

DR-0016-2152 NITRIC ACID

REPT Z

LATEST REVISIONS: 04/10/89

THIS INFORMATION APPLIES TO THE STATED MATERIAL AND MAY NOT
APPLY TO DILUTIONS OR FORMULATIONS OF THE MATERIAL.

CAS NUMBER: 0007697-37-2
OTHER IDENTIFIERS: K-017065
SYNONYMS: AQUA FORTIS
ENGRAVER'S ACID
AZOTIC ACID
DOWELL* M052, E377

CHEMICAL AND PHYSICAL PROPERTIES

THESE DATA COMPILED FROM VARIOUS SOURCES AND NOT VERIFIED. ADDITIONAL
INFORMATION IS AVAILABLE THROUGH YOUR SITE'S REACTIVE CHEMICAL PROGRAM.
APPEARANCE: TRANSPARENT, COLORLESS OR YELLOWISH, FUMING LIQUID
MOLECULAR WEIGHT: 63.02
BOILING POINT: 78C (DECOMPOSES)
MELTING POINT: -42C
VAPOR PRESSURE: 62 MM HG @ 25 C
FLASH POINT: NONE
FLAMMABILITY LIMITS: DANGEROUS FIRE RISK IN CONTACT WITH ORGANIC MATERIAL
STABILITY/REACTIVITY: STRONG OXIDIZING AGENT; DECOMPOSES IN ALCOHOL; REACTS
(SOMETIMES VIOLENTLY) WITH MANY METALS, INORGANIC
ELEMENTS, AND ORGANIC SUBSTANCES; FORMS A CONSTANT
BOILING MIXTURE (AZEOTROPE) WITH WATER WHICH CONTAINS
APPROX. 68% HNO3 AND BOILS AT 121.6C
ODOR DESCRIPTION: SUFFOCATING, ACRID ODOR

POTENTIAL HEALTH EFFECTS

(REVISED:06/26/85)

THIS SECTION INCLUDES POSSIBLE ADVERSE EFFECTS WHICH COULD OCCUR
IF THIS MATERIAL IS NOT HANDLED IN THE RECOMMENDED MANNER.

EYE:

- MAY CAUSE SEVERE IRRITATION WITH CORNEAL INJURY WHICH MAY RESULT IN
PERMANENT IMPAIRMENT OF VISION, EVEN BLINDNESS.
- VAPORS MAY IRRITATE EYES.

SKIN:

- SHORT SINGLE EXPOSURE MAY CAUSE SKIN BURNS.
- DOT CLASSIFICATION: CORROSIVE, OXIDIZER.
- MAY STAIN SKIN.

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INGESTION:

- SINGLE DOSE ORAL TOXICITY IS MODERATE.
- THE ORAL LD50 FOR HAMSTERS IS 430 MG/KG.
- AMOUNTS INGESTED INCIDENTAL TO INDUSTRIAL HANDLING MAY CAUSE SERIOUS EFFECTS; INGESTION OF LARGER AMOUNTS COULD CAUSE DEATH.
- MAY CAUSE SEVERE BURNS OF THE MOUTH AND THROAT.

ACUTE INHALATION EFFECTS:

- EXCESSIVE EXPOSURE MAY CAUSE SEVERE IRRITATION TO UPPER RESPIRATORY TRACT AND LUNGS.
- THE LC50 FOR 30 MIN. IS 260-334 PPM IN RATS.

SUBCHRONIC EFFECTS:

- CONTINUED EXPOSURE TO THE VAPOR OR MIST OF NITRIC ACID MAY RESULT IN EROSION OF THE TEETH AND CHRONIC RESPIRATORY TRACT IRRITATION, POSSIBLY RESULTING IN CHEMICAL PNEUMONIA.

CHRONIC EFFECTS / CARCINOGENICITY:

- NO RELEVANT INFORMATION FOUND.

TERATOGENIC EFFECTS:

- NO RELEVANT INFORMATION FOUND.

REPRODUCTIVE EFFECTS:

- NO RELEVANT INFORMATION FOUND.

MUTAGENICITY:

- RESULTS OF IN VITRO (*TEST TUBE*) MUTAGENICITY TESTS HAVE BEEN NEGATIVE.

EXPOSURE GUIDELINES

NITRIC ACID: ACGIH TLV AND OSHA PEL ARE 2 PPM TWA, 4 PPM STEL.

HANDLING PRECAUTIONS AND PROTECTIVE EQUIPMENT (REVISED:04/10/89)

THESE RECOMMENDED PRECAUTIONS ARE INTENDED FOR USE DURING NORMAL OPERATING CONDITIONS: EMERGENCY CONDITIONS COULD REQUIRE ADDITIONAL PRECAUTIONS. (FOR AN EXPLANATION OF THE LOW, MODERATE AND HIGH POTENTIAL EXPOSURE CATEGORIES OR SPECIFIC RECOMMENDATIONS FOR YOUR SPECIFIC OPERATION CONTACT YOUR INDUSTRIAL HYGIENIST.)

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- LOW - USE CHEMICAL GOGGLES.
- MODERATE - USE CHEMICAL GOGGLES.
- USE A FULL-FACE RESPIRATOR WHEN THERE IS ANY LIKELIHOOD OF SPLASHES.
- HIGH - USE CHEMICAL GOGGLES.
- USE A FULL-FACE RESPIRATOR WHEN THERE IS ANY LIKELIHOOD OF SPLASHES.
- EYE WASH FOUNTAIN SHOULD BE LOCATED IN IMMEDIATE WORK AREA.

SKIN

- LOW - USE IMPERVIOUS GLOVES.
- MODERATE - USE PROTECTIVE CLOTHING IMPERVIOUS TO THIS MATERIAL. SELECTION OF SPECIFIC ITEMS SUCH AS GLOVES, BOOTS, APRON, OR FULL-BODY SUIT WILL DEPEND ON OPERATION.
- WEAR A FACE-SHIELD WHICH ALLOWS USE OF CHEMICAL GOGGLES, OR WEAR A FULL-FACE RESPIRATOR, TO PROTECT FACE AND EYES WHEN THERE IS ANY LIKELIHOOD OF SPLASHES.
- REMOVE CONTAMINATED CLOTHING IMMEDIATELY, WASH SKIN AREA WITH SOAP AND WATER, AND LAUNDER CLOTHING BEFORE REUSE.
- HIGH - USE PROTECTIVE CLOTHING IMPERVIOUS TO THIS MATERIAL. SELECTION OF SPECIFIC ITEMS SUCH AS GLOVES, BOOTS, APRON, OR FULL-BODY SUIT WILL DEPEND ON OPERATION.
- WEAR A FACE-SHIELD WHICH ALLOWS USE OF CHEMICAL GOGGLES, OR WEAR A FULL-FACE RESPIRATOR, TO PROTECT FACE AND EYES WHEN THERE IS ANY LIKELIHOOD OF SPLASHES.
- REMOVE CONTAMINATED CLOTHING IMMEDIATELY, WASH SKIN AREA WITH SOAP AND WATER, AND LAUNDER CLOTHING BEFORE REUSE.
- SAFETY SHOWER SHOULD BE LOCATED IN IMMEDIATE WORK AREA.

INHALATION

- LOW - NO RESPIRATORY PROTECTION SHOULD BE NEEDED.
- MODERATE - ATMOSPHERIC LEVELS SHOULD BE MAINTAINED BELOW THE EXPOSURE GUIDELINE. WHEN RESPIRATORY PROTECTION IS REQUIRED FOR CERTAIN OPERATIONS, USE AN APPROVED AIR-PURIFYING RESPIRATOR.
- HIGH - ATMOSPHERIC LEVELS SHOULD BE MAINTAINED BELOW THE EXPOSURE GUIDELINE. WHEN RESPIRATORY PROTECTION IS REQUIRED FOR CERTAIN OPERATIONS, USE AN APPROVED AIR-PURIFYING RESPIRATOR.
- FOR EMERGENCY AND OTHER CONDITIONS WHERE THE EXPOSURE GUIDELINE MAY BE GREATLY EXCEEDED, USE AN APPROVED POSITIVE-PRESSURE SELF-CONTAINED BREATHING APPARATUS OR POSITIVE-PRESSURE AIRLINE WITH AUXILLIARY SELF-CONTAINED AIR SUPPLY.

INGESTION

- AVOID INGESTION OF EVEN VERY SMALL AMOUNTS; DO NOT CONSUME OR STORE FOOD OR TOBACCO IN THE WORK AREA; WASH HANDS AND FACE BEFORE SMOKING OR EATING.

WARNING PROPERTIES:

- ODOOR THRESHOLD FOR MOST PEOPLE IS FROM 1.7 TO 10 PPM.

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VENTILATION

- PROVIDE GENERAL AND/OR LOCAL EXHAUST VENTILATION TO CONTROL AIRBORNE LEVELS BELOW THE EXPOSURE GUIDELINES.

PROTECTIVE EQUIPMENT INFORMATION

- PERMEATION TEST DATA INDICATE THAT THE FOLLOWING ARE EFFECTIVE PROTECTIVE CLOTHING MATERIALS: NEOPRENE, NEOPRENE COATED FABRIC, POLYVINYL COATED COTTON.
- THERE IS NO RESPIRATOR TEST DATA AVAILABLE FOR THIS CHEMICAL. DATA FOR RELATED CHEMICALS INDICATE THAT THE FOLLOWING SHOULD BE EFFECTIVE TYPES OF AIR-PURIFYING RESPIRATORS: ACID GAS.
- AVOID USING THE FOLLOWING TYPES OF AIR-PURIFYING RESPIRATORS: CARTRIDGES WITH OXIDIZABLE SORBENTS.

EMERGENCY TREATMENT AND MEDICAL NOTES REVISED:06/05/85)

EYE

- IMMEDIATE AND CONTINUOUS IRRIGATION WITH FLOWING WATER FOR AT LEAST 30 MINUTES IS IMPERATIVE. PROMPT MEDICAL CONSULTATION IS ESSENTIAL.

SKIN

- WASH OFF IN FLOWING WATER OR SHOWER.

INGESTION

- DO NOT INDUCE VOMITING. GIVE LARGE AMOUNTS OF WATER OR MILK IF AVAILABLE AND TRANSPORT TO MEDICAL FACILITY.

INHALATION

- REMOVE TO FRESH AIR. IF NOT BREATHING, GIVE MOUTH-TO-MOUTH RESUSCITATION. IF BREATHING IS DIFFICULT, GIVE OXYGEN. CALL A PHYSICIAN.

NOTES TO PHYSICIAN:

- INDIVIDUALS WITH A SIGNIFICANT EXPOSURE BY INHALATION SHOULD BE HOSPITALIZED AND OBSERVED FOR 24-72 HOURS FOR DELAYED ONSET OF SEVERE PULMONARY EDEMA.
- MAY CAUSE TISSUE DESTRUCTION LEADING TO STRICTURE. IF LAVAGE IS PERFORMED, SUGGEST ENDOTRACHEAL AND/OR ESOPHAGOSCOPIC CONTROL.
- IF BURN IS PRESENT, TREAT AS ANY THERMAL BURN, AFTER DECONTAMINATION.
- NO SPECIFIC ANTIDOTE.
- SUPPORTIVE CARE. TREATMENT BASED ON JUDGMENT OF THE PHYSICIAN IN RESPONSE TO REACTIONS OF THE PATIENT.

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HEALTH EFFECTS, HANDLING, AND FIRST AID
HEALTH AND ENVIRONMENTAL SCIENCES T.I.M.E. SYSTEM

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END OF REPORT; FOR ADDITIONAL INFORMATION CONTACT:
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