MATERIAL SAFETY DATA SHEET

NITRIC ACID

1. CHEMICAL IDENTITY

Chemical Name :	Nitric acid	Chemical Classification :	Inorganic acid
Synonyms :	Aquaforties, Hydrogen Nitrate, Azotic acid.	Trade Name :	
Formula :	HNO_3	C.A.S. No. :	7697-37-2
		U.N. No. :	2031

Regulated Identification :

Shipping Name :	Nitric acid		
Codes/Label :	Corrosive, Oxidiser, Class 8	Hazchem Code No.	2 P E
Hazardous waste I.D. No. :	16		
Hazardous ingredients :	C. A. S. No.		
1. Nitric Acid	7697-37-2		

2. PHYSICAL AND CHEMICAL DATA

Boiling Range/point degreeC : 86	Physical State	Watery Liquid	Appearance : Colourless to Brown
Melting/Freezing Point degree C : -42			Odour : Choking odour, acrid

Vapour Pressure : 2.6	1.3 to	mm Hg at 20.7 degree	suffocating odour.
VapourDensity : N. A. (Air = 1)	Solubility in water at 30 degree C : Soluble		Others :Colour less, yellow or red fuming liquid.
Specific Gravity : 1.49 at 20 deg. C Water = 1	pH : Acidic		

3. FIRE AND EXPLOSION HAZARD DATA

Flammability : No, but increases flammability of combustible materials.	LEL : Not pertinent	Flash Point degree C : Not pertinent	Autoignition temperature degree C : Not pertinent
TDG Flammability : N.A.	UEL : Not pertinent	Flash Point degree C : Not pertinent	
Explosion Sensitivity to Impact:	Stable	Explosion Sensitivity to Static Electricity : stable	Hazardous Combustion Products :
Hazardous Polymerisation :	Will not occur		May emit poisonous Oxides of Nitrogen & Acid fumes.

Combustible liquid : No	Explosive Material : NO	Corrosive Material :	Yes
Flammable Material : NO	Oxidiser : Yes	Others :	May cause fire upon combustible.
Pyrophoric Material : No	Organic Peroxide :	No	

4. REACTIVITY DATA

Chemical Stability	Stable, liquid turns yellow owing to decomposition. Phenomena occur under the effect of light or heat.
Incompatibility with other material	With 4-Acetoxy-3-methoxybenzaldehyde Acetylene, Acrylonitrite, Acrylonitrile + Methacrylate Co-polymer, Allyl Alcohol, Allyl Chloride, 2-Amino Ethanol, Aniline, Antimony Tri hydride. Combustible materials, matalic powder, Hydrogen Sulphide.
Reactivity	Can react explosively with many reducing agents. Reacts with water and steam to produce heat and toxic, corrosive and flammable vapours. Explosive reaction with Acetic Anhydride, Acetone + Acetic acid. Reacts violently with Acetic Acid, Ammonia, Acetylene, FeO, Hydrazine, HI, Mn, Nitrobenzene, Oleum, Organic Matter, NaOH, Zn, etc.
Hazardous Reaction Products	Nitric acid Reacts with water and steam to produce toxic, corrosive and flammable vapours.

5. HEALTH HAZARDS DATA

Routes of Entry	Inhalation, Ingestion, Skin and Eyes. Highly corrisive effects eyes, respiratory system, skin, teeth.
Effects of Exposure/Symptoms	
Inhalation	Vapours on inhaling irritate respiratory tract, lung injury. But it may not become apparent for several hours following exposure.
Eyes	Causes severe burns of eyes. Vapours irritates eyes, serious injury of the eyes sight.
Skin	Causes severe burns.

Emergency Treatment	INHALATION : Remove the victim to fresh air area. Provide artificial respiration if required. INGESTION : Give large volumes of water. Do not induce vomiting. SKIN &EYES : Flush the affected area with plenty of water for long time. Seek medical aid immediately.			
TLV (ACGIH)	2 ppm	5 mg/m3	STEL : 4 ppm, 10 mg/m3	
Permissible Exposure Limit	2 ppm	5 mg/m3	Odour Threshold Not available	
LD - 50	Not listed	IDLH :	100 ppm	
NFPA Hazard Signals	Health 3	Flammability 0	Reactivity 0	Special -

6. PREVENTIVE MEASURES

Personal Protective Equipment	Avoid contact with liquid or vapours. Provide air mask, plastic and PVC suit, hood, boots, gloves, face shield, water shower, eye wash basin should be provided near to the work place. chemical splash goggles should be worn. For high concentration used SCBA set.
Handling and Storage Precautions	Store in a well ventilated, cool, dry area, away from oxidising agents.

7. EMERGENCY AND FIRST AID MEASURE

FIRE	FIRE EXTINGUSTING MEDIA	Not flammable. Use SCBA set gas masks for fire fighting.

FIRE	Special Procedures	Keep the containers cool by spraying water if exposed to heat or flame.
	Unusual Hazards	Poisonous gases are produced. Toxic fumes of NO_x are released.
EXPOSURE	First Aid Measures	If eyes and skin are affected wash with plenty of water. If inhaled, remove the victim to fresh air area. If ingested, do not induce vomiting. Seek medical Aid Immediately for any type of exposure to this chemicals.
	Antidotes/Dosages	Not available.
Notes to Physician		
SPILLS	Steps to be taken	Avoid breathing vapours keep up wind use SCBA were a sealed suit (neoprene, nitrine, chlorinated polythylene, PVC) to Combat emergency consider appropriate evacauation. Dilute with water and neutralise with alkali and then drench.
	Waste disposal Method	Seal all the waste material in vapour tight plastic bags for eventual disposal. Treat contaminated water used in spill/leak control or under for dilution.

8. ADDITIONAL INFORMATION / REFERENCES :

A powerful oxidiser and corrosive materials. Flammable by chemical reaction with reducing agents.

Nitric acid is a colourless liquid which gradually turns yellow owing to decomposition phenomena under the influence of light or heat. When the acid is kept in open vessels, it will discharge vapours which generally contain nitrous gases.

Nitric acid figure among the strong acids, it features marked oxidizing characteristics and will seriously attack numerous metal and organic substances. In case of contact with the human skin, it will produce burns whose seriousness depends on the concentration of the acid. The affected zones of the skin assume a yellow colour.