



SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1 Product Identifier

Product name Solar grade nitric acid

CAS No. 7697-37-2

Chemical formula HNO_3

Synonyms Nitric acid, Aqua fortis

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses Solar cell manufacturing industries

1.3 Details of the supplier of the safety data sheet

Manufacturer Deepak Fertilisers and Petrochemicals Corporation. Ltd

Address Plot K-1, MIDC Indl Area, Taloja A.V., Dist: Raigad – 410 208

1.4 Emergency telephone number

Telephone number +91 - 022 - 67684000

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture (GHS)

Oxidizing liquids (Category 3), H272

Corrosive to metals (Category 1), H290

Skin corrosion (Category 1A), H314

Serious eye damage (Category 1), H318

Acute toxicity, Inhalation (Category 3), H331

2.2 Label elements (GHS)

Hazard pictograms



Signal word

Danger

Hazard statements

H272 - May intensify fire; oxidizer

H290 - May be corrosive to metals.

H314 - Causes severe skin burns and eye damage

H318 - Causes serious eye damage

H331 - Toxic if inhaled

P210 - Keep away from extremely high or low temperatures, heat, ignition sources, direct sunlight. - No smoking

P220 - Keep/Store away from combustible material, oxidizable materials, and incompatible materials

Precautionary Statements

P234 - Keep only in original container.

P260 - Do not breathe vapors, mist, spray.

P264 - Wash hands, forearms, and other exposed areas thoroughly after handling.

P271: Use only outdoors in a well-ventilated area.



P280 - Wear respiratory protection, eye protection, face shield, protective clothing, protective gloves.

P301+P330+P331 - IF SWALLOWED: rinse mouth. Do NOT induce vomiting.

P303+P361+P353 - IF ON SKIN (OR HAIR): Take off immediately all contaminated clothing. Rinse skin with water/shower.

P304+P340 - IF INHALED: Remove person to fresh air and keep at rest in a position comfortable for breathing.

P305+P351+P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P316 - Get emergency medical help immediately.

P363 - Wash contaminated clothing before reuse.

P390 - Absorb spillage to prevent material damage.

P405 - Store locked up.

P406 - Store in corrosive resistant container with a resistant inner liner.

P501 - Dispose of contents/container in accordance with local, regional, national,

2.3 Other hazards

None

SECTION 3: Composition/Information on ingredients

Composition	CAS No.	Percentage (w/w)
Nitric acid	7697-37-2	69 - 72
Water	7732-18-5	28 - 31

SECTION 4: First aid measures

4.1 Description of First Aid Measures

General	Keep out of reach of children. Never give anything by mouth to an unconscious person. If you feel unwell, seek medical advice. Show this safety data sheet to the doctor in attendance. Avoid contact with eyes and skin. Wear impervious gloves and chemical splash goggles
Inhalation	If symptoms develop, move victim to fresh air. If symptoms persist, obtain medical attention. If breathing has stopped, trained personnel should administer CPR immediately.
Skin contact	Immediately flush skin with plenty of water for at least 20 minutes. Remove contaminated clothing and shoes. Obtain medical attention if irritation persists. Wash contaminated clothing before reuse
Eye contact	Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing for at least 60 minutes. Immediately call a doctor/physician
Ingestion	Do not induce vomiting! Never give anything by mouth to an unconscious person. If conscious, wash out mouth with water. Get medical attention immediately.



4.2 Most important symptoms and effects both acute and delayed

The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed

If exposed or concerned, get medical advice and attention.

SECTION 5: Fire-fighting measures

5.1 Extinguishing media

Suitable extinguishing media Product is not flammable. Use appropriate media for adjacent fire
Use water on fires involving nitric acid to dilute and to absorb liberated oxides of nitrogen.

Unsuitable extinguishing media Do not use dry chemical powders containing sodium bicarbonate
potassium bicarbonate, sodium carbonate, calcium carbonate
ammonium phosphate or ammonium sulfate. Nitric acid can
react violently with these extinguishing agents.

5.2 Special hazards arising from the substance or mixture

Non-combustible. Ambient fire may liberate hazardous vapors. Hydrogen may form upon contact with
metals (danger of explosion). The following may develop in event of fire: nitrogen oxide.

5.3 Advice for firefighters

Firefighters should wear full protective clothing including self-contained breathing apparatus.

5.4 Further information

Hazardous combustion product: Nitrogen oxides. acrid vapors. May release flammable gases

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Keep unnecessary personnel away. Do not touch or walk-through spilled material. Do not touch
damaged containers or spilled material unless wearing appropriate protective clothing. Keep people
away from and upwind of spill/leak.

6.2 Environmental precautions

Prevent entry into waterways, sewers, basements, or confined areas

6.3 Methods and material for containment and cleaning up

For containment: Eliminate all ignition sources (no smoking, flares, sparks, or
flames in immediate area). Stop leak if you can do so without risk.

Methods for cleaning up Should not be released into the environment. Before attempting
clean up, refer to hazard data given above. Small spills may be
absorbed with non-reactive absorbent and placed in suitable,
covered, labelled containers. Prevent large spills from entering
sewers or waterways. Contact emergency services and supplier
for advice. Never return spills in original containers for re-use.

6.4 Reference to other sections

See section 8, exposure controls and personal protection. see section 13, disposal considerations.



SECTION 7: Handling and Storage

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|-----|--|---|
| 7.1 | Precautions for safe handling | Use good industrial hygiene practices in handling this material. Do not get in eyes, on skin or on clothing. Keep away from combustible material. Use only with adequate ventilation. Keep container tightly closed. Wash thoroughly after handling |
| 7.2 | Conditions for safe storage, including any incompatibilities | Keep out of reach of children. Keep away from heat, open flames or other sources of ignition. Store in a tightly closed container in a cool dry, well ventilated and dark place away from incompatible materials |
| 7.3 | Specific end use(s) | None |

SECTION 8: Exposure controls/Personal protection

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|-----|----------------------------------|---|
| 8.1 | Control parameters | |
| | Exposure limit: Nitric acid | TWA – 2ppm (5.2mg/m ³), STEL – 4ppm (10mg/m ³) |
| 8.2 | Exposure controls | |
| | Appropriate engineering controls | Use process enclosures, local exhaust ventilation, or other engineering controls to control airborne levels below recommended exposure limits |
| | Personal protective equipment: | |
| | Eye/face protection | Wear chemical safety glasses or goggles, and face shield. |
| | Inhalation | Provide local exhaust, preferably mechanical. If exposure levels are excessive, use a NIOSH approved respiratory protection |
| | Skin | Use of an impervious apron is recommended |
| | Hand protection | Wear chemically resistant protective gloves. |
| | Other information | None |

SECTION 9: Physical and chemical properties

Physical State	Liquid
Appearance & Odour	Colourless to light yellow liquid
Odour	Sweet / Pungent
Odour Threshold	Not available
Melting Point	- 42 °C
Freezing Point	- 41 °C
Boiling Point	121.6 °C
Flash point	Not applicable
Flammability Limits in air	Not applicable
Auto-ignition Temperature	Not applicable
Vapour Pressure	56 hPa @ 20 °C
Vapour Density	2.17 (air = 1)
Specific Gravity	1.38 -1.43 @ 25 °C
Relative Density	1.38 -1.43 g/cm ³ @25°C
Water Solubility	Soluble in water
Molecular weight	63.02 g/mole



SECTION 10: Stability and reactivity

10.1	Reactivity	Very reactive. Reacts vigorously with alkaline material. Reacts with soft metals producing flammable hydrogen gas
10.2	Chemical stability	Stable under recommended storage conditions
10.3	Possibility of hazardous reactions	Hazardous polymerization will not occur.
10.4	Conditions to avoid	Heat. Do not mix with other chemicals.
10.5	Incompatible materials	Strong acids. Strong bases. Strong oxidizers. Reducing agents. Amines. Organic chemicals. Powdered metals. Hydrogen sulfide. Avoid contact with most metals, carbides, hydrogen sulfide, turpentine, organic acids, combustibles (wood, paper, cotton) and other organic and readily oxidized materials.
10.6	Hazardous Decomposition Products	Thermal decomposition generates: Corrosive vapors. Nitrogen oxides. May release flammable gases. Explosive hydrogen gas.

SECTION 11: Toxicological information

Acute Toxicity

LD50 and LC50 Data	LC 50 - 7mg/l 4hr in rat; LD 50- not available
Skin Corrosion/Irritation	Severe burns.
Serious Eye Damage/Irritation	Causes serious eye damage
Respiratory or Skin sensitization	No data available
Germ cell mutagenicity	No data available
Teratogenicity	No data available
Carcinogenicity	No data available
Reproductive toxicity	No data available
Specific target organ toxicity (STOT) - single exposure	No data available
Symptoms/injuries after inhalation	May cause respiratory tract irritation or chemical burns
Symptoms/injuries after skin contact	Causes chemical burns
Symptoms/injuries after eye contact	Causes chemical burns. May cause blindness
Symptoms/injuries after ingestion	May cause chemical burns to mouth throat and stomach

SECTION 12: Ecological Information

Toxicity	No data available
Persistence and degradability	No data available
Bio-accumulative potential	No data available
Mobility in soil	No data available
Results of PBT and vPvB assessment	No data available
Other adverse effects	Harmful effect due to pH shift. Form corrosive mixture with water



SECTION 13: Disposal considerations

Waste disposal methods	Dispose of waste material in accordance with all local, regional, national, provincial, territorial and international regulations
Product containers	Disposal in compliance with official regulations. Handle contaminated packaging as hazardous waste in the same way of the substance itself.

SECTION 14: Transport information

Transportation by:	Land transport (ADR/RID)	Sea transport (IMDG)	Air transport (IATA)
UN number	UN 3093	UN 3093	UN 3093
UN proper shipping name	CORROSIVE LIQUID, OXIDIZING, N.O.S (Solar grade nitric acid, 69-72%)		
UN label	 		
Hazard class	8	8	8
Subsidiary hazard class	5.1	5.1	5.1
Packing group	II	II	II
Environmental hazards	No	No	No
EmS	-	-	F-A, S-Q

SECTION 15: Regulatory information

- 15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture
Not available
- 15.2 Chemical safety assessment
For this product a chemical safety assessment was not carried out.

SECTION 16: Other information

Other information	None
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Disclaimer

Disclaimer Information contained herein was obtained from sources considered technically accurate and reliable. While every effort has been made to ensure full disclosure of product hazards, in some cases data is not available and is so stated. Since conditions of actual product use are beyond control of the supplier, it is assumed that users of this material have been fully trained according to the requirements of all applicable legislation and regulatory instruments. No warranty, expressed or implied, is made and supplier will not be liable for any losses, injuries or consequential damages which may result from the use of or reliance on any information contained in this document.

Prepared by Deepak Fertilisers & Petrochemicals Corporation Limited – India

Other Information For an updated MSDS, please contact the supplier/manufacturer.