



# KENCRO

## CHEMICALS

### PRODUCT: NITRIC ACID

#### SECTION 1: PRODUCT INFORMATION

T.D.G. CLASSIFICATION	8
UN NUMBER	2031
PACKING GROUP	II
PRODUCT NAME	NITRIC ACID
WHMIS CLASSIFICATION	C (CORROSIVE), D1A, E (OXIDIZER)
CHEMICAL FORMULA	HNO <sub>3</sub>
MOLECULAR WEIGHT	MIXTURE
CHEMICAL FAMILY	MINERAL ACID
MATERIAL USE	VARIOUS

#### SECTION 2: HAZARDOUS INGREDIENTS

HAZARDOUS INGREDIENTS	%	T.L.V.	C.A.S. #	LD/50,ROUTE,SPECIE	LC/50,ROUTE,SPECIE
NITRIC ACID	67	2 ppm	007697-37-2	NOT DETERMINED	3124 ppm FOR 1 HR (INHALATION, RAT)
WATER	BALANCE	N.AV.	007732-18-5	N.AV.	N.AV.

#### SECTION 3: PHYSICAL DATA

APPEARANCE	CLEAR COLOURLESS TO SLIGHTLY YELLOW FUMING AQUEOUS SOLUTION
PHYSICAL STATE	LIQUID
ODOUR	SUFFOCATING ACID ODOUR
ODOUR THRESHOLD	NO DATA
VAPOUR PRESSURE (mmHg) 45	
VAPOUR DENSITY (AIR=1)	N.AV.
EVAPORATION RATE	N.AV.
BOILING POINT	121°C
FREEZING POINT	-33°C
pH	STRONG ACID, <1
SPECIFIC GRAVITY (WATER=1)	1.41
SOLUBILITY IN WATER (% W/W)	100%
COEFFICIENT OF WATER/OIL DIST.	N.AV.

#### SECTION 4: FIRE AND EXPLOSION DATA

FLAMMABILITY	<b>NOT FLAMMABLE</b>
IF YES, UNDER WHICH CONDITIONS?	
EXTINGUISHING MEDIA	USE WATER ON FIRES INVOLVING NITRIC ACID TO DILUTE THE ACID AND TO ABSORB
SPECIAL PROCEDURES	LIBERATED OXIDES OF NITROGEN. FIREFIGHTERS SHOULD WEAR SELF-CONTAINED BREATHING APPARATUS IN AN ENCLOSED AREA AND FULL PROTECTIVE CLOTHING WHEN NITRIC ACID IS INVOLVED.
FLASH POINT( °C), METHOD	NON-FLAMMABLE
AUTO IGNITION TEMPERATURE	N.AP.
UPPER FLAMMABLE LIMIT (UFL)	UNDEFINED

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(% BY VOL.) LOWER FLAMMABLE LIMIT (LFL)	UNDEFINED
(% BY VOL.) HAZARDOUS COMBUSTION AND PRODUCTS	NITRIC ACID IS NON-FLAMMABLE, HOWEVER IT IS A STRONG OXIDIZING AGENT  CAN REACT WITH COMBUSTIBLE MATERIALS TO CAUSE FIRES. IT CAN ALSO REACT WITH METALS TO LIBERATE FLAMMABLE HYDROGEN GAS.
EXPLOSION DATA	
SENSITIVITY TO STATIC DISCHARGE	N.AV.
SENSITIVITY TO IMPACT	N.AV.
RATE OF BURNING	N.AV.
EXPLOSIVE POWER	N.AV.

**SECTION 5: REACTIVITY DATA**

CHEMICAL STABILITY	
YES	UNDER NORMAL CONDITIONS
NO, WHICH CONDITIONS?	UNDER FIRE CONDITIONS WILL LIBERATE OXIDES OF NITROGEN
COMPATIBILITY WITH OTHER SUBSTANCES:	
YES	
NO, WHICH ONES?	OXIDIZING AGENTS
REACTIVITY CONDITIONS	CONTACT WITH ORGANIC MATERIALS SUCH AS WOOD, PAPER, ALCOHOL, TURPENTINE, HYDROGEN SULFIDE, ETC. MAY CAUSE FIRES. COMBUSTIBLE MATERIALS CAN HAVE INCREASED FLAMMABILITY AFTER CONTACT WITH NITRIC ACID.
HAZARDOUS POLYMERIZATION CONDITIONS TO AVOID	WILL NOT OCCUR SEE REACTIVITY CONDITIONS ABOVE
HAZARDOUS PRODUCTS OF DECOMPOSITION	VARIOUS NITROGEN OXIDES, INCLUDING NO, NO <sub>2</sub> , N <sub>2</sub> O <sub>3</sub> , AND N <sub>2</sub> O - ALL MIXED WITH NITRIC ACID MIST AND VAPOUR - CAN BE PRODUCED UPON DECOMPOSITION OR REACTION OF NITRIC ACID

**SECTION 6: TOXICOLOGICAL PROPERTIES**

ROUTE OF ENTRY	
SKIN CONTACT	SEVERE BURNS, BLISTERS. PROLONGED OR REPEATED CONTACT TO DILUTE SOLUTIONS MAY CAUSE IRRITATION AND DERMATITIS
SKIN ABSORPTION	CORROSIVE
EYE CONTACT	SEVERE BURNS, WATERING, CONJUNCTIVITIS LEADING TO PERMANENT DAMAGE, POSSIBLE BLINDNESS.
INHALATION	MAY CAUSE PAIN, VOMITING, SEVERE BURNS OF MOUTH AND THROATS AND EXTENSIVE DAMAGE TO OR PERFORATION OF ESOPHAGUS. MAY BE FATAL.
INHALATION, CHRONIC INGESTION	N.AV. SEVERE BURNS TO MOUTH, THROAT, ESOPHAGUS AND STOMACH, NAUSEA, VOMITING. RISK OF STOMACH PERFORATION, CONVULSIONS, COMA AND DEATH.
EFFECTS OF ACUTE EXPOSURE	REFER TO ROUTE OF ENTRY
EFFECTS OF CHRONIC EXPOSURE	INHALATION OF MIST OR FUMES AT 2-25 PPM, OVER AN 8 HOUR PERIOD, MAY CAUSE PULMONARY IRRITATION AND SYMPTOMS OF LUNG DAMAGE. THE ONSET OF SYMPTOMS FOLLOWING INHALATION MAY BE DELAYED FOR SEVERAL HOURS. CONCENTRATIONS OVER 200 PPM CAN CAUSE SEVERE PULMONARY DAMAGE AND MAY BE FATAL (IN 5-10) HOURS AFTER SEVERAL MINUTES OF EXPOSURE.
RECOMMENDED EXPOSURE LIMIT	ACGIH TLV-TWA 2ppm
LD 50 MATERIAL, SPECIES & ROUTE	SEE SECTION II
LC 50 MATERIAL, SPECIES & ROUTE	SEE SECTION II
EXPOSURE LIMIT OF MATERIAL IRRITANCY OF MATERIAL	SEE SECTION II SEE ABOVE
SENSITIZING CAPABILITY OF MATERIAL	N.AV.
CARCINOGENICITY OF MATERIAL	THE INGREDIENTS OF THIS PRODUCT ARE NOT LISTED AS CARCINOGENS BY NTP (NATIONAL TOXICOLOGY PROGRAM) NOT REGULATED AS CARCINOGENS BY OSHA (OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION) AND HAVE NOT BEEN EVALUATED BY IARC (INTERNATIONAL AGENCY FOR RESEARCH ON CANCER) OR

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REPRODUCTIVE EFFECTS	ACGIH (AMERICAN CONFERENCE OF GOVERNMENTAL INDUSTRIAL HYGIENISTS). NO INFORMATION IS AVAILABLE AND NO ADVERSE REPRODUCTIVE EFFECTS ARE ANTICIPATED.
MUTAGENICITY DATA	NO INFORMATION IS AVAILABLE AND NO ADVERSE MUTAGENIC EFFECTS ARE ANTICIPATED
TERATOGENICITY DATA	NO INFORMATION IS AVAILABLE AND NO ADVERSE TERATOGENIC EFFECTS ARE ANTICIPATED
SYNERGISTIC MATERIALS	NONE KNOWN

**SECTION 7: PREVENTATIVE MEASURES**

GLOVES/TYPE	NEOPRENE GLOVES
RESPIRATORY/TYPE	USE A NIOSH APPROVED RESPIRATOR FOR ORGANIC VAPOURS
EYE/TYPE	CHEMICAL GOGGLES. FULL FACE SHIELD IN ADDITION TO GOGGLES MAY BE DESIRABLE. MAINTAIN EYE WASH FOUNTAIN & SAFETY SHOWER AT OR NEAR WORK AREA.
FOOTWEAR/TYPE	BOOTS
CLOTHING /TYPE	NEOPRENE BODY SHIELDS. WEAR IMPERVIOUS PROTECTIVE CLOTHING.
OTHER/TYPE	EYE BATH AND SAFETY SHOWER
ENGINEERING CONTROLS	USE WITH PROPER VENTILATION. EXHAUST HOODS SHOULD MAINTAIN A FACE VELOCITY OF 100 LFM MINIMUM. GASEOUS OXIDES ARE HEAVIER THAN AIR,
VENTILATION	AND DOWN-DRAFT EXHAUST SYSTEMS TO BE USED WHERE GENERAL VENTILATION IS INADEQUATE.
HOODS	
LEAK/SPILL	PROVIDE ADEQUATE VENTILATION. ELIMINATE SOURCES OF IGNITION. SELF-CONTAINED BREATHING APPARATUS SHOULD BE USED BY PERSONNEL WHEN CLEANING UP SPILLS. NEOPRENE GLOVES AND BODY SHIELDS SHOULD BE USED TO PREVENT SKIN AND CLOTHING CONTACT. SURFACES CONTAMINATED FROM SPILLS SHOULD BE COVERED WITH SODIUM BICARBONATE OR SODA ASH TO NEUTRALIZE ACID. CONTAIN SPILL. PREVENT RUNOFF INTO DRAINS, SEWERS, AND OTHER WATERWAYS. SOAK UP WITH AN ABSORBENT MATERIAL. PUT IN A CLOSED CONTAINER.
WASTE DISPOSAL	DISPOSAL MUST MEET WITH ALL LOCAL, PROVINCIAL AND FEDERAL REGULATIONS.
HANDLING PROCEDURES	WHEN DILUTING, <u>ALWAYS ADD ACID TO WATER, NOT WATER TO ACID.</u> HEAT IS GENERATED BY DILUTION. WEAR PERSONAL PROTECTIVE EQUIPMENT. AVOID CONTACT WITH ACID OR VAPOURS. AVOID ALL SKIN CONTACT AND GETTING IN EYES.
AND EQUIPMENT	KEEP AWAY FROM HEAT, SPARKS AND OPEN FLAME. EQUIPMENT MUST BE GROUNDED. KEEP CONTAINER CLOSED. USE ADEQUATE VENTILATION.
STORAGE NEEDS	STORE IN WELL VENTILATED AREA AWAY FROM INCOMPATIBLES. AVOID DIRECT SUNLIGHT OR HEAT SOURCES. KEEP AWAY FROM HEAT, SPARKS AND OPEN FLAMES. STORE AWAY FROM INCOMPATIBLE MATERIALS. STORE IN STAINLESS STEEL DRUMS. KEEP CONTAINER CLOSED WHEN NOT IN USE.
SPECIAL SHIPPING INSTRUCTIONS	SEE SECTION 1 T.D.G. CLASSIFICATION

**SECTION 8: FIRST AID MEASURES**

**INSTRUCTIONS:**

**EYES:** IMMEDIATELY FLUSH EYES WITH RUNNING WATER FOR A MINIMUM OF 30 MINUTES. HOLD EYELIDS OPEN DURING FLUSHING. IF IRRITATION PERSISTS, REPEAT FLUSHING. OBTAIN MEDICAL ATTENTION IMMEDIATELY.

**SKIN:** FLUSH SKIN WITH RUNNING WATER FOR A MINIMUM OF 30 MINUTES. START FLUSHING WHILE REMOVING CONTAMINATED CLOTHING. IF IRRITATION PERSISTS, REPEAT FLUSHING. OBTAIN MEDICAL ATTENTION IMMEDIATELY. DO NOT TRANSPORT VICTIM UNLESS THE RECOMMENDED FLUSHING PERIOD IS COMPLETED OR FLUSHING CAN BE CONTINUED DURING TRANSPORT.

**INGESTION:** IF VICTIM IS ALERT AND NOT CONVULSING, RINSE OUT MOUTH AND GIVE ½ TO 1 GLASS OF WATER TO DILUTE MATERIAL. DO NOT INDUCE VOMITING. IF SPONTANEOUS VOMITING OCCURS, HAVE VICTIM LEAN FORWARD WITH HEAD DOWN TO AVOID BREATHING OF VOMITUS, RINSE MOUTH AND ADMINISTER MORE WATER. IMMEDIATELY TRANSPORT VICTIM TO EMERGENCY FACILITY.

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**INHALATION:** MOVE VICTIM TO FRESH AIR. GIVE ARTIFICIAL RESPIRATION ONLY IF BREATHING HAS STOPPED. GIVE CARDIOPULMONARY RESUSCITATION (CPR) IF THERE IS NO BREATHING AND NO PULSE. OBTAIN MEDICAL ATTENTION IMMEDIATELY.

**NOTES TO PHYSICIAN:** MEDICAL CONDITIONS THAT MAY BE AGGRAVATED BY EXPOSURE INCLUDE ASTHMA, BRONCHITIS, EMPHYSEMA AND OTHER LUNG DISEASES AND CHRONIC NOSE, SINUS OR THROAT CONDITIONS. IN THE EVENT OF SKIN OR EYE CONTACT, RAPID THOROUGH FLUSHING IS ESSENTIAL.

**SECTION 9: PREPARATION INFORMATION**

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PREPARED BY                                KENCRO CHEMICALS LIMITED  
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DATE    JUNE 2008

**LEGEND:**

ACGIH	AMERICAN CONFERENCE OF GOVERNMENTAL INDUSTRIAL HYGIENISTS
CAS #	CHEMICAL ABSTRACTS SERVICE REGISTRY NUMBER
CPR	CARDIOPULMONARY RESUSCITATION
IARC	INTERNATIONAL AGENCY FOR RESEARCH ON CANCER
LFL	LOWER FLAMMABLE LIMIT
N.AP	NOT APPLICABLE
N. AV	NOT AVAILABLE
NIOSH	NATIONAL INSTITUTE FOR OCCUPATIONAL SAFETY AND HEALTH
NTP	NATIONAL TOXICOLOGY PROGRAM
OSHA	OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION
TDG	TRANSPORTATION OF DANGEROUS GOODS ACT/REGULATIONS
TLV	THRESHOLD LIMIT VALUE
UFL	UPPER FLAMMABLE LIMIT
WHMIS	WORKPLACE HAZARDOUS MATERIALS INFORMATION SYSTEM

THE INFORMATION IS, TO THE BEST OF OUR KNOWLEDGE AND BELIEF, ACCURATE AND RELIABLE AS OF THE DATE COMPILED. HOWEVER, NO REPRESENTATION, WARRANTY OR GUARANTEE IS MADE TO ITS ACCURACY, RELIABILITY OR COMPLETENESS. IT IS THE USER'S RESPONSIBILITY TO REVIEW THIS INFORMATION, SATISFY THEMSELVES AS TO ITS SUITABILITY AND COMPLETENESS AND PASS ON THE INFORMATION TO ITS EMPLOYEES OR CUSTOMERS. KENCRO CHEMICALS LIMITED DOES NOT ACCEPT RESPONSIBILITY FOR ANY LOSS OR DAMAGE WHICH MAY OCCUR FROM THE USE OF THIS INFORMATION.