

PARAFORMALDEHYDE

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SECTION 1: IDENTIFICATION

1.1 GHS Product identifier:

PARAFORMALDEHYDE
Paraform; Polyoxymethylene (low MW); PFA
CAS: 30525-89-4

Other means of identification:

Not relevant

1.2 Recommended use of the chemical and restrictions on use:

Relevant uses: Solid source/precursor of formaldehyde for resin manufacture (urea-formaldehyde, melamine-formaldehyde, phenolic resins), disinfectant/fumigant and biocide formulations, chemical intermediate, laboratory fixative raw material. For industrial user only.
Uses advised against: All uses not specified in this section or in section 7.3.

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), based on the standard, well-documented hazard profile published for paraformaldehyde, which decomposes to release formaldehyde gas on heating.

Flam. Sol. 1	Flammable solid, Category 1, H228
Acute Tox. 4	Acute oral toxicity, Category 4, H302
Skin Irrit. 2	Skin irritation, Category 2, H315
Eye Irrit. 2	Eye irritation, Category 2, H319
Skin Sens. 1	Skin sensitisation, Category 1, H317
STOT SE 3	Respiratory tract irritation, single exposure, Category 3, H335

2.2 GHS label elements, including precautionary statements:

GHS: Warning

Hazard statements:

Flam. Sol. 1: H228 – Flammable solid.
Acute Tox. 4: H302 – Harmful if swallowed.
Skin Irrit. 2: H315 – Causes skin irritation.
Eye Irrit. 2: H319 – Causes serious eye irritation.
Skin Sens. 1: H317 – May cause an allergic skin reaction.
STOT SE 3: H335 – May cause respiratory irritation.

Precautionary statements:

P210: Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P261: Avoid breathing dust/fume.
P264: Wash hands thoroughly after handling.
P270: Do not eat, drink or smoke when using this product.
P272: Contaminated work clothing should not be allowed out of the workplace.
P280: Wear protective gloves/protective clothing/eye protection/face protection.
P302+P352: IF ON SKIN: Wash with plenty of water.
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.
P333+P313: If skin irritation or rash occurs: Get medical advice/attention.
P337+P313: If eye irritation persists: Get medical advice/attention.
P501: Dispose of contents/container in accordance with local/national regulations on hazardous waste.

2.3 Other hazards which do not result in classification:

On heating, combustion or thermal decomposition, paraformaldehyde depolymerises and releases formaldehyde gas, which is itself classified as a carcinogen (Category 1B), mutagen and acute toxicant/sensitiser – see Section 10.6 and Section 11. Dust clouds of paraformaldehyde may present a dust explosion hazard under specific conditions – see Section 5.

SECTION 3: COMPOSITION / INFORMATION ON INGREDIENTS

3.1 Substances:

Chemical description: Paraformaldehyde (polymeric form of formaldehyde)
In accordance with Annex 4.3.3 of the GHS, the product contains:

Identification	Chemical Name / Classification	Concentration
CAS: 30525-89-4	Paraformaldehyde — Flam. Sol. 1: H228; Acute Tox. 4: H302; Skin Irrit. 2: H315; Eye Irrit. 2: H319; Skin Sens. 1: H317; STOT SE 3: H335 – Warning	≥ 91% (as formaldehyde content, typical commercial grade; balance predominantly water)

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 immediately, showing the SDS of this product.
- By inhalation:**
Remove the person affected from the area of exposure, provide fresh air and keep at rest. If breathing is difficult, give oxygen. In serious cases obtain immediate medical attention.
- By skin contact:**
Remove contaminated clothing and footwear immediately. Wash affected skin thoroughly with plenty of water and soap. Seek medical advice if irritation, rash or an allergic reaction develops.
- By eye contact:**
Rinse immediately with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Remove contact lenses, if present and easy to do. Seek medical attention if irritation persists.
- By ingestion/aspiration:**
Do not induce vomiting. Rinse the mouth with water. Give plenty of water to drink if the person is fully conscious. Seek immediate medical attention and show the SDS/container label.
- 4.2 Most important symptoms/effects, acute and delayed:**
Harmful if swallowed. Causes skin and eye irritation. May cause an allergic skin reaction (sensitisation) on repeated contact. May cause respiratory irritation. Acute and delayed effects are further indicated in sections 2 and 11.
- 4.3 Indication of immediate medical attention and special treatment needed, if necessary:**
Treat symptomatically. There is 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 jets that may disperse dust and create a dust cloud.
- 5.2 Specific hazards arising from the chemical:**
Classified as a flammable solid. Finely divided material dispersed in air may form an explosible dust cloud in the presence of an ignition source. On burning or thermal decomposition, releases formaldehyde gas and other irritant/toxic fumes, including carbon monoxide and carbon dioxide.
- 5.3 Special protective actions for fire-fighters:**
Evacuate non-essential personnel. Wear self-contained breathing apparatus and full protective clothing, given the toxic/irritant fumes released on combustion. Cool fire-exposed containers with water spray.
- Additional provisions:**
Avoid generating dust clouds near ignition sources. Contain fire-fighting water for appropriate disposal.

SECTION 6: ACCIDENTAL RELEASE MEASURES

- 6.1 Personal precautions, protective equipment and emergency procedures:**
For non-emergency personnel:
Avoid generating and inhaling dust. Keep away from ignition sources. Use personal protective equipment described in Section 8. Ventilate the area. Evacuate non-essential/unprotected personnel.
- For emergency responders:**
Wear appropriate PPE including respiratory protection as in Section 8. Keep unprotected persons away.
- 6.2 Environmental precautions:**
Avoid release of the product to drains, soil or surface water. Contain spillage and prevent further leakage if safe to do so. Notify the relevant authority in case of significant exposure to the environment.
- 6.3 Methods and materials for containment and cleaning up:**
Avoid dry sweeping, which raises dust; use dust-tight vacuum equipment or dampen the material lightly with water before collecting (note: large wetted accumulations should not be allowed to dry out uncontrolled, and water used should be minimised given potential formaldehyde release). Place collected material in a suitable, labelled, closed container away from ignition sources, for 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 and breathing dust. Avoid contact with skin and eyes. Keep away from heat, sparks, open flame and other ignition sources. Keep containers closed when not in use. Avoid conditions (prolonged heating, storage above recommended temperature) that promote depolymerisation and release of formaldehyde gas.
- B. Technical recommendations for the prevention of fires and explosions:**
Classified as a flammable solid – eliminate ignition sources, control static electricity, and minimise dust generation/accumulation. Use properly earthed/bonded equipment for bulk handling and avoid build-up of dust on surfaces and in enclosed spaces.
- C. Technical recommendations on general occupational hygiene:**
Do not eat, drink or smoke while handling the product. Wash hands and exposed skin thoroughly before breaks and after work. Provide adequate general and local exhaust ventilation given the potential for formaldehyde gas release.
- D. Technical recommendations to prevent environmental risks:**
Avoid release to the environment. Keep containers closed when not in use. Follow protective measures given in Section 8.

7.2 Conditions for safe storage, including any incompatibilities:

A. Specific storage requirements:

Minimum Temp.	5°C
Maximum Temp.	30°C (avoid elevated storage temperature – accelerates depolymerisation/formaldehyde release)
Shelf life	Typical value – refer to current specification sheet

B. General conditions for storage:

Store in a cool, dry, well-ventilated place away from direct sunlight, heat sources and ignition sources, in tightly closed original containers. Keep away from strong oxidising agents, strong acids and strong alkalis. Rotate stock (first-in, first-out) given the tendency to slowly depolymerise/release formaldehyde odour on prolonged storage.

7.3 Specific end use(s):

Except for the instructions already specified, it is not necessary to provide any special recommendation beyond those given for formaldehyde-releasing solids in general.

SECTION 8: EXPOSURE CONTROLS / PERSONAL PROTECTION

8.1 Control parameters:

Occupational exposure limits applicable to formaldehyde gas released from this product should be observed in the workplace, per the Factories Act, 1948 (as amended) and general ACGIH-aligned guidance values:

Identification	Occupational Exposure Limit Type	Value
Formaldehyde (released on decomposition) CAS: 50-00-0	Ceiling limit	0.3 ppm (general guidance value)
	Short-term exposure limit (STEL, 15 min)	2 ppm (general guidance value)

8.2 Appropriate engineering controls:

Use local exhaust ventilation in the work area to control both dust and any formaldehyde gas/odour, keeping airborne concentrations below applicable exposure limits.

B. Respiratory protection:
Where ventilation is inadequate, use a respirator fitted with a combined particulate and organic-vapour/formaldehyde-rated filter.

C. Specific protection for the hands:
Chemical-resistant gloves (e.g. nitrile or neoprene). Replace at any sign of damage or degradation.

D. Eye and face protection:
Chemical safety goggles recommended, given the eye irritation hazard and potential for dust/vapour contact.

E. Bodily protection:
Standard chemical-resistant protective clothing; antistatic clothing where dust-explosion risk is relevant.

F. Additional emergency measures:
Emergency shower (ANSI Z358-1) and eyewash stations (ISO 3864-1/4) should be readily available in the work area.

Environmental exposure controls:
Avoid environmental release of both the product and contaminated wash water. 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	Solid (powder, prills or flakes)
Appearance	Solid powder/granules
Color	White
Odor	Characteristic pungent formaldehyde-like odour
Odour threshold	Low (formaldehyde odour is detectable at sub-ppm levels)
Volatility	
Boiling point at atmospheric pressure	Non-applicable – sublimes/decomposes on heating rather than boiling
Vapour pressure at 20°C	Low; releases formaldehyde gas slowly at ambient temperature, more rapidly on heating
Evaporation rate at 20°C	Not applicable (solid)
Product Description	
Density / Relative density at 20°C	Approx. 1.3 – 1.5 g/cm³ (Typical value – refer to current specification sheet)
Dynamic / Kinematic viscosity	Not applicable (solid)
Concentration	≥ 91% as formaldehyde (typical commercial grade)
pH (10% aqueous suspension)	Approx. 3.0 – 5.0 (Typical value – refer to current specification sheet)
Vapour density at 20°C	Not relevant (solid)
Partition coefficient n-octanol/water	Not established for the polymer; formaldehyde monomer Log Pow approx. 0.35
Solubility in water at 20°C	Slowly soluble/depolymerises in water, releasing formaldehyde into solution
Decomposition temperature	Depolymerises/releases formaldehyde gas progressively above approx. 100–150°C (Typical value – refer to current specification sheet)
Melting point/freezing point	Non-applicable – decomposes before melting
Flammability	
Flash Point	Not applicable (solid); classified as a flammable solid, see below
Flammability (solid, gas)	Flammable solid (GHS Category 1, H228)
Autoignition temperature	Approx. 300°C (Typical value – refer to current specification sheet)
Lower / Upper flammability limit	Formaldehyde gas (decomposition product): approx. 7–73% v/v in air
Particle Characteristics	
Median equivalent diameter	Fine powder to coarse prills, grade dependent; Typical value – refer to current specification sheet

Values above are typical for the commercial grade supplied and are not to be used as product specification. Refer to the current specification sheet for guaranteed values.

9.2 Other information:

Explosive properties	Not classified as explosive; fine dust clouds may present a dust-explosion hazard – see Section 5
Oxidising properties	Not classified as oxidising
Corrosive to metals	Not corrosive to metals under normal conditions
Heat of combustion	Typical value – refer to current specification sheet
Self-heating	Not classified as self-heating under normal storage conditions

SECTION 10: STABILITY AND REACTIVITY

10.1 Reactivity:
Slowly depolymerises under normal ambient storage conditions, and more rapidly on heating, with release of formaldehyde gas. Reacts with strong oxidising agents, strong acids and strong alkalis. May react with amines, amides, and other formaldehyde-reactive compounds.

10.2 Chemical stability:
Stable under the recommended conditions of storage, handling and use (cool, dry, closed containers); decomposition/depolymerisation accelerates with increasing temperature and humidity, releasing formaldehyde gas.

10.3 Possibility of hazardous reactions:
Depolymerisation on heating releases flammable, toxic formaldehyde gas, which can create a flammable atmosphere in enclosed, poorly ventilated spaces. No other hazardous reactions are expected under normal conditions of storage and use.

10.4 Conditions to avoid:

Shock/Friction	Contact with Air	Increase in Temperature	Sunlight	Humidity
Avoid dust-generating impact	Avoid prolonged exposure to moist air	Danger – accelerates depolymerisation/formaldehyde release and may ignite dust	Avoid prolonged direct exposure	Avoid prolonged exposure to high humidity

10.5 Incompatible materials:

Strong Oxidisers	Strong Acids/Alkalis	Amines/Amides	Heat Sources
Avoid contact	Avoid contact	Avoid contact (formaldehyde-reactive)	Keep away – accelerates decomposition

10.6 Hazardous decomposition products:

Releases formaldehyde gas on heating/decomposition, which is itself flammable and classified (Carc. 1B, Mutagen 2, Acute Tox. 3, Skin Sens. 1, STOT SE 3). On combustion, also generates carbon monoxide and carbon dioxide.

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. Effects are driven largely by the formaldehyde gas released from the product.

A. Ingestion (acute effect):

Harmful if swallowed (Acute Tox. 4, H302). May cause irritation/corrosive-type injury to the mouth, throat and gastrointestinal tract.

B. Inhalation (acute effect):

May cause respiratory irritation (STOT SE 3, H335). Formaldehyde gas released from the product is a strong irritant to the respiratory tract at elevated concentrations.

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

Causes skin irritation (H315) and serious eye irritation (H319) on direct contact.

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

Classification criteria for carcinogenicity, mutagenicity and reproductive toxicity for paraformaldehyde itself are not met based on available data; however formaldehyde, the gas released on decomposition, is classified by IARC as a Group 1 (carcinogenic to humans) substance and carries GHS Carc. 1B/Muta. 2 classification in its own right – relevant to elevated or chronic exposure to released formaldehyde gas, not to the solid polymer under normal handling.

E. Sensitizing effects:

May cause an allergic skin reaction (Skin Sens. 1, H317) on repeated or prolonged skin contact.

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

May cause respiratory irritation (H335).

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

Classification criteria for the solid itself are not met based on available data; prolonged/repeated inhalation of released formaldehyde gas is associated with respiratory tract effects, as documented for formaldehyde generally.

H. Aspiration hazard:

Classification criteria are not met based on available data.

Product-specific toxicological information:

Identification	Acute Toxicity	Genus
Paraformaldehyde CAS: 30525-89-4	LD50 oral: approx. 1000 – 1700 mg/kg (Typical value – refer to current specification sheet)	Rat
	LD50 dermal: >2000 mg/kg (Typical value – refer to current specification sheet)	Rabbit

SECTION 12: ECOLOGICAL INFORMATION

Toxic to aquatic organisms, consistent with the known ecotoxicity of formaldehyde released from the product in aquatic media.

12.1 Toxicity:

Acute Toxicity	Species	Genus
LC50: approx. 20 – 50 mg/L (96h) (Typical value – refer to current specification sheet)	Non-applicable	Fish
EC50: approx. 2 – 10 mg/L (48h) (Typical value – refer to current specification sheet)	Non-applicable	Crustacean

12.2 Persistence and degradability:

Formaldehyde released from the product is readily biodegradable in water and soil under aerobic conditions; it does not persist in the environment.

12.3 Bioaccumulative potential:

Low potential for bioaccumulation (low octanol-water partition coefficient for formaldehyde). No specific data for the polymer.

12.4 Mobility in soil:

Koc	Henry	Dry Soil	Moist Soil
Low (for released formaldehyde)	Low	Low mobility (solid)	Moderate – depolymerises/dissolves slowly

12.5 Results of PBT and vPvB assessment:

Not classified as PBT or vPvB based on available data.

12.6 Other adverse effects:

Not described

SECTION 13: DISPOSAL CONSIDERATIONS

13.1 Disposal methods:

Dispose of via a licensed hazardous-waste contractor in accordance with local, state and national regulations. Do not discharge to drains, soil or water courses. Avoid uncontrolled heating/incineration without appropriate emission controls, given the release of formaldehyde gas. For packaging: avoid treatments as far as possible – use dedicated, closed containers and dispose of/recycle in accordance with local regulations. Refer to national and local regulations on waste management, including the Hazardous and Other Wastes (Management and Transboundary Movement) Rules, 2016.

SECTION 14: TRANSPORT INFORMATION

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

14.1 UN number	UN2213
14.2 UN proper shipping name	PARAFORMALDEHYDE
14.3 Transport hazard class(es)	4.1
14.4 Packing group	III
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	UN2213
14.2 UN proper shipping name	PARAFORMALDEHYDE
14.3 Transport hazard class(es)	4.1
14.4 Packing group	III
14.5 Marine pollutant	No

14.6 Special precautions for user	EmS Codes: F-A, S-I Limited quantities: 5 kg Segregation group: Not relevant
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	UN2213
14.2 UN proper shipping name	PARAFORMALDEHYDE
14.3 Transport hazard class(es)	4.1
14.4 Packing group	III
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. Formaldehyde released from this product is subject to its own regulatory controls in many jurisdictions (e.g. IARC Group 1 carcinogen classification) which end users should consider for their own risk assessments.

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
Hazardous and Other Wastes (Management and Transboundary Movement) Rules, 2016

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:

H228: Flammable solid.
H302: Harmful if swallowed.
H315: Causes skin irritation.
H317: May cause an allergic skin reaction.
H319: Causes serious eye irritation.
H335: May cause respiratory irritation.

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:

Staff handling this product should be trained on the hazards of formaldehyde release on heating/decomposition, dust control, fire prevention and the contents of this safety data sheet and the product label.

Principal bibliographical sources:

Published GHS classification and safety data for this CAS number from recognised chemical safety reference databases; The United Nations Economic Commission for Europe (UNECE); International Agency for Research on Cancer (IARC) monographs on formaldehyde.

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 | EC50: Effective Concentration 50 | Log-POW: Octanol-water partition coefficient | Koc: Partition coefficient of organic carbon | IARC: International Agency for Research on Cancer | PBT: Persistent, Bioaccumulative and Toxic | vPvB: very Persistent, very Bioaccumulative

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