

CAFFEINE ANHYDROUS

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SECTION 1: IDENTIFICATION

1.1 GHS Product identifier:

CAFFEINE ANHYDROUS
1,3,7-Trimethylxanthine; Methyltheobromine
CAS: 58-08-2

Other means of identification:

Not relevant

1.2 Recommended use of the chemical and restrictions on use:

Relevant uses: Functional ingredient/stimulant additive in beverages (energy drinks, cola, tea/coffee extracts), food products, and as a pharmaceutical active ingredient/intermediate (analgesic adjuvant, respiratory stimulant formulations). For industrial/commercial user only.
Uses advised against: All uses not specified in this section or in section 7.3.

1.3 Supplier's details:

SURAJ CHEMICALS
No 92, Govindappa Naicken Street, Shiva Complex, Chennai – 600001, Tamil Nadu, India
Tel: +91 - 7092722822, +91 - 9840284032 / +91 - 44 - 25393652, 42130281
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1.4 Emergency phone number:

Emergency Contact No: +91 - 7092722822, +91 - 9840284032

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).

Acute Tox. 4	Acute oral toxicity, Category 4, H302
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2.2 GHS label elements, including precautionary statements:

GHS: Warning

Hazard statements:

Acute Tox. 4: H302 – Harmful if swallowed.

Precautionary statements:

P264: Wash hands thoroughly after handling.
P270: Do not eat, drink or smoke when using this product (in its concentrated/undiluted industrial form).
P301+P312: IF SWALLOWED: Call a POISON CENTER/doctor if you feel unwell.
P330: Rinse mouth.
P501: Dispose of the contents/containers in accordance with regulations on hazardous waste or packaging and packaging waste, respectively.

2.3 Other hazards which do not result in classification:

Only the concentrated, undiluted substance is subject to the classification in 2.1; caffeine as formulated into food/beverage products at approved use levels is a routine, widely consumed food ingredient. Dust may cause mild mechanical irritation of the respiratory tract. This substance is not identified as a PBT or vPvB substance.

SECTION 3: COMPOSITION / INFORMATION ON INGREDIENTS

3.1 Substances:

Chemical description: Caffeine Anhydrous
In accordance with Annex 4.3.3 of the GHS, the product contains:

Identification	Chemical Name / Classification	Concentration
CAS: 58-08-2	Caffeine (Anhydrous) — Acute Tox. 4: H302 – Warning	≥ 98.5% (food/pharma grade, per current specification sheet)

To obtain more information on the hazards of the substances, consult sections 11, 12 and 16.

3.2 Mixtures:

Non-applicable

SECTION 4: FIRST AID MEASURES

4.1 Description of necessary first-aid measures:

Request medical assistance if symptoms are significant or persist, showing the SDS of this product.

By inhalation:

Remove the person affected from the area of exposure, provide fresh air and keep at rest. Seek medical attention if irritation or discomfort persists.

By skin contact:

Wash the affected area with plenty of water and soap. Not normally expected to cause irritation under routine handling.

By eye contact:

Rinse eyes thoroughly with lukewarm water for several minutes, lifting upper and lower eyelids. Remove contact lenses if present and easy to do. Seek medical attention if irritation persists.

By ingestion/aspiration:

Rinse out the mouth with water. If a significant quantity of the concentrated substance (well above normal dietary/beverage use levels) has been swallowed, seek medical advice immediately, showing this SDS; symptoms of overdose may include restlessness, tachycardia, tremor and nausea.

4.2 Most important symptoms/effects, acute and delayed:

Acute and delayed effects are indicated in sections 2 and 11.

4.3 Indication of immediate medical attention and special treatment needed, if necessary:

In case of significant overdose, monitor cardiac and central-nervous-system status; treat symptomatically under medical supervision. No specific antidote.

SECTION 5: FIRE-FIGHTING MEASURES

- 5.1 Suitable extinguishing media:**
Suitable: Water spray/fog, foam, dry chemical powder, carbon dioxide (CO₂)
Unsuitable: High-pressure water jet (may disperse dust)
- 5.2 Specific hazards arising from the chemical:**
Not classified as flammable. Combustion may generate oxides of carbon and nitrogen. Fine dust suspended in air may present a dust-explosion hazard in the presence of an ignition source.
- 5.3 Special protective actions for fire-fighters:**
Evacuate non-essential personnel. Wear self-contained breathing apparatus and full protective clothing in case of significant fire. Cool exposed containers with water spray.
- Additional provisions:**
Avoid generating or dispersing dust clouds near ignition sources.

SECTION 6: ACCIDENTAL RELEASE MEASURES

- 6.1 Personal precautions, protective equipment and emergency procedures:**
For non-emergency personnel:
Avoid generating dust. Use the personal protective equipment described in section 8. Ensure adequate ventilation.
For emergency responders:
Wear protective equipment described in section 8. Keep unprotected persons away.
- 6.2 Environmental precautions:**
Avoid large-scale discharge into drains or water courses. Notify the relevant authority in case of a significant spill reaching the environment.
- 6.3 Methods and materials for containment and cleaning up:**
Sweep up or vacuum (avoiding dust dispersion) and collect in a clean, dry, labelled container for reuse or disposal.
- 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:
Avoid generating dust. Avoid ingestion of the concentrated substance outside of approved formulated/diluted food and beverage applications. Use local exhaust ventilation where dust may be generated during bulk handling.
B. Technical recommendations for the prevention of fires and explosions:
Avoid accumulation of fine dust on surfaces and in equipment. Use properly earthed equipment during bulk transfer to minimise static build-up.
C. Technical recommendations on general occupational hygiene:
Do not eat, drink or smoke in work areas while handling the concentrated substance; wash hands after handling.
D. Technical recommendations to prevent environmental risks:
Avoid uncontrolled discharge to drains, soil or water courses. Follow the protective measures given in the exposure controls/personal protection section.
- 7.2 Conditions for safe storage, including any incompatibilities:**
A. Specific storage requirements:
- | | |
|------------------------|--|
| Storage temperature | Cool, ambient conditions – typically below 30°C |
| Recommended shelf life | Typically 24 – 36 months from date of manufacture in original sealed packaging |
| Container | Original, tightly closed, light-protected, moisture-proof container/bag |
- B. General conditions for storage:**
Store in a cool, dry, well-ventilated area, protected from direct sunlight, away from strong oxidisers. Keep container tightly closed when not in use and secured against unauthorised access given its stimulant/pharmacological activity. For additional information see subsection 10.5.
- 7.3 Specific end use(s):**
Except for the instructions already specified, it is not necessary to provide any special recommendation regarding the uses of this product within its approved food/beverage and pharmaceutical use levels.

SECTION 8: EXPOSURE CONTROLS / PERSONAL PROTECTION

- 8.1 Control parameters:**
No specific occupational exposure limit (OEL) has been established for this substance under the Factories Act, 1948 (as amended). As general nuisance-dust guidance, an airborne exposure limit of 10 mg/m³ (inhalable fraction, 8-hr TWA) is recommended as good practice when handling the concentrated substance in bulk.
- 8.2 Appropriate engineering controls:**
Use local exhaust ventilation where dust may be generated during bulk handling/transfer, in addition to individual protective equipment (PPE) as needed.
- B. Respiratory protection:**
Dust/particulate filter mask (e.g. FFP1/FFP2) recommended during prolonged bulk handling or where dust levels are elevated.
- C. Specific protection for the hands:**
Protective gloves recommended for prolonged or repeated handling as good industrial hygiene practice.
- D. Eye and face protection:**
Safety glasses/goggles recommended where dust may be generated.
- E. Bodily protection:**
Standard clean work clothing/apron; safety footwear in bulk-handling areas.
- F. Additional emergency measures:**
Eyewash station recommended in areas of regular bulk handling.
- Environmental exposure controls:**
Avoid environmental spillage of both the product and its container.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties:

Appearance	
Physical state at 20°C	Solid
Appearance	Crystalline powder
Color	White
Odor	Odourless; bitter taste
Odour threshold	Not relevant *
Volatility	

Boiling point	Sublimes at approximately 178°C (< atmospheric); decomposes above melting point
Vapour pressure at 20°C	Not relevant *
Evaporation rate	Not relevant *
Product Description	
Molecular formula	C8H10N4O2
Molecular weight	194.19 g/mol
Density / Relative density at 20°C	≈ 1.2 g/cm³ (typical value – refer to current specification sheet)
pH (1% aqueous solution)	≈ 6.9 (typical value – refer to current specification sheet)
Partition coefficient n-octanol/water (log Pow)	-0.07
Solubility in water at 25°C	21.6 g/L (sparingly soluble; more soluble in hot water)
Melting point/freezing point	235 – 238°C
Flammability	
Flash Point	Non-applicable (solid)
Flammability (solid, gas)	Not classified as flammable
Autoignition temperature	Not established for this grade
Lower / Upper flammability limit	Not relevant *

* Not relevant due to the nature of the product, not providing information on the properties of its hazards.

9.2 Other information:

Explosive properties	Not classified; fine dust may present a combustible-dust hazard under specific conditions
Oxidising properties	Not classified
Corrosive to metals	Not relevant *
Decomposition temperature	> 238°C

SECTION 10: STABILITY AND REACTIVITY

- 10.1 Reactivity:**
No significant reactivity hazards are known under normal conditions of storage, handling and use. May react with strong oxidising agents.
- 10.2 Chemical stability:**
Chemically stable under the indicated conditions of storage, handling and use.
- 10.3 Possibility of hazardous reactions:**
Under the specified conditions, hazardous reactions are not expected.
- 10.4 Conditions to avoid:**

Shock/Friction	Contact with Air	Increase in Temperature	Sunlight	Humidity
Not applicable	Not applicable	Avoid prolonged exposure to high temperature	Avoid prolonged direct exposure	Avoid contact with moisture

10.5 Incompatible materials:

Strong Oxidisers	Strong Acids	Moisture
Avoid contact	Avoid contact	Avoid prolonged exposure

- 10.6 Hazardous decomposition products:**
Thermal decomposition at high temperature may generate oxides of carbon and nitrogen.

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/approved dietary use levels, adverse health effects may result depending on the means of exposure:
- A. Ingestion (acute effect):**
Harmful if swallowed in concentrated/undiluted form (H302). Acts as a central nervous system stimulant; overdose may cause restlessness, insomnia, tachycardia, tremor, nausea and, in severe cases, cardiac arrhythmia or seizures. Normal dietary/beverage consumption at approved use levels does not present this acute hazard.
- B. Inhalation (acute effect):**
Inhalation of dust may cause irritation of the nose, throat and respiratory tract.
- C. Contact with skin and eyes (acute effect):**
Not expected to cause significant skin or eye irritation under normal handling.
- D. CMR effects (carcinogenicity, mutagenicity, reproductive toxicity):**
Classification criteria for carcinogenicity and mutagenicity are not met based on available data. IARC: Not listed (Group 3 for coffee consumption generally; not applicable to the isolated substance). Caffeine consumption is subject to standard dietary advisories regarding intake during pregnancy, which should be considered for pharmaceutical/food formulation end-uses.
- 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:**
Classification criteria are not met based on available data; however, caffeine is pharmacologically active as a central nervous system stimulant at relevant doses.
- G. Specific target organ toxicity (STOT) – repeated exposure:**
Classification criteria are not met based on available data. Habitual high intake is associated with tolerance/dependence effects, which are well characterised and managed through dietary guidance rather than occupational classification.
- H. Aspiration hazard:**
Classification criteria are not met based on available data.
- Product-specific toxicological information:**

Identification	Acute Toxicity	Genus
Caffeine CAS: 58-08-2	LD50 oral: 192 mg/kg	Rat

SECTION 12: ECOLOGICAL INFORMATION

Not classified as hazardous to the aquatic environment under GHS criteria, based on available data.

12.1 Toxicity:

Acute Toxicity	Species	Genus
LC50: > 100 mg/L (96h) (typical value – refer to current specification sheet)	Non-applicable	Fish

12.2 Persistence and degradability:

Moderately biodegradable; specific test data not established for this grade.

12.3 Bioaccumulative potential:

Not expected to bioaccumulate significantly (low log Pow).

12.4 Mobility in soil:

Koc	Henry	Dry Soil	Moist Soil
Low to moderate	Not relevant	No data	No data

12.5 Results of PBT and vPvB assessment:

This substance does not meet the PBT/vPvB criteria.

12.6 Other adverse effects:

Not described

SECTION 13: DISPOSAL CONSIDERATIONS

13.1 Disposal methods:

Dispose of waste/residues in accordance with local/national regulations on waste management. Avoid discharge of concentrated product into drains or water courses. Larger quantities should be handled by an authorised waste contractor.

Refer to national and local regulations on waste management.

SECTION 14: TRANSPORT INFORMATION

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

14.1 UN number	Not assigned – non-dangerous goods
14.2 UN proper shipping name	Non-applicable
14.3 Transport hazard class(es)	Not regulated
14.4 Packing group	N/A
14.5 Environmental hazard	No
14.6 Special precautions for user	Non-hazardous for transport; 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	Not assigned – non-dangerous goods
14.2 UN proper shipping name	Non-applicable
14.3 Transport hazard class(es)	Not regulated
14.4 Packing group	N/A
14.5 Marine pollutant	No
14.6 Special precautions for user	Non-hazardous for transport
14.7 Transport in bulk (Annex II MARPOL 73/78, IBC Code)	Not relevant

Transport of dangerous goods by air (IATA/ICAO 2024):

14.1 UN number	Not assigned – non-dangerous goods
14.2 UN proper shipping name	Non-applicable
14.3 Transport hazard class(es)	Not regulated
14.4 Packing group	N/A
14.5 Environmental hazard	No
14.6 Special precautions for user	Non-hazardous for transport
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. Use as a food/beverage ingredient should comply with the Food Safety and Standards (Food Products Standards and Food Additives) Regulations, 2011, and amendments thereto, including applicable maximum-use-level requirements.

Other legislation:

The Factories Act, 1948 (Act No. 63 of 1948), as amended by the Factories (Amendment) Act, 1987 (Act 20 of 1987)
Food Safety and Standards Act, 2006, and Rules/Regulations made thereunder
Drugs and Cosmetics Act, 1940, and Rules thereunder (where applicable to pharmaceutical-grade use)

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:

H302: Harmful if swallowed.

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.

Advice related to training:

Minimal training is recommended to prevent industrial risks for staff using this product, in order to facilitate their comprehension and interpretation of this safety data sheet, as well as the label on the product.

Principal bibliographical sources:

Published GHS classification and physicochemical reference data for this substance; Food Safety and Standards Authority of India (FSSAI) guidance on permitted use levels.

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 | LD50: Lethal Dose 50 | LC50: Lethal Concentration 50 | Log-POW: Octanol-water partition coefficient | Koc: Partition coefficient of organic carbon | IARC: International Agency for Research

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