH, AND MAY BE FATAL

CHRONIC EFFECTS: DAMAGE TO LUNGS, TEETH

TARGET ORGANS

EYES, SKIN, MUCOUS MEMBRANES, RESPIRATORY SYSTEM, LUNGS, TEETH, GI TRACT

MEDICAL CONDITIONS GENERALLY AGGRAVATED BY EXPOSURE

DAMAGED SKIN, EYE DISORDERS, CARDIOPULMONARY DISEASE, LUNG DISEASE

PRIMARY ROUTES OF ENTRY

INHALATION, INGESTION, EYE CONTACT, SKIN CONTACT

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SECTION V - HEALTH HAZARD DATA (CONTINUED)

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EMERGENCY AND FIRST AID PROCEDURES

INGESTION: CALL A PHYSICIAN. IF SWALLOWED, DO NOT INDUCE VOMITING. IF CONSCIOUS, GIVE WATER, MILK, OR MILK OF MAGNESIA.

INHALATION: IF INHALED, REMOVE TO FRESH AIR. IF NOT BREATHING, GIVE ARTIFICIAL RESPIRATION. IF BREATHING IS DIFFICULT, GIVE OXYGEN.

SKIN CONTACT: IN CASE OF CONTACT, IMMEDIATELY FLUSH SKIN WITH PLENTY OF WATER FOR AT LEAST 15 MINUTES WHILE REMOVING CONTAMINATED CLOTHING AND SHOES. WASH CLOTHING BEFORE RE-USE.

EYE CONTACT: IN CASE OF EYE CONTACT, IMMEDIATELY FLUSH WITH PLENTY OF WATER FOR AT LEAST 15 MINUTES.

SARA/TITLE III HAZARD CATEGORIES AND LISTS

ACUTE: YES CHRONIC: YES FLAMMABILITY: YES PRESSURE: NO REACTIVITY: NO

EXTREMELY HAZARDOUS SUBSTANCE: YES CONTAINS NITRIC ACID (RQ = 1,000 LBS, TPQ = 1,000 LBS)

CERCLA HAZARDOUS SUBSTANCE: YES CONTAINS NITRIC ACID (RQ = 1000 LBS)

TOXIC CHEMICALS: YES CONTAINS NITRIC ACID

GENERIC CLASS: C16

TSCA INVENTORY: YES

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SECTION VI - REACTIVITY DATA

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STABILITY: STABLE

HAZARDOUS POLYMERIZATION: WILL NOT OCCUR

CONDITIONS TO AVOID: HEAT, LIGHT, MOISTURE

INCOMPATIBLES:

STRONG BASES, CARBONATES, SULFIDES, CYANIDES, COMBUSTIBLE MATERIALS, ORGANIC MATERIALS, STRONG REDUCING AGENTS, MOST COMMON METALS, POWDERED METALS, CARBIDES, AMMONIUM HYDROXIDE, WATER, ALCOHOLS

DECOMPOSITION PRODUCTS: OXIDES OF NITROGEN, HYDROGEN

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SECTION VII - SPILL & DISPOSAL PROCEDURES

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STEPS TO BE TAKEN IN THE EVENT OF A SPILL OR DISCHARGE  
WEAR SELF-CONTAINED BREATHING APPARATUS AND FULL PROTECTIVE CLOTHING.  
STOP LEAK IF YOU CAN DO SO WITHOUT RISK. VENTILATE AREA. NEUTRALIZE  
SPILL WITH SODA ASH OR LIME. WITH CLEAN SHOVEL, CAREFULLY PLACE MATERIAL  
INTO CLEAN, DRY CONTAINER AND COVER; REMOVE FROM AREA. FLUSH SPILL AREA  
WITH WATER.  
KEEP COMBUSTIBLES (WOOD, PAPER, OIL, ETC.) AWAY FROM SPILLED MATERIAL.

J. T. BAKER NEUTRASORB(R) OR TEAM\* 'LOW NA+' ACID NEUTRALIZERS ARE RECOMMENDED  
FOR SPILLS OF THIS PRODUCT.

DISPOSAL PROCEDURE  
DISPOSE IN ACCORDANCE WITH ALL APPLICABLE FEDERAL, STATE, AND LOCAL  
ENVIRONMENTAL REGULATIONS.

EPA HAZARDOUS WASTE NUMBER: D001, D002 (IGNITABLE, CORROSIVE WASTE)

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SECTION VIII - INDUSTRIAL PROTECTIVE EQUIPMENT

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VENTILATION: USE GENERAL OR LOCAL EXHAUST VENTILATION TO MEET TLV  
REQUIREMENTS.

RESPIRATORY PROTECTION: RESPIRATORY PROTECTION REQUIRED IF AIRBORNE  
CONCENTRATION EXCEEDS TLV. AT CONCENTRATIONS UP TO  
100 PPM, A CHEMICAL CARTRIDGE RESPIRATOR WITH ACID  
CARTRIDGE IS RECOMMENDED. ABOVE THIS LEVEL, A  
SELF-CONTAINED BREATHING APPARATUS IS ADVISED.

EYE/SKIN PROTECTION: SAFETY GOGGLES AND FACE SHIELD, UNIFORM, PROTECTIVE  
SUIT, NEOPRENE GLOVES ARE RECOMMENDED.

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SECTION IX - STORAGE AND HANDLING PRECAUTIONS

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SAF-T-DATA\* STORAGE COLOR CODE: YELLOW (REACTIVE)

STORAGE REQUIREMENTS  
KEEP CONTAINER TIGHTLY CLOSED. STORE SEPARATELY AND AWAY FROM FLAMMABLE  
AND COMBUSTIBLE MATERIALS. ISOLATE FROM INCOMPATIBLE MATERIALS. KEEP  
PRODUCT OUT OF LIGHT.

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SECTION X - TRANSPORTATION DATA AND ADDITIONAL INFORMATION

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DOMESTIC (D.O.T.)

PROPER SHIPPING NAME: NITRIC ACID (OVER 40%)  
HAZARD CLASS: OXIDIZER  
UN/NA: UN2031 REPORTABLE QUANTITY: 1000 LBS.  
LABELS: OXIDIZER, CORROSIVE  
REGULATORY REFERENCES: 49CFR 172.101; 173.268

INTERNATIONAL (I.M.O.)

PROPER SHIPPING NAME: NITRIC ACID  
HAZARD CLASS: 8  
UN: UN2031 MARINE POLLUTANTS: NO  
LABELS: CORROSIVE  
REGULATORY REFERENCES: 49CFR 172.102; PART 176; IMO

I.M.O. PAGE: 8107  
PACKAGING GROUP: II

AIR (I.C.A.O.)

PROPER SHIPPING NAME: NITRIC ACID  
HAZARD CLASS: 8  
UN: UN2031  
LABELS: CORROSIVE  
REGULATORY REFERENCES: 49CFR 172.101; 173.6; PART 175; ICAO/IATA

PACKAGING GROUP: II

U.S. CUSTOMS HARMONIZATION NUMBER: 2808000000

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N/A = NOT APPLICABLE OR NOT AVAILABLE  
N/E = NOT ESTABLISHED

THE INFORMATION IN THIS MATERIAL SAFETY DATA SHEET MEETS THE REQUIREMENTS OF THE UNITED STATES OCCUPATIONAL SAFETY AND HEALTH ACT AND REGULATIONS PROMULGATED THEREUNDER (29 CFR 1910.1200 ET. SEQ.) AND THE CANADIAN WORKPLACE HAZARDOUS MATERIALS INFORMATION SYSTEM. THIS DOCUMENT IS INTENDED ONLY AS A GUIDE TO THE APPROPRIATE PRECAUTIONARY HANDLING OF THE MATERIAL BY A PERSON TRAINED IN, OR SUPERVISED BY A PERSON TRAINED IN, CHEMICAL HANDLING. THE USER IS RESPONSIBLE FOR DETERMINING THE PRECAUTIONS AND DANGERS OF THIS CHEMICAL FOR HIS OR HER PARTICULAR APPLICATION. DEPENDING ON USAGE, PROTECTIVE CLOTHING INCLUDING EYE AND FACE GUARDS AND RESPIRATORS MUST BE USED TO AVOID CONTACT WITH MATERIAL OR BREATHING CHEMICAL VAPORS/FUMES.

EXPOSURE TO THIS PRODUCT MAY HAVE SERIOUS ADVERSE HEALTH EFFECTS. THIS CHEMICAL MAY INTERACT WITH OTHER SUBSTANCES. SINCE THE POTENTIAL USES

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ARE SO VARIED, BAKER CANNOT WARN OF ALL OF THE POTENTIAL DANGERS OF USE OR INTERACTION WITH OTHER CHEMICALS OR MATERIALS. BAKER WARRANTS THAT THE CHEMICAL MEETS THE SPECIFICATIONS SET FORTH ON THE LABEL. BAKER DISCLAIMS ANY OTHER WARRANTIES, EXPRESSED OR IMPLIED WITH REGARD TO THE PRODUCT SUPPLIED HEREUNDER, ITS MERCHANTABILITY OR ITS FITNESS FOR A PARTICULAR PURPOSE. THE USER SHOULD RECOGNIZE THAT THIS PRODUCT CAN CAUSE SEVERE INJURY AND EVEN DEATH, ESPECIALLY IF IMPROPERLY HANDLED OR THE KNOWN DANGERS OF USE ARE NOT HEEDDED. READ ALL PRECAUTIONARY INFORMATION. AS NEW DOCUMENTED GENERAL SAFETY INFORMATION BECOMES AVAILABLE, BAKER WILL PERIODICALLY REVISE THIS MATERIAL SAFETY DATA SHEET. IF YOU HAVE ANY QUESTIONS, PLEASE CALL CUSTOMER SERVICE (1-800-JTBAKER) FOR ASSISTANCE.

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APPROVED BY QUALITY ASSURANCE DEPARTMENT.

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