

ETHANOL / ETHYL ALCOHOL (RECTIFIED / DENATURED, INDUSTRIAL GRADE)

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SECTION 1: IDENTIFICATION

1.1 GHS Product identifier:
ETHANOL / ETHYL ALCOHOL (RECTIFIED / DENATURED, INDUSTRIAL GRADE)
Ethyl alcohol; Ethanol; Grain alcohol (industrial, non-potable grades: rectified spirit or denatured spirit)
CAS: 64-17-5

Other means of identification:
Denatured grades contain added denaturant(s) (e.g., methanol, isopropanol, denatonium benzoate, or other approved denaturing agents per excise regulations) to render the product unfit for human consumption – refer to the current specification sheet/denaturant certificate for the specific denaturant and proportion used in a given batch.

1.2 Recommended use of the chemical and restrictions on use:
Relevant uses: Industrial solvent; chemical intermediate/feedstock; fuel/fuel additive component; cleaning and disinfection formulations (industrial); process solvent for extraction, pharmaceuticals and cosmetics manufacture. For industrial/commercial user only.
Uses advised against: All uses not specified in this section or in section 7.3. Not for human consumption (denatured/industrial grade). Not for use in food or beverage applications.

1.3 Supplier's details:
SURAJ CHEMICALS
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1.4 Emergency phone number:
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SECTION 2: HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture:
GHS:
Classification of this product has been carried out in accordance with the Globally Harmonized System of Classification and Labelling of Chemicals (GHS).

Flam. Liq. 2	Flammable liquids, Category 2, H225
Eye Irrit. 2	Eye irritation, Category 2, H319
STOT SE 3	Narcotic effects, single exposure, Category 3, H336

Denatured grades may carry additional classification contributed by the denaturant (e.g., Acute Tox. and STOT classifications where methanol is used as denaturant) – refer to the current specification sheet/denaturant certificate for the specific grade supplied.

2.2 GHS label elements, including precautionary statements:
GHS: Danger

Hazard statements:
Flam. Liq. 2: H225 – Highly flammable liquid and vapour.
Eye Irrit. 2: H319 – Causes serious eye irritation.
STOT SE 3: H336 – May cause drowsiness or dizziness.

Precautionary statements:
P210: Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P233: Keep container tightly closed.
P240: Ground/bond container and receiving equipment.
P241: Use explosion-proof electrical/ventilating/lighting equipment.
P242: Use only non-sparking tools.
P243: Take precautionary measures against static discharge.
P264: Wash hands thoroughly after handling.
P271: Use only outdoors or in a well-ventilated area.
P280: Wear protective gloves/eye protection.
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 person to fresh air and keep 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.
P337+P313: If eye irritation persists: Get medical advice/attention.
P370+P378: In case of fire: Use appropriate extinguishing media (see section 5) to extinguish.
P403+P235: Store in a well-ventilated place. Keep cool.
P501: Dispose of contents/container in accordance with local/national regulations.

2.3 Other hazards which do not result in classification:
Not a PBT or vPvB substance. Denatured grades: see note in 2.1 regarding possible additional hazards contributed by the denaturant used.

SECTION 3: COMPOSITION / INFORMATION ON INGREDIENTS

3.1 Substances:
Chemical description: Ethanol (Ethyl Alcohol), Industrial Grade – supplied as Rectified Spirit (undenatured, high-strength) or Denatured Spirit (with added denaturant per applicable excise rules), as ordered
In accordance with Annex 4.3.3 of the GHS, the product contains:

Identification	Chemical Name / Classification	Concentration
CAS: 64-17-5 EINECS: 200-578-6	Ethanol — Flam. Liq. 2: H225; Eye Irrit. 2: H319; STOT SE 3: H336 – Danger	~90–96% (rectified spirit, typical) or as per denatured spirit specification; balance water and, for denatured grades, denaturant(s)

To obtain more information on the hazards of the substances, consult sections 11, 12 and 16. For denatured grades, the specific denaturant (e.g., methanol, MIBK, denatonium benzoate) and its concentration/classification should be confirmed against the batch specification sheet.

3.2 Mixtures:
Denatured industrial spirit is a mixture of ethanol, water and an approved denaturant added in accordance with applicable excise/denaturation regulations – refer to the current specification sheet for the exact formulation supplied.

SECTION 4: FIRST AID MEASURES

- 4.1 Description of necessary first-aid measures:**
- Request medical assistance immediately in case of significant exposure, showing the SDS of this product.
- By inhalation:**
- Remove the person affected from the area of exposure, provide fresh air and keep at rest. High vapour concentrations may cause drowsiness, dizziness and headache. Seek medical attention if symptoms persist.
- By skin contact:**
- Remove contaminated clothing. Wash affected skin with plenty of water and soap. Seek medical advice if irritation persists.
- By eye contact:**
- Rinse immediately with plenty of water for at least 15 minutes, holding eyelids apart. Remove contact lenses, if present and easy to do. Seek medical advice if irritation persists.
- By ingestion:**
- Do not induce vomiting. Rinse mouth with water. Seek medical attention immediately – particularly important for denatured grades, which are toxic/unfit for consumption due to the added denaturant (which may itself require specific medical management, e.g., methanol poisoning protocols where methanol is the denaturant used).
- 4.2 Most important symptoms/effects, acute and delayed:**
- Causes serious eye irritation. Inhalation of vapours at high concentration causes narcotic/CNS depressant effects (drowsiness, dizziness, headache). Ingestion of denatured grades may cause additional toxic effects from the denaturant – see section 11.
- 4.3 Indication of immediate medical attention and special treatment needed, if necessary:**
- Treat symptomatically. Where the denaturant is methanol or another toxic agent, specific medical protocols for that denaturant's poisoning (e.g., methanol toxicity management) should be followed – confirm denaturant identity from the specification sheet and inform medical personnel.

SECTION 5: FIRE-FIGHTING MEASURES

- 5.1 Suitable extinguishing media:**
- Suitable:** Alcohol-resistant foam, dry chemical powder, carbon dioxide (CO²), water spray/fog (fine spray; use with care).
- Unsuitable:** High-pressure water jet (may spread burning liquid).
- 5.2 Specific hazards arising from the chemical:**
- Highly flammable liquid and vapour. Vapour/air mixtures are explosive over a wide concentration range (3.3–19% v/v). Burns with a pale, often nearly invisible flame in daylight – exercise caution. On combustion may release carbon monoxide and carbon dioxide; denatured grades may release additional combustion products depending on the denaturant.
- 5.3 Special protective actions for fire-fighters:**
- Evacuate non-essential personnel. Wear self-contained breathing apparatus and full fire-resistant protective clothing. Cool fire-exposed containers with water spray from a protected position.
- Additional provisions:**
- Contain fire-fighting water run-off to prevent discharge to drains/watercourses.

SECTION 6: ACCIDENTAL RELEASE MEASURES

- 6.1 Personal precautions, protective equipment and emergency procedures:**
- For non-emergency personnel:**
- Eliminate ignition sources. Ensure adequate ventilation. Avoid breathing vapours. Use PPE described in section 8.
- For emergency responders:**
- Wear appropriate flame-resistant, chemical-resistant PPE and self-contained breathing apparatus as per section 8. Use intrinsically safe (explosion-proof) equipment only.
- 6.2 Environmental precautions:**
- Prevent product from entering drains, sewers or watercourses (fire/explosion risk in confined spaces). Contain spillage.
- 6.3 Methods and materials for containment and cleaning up:**
- Shut off leak if safe to do so. Absorb with inert, non-combustible absorbent material (sand, vermiculite). Collect into closed, labelled, non-sparking containers for disposal/recovery. Ventilate the area thoroughly before resuming normal activity.
- 6.4 Reference to other sections:**
- See sections 8 and 13.

SECTION 7: HANDLING AND STORAGE

- 7.1 Precautions for safe handling:**
- A. General precautions for safe use:**
- Handle only in areas with all flames, sparks and heating equipment removed. Use only explosion-proof equipment. Avoid build-up of static electricity. Keep containers tightly closed when not in use.
- B. Technical recommendations for the prevention of fires and explosions:**
- Ground/bond all equipment used for transfer. Use non-sparking tools. Store away from all sources of ignition and heat. Ensure adequate ventilation, especially in confined spaces.
- C. Technical recommendations on general occupational hygiene:**
- Do not eat, drink or smoke while handling. Wash hands after handling. For denatured grades, ensure staff are aware the product is unfit for consumption.
- D. Technical recommendations to prevent environmental risks:**
- Avoid release to the environment. Provide bunded, ventilated storage for bulk quantities.
- 7.2 Conditions for safe storage, including any incompatibilities:**
- A. Specific storage requirements:**
- | | |
|---------------|--|
| Minimum Temp. | Ambient |
| Maximum Temp. | 30°C (store below flash point with margin) |
| Maximum time | Typical value – refer to current specification sheet |
- B. General conditions for storage:**
- Store in a dedicated flammable-liquids store, well away from heat, open flames and other ignition sources, in tightly closed containers. Store in compliance with applicable excise/bonded-warehouse regulations where industrial alcohol is subject to excise control. For additional information see subsection 10.5.
- 7.3 Specific end use(s):**
- Used as an industrial solvent, chemical feedstock and process/cleaning solvent. Except for the instructions already specified, no special recommendation is required.

SECTION 8: EXPOSURE CONTROLS / PERSONAL PROTECTION

- 8.1 Control parameters:**
- Substances whose occupational exposure limits have to be assessed in the workplace, per the Factories Act, 1948 (Act No. 63 of 1948), as amended by the Factories (Amendment) Act, 1987 (Act 20 of 1987):
- | Identification | Occupational Exposure Limit Type | Value |
|-------------------------|---|--|
| Ethanol
CAS: 64-17-5 | Time Weighted average concentration (8 hrs) | 1000 ppm / 1900 mg/m³ |
| | Short-term exposure limit (15 min) | Typical value – refer to current specification sheet |
- 8.2 Appropriate engineering controls:**
- Use local exhaust ventilation and explosion-proof general ventilation to keep vapour concentrations well below occupational exposure limits and below the lower explosive limit.
- B. Respiratory protection:**

Not normally required under adequate ventilation. Where ventilation is inadequate, use an organic vapour cartridge respirator.

C. Specific protection for the hands:

Chemical-resistant gloves (e.g., nitrile) recommended for prolonged or repeated handling.

D. Eye and face protection:

Safety glasses or chemical splash goggles recommended given the Eye Irrit. 2 classification.

E. Bodily protection:

Antistatic, flame-resistant protective clothing recommended for bulk handling. Antistatic safety footwear.

F. Additional emergency measures:

Emergency shower and eyewash stations should be readily available in the work area.

Environmental exposure controls:

Avoid environmental release. See subsection 7.1.D.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties:

Appearance	
Physical state at 20°C	Liquid
Appearance	Clear mobile liquid
Color	Colorless (denatured grades may be tinted per regulatory requirement, e.g., with a dye/bittering indicator)
Odor	Characteristic, alcoholic (denatured grades may have an altered/additional odor from the denaturant)
Odour threshold	~10 ppm (typical published value)
Volatility	
Boiling point at atmospheric pressure	78.3°C (anhydrous; azeotropic rectified spirit similar)
Vapour pressure at 20°C	~59 mbar
Evaporation rate at 20°C	Fast (faster than water, slower than diethyl ether)
Product Description	
Density / Relative density at 20°C	~0.789–0.816 g/cm³ (grade/strength dependent)
Dynamic / Kinematic viscosity	~1.2 mPa·s (20°C, typical)
Concentration	~90–96% v/v (rectified spirit, typical) or per denatured spirit specification
pH	Not relevant (neutral organic liquid)
Vapour density at 20°C	~1.6 (air = 1)
Partition coefficient n-octanol/water 20°C	Log Pow: ~-0.31
Solubility in water at 20°C	Miscible (complete, in all proportions)
Decomposition temperature	Typical value – refer to current specification sheet
Melting point/freezing point	~114°C
Flammability	
Flash Point	13–14°C (closed cup)
Flammability (solid, gas)	Non-applicable (liquid); highly flammable
Autoignition temperature	363°C
Lower / Upper flammability limit	3.3–19% (v/v)
Particle Characteristics	
Median equivalent diameter	Non-applicable (liquid)

9.2 Other information:

Explosive properties	Not explosive as supplied (liquid); vapour/air mixtures within flammability range are explosive
Oxidising properties	Not oxidising
Corrosive to metals	Not corrosive to common metals
Heat of combustion	Typical value – refer to current specification sheet
Surface tension at 20°C	~22 mN/m (typical)
Refraction index	~1.361

SECTION 10: STABILITY AND REACTIVITY

10.1 Reactivity:

Stable under normal conditions of use and storage. Reacts with strong oxidising agents (fire/explosion risk), alkali metals (releases flammable hydrogen gas) and some acid chlorides/anhydrides (exothermic reaction).

10.2 Chemical stability:

Chemically stable under the indicated conditions of storage, handling and use.

10.3 Possibility of hazardous reactions:

Vapour/air mixtures within the flammability range are explosive. Reacts vigorously with strong oxidisers.

10.4 Conditions to avoid:

Shock/Friction	Contact with Air	Increase in Temperature	Sunlight	Humidity
Not applicable	Not applicable	Keep away from heat/ignition sources (flash point 13–14°C)	Avoid prolonged direct exposure	Not particularly sensitive (miscible with water)

10.5 Incompatible materials:

Strong Oxidisers	Alkali Metals	Acid Chlorides/Anhydrides	Ignition/Heat Sources
Avoid contact (violent reaction)	Avoid contact (hydrogen gas evolution)	Avoid contact (exothermic)	Keep away

10.6 Hazardous decomposition products:

Combustion generates carbon monoxide, carbon dioxide, acetaldehyde and other partial-oxidation products; denatured grades may release additional decomposition products depending on the denaturant used.

SECTION 11: TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects:

In case of exposure that is repetitive, prolonged, or at concentrations higher than the recommended occupational exposure limits, adverse health effects may result depending on the means of exposure. Denatured grades carry additional toxicological considerations from the denaturant used (see note below).

A. Ingestion (acute effect):

Relatively low acute oral toxicity for ethanol itself at typical industrial exposure levels; however, denatured grades are formulated specifically to be toxic/unpalatable and unfit for consumption and may cause serious poisoning if ingested, with severity and specific antidote/treatment depending on the denaturant used (e.g., methanol denaturant carries a risk of blindness and metabolic acidosis). Never treat denatured industrial alcohol as a potable product.

B. Inhalation (acute effect):

Vapours cause CNS depression at high concentrations: drowsiness, dizziness, headache, impaired coordination.

C. Contact with skin and eyes (acute effect):

Causes serious eye irritation. Not generally classified as a skin irritant for ethanol itself; may cause defatting of skin on prolonged/repeated contact.

D. CMR effects (carcinogenicity, mutagenicity, reproductive toxicity):

Ethanol itself: classification criteria for carcinogenicity, mutagenicity and reproductive toxicity as a pure industrial chemical are not met under GHS physical/health hazard criteria for occupational exposure; however, ethanol (as an ingredient of alcoholic beverages) is classified by IARC as a Group 1 carcinogen in that specific context of human consumption, which is not relevant to its industrial/non-potable use covered by this SDS.

E. Sensitizing effects:

Classification criteria for respiratory or skin sensitisation are not met based on available data.

F. Specific target organ toxicity (STOT) – single exposure:

May cause drowsiness or dizziness (narcotic effects) – H336.

G. Specific target organ toxicity (STOT) – repeated exposure:

Classification criteria are not met based on available data for industrial/occupational exposure to ethanol vapour within recommended limits.

H. Aspiration hazard:

Classification criteria are not met based on available data.

Product-specific toxicological information:

Identification	Acute Toxicity	Genus
Ethanol CAS: 64-17-5	LD50 oral: 7060 mg/kg	Rat
	LD50 dermal: >20000 mg/kg	Rabbit
	LC50 inhalation: ~124.7 mg/L (4h, vapour)	Rat

Denatured grades: refer to the current specification sheet/denaturant certificate for toxicological data on the specific denaturant used, which may significantly lower the practical oral toxicity threshold relative to pure ethanol.

SECTION 12: ECOLOGICAL INFORMATION

Not expected to present a significant hazard to aquatic organisms at typical exposure levels; readily biodegradable.

12.1 Toxicity:

Acute Toxicity	Species	Genus
LC50: ~11200 mg/L (96h)	Pimephales promelas	Fish
EC50: ~5012 mg/L (48h)	Daphnia magna	Crustacean

12.2 Persistence and degradability:

Readily biodegradable (passes standard OECD ready biodegradability criteria).

12.3 Bioaccumulative potential:

Low bioaccumulation potential (log Pow ~-0.31); not expected to bioaccumulate.

12.4 Mobility in soil:

Koc	Henry	Dry Soil	Moist Soil
Low	Low	High mobility	High mobility

12.5 Results of PBT and vPvB assessment:

Does not meet PBT/vPvB criteria.

12.6 Other adverse effects:

May increase biochemical oxygen demand (BOD) of receiving waters in large discharges. Denatured grades: potential additional ecological effects from the denaturant – refer to specification sheet.

SECTION 13: DISPOSAL CONSIDERATIONS

13.1 Disposal methods:

Dispose of in accordance with local, state and national regulations via a licensed waste disposal contractor. Do not discharge to drains (fire/explosion risk). Empty containers may retain flammable vapour – handle with the same precautions as the full product.

Refer to national and local regulations on hazardous waste management and, where applicable, excise regulations governing denatured/industrial alcohol.

SECTION 14: TRANSPORT INFORMATION

Transport of dangerous goods by land (ADR 2023 / RID 2023):

14.1 UN number	UN1170
14.2 UN proper shipping name	ETHANOL (ETHYL ALCOHOL) or ETHANOL SOLUTION
14.3 Transport hazard class(es)	3
14.4 Packing group	II (concentration >70%) or III (lower concentrations) – per supplied grade
14.5 Environmental hazard	No
14.6 Special precautions for user	Physico-chemical properties: see section 9
14.7 Transport in bulk (Annex II MARPOL 73/78, IBC Code)	Not relevant

Transport of dangerous goods by sea (IMDG 41-22):

14.1 UN number	UN1170
14.2 UN proper shipping name	ETHANOL (ETHYL ALCOHOL) or ETHANOL SOLUTION
14.3 Transport hazard class(es)	3
14.4 Packing group	II or III – per supplied grade
14.5 Marine pollutant	No
14.6 Special precautions for user	EmS Codes: F-E, S-D

14.7 Transport in bulk (Annex II MARPOL 73/78, IBC Code)	Not relevant
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Transport of dangerous goods by air (IATA/ICAO 2024):

14.1 UN number	UN1170
14.2 UN proper shipping name	ETHANOL (ETHYL ALCOHOL) or ETHANOL SOLUTION
14.3 Transport hazard class(es)	3
14.4 Packing group	II or III – per supplied grade
14.5 Environmental hazard	No
14.6 Special precautions for user	Physico-chemical properties: see section 9
14.7 Transport in bulk (Annex II MARPOL 73/78, IBC Code)	Not relevant

SECTION 15: REGULATORY INFORMATION

15.1 Safety, health and environmental regulations specific for the product in question:

It is recommended to use the information included in this safety data sheet as data used in a risk evaluation of local circumstances, in order to establish the necessary risk prevention measures for the manipulation, use, storage and disposal of this product. Industrial ethyl alcohol (rectified spirit/denatured spirit) is subject to state excise control in India; procurement, storage, transport and use must comply with the relevant State Excise Act/Rules and any applicable permits, in addition to the chemical safety regulations below.

Other legislation:

- Manufacture, Storage and Import of Hazardous Chemicals Rules, 1989
- The Petroleum Act, 1934 and Petroleum Rules, 2002 (as applicable to flammable liquids)
- Relevant State Excise Act and Rules governing rectified spirit/denatured spirit (varies by state)
- The Factories Act, 1948 (Act No. 63 of 1948), as amended by the Factories (Amendment) Act, 1987 (Act 20 of 1987)
- The Chemical Accidents (Emergency Planning, Preparedness, and Response) Rules, 1996
- Public Liability Insurance Act, 1991

SECTION 16: OTHER INFORMATION

Legislation related to safety data sheets:

This safety data sheet has been designed in accordance with Annex 4 – Guidance on the preparation of Safety Data Sheets of the Globally Harmonized System of Classification and Labelling of Chemicals (GHS).

Texts of the legislative phrases mentioned in sections 2 and 3:

- H225: Highly flammable liquid and vapour.
- H319: Causes serious eye irritation.
- H336: May cause drowsiness or dizziness.

The phrases indicated do not refer to the product itself; they are present merely for informative purposes and refer to the individual components which appear in section 3. Denaturant-specific hazard phrases, where applicable, are documented on the relevant batch specification sheet.

Advice related to training:

Training is recommended for personnel handling this product, covering safe storage practices, correct use of explosion-proof equipment, emergency fire-response procedures and, for denatured grades, awareness that the product is unfit for human consumption.

Principal bibliographical sources:

Published GHS classification references and standard commercial/regulatory SDS databases for Ethanol (Ethyl Alcohol), CAS 64-17-5.

Abbreviations and acronyms:

ADR: European agreement concerning the international carriage of dangerous goods by road | IMDG: International maritime dangerous goods code | IATA: International Air Transport Association | ICAO: International Civil Aviation Organisation | BOD: Biochemical Oxygen Demand | LD50: Lethal Dose 50 | LC50: Lethal Concentration 50 | EC50: Effective Concentration 50 | Log-POW: Octanol-water partition coefficient | Koc: Partition coefficient of organic carbon | IARC: International Agency for Research on Cancer

The information contained in this safety data sheet is based on sources, technical knowledge and current legislation, without being able to guarantee its accuracy. This information cannot be considered a guarantee of the properties of the product; it is simply a description of the security requirements. The occupational methodology and conditions for users of this product are not within Suraj Chemicals' awareness or control, and it is ultimately the responsibility of the user to take the necessary measures to obtain the legal requirements concerning the manipulation, storage, use and disposal of chemical products. The information on this safety data sheet only refers to this product, which should not be used for needs other than those specified.

END OF SAFETY DATA SHEET