SAFETY DATA SHEET **Product Name:** Concentrated Nitric Acid 98%
Date : 23-Nov-2023 **CAS no.:** 7697-37-2

Section 1 : Chemical Product and Company Identification		
1.1	**Product identifiers**	
	Product Name:	Concentrated Nitric Acid 98%
1.2	**Other means of identification**	
	Other names	Aqua fortis, Azotic Acid
	CAS No.	7697-37-2
	REACH No.	-
	EC number	231-714-2
	Index no.	007-004-00-1
1.3	**Recommended use of the chemical and restrictions on use**	
	Identified uses	Industrial USE to formulate chemical product mixtures. Industrial USE as chemical intermediate. Industrial USE to manufacture specialist chemical/other products.
	Uses advised against	Other non-specified industry. Any consumer use with concentration >3%.
1.4	**Supplier's details**	
	Company	Deepak Chem Tech Ltd. 1 st Floor, Fermenter house, Alembic city, Alembic Avenue Road, Vadodara- 390003 Manufacturing facilities at: Vadodara, Dahej, Roha, Taloja & Hyderabad. Web: www.godeepak.com E-mail : customer.dnl@godeepak.com
1.5	**Emergency phone number**	
		In case of Spill, Leak, Fire, Exposure, or Accident, Call CHEMTREC Within USA & Canada: +1-800-424-9300, Outside USA & Canada: +1 703-527-3887 Contact no.: +91-9904406400

Section 2: Hazards Identification		
2.1	**Classification of the substance or mixture**	
	(Classification according to Regulation (EC) No 1272/2008) Skin Corrosion. 1A: H314: Causes severe skin burns and eye damage. AcuteToxicity. 3: H331: Toxic if inhaled Metal Corrosion.1: H290: May be corrosive to metals.	
2.2	**Label elements including precautionary statements**	
	Pictograms	
	Signal word	Danger
	Hazard statement(s)	H272: to be incorporate (may intensify fire; oxidizer H300: fatal if swallowed H310: fatal in contact with skin H330: fatal in inhalation H373: may cause damage to organs through prolonged or repeated exposure H411: toxic to aquatic life with long lasting effectH314: Causes severe skin burns and eye damage.

		H331: Toxic if inhaled H290: May be corrosive to metals.
	Precautionary statement(s)	
	Prevention	P260: Do not breathe dust/fume/gas/mist/vapor/spray. P271: Use only outdoors or in a well-ventilated area. P264: Wash hands thoroughly after handling. P234: Keep only in original container. P280: Wear protective gloves/protective clothing/eye protection/face protection.
	Response	P301 + P330 + P331: IF SWALLOWED: Rinse mouth. DO NOT induce vomiting. P305 + P351 + P338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. P303 + P361 + P353: IF ON SKIN (or hair): Remove/take off immediately all contaminated clothing. Rinse skin with water/shower. P304 + P340: IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. P310: Immediately call a POISON CENTRE or doctor/physician. P363: Wash contaminated clothing before reuse. P390: Absorb spillage to prevent material damage.
	Storage	P234: Keep only in original container. P403+P233: Store in a well-ventilated place. Keep container tightly closed. P404: Store in a closed container. P405: Store locked up. P406: Store in a corrosive resistant container.
2.3	**Other hazards which do not result in classification**	
	Attacks many metals producing extremely flammable hydrogen gas, which can form explosive mixtures with air.	

	Section 3: Composition and Information on ingredients			
3.1	**Substances**			
	Molecular formula		HNO_3	
	Molecular weight		63 g/mol	
	Component	CAS Number	EC number	Concentration
	Nitric Acid	7697-37-2	231-714-2	More than 98%

	Section 4: First Aid measures	
4.1	**Description of necessary first-aid measures**	
	After inhalation	Remove victim to fresh air and keep at rest in a position comfortable for breathing. Call a POISON CENTER or doctor/physician if you feel unwell.
	After skin contact	Remove contaminated clothing and shoes, flush skin with plenty of water for at least 15 minutes, get medical attention immediately.
	After eye contact	Immediately flush eyes with plenty of water for at least 15 minutes, lifting lower and upper lids occasionally get medical attention immediately.
	If swallowed	Call a POISON CENTER or doctor/physician if you feel unwell. Rinse mouth.
	Protection of first-aiders	A rescuer should wear personal protective equipment, such as rubber gloves and air-tight goggles.
4.2	**Most important symptoms / effects, acute and delayed**	
	Harmful if swallowed or if inhaled. May be harmful in contact with skin. May cause eye/skin irritation. May cause respiratory irritation.	
4.3	**Indication of immediate medical attention and special treatment needed**	
	Treat symptomatically.	

	Section 5 : Firefighting measures
5.1	**Extinguishing Media :**
	Suitable extinguishing media
	Use an extinguishing agent suitable for the surrounding fire. It is not combustible, however, water spray may be used to keep fire exposed containers cool.
	Unsuitable extinguishing media
	DO NOT use chemical extinguisher, foam, or attempt to smother the fire with steam or sand. It is not combustible but reacts with explosively with combustible organic or readily oxidisable materials, react with most metal to release hydrogen gas.
5.2	**Specific hazards arising from the chemical**
	Attacks many metals producing extremely flammable hydrogen gas, which can form explosive mixtures with air. Acidic Toxic if inhaled. In a fire, decomposition may produce toxic gases/fumes. In a fire or if heated, a pressure increase will occur and the container may burst. Emits toxic nitrogen oxides fumes, hydrogen nitrate fumes, and hydrogen nitrate when heated to decomposition. Will react with water or steam to produce heat and toxic and corrosive fumes.
5.3	**Special precautions for fire-fighters**
	Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. Risk of explosion. If large quantities are involved in a major fire, evacuate the area. No action shall be taken involving any personal risk or without suitable training. Use water spray to keep fire-exposed containers cool. Fight fire from protected location or maximum possible distance.
5.4	**Special protective actions for fire-fighters**
	Fire fighters should wear self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode. Clothing for fire fighters (including helmets, protective boots and gloves) conforming to European standard EN 469 will provide a basic level of protection for chemical incidents.

	Section 6 : Accidental Release Measures
6.1	**Personal precautions, protective equipment and emergency procedures**
	No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Do not breathe vapour or mist. Provide adequate ventilation. Wear appropriate respirator or SCBA when ventilation is inadequate. Put on appropriate personal protective equipment. Shut off all ignition sources in hazard area if safe to do so.
6.2	**Environmental precautions**
	Prevent further leakage or spillage. Prevent product from entering drains. Prevent entry into waterways, sewers.
6.3	**Methods and materials for containment and cleaning up**
	Shut off leaks without risk, dilute with alkali and drench with water. Prevent spillage from entering drains or water sources. Dilute with alkali and wash with water.
6.4	**Reference to other sections**
	Information regarding safe handling see section 7. Information regarding personal protective equipment see section 8. Information regarding waste disposal, see section 13.

	Section 7 : Handling and Storage
7.1	**Precautions for safe handling**
	Wear personal protective equipment. Avoid contact with skin, eyes and clothing. Do not breathe vapors or spray mist. Do not ingest. Handle in accordance with good industrial hygiene and safety practice.

7.2	Conditions for safe storage, including any incompatibilities
	Keep container tightly closed in a dry and well-ventilated place. Store at room temperature in the original container. Store away from incompatible materials. Bund storage facilities to prevent soil and water pollution in the event of spillage.

	Section 8 : Exposure Control / Personal Protection				
8.1	**Control parameters / Occupational Exposure limit values**				
	Exposure Limits	ACGIH TLV	NIOSH TWA	OSHA PEL TWA	
	Conc. Nitric Acid	2 ppm	2 ppm	2 ppm	
8.2	**Exposure controls / Appropriate engineering controls**				
	Ensure adequate ventilation, especially in confined areas. Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapor and mist below their respective threshold limit value. Ensure that the eye flushing systems and safety showers are located close to the working place.				
8.3	**Individual protection measures, such as Personal Protective Equipment (PPE)**				
	Skin Protection	Impervious clothing, The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.			
	Hand Protection	Glove material	Breakthrough time	Glove thickness	EU standard	Glove comments
		Neoprene gloves	> 480 minutes	0.45 mm	EN 374 Level 6	As tested under EN374-3 Determination of Resistance to Permeation by Chemicals
		Butyl rubber	> 480 minutes	0.56 mm		
		Viton (R)	> 480 minutes	0.7 mm		
		Skin and body protection: Long sleeved clothing Handle with gloves as mentioned above. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws. Wash and dry hands.				
	Eye/Face Protection:	Face shield and safety glasses with side-shields conforming to EN166. Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).				
	Respiratory Protection	Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator. Recommended: acid gas filter (Type E)				
	Hygiene measures	Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.				

	Section 9 : Physical and Chemical Properties	
9.1	**Information on basic physical and chemical properties**	
a)	Appearance	Liquid
b)	Colour	Colourless to pale yellow liquid,
c)	Odour	Chocking odour
d)	pH	<1
e)	Boiling Point/range	84 °C

f)	Solidification point	- 42 °C
g)	Flash Point	Not Flammable
h)	Lower explosion limit	Not Applicable
i)	Upper explosion limit	Not Applicable
j)	Viscosity	1 cp @20°C (68°F)
k)	Ignition Temp	Not Applicable
l)	Density	1.51 g/cm^3
m)	Water solubility	Soluble
n)	Partition coefficient (n- Octanol / water)	Not available
9.2	**Other safety information**	
a)	May be corrosive to metals. Not pyrophoric.	

	Section 10 : Stability and reactivity
10.1	**Reactivity**
	May be corrosive to metals. Expert judgement.
10.2	**Chemical Stability:**
	Stable under normal conditions.
10.3	**Possibility of hazardous reactions**
	Hazardous reactions or instability may occur under certain conditions of storage or use. Conditions may include the following: contact with combustible materials. Reactions may include the following: risk of causing or intensifying fire.
10.4	**Conditions to Avoid:**
	Drying on clothing or other combustible materials may cause fire. Separate from acids, alkalis, reducing agents and combustibles. Avoid contact with organic materials.
10.5	**Incompatible Materials**
	Attacks many metals producing extremely flammable hydrogen gas, which can form explosive mixtures with air.
10.6	**Hazardous Decomposition Products:**
	Emits toxic nitrogen oxides fumes and hydrogen nitrate fumes when heated to decomposition. Will react with water or steam to produce heat and toxic and corrosive fumes.

	Section 11: Toxicological Information:
11.1	**Information on toxicological effects**
a)	**Acute toxicity**
	Inhalation LC50 (rat) > 2.65 mg/l [4 hours] OECD Guideline 403.
b)	**Skin corrosion/irritation**
	Corrosive to skin on contact.
c)	**Serious eye damage/eye irritation**
	Corrosive to eyes.
d)	**Respiratory or skin sensitization**
	Corrosive.
e)	**Germ cell mutagenicity**
	No mutagenic effect.
f)	**Carcinogenicity**
	No carcinogenic effect.
g)	**Reproductive toxicity**
	Not considered to be toxic to the reproductive system.

h)	**Specific target organ toxicity (STOT) - single exposure**
	Not classified
i)	**Specific target organ toxicity (STOT) - repeated exposure**
	Inhalation of vapour can cause breathing difficulties, over exposure may lead to pneumonia and pulmonary edema.
j)	**Aspiration hazard**
	No information available.
11.2	**Additional Information**
	None

	Section 12 : Ecological Information	
12.1	**Toxicity**	
	Acute, freshwater fish, 96h	Lepomis macrochirus (bluegill sunfish) median lethal pH (96 h): 3 — 3.5 pH (meas. (TWA))
12.2	**Persistence and Degradability**	
	Due to its high solubility in water, nitric acid will be dissociated into its ions (H+ and NO3 -) and in water the H+ ions will form H3O+ ions. Biodegradation is not applicable to inorganics	
12.3	**Bio accumulative potential**	
	Bioaccumulation is not relevant for such highly soluble and dissociating substances.	
12.4	**Mobility in soil**	
	Soil/water partition coefficient: Not available Mobility: Not available.	
12.5	**Other adverse effects**	
	The main characteristic of the nitric acid that drives its toxicity is embedded in the fact it is a strong acid that dissociates in water into its respective ions H+ and NO3- and will affect the environment and its organisms by decreasing the pH.	
12.6	**Results of PBT and vPvB assessment**	
	Not applicable to inorganic substances.	

	Section 13 : Disposal considerations
13.1	**Disposal Methods**
a)	**Product**
	The generation of waste should be avoided or minimized wherever possible. Significant quantities of waste product residues should not be disposed of via the foul sewer but processed in a suitable effluent treatment plant. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements.
b)	**Contaminated packaging**
	The generation of waste should be avoided or minimized wherever possible. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible.

	Section 14: Transport information		
14.1	**UN number**		
	2031		
	ADR / RID	IMDG	IATA
14.2	**Proper Shipping Name**		
	Nitric Acid		

14.3	**Transport hazard class(es)**
	8
14.4	**Packaging group**
	I
14.5	**Environmental hazards**
	NO
14.6	**Special precautions for user**
	Data not available
14.7	**Transport in bulk according to Annex II of MARPOL 73/78 and IBC Code**
	The product is only regulated as an environmentally hazardous substance when transported in tank vessels.

	Section 15 : Regulatory information	
15.1	**Safety, health and environmental regulations specific for the product in question**	
	Oxidizing, Corrosive Material	
	Regulations / National inventories	**Status**
	Data not available	
15.2	**Chemical safety assessment**	
	Data not available	

	Section 16 : Other information
16.1	**Abbreviations and acronyms**
	• ADN : European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways • ADR: European Agreement concerning the International Carriage of Dangerous Goods by Road • CAS: Chemical Abstracts Service • CLP : Regulation (EC) No 1272/2008 on classification, labelling and packaging of substances and mixtures • CMR : Carcinogenic, Mutagenic or toxic for Reproduction • DGR : Dangerous Goods Regulations (see IATA/DGR) • DNEL : Derived No Effect Level • EC50: Effective Concentration 50% • EINECS : European Inventory of Existing Commercial Chemical Substances • GHS : Globally Harmonized System of Classification and Labelling of Chemicals" developed by the United Nations • IATA : International Air Transport Association • IATA/DGR : Dangerous Goods Regulations (DGR) for the air transport (IATA) • ICAO International Civil Aviation Organization • IMDG : International Maritime Dangerous Goods Code • Index number : Identification code given to the substance in Part 3 of Annex VI to Regulation (EC) No 1272/2008 • LC50: Lethal Concentration 50% • LD50: Lethal Dose 50% • MARPOL : Marine Pollutant as per International Convention for the Prevention of Pollution from Ships • REACH : Registration, Evaluation, Authorisation and Restriction of Chemicals • RID: Regulation concerning the International Carriage of Dangerous Goods by Rail • STEL: Short term exposure limit • VOC : Volatile Organic Compounds

	• vPvB : very Persistent and very Bio accumulative
16.2	**Key literature references and sources for data**
	a) Regulation (EC) No. 1272/2008 (CLP, EU GHS) b) ECHA guideline on compilation of SDS. Ver. 4.0 Dec 2020 c) Dangerous Goods Regulations (DGR) for the air transport (IATA) d) International Maritime Dangerous Goods Code (IMDG)

	Prepared by:	Deepak Chem Tech Ltd. Email : sbraval@godeepak.com
	Revision Date	23-Nov-2023
	Revision Summary	This safety datasheet is prepared acording to the UN Globally Harmonized System of Classification and Labelling of Chemicals (GHS), revision 8 and complies with the requirements of Regulation (EC) No. 1272/2006.
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End of SDS