SAFETY DATA SHEET

POTASSIUM META BI SULPHITE (PMBS)

CAS No.: 16731-55-8

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

POTASSIUM METABISULPHITE (PMBS)
Potassium pyrosulfite; Dipotassium disulfite
CAS: 16731-55-8

Other means of identification

Food additive: E224 (INS 224); Molecular formula: $K_2S_2O_5$

Recommended use of the chemical and restrictions on use

Relevant uses: Food and beverage preservative/antioxidant (winemaking, brewing, dried fruit), water treatment (dechlorination), photographic fixer, textile bleaching/reducing agent, general industrial reducing agent. For industrial/food-grade use as per grade purchased.

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), based on well-established public classification data for CAS 16731-55-8.

Acute Tox. 4 (Oral)	Acute oral toxicity, Category 4, H302
Skin Irrit. 2	Skin irritation, Category 2, H315
Eye Irrit. 2	Eye irritation, Category 2, H319
STOT SE 3	Respiratory tract irritation, single exposure, Category 3, H335

GHS label elements, including precautionary statements

GHS: Warning

Hazard statements

H302 – Harmful if swallowed.
H315 – Causes skin irritation.
H319 – Causes serious eye irritation.
H335 – May cause respiratory irritation.
EUH031 – Contact with acids liberates toxic gas (sulfur dioxide).

Precautionary statements

P261: Avoid breathing dust.
P264: Wash hands thoroughly after handling.
P270: Do not eat, drink or smoke when using this product.
P271: Use only outdoors or in a well-ventilated area.
P280: Wear protective gloves/eye protection/face protection.
P301+P312: IF SWALLOWED: Call a POISON CENTER/doctor if you feel unwell.
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.
P332+P313: If skin irritation occurs, get medical advice/attention.
P337+P313: If eye irritation persists, get medical advice/attention.
P403+P233: Store in a well-ventilated place. Keep container tightly closed.
P501: Dispose of contents/container in accordance with local/regional/national regulations.

Other hazards which do not result in classification

Sulfites may provoke severe allergic/asthmatic reactions in susceptible individuals, even at low exposure levels.

3. COMPOSITION / INFORMATION ON INGREDIENTS

Substances

Chemical description: Potassium Metabisulphite (Food Grade)

Identification	Chemical Name / Classification	Concentration
CAS: 16731-55-8	Potassium Metabisulphite – Acute Tox. 4: H302; Skin Irrit. 2: H315; Eye Irrit. 2: H319; STOT SE 3: H335; EUH031 – Warning	≥ 97% (typical, food grade; per supplier certificate of analysis)

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

Mixtures

Non-applicable

4. FIRST AID MEASURES

Description of necessary first-aid measures

By inhalation

Remove person to fresh air and keep at rest in a position comfortable for breathing. Dust/fumes (SO_2) may cause coughing and breathing difficulty, particularly in asthmatic or sulfite-sensitive individuals. Get medical attention if symptoms persist.

By skin contact

Remove contaminated clothing and wash affected skin thoroughly with plenty of water. Get medical attention if irritation persists.

By eye contact

Rinse cautiously with water for at least 15 minutes, removing contact lenses if present and easy to do. Get medical attention if irritation persists.

By ingestion

Rinse mouth with water. Do not induce vomiting. Never give anything by mouth to an unconscious person. Get medical attention – contact with stomach acid liberates sulfur dioxide gas.

Most important symptoms/effects, acute and delayed

Irritation of eyes, skin and respiratory tract. Sulfite-sensitive/asthmatic individuals may experience severe respiratory reactions (bronchospasm) even at low exposure.

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

Treat symptomatically.

5. FIRE-FIGHTING MEASURES

Suitable extinguishing media

Suitable: Use extinguishing media suitable for the surrounding fire (water spray, dry chemical, CO_2, foam).
Unsuitable: None known.

Specific hazards arising from the chemical

Non-combustible. On heating or contact with acids, decomposes to release toxic sulfur dioxide (SO_2) gas.

Special protective actions for fire-fighters

Wear self-contained breathing apparatus and full protective clothing.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

Avoid generating dust. Ensure adequate ventilation. Avoid contact with acids. Use PPE as per section 8.

Environmental precautions

Do not discharge to drains, surface water or soil. Contain spillage.

Methods and materials for containment and cleaning up

Sweep up and collect in a suitable, clearly labeled container for disposal or reuse. Avoid raising dust. Wash the spill site with water after material pick-up.

Reference to other sections

See sections 8 and 13.

7. HANDLING AND STORAGE

Precautions for safe handling

Avoid generating and breathing dust. Keep away from acids and strong oxidizing agents. Use with adequate local exhaust ventilation. Wash hands thoroughly after handling.

Conditions for safe storage, including any incompatibilities

Store in a cool, dry, well-ventilated place in tightly closed containers, protected from moisture (hygroscopic; slowly oxidises to sulfate in moist air). Keep away from acids and oxidizing agents.

Specific end use(s)

Food-grade material is intended for use as a permitted food preservative/antioxidant (E224) at the levels prescribed by applicable food regulations.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Control parameters

Identification	Occupational Exposure Limit Type	Value
Sulfur dioxide (as liberated on decomposition)	OSHA PEL, 8-hour TWA	5 ppm
	ACGIH TLV, TWA / STEL (reference)	0.25 ppm / 0.5 ppm

No India-specific occupational exposure limit is separately established for potassium metabisulphite as supplied; the above are general reference values for sulfur dioxide, which may be liberated on decomposition or acid contact.

Appropriate engineering controls

Provide local exhaust ventilation to control dust and any liberated SO_2 below exposure limits.

B. Respiratory protection

Respirator with particulate/acid-gas (SO_2) cartridge if dust or fumes are generated or exposure limits are exceeded.

C. Specific protection for the hands

Chemical-resistant protective gloves.

D. Eye and face protection

Chemical safety goggles.

E. Bodily protection

Protective clothing; safety shower and eyewash station should be available.

9. PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

Appearance	
Physical state at 20°C	Solid
Appearance	White crystalline powder/granules
Odor	Slight, pungent (sulfurous / SO_2-like)
Product Description	
pH (10% aqueous solution)	~4.0 – 5.0 (acidic; per certificate of analysis)
Density	~2.34 g/cm³
Solubility in water at 20°C	~450 g/L (freely soluble)
Molecular weight	222.32 g/mol ($K_2S_2O_5$)
Volatility / Thermal	
Melting/decomposition point	~190°C (decomposes, releasing SO_2)
Boiling point	Not applicable (decomposes before boiling)
Vapour pressure	Not relevant *
Flammability	
Flash point	Non-applicable (not combustible)
Flammability (solid)	Non-flammable
Auto-ignition temperature	Not relevant *

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

Other information

Oxidising properties	Not applicable (the substance itself is a mild reducing agent)
Explosive properties	Not relevant *

10. STABILITY AND REACTIVITY

Reactivity

Reacts with acids to liberate toxic sulfur dioxide gas. Slowly oxidises in moist air to potassium sulfate.

Chemical stability

Stable when stored dry, cool and tightly closed. Hygroscopic.

Possibility of hazardous reactions

Contact with acids or strong oxidizers can generate SO_2 gas and heat.

Conditions to avoid

Heat	Moisture	Contact with Acids
Avoid prolonged heating	Keep container tightly closed	Avoid contact

Incompatible materials

Acids, strong oxidizing agents.

Hazardous decomposition products

Sulfur dioxide (SO_2), potassium oxides.

11. TOXICOLOGICAL INFORMATION

Information on toxicological effects

A. Ingestion (acute effect)

Harmful if swallowed (H302). May cause gastrointestinal irritation; contact with stomach acid liberates sulfur dioxide gas.

B. Inhalation (acute effect)

May cause respiratory tract irritation (H335). Sulfite-sensitive and asthmatic individuals may experience severe reactions at even low exposure levels.

C. Contact with skin and eyes (acute effect)

Causes skin irritation (H315) and serious eye irritation (H319).

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

Classification criteria are not met based on available data.

E. Sensitizing effects

Not classified as a skin/respiratory sensitizer under GHS criteria; however, sulfites are a recognised cause of allergic-type (non-IgE) reactions in sensitive individuals.

Product-specific toxicological information

Identification	Acute Toxicity	Species
Potassium Metabisulphite CAS: 16731-55-8	LD50 oral: Available on request (typically reported in the low-thousands mg/kg range for alkali metabisulfites; substance-specific study data not established for this grade)	Rat

12. ECOLOGICAL INFORMATION

Toxicity

No substance-specific aquatic toxicity study is on file for this product. Sulfite salts consume dissolved oxygen and can be toxic to aquatic organisms at elevated concentrations through oxidation to sulfate; avoid direct discharge to water bodies.

Acute Toxicity	Species
Not established for this grade	Fish/Aquatic invertebrates

Persistence and degradability

Not persistent; oxidises in the environment to sulfate.

Bioaccumulative potential

Not expected to bioaccumulate.

Mobility in soil

Highly soluble in water; mobile.

Results of PBT and vPvB assessment

Non-applicable (inorganic salt).

Other adverse effects

Not described.

13. DISPOSAL CONSIDERATIONS

Disposal methods

Neutralise/oxidise before disposal where required. Dispose of product and contaminated packaging in accordance with local, regional and national waste regulations. Do not discharge directly to drains.

14. TRANSPORT INFORMATION

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

14.1 UN number	Not classified as dangerous goods
14.2 UN proper shipping name	Non-applicable
14.3 Transport hazard class(es)	Non-applicable
14.4 Packing group	Non-applicable
14.5 Environmental hazard	No
14.6 Special precautions for user	None; physico-chemical properties see section 9
14.7 Transport in bulk	Not relevant

Transport of dangerous goods by sea (IMDG)

14.1 UN number	Not classified as dangerous goods
14.2 UN proper shipping name	Non-applicable
14.3 Transport hazard class(es)	Non-applicable
14.4 Packing group	Non-applicable
14.5 Marine pollutant	No
14.6 Special precautions for user	None
14.7 Transport in bulk	Not relevant

Transport of dangerous goods by air (IATA/ICAO)

14.1 UN number	Not classified as dangerous goods
14.2 UN proper shipping name	Non-applicable
14.3 Transport hazard class(es)	Non-applicable
14.4 Packing group	Non-applicable
14.5 Environmental hazard	No
14.6 Special precautions for user	None
14.7 Transport in bulk	Not relevant

15. REGULATORY INFORMATION

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

Food-grade material is permitted as a preservative/antioxidant under FSSAI (India) regulations and the Codex Alimentarius (INS 224), subject to prescribed maximum use levels. Sulfite content must be declared on food labels where applicable (allergen declaration).

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 (India) – for food-grade material

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.
H315: Causes skin irritation.
H319: Causes serious eye irritation.
H335: May cause respiratory irritation.
EUH031: Contact with acids liberates toxic gas.

The phrases indicated do not refer to the product itself; they are present merely for informative purposes and refer to the individual component which appears 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

Manufacturer's Certificate of Analysis (physical appearance, purity and pH data); well-established public GHS classification data for CAS 16731-55-8.

Abbreviations and acronyms

GHS: Globally Harmonized System | TWA: Time-Weighted Average | STEL: Short-Term Exposure Limit | LD50: Lethal Dose 50 | INS: International Numbering System (food additives) | FSSAI: Food Safety and Standards Authority of India

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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