SAFETY DATA SHEET

MELAMINE (99.5%)

CAS No.: 108-78-1

This Safety Data Sheet is issued by Suraj Chemicals as the distributor/supplier of record, based on manufacturer and published GHS / regulatory reference data for this substance. Users should also consult the specific manufacturer's SDS where available.

1. IDENTIFICATION

GHS Product identifier

MELAMINE (99.5%)
1,3,5-Triazine-2,4,6-triamine; Cyanuramide
CAS: 108-78-1

Other means of identification

Not relevant

Recommended use of the chemical and restrictions on use

Relevant uses: Raw material for melamine-formaldehyde resins (laminates, moulding compounds, adhesives, coatings), flame retardant additive, textile/paper auxiliary. For industrial user only.

Uses advised against: All uses not specified in this section or in section 7.3.

Supplier's details

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2. HAZARDS IDENTIFICATION

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).

Not classified as hazardous under GHS physical, health hazard criteria at the acute-toxicity cut-off values (see 11.1); combustible solid in finely divided/dust form

GHS label elements, including precautionary statements

GHS: Not classified

Hazard statements

Not classified as hazardous under GHS physical, health or environmental hazard criteria.

Precautionary statements

P264: Wash hands thoroughly after handling.
P280: Wear protective gloves/eye protection where dust is generated.
P271: Use only outdoors or in a well-ventilated area when handling large quantities of dust.
General industrial hygiene practices apply for a combustible-dust solid.

Other hazards which do not result in classification

Fine dust dispersed in air can form a combustible dust cloud – control ignition sources and dust accumulation. Does not meet the PBT/vPvB criteria.

3. COMPOSITION / INFORMATION ON INGREDIENTS

Substances

Chemical description: Melamine (99.5%) (technical/industrial grade)

In accordance with Annex 4.3.3 of the GHS, the product contains:

Identification	Chemical Name / Classification	Concentration
CAS: 108-78-1	Melamine (99.5%) — Not classified as hazardous under GHS criteria	≥ 99.5%

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

Mixtures

Non-applicable

4. FIRST AID MEASURES

Description of necessary first-aid measures

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

By inhalation

Remove the person affected from the area of exposure to fresh air. Seek medical attention if discomfort persists.

By skin contact

Wash skin thoroughly with water. Remove contaminated clothing. Seek medical attention if irritation persists.

By eye contact

Rinse eyes thoroughly with lukewarm water for at least 15 minutes, holding eyelids open. Remove contact lenses if present and easy to do. Seek medical attention if irritation persists.

By ingestion/aspiration

Rinse the mouth with water. If a large quantity is swallowed or the person feels unwell, seek medical attention.

Most important symptoms/effects, acute and delayed

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

Indication of immediate medical attention and special treatment needed, if necessary	Not relevant – treat symptomatically

5. FIRE-FIGHTING MEASURES

Suitable extinguishing media	**Suitable:** Water spray/fog, foam, dry chemical powder, carbon dioxide – suit surrounding fire **Unsuitable:** None known
Specific hazards arising from the chemical	Bulk solid is not readily combustible; finely divided dust dispersed in air can form a weakly explosible dust cloud (class St1). Thermal decomposition above ~345°C releases ammonia and oxides of nitrogen.
Special protective actions for fire-fighters	Evacuate all non-essential personnel. Wear self-contained breathing apparatus and full protective clothing in case of significant fire involving this product. **Additional provisions** Cool fire-exposed containers with water spray. Contain fire-fighting water to prevent environmental release.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures	**For non-emergency personnel** Isolate leaks provided there is no additional risk for the people performing this task. Personal protection equipment must be used against potential contact with the spilt product (see section 8). Evacuate the area and keep out those who do not have protection. **For emergency responders** Wear protective equipment. Keep unprotected persons away. See section 8.
Environmental precautions	Avoid dust generation. Prevent large quantities from entering drains or watercourses. Notify the relevant authority in case of significant environmental release.
Methods and materials for containment and cleaning up	Sweep up/vacuum (avoid generating dust) and place in a labelled container for reuse or disposal. Wash residual area with water.
Reference to other sections	See sections 8 and 13.

7. HANDLING AND STORAGE

Precautions for safe handling

A. General precautions for safe use
Minimise dust generation; use local exhaust ventilation/dust extraction. Control ignition sources in areas where combustible dust may accumulate. Bond/ground equipment handling bulk powder.

B. Technical recommendations for the prevention of fires and explosions
Control ignition sources (sparks, open flame, hot surfaces, static discharge) in dusty atmospheres; use dust-tight/explosion-protected equipment as appropriate for a combustible-dust process.

C. Technical recommendations on general occupational hygiene
Do not eat or drink during the process; wash hands afterwards with suitable cleaning products.

D. Technical recommendations to prevent environmental risks
Provide tight electrical equipment well protected against corrosion. Avoid atmospheric emissions. Warn people about the dangers of the product. Follow the protective measures given in the exposure controls/personal protection section. In industrial installations, apply the rules for the prevention of major accidents (consult an expert).

Conditions for safe storage, including any incompatibilities

A. Specific storage requirements

Minimum Temp.	Ambient
Maximum Temp.	35°C
Maximum time	24 Months in original sealed packaging, kept dry

B. General conditions for storage
Store in a cool, dry, well-ventilated place in tightly closed containers/bags, away from ignition sources (combustible dust). For additional information see subsection 10.5.

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.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Control parameters

No specific occupational exposure limit has been established for this substance under the Factories Act, 1948. Apply the general limit for particulates not otherwise classified/specified (PNOS/PNOC) as a good-practice reference value.

Identification	Occupational Exposure Limit Type	Value
Melamine CAS: 108-78-1	Particulates Not Otherwise Specified – TWA (8 hrs, inhalable)	10 mg/m³ (reference value)

Appropriate engineering controls

It is recommended to use localized extraction in the work area as a collective protection measure to avoid exceeding occupational exposure limits, in addition to individual protective equipment (PPE) as needed. Consult the manufacturer's information leaflet for storage, use, cleaning and maintenance of PPE.

B. Respiratory protection
Use a dust mask (FFP2) where local exhaust ventilation is not sufficient to control dust exposure.

C. Specific protection for the hands
Protective gloves for general handling.

D. Eye and face protection
Safety glasses/goggles.

E. Bodily protection
Standard industrial workwear.

F. Additional emergency measures
Emergency shower (ANSI Z358-1, ISO 3864-1:2011, ISO 3864-4:2011) and eyewash stations (DIN 12 899, ISO 3864-1:2011, ISO 3864-4:2011) should be available.

Environmental exposure controls
Avoid environmental spillage of both the product and its container. See subsection 7.1.D.

9. PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

Appearance	
Physical state at 20°C	Solid
Appearance	Crystalline powder
Color	White
Odor	Odorless (or very faint)
Odour threshold	Not relevant *
Volatility	
Boiling point at atmospheric pressure	Not relevant (sublimes/decomposes before boiling)
Vapour pressure at 20°C	Negligible
Evaporation rate at 20°C	Not relevant (solid)
Product Description	
Density / Relative density at 20°C	1.573 g/cm³
Dynamic / Kinematic viscosity	Not relevant (solid)
Concentration	≥ 99.5%
pH (10% aqueous suspension)	~7.5–9 (slightly alkaline; low solubility)
Vapour density at 20°C	Not relevant *
Partition coefficient n-octanol/water 20°C	-1.37 (log Pow)
Solubility in water at 20°C	~3.1 g/L (slightly soluble)
Decomposition temperature	~345°C (sublimes/decomposes)
Melting point/freezing point	~345°C (sublimes with decomposition, does not show a classical melting point at atmospheric pressure)
Flammability	
Flash Point	Non-applicable (solid)
Flammability (solid, gas)	Not readily combustible as a bulk solid; fine dust can form a combustible dust cloud
Autoignition temperature	>600°C (bulk material)
Lower / Upper flammability limit	Not established for bulk solid; dust explosion class St1 (weakly explosible) reported for fine dust
Particle Characteristics	
Median equivalent diameter	Fine crystalline powder (grade-dependent, typically <100 µm)

** Not relevant due to the nature of the product (solid, non-volatile), not providing information on the properties of its hazards.*

Other information

Explosive properties	Not explosive as bulk solid; fine airborne dust can form a weakly explosible cloud (dust explosion class St1) – control ignition sources where dust is generated
Oxidising properties	Not an oxidizer
Corrosive to metals	Not classified
Heat of combustion	~18 kJ/g (approx.)
Surface tension at 20°C	Not relevant *
Refraction index	Not relevant *

10. STABILITY AND REACTIVITY

Reactivity

No significant reactivity hazard under normal conditions of storage, handling and use. Decomposes on strong heating (>345°C) releasing ammonia and oxides of nitrogen.

Chemical stability

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

Possibility of hazardous reactions

Under the specified conditions, hazardous reactions are not generally expected; see incompatibilities below.

Conditions to avoid

Shock/Friction	Contact with Air	Increase in Temperature	Sunlight	Humidity
Not applicable	Not applicable	Avoid elevated temperature/decomposition	Not applicable	Keep dry to avoid caking/degradation

Incompatible materials

Strong Oxidizing Agents	Strong Acids	Ignition Sources (dust)
Avoid contact	Avoid contact	Avoid – control static/ignition sources where dust is generated

Hazardous decomposition products

Ammonia, oxides of nitrogen and carbon on thermal decomposition/combustion.

11. TOXICOLOGICAL INFORMATION

Information on toxicological effects

In case of exposure that is repetitive, prolonged, or at high concentrations, adverse health effects may result depending on the means of exposure:

A. Ingestion (acute effect)

Low acute oral toxicity (does not meet GHS Acute Tox. 4 cut-off of 2000 mg/kg). Chronic high-dose/adulteration exposure has been associated with urinary tract stone formation (renal effects), particularly when co-ingested with cyanuric acid; not relevant to normal industrial handling.

B. Inhalation (acute effect)

Dust may cause irritation of the respiratory tract. Not classified as an acute inhalation toxicity hazard.

C. Contact with skin and eyes (acute effect)

May cause mild, transient skin/eye irritation from mechanical dust contact; not classified as a skin or eye irritant under GHS criteria.

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

Classification criteria for carcinogenicity, mutagenicity and reproductive toxicity are not met based on available data. IARC: Group 3 (not classifiable as to carcinogenicity to humans).

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.

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

Chronic high-dose animal studies show effects on the urinary bladder/kidney (stone formation); classification criteria under GHS repeated-dose thresholds are not met for this industrial-grade product at typical exposure.

H. Aspiration hazard

Not applicable (solid).

Product-specific toxicological information

Identification	Acute Toxicity	Genus
Melamine (99.5%) CAS: 108-78-1	LD50 oral: ~3161 mg/kg (practically non-toxic)	Rat
	LD50 dermal: >2000 mg/kg (estimate; low dermal absorption)	Rabbit

12. ECOLOGICAL INFORMATION

Not classified as acutely hazardous to the aquatic environment; low water solubility limits bioavailability.

Toxicity

Identification	Acute Toxicity	Species	Genus
Melamine (99.5%) CAS: 108-78-1	LC50: >100 mg/L (96h, class-typical; limited by low solubility)	Oncorhynchus mykiss	Fish
	EC50: >100 mg/L (48h, class-typical)	Daphnia magna	Crustacean

Persistence and degradability

Not readily biodegradable under standard aerobic test conditions, but not expected to persist in significant concentrations due to low water solubility.

Bioaccumulative potential

Low bioaccumulation potential (log Pow -1.37).

Mobility in soil

Koc	Henry	Dry Soil	Moist Soil
~30–60 (moderate mobility)	Negligible (non-volatile)	Not applicable (solid)	Slightly soluble, moderate mobility

Results of PBT and vPvB assessment

This substance does not meet the PBT/vPvB criteria of Annex XIII.

Other adverse effects

Not described

13. DISPOSAL CONSIDERATIONS

Disposal methods

Dispose of as solid industrial waste via a licensed waste contractor, or by controlled incineration, in accordance with local regulations. For packaging: empty thoroughly before disposal/recycling.

Refer to national and local regulations on waste management, including the Hazardous and Other Wastes (Management and Transboundary Movement) Rules.

14. TRANSPORT INFORMATION

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

14.1 UN number	Not assigned – non-hazardous for transport
14.2 UN proper shipping name	Non-applicable
14.3 Transport hazard class(es)	Not classified
14.4 Packing group	N/A
14.5 Environmental hazard	No
14.6 Special precautions for user	Non-applicable – product is not a dangerous good under ADR/RID/IMDG/IATA criteria
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-hazardous for transport
14.2 UN proper shipping name	Non-applicable
14.3 Transport hazard class(es)	Not classified
14.4 Packing group	N/A
14.5 Marine pollutant	No
14.6 Special precautions for user	Non-applicable
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-hazardous for transport
14.2 UN proper shipping name	Non-applicable
14.3 Transport hazard class(es)	Not classified
14.4 Packing group	N/A
14.5 Environmental hazard	No
14.6 Special precautions for user	Non-applicable
14.7 Transport in bulk (Annex II MARPOL 73/78, IBC Code)	Not relevant

15. REGULATORY INFORMATION

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.

Other legislation

Manufacture, Storage and Import of Hazardous Chemicals Rules 1989
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

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

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

PubChem (National Library of Medicine); European Chemicals Agency (ECHA) classification and labelling inventory; United Nations Economic Commission for Europe (UNECE) Model Regulations; ACGIH Threshold Limit Values.

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 | COD: Chemical Oxygen Demand | BOD5: 5-day biochemical oxygen demand | BCF: Bioconcentration factor | 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

Disclaimer: 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.

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