SAFETY DATA SHEET

SODIUM BICARBONATE

CAS No.: 144-55-8

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

SODIUM BICARBONATE
Baking Soda; Sodium Hydrogen Carbonate; Sodium Acid Carbonate; E500(ii)
CAS: 144-55-8

Other means of identification

Not relevant

Recommended use of the chemical and restrictions on use

Relevant uses: Food additive/leavening agent, antacid, buffering agent, effervescent formulations, leather and textile processing, flue-gas desulphurisation, dry-chemical fire extinguishing agent, animal feed supplement, general industrial and laboratory reagent. 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). Sodium bicarbonate does not meet the classification criteria for any physical, health or environmental hazard class under GHS.

Not classified	Not a hazardous substance according to GHS criteria

GHS label elements, including precautionary statements

GHS: No signal word / No pictogram required

Hazard statements

None allocated. Not classified as hazardous under GHS.

Precautionary statements

P260: Avoid breathing dust.
P264: Wash hands thoroughly after handling.
P280: Wear protective gloves/eye protection when handling large quantities.
P305+P351+P338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P501: Dispose of contents/container in accordance with local regulations.

Other hazards which do not result in classification

Fine dust in high airborne concentrations may cause temporary mechanical irritation of the eyes, skin and respiratory tract. Not a PBT or vPvB substance. Not an endocrine disruptor.

3. COMPOSITION / INFORMATION ON INGREDIENTS

Substances

Chemical description: Sodium hydrogen carbonate ($NaHCO_3$)

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

Identification	Chemical Name / Classification	Concentration
CAS: 144-55-8	Sodium Bicarbonate — Not classified as hazardous	≥ 99% (technical/industrial grade)

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

Generally regarded as of low toxicological concern; first aid measures below are precautionary.

By inhalation

Remove person to fresh air. If irritation or discomfort persists, seek medical attention.

By skin contact

Wash with plenty of water. Remove contaminated clothing if heavily soiled. Seek medical attention 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 attention if irritation persists.

By ingestion/aspiration

Rinse mouth with water. If large quantities are swallowed, give water to drink and seek medical advice. Do not induce vomiting unless directed by medical personnel.

Most important symptoms/effects, acute and delayed	May cause mild, transient irritation of eyes, skin or respiratory tract on prolonged or repeated contact with dust. No significant delayed effects known.
Indication of immediate medical attention and special treatment needed, if necessary	Not relevant. Treat symptomatically.

5. FIRE-FIGHTING MEASURES

Suitable extinguishing media	**Suitable:** Product is non-combustible. Use extinguishing media suitable for the surrounding fire (water spray, foam, dry chemical powder, carbon dioxide). **Unsuitable:** None known
Specific hazards arising from the chemical	Not flammable, not explosive. Product itself will not burn. On strong heating (above approx. 50–100°C) decomposes releasing carbon dioxide and water vapour; sodium bicarbonate is itself used as a dry-chemical fire-extinguishing agent (Class B/C fires).
Special protective actions for fire-fighters	No special measures required beyond standard fire-fighting practice. Wear self-contained breathing apparatus if involved in a fire producing smoke from other combustible materials. **Additional provisions** Cool fire-exposed containers with water if practical. Move containers from fire area if it is safe to do so.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures	**For non-emergency personnel** Avoid generating and breathing dust. Use personal protective equipment as described in section 8. Ensure adequate ventilation. **For emergency responders** No special equipment beyond standard PPE (dust mask, gloves, goggles) is normally required.
Environmental precautions	Not classified as an environmental hazard. Prevent large quantities from entering drains/waterways, as high local concentrations can raise pH.
Methods and materials for containment and cleaning up	Sweep up or vacuum spilled material avoiding dust generation, and place in a suitable 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
Avoid generating dust. Handle with normal industrial hygiene practices. Avoid contact with strong acids (reacts to release carbon dioxide gas, may cause pressure build-up in closed containers).

B. Technical recommendations for the prevention of fires and explosions
Not applicable – product is non-combustible and does not present a fire or explosion hazard.

C. Technical recommendations on general occupational hygiene
Do not eat, drink or smoke while handling. Wash hands after handling.

D. Technical recommendations to prevent environmental risks
Avoid uncontrolled release of large quantities to soil or water bodies.

Conditions for safe storage, including any incompatibilities

A. Specific storage requirements

Storage temperature	Ambient (avoid excessive heat > 50°C which initiates decomposition)
Recommended shelf life	24 months in original sealed packaging, stored dry

B. General conditions for storage
Store in a cool, dry, well-ventilated place in tightly closed containers, away from strong acids and moisture. Keep bags/containers off the floor on pallets.

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 substance-specific occupational exposure limit has been established for sodium bicarbonate by OSHA, ACGIH or Indian regulatory bodies. General limits for particulates not otherwise classified (nuisance dust) are commonly applied as guidance:

Identification	Occupational Exposure Limit Type	Value
Sodium Bicarbonate (as inert/nuisance dust guidance) CAS: 144-55-8	Inhalable fraction, 8-hr TWA	10 mg/m³
	Respirable fraction, 8-hr TWA	3 mg/m³

Appropriate engineering controls

Use local exhaust ventilation where dust is generated (bagging, milling, transfer operations) to keep airborne concentrations below the guidance levels above.

B. Respiratory protection
Not normally required under conditions of adequate ventilation. Use a dust mask/particulate respirator (e.g. N95) during bag handling, milling or extended dusty operations.

C. Specific protection for the hands
Protective gloves recommended for prolonged handling (cotton or nitrile).

D. Eye and face protection
Safety glasses or goggles recommended where dust generation is significant.

E. Bodily protection
Ordinary work clothing; dust-protective overalls for prolonged bagging/loading operations.

F. Additional emergency measures
Eyewash station recommended in areas of regular handling.

Environmental exposure controls
No special environmental exposure controls required beyond good housekeeping.

9. PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

Appearance	
Physical state at 20°C	Solid (fine crystalline powder)
Appearance	Fine white powder
Color	White
Odor	Odorless
Odour threshold	Not applicable
Volatility	
Boiling point at atmospheric pressure	Not applicable (decomposes before boiling)
Vapour pressure at 20°C	Not applicable (solid, negligible)
Evaporation rate	Not applicable
Product Description	
Density at 20°C	~2.20 g/cm³
Bulk density	~700–1000 kg/m³
Molecular weight	84.01 g/mol
pH (1% aqueous solution, 20°C)	~8.3 (mildly alkaline)
Solubility in water at 20°C	~96 g/L
Partition coefficient n-octanol/water	Not applicable (inorganic salt)
Decomposition temperature	Begins ~50–100°C (releases CO_2 and H_2O, forming sodium carbonate)
Melting point/freezing point	Not applicable (decomposes prior to melting)
Flammability	
Flash Point	Non-applicable (non-combustible solid)
Flammability (solid, gas)	Non-flammable
Autoignition temperature	Not applicable
Lower / Upper flammability limit	Not applicable
Particle Characteristics	
Median particle size	Typically 20–200 microns (grade dependent) – available on request per grade

Values are standard published physical constants for sodium bicarbonate; grade-specific particle size distribution available on request.

Other information

Explosive properties	Not explosive
Oxidising properties	Not an oxidiser
Corrosive to metals	Not corrosive to metals
Heat of combustion	Not applicable (non-combustible)
Surface tension	Not relevant (solid)
Viscosity	Not applicable (solid)

10. STABILITY AND REACTIVITY

Reactivity

Reacts with acids to liberate carbon dioxide gas, which can build up pressure in closed containers/vessels. No other significant reactivity hazards under normal conditions.

Chemical stability

Chemically stable under normal conditions of storage, handling and use. Slowly decomposes above ~50°C, more rapidly above 100°C, into sodium carbonate, water and carbon dioxide.

Possibility of hazardous reactions

Under the specified conditions, hazardous reactions that lead to excessive temperatures or pressure are not expected, other than gas evolution when mixed with acids.

Conditions to avoid

Shock/Friction	Contact with Air	Increase in Temperature	Sunlight	Humidity
Not applicable	Not applicable	Avoid > 50°C (decomposition)	Not applicable	Avoid prolonged moisture exposure (caking)

Incompatible materials

Strong Acids	Strong Oxidisers	Moisture
Avoid – vigorous CO_2 evolution	Avoid direct contact	Avoid – can cause caking/lump formation

Hazardous decomposition products

On strong heating: carbon dioxide, water vapour, sodium carbonate. Non-hazardous under normal use.

11. TOXICOLOGICAL INFORMATION

Information on toxicological effects

Sodium bicarbonate is a substance of low acute toxicity and is widely used in food, pharmaceutical and personal-care applications.

A. Ingestion (acute effect)
Low acute oral toxicity. Very large doses may cause gastrointestinal disturbance (nausea, distension) and, in extreme cases, electrolyte/acid-base disturbance.

B. Inhalation (acute effect)
Dust may cause mild, transient irritation of the nose, throat and respiratory tract.

C. Contact with skin and eyes (acute effect)
Not a skin or eye irritant under normal conditions; concentrated dust or prolonged contact may cause mild, transient irritation.

D. CMR effects (carcinogenicity, mutagenicity, reproductive toxicity)
Not classified as a carcinogen, mutagen or reproductive toxicant by IARC, OSHA, NTP or ACGIH.

E. Sensitizing effects
Not known to be a skin or respiratory sensitizer.

F. Specific target organ toxicity (STOT) – single exposure
Not classified.

G. Specific target organ toxicity (STOT) – repeated exposure
Not classified.

H. Aspiration hazard
Not applicable (solid).

Product-specific toxicological information

Identification	Acute Toxicity	Genus
Sodium Bicarbonate CAS: 144-55-8	LD50 oral: 4,220 mg/kg	Rat
	LD50 dermal: >10,000 mg/kg (practically non-irritating)	Rabbit

12. ECOLOGICAL INFORMATION

Not classified as hazardous to the aquatic environment.

Toxicity

Acute Toxicity	Species	Genus
LC50: ~300–700 mg/L (96h, range reported for freshwater species)	Non-applicable	Fish
EC50: Not established	Non-applicable	Crustacean

Toxicity to aquatic organisms results predominantly from the transient pH shift caused by high local concentrations, not from intrinsic chemical toxicity.

Persistence and degradability

Not applicable – inorganic salt; dissociates completely in water into naturally occurring sodium, bicarbonate/carbonate ions.

Bioaccumulative potential

Not expected to bioaccumulate (inorganic, highly water-soluble ionic species).

Mobility in soil

Koc	Henry	Dry Soil	Moist Soil
Not relevant (ionic)	Not relevant	Highly mobile (soluble)	Highly mobile

Results of PBT and vPvB assessment

Non-applicable – not a PBT or vPvB substance.

Other adverse effects

None known.

13. DISPOSAL CONSIDERATIONS

Disposal methods

Product may generally be diluted with large volumes of water and disposed of via authorized effluent treatment systems, or disposed of as non-hazardous solid waste, subject to local regulatory approval. Empty packaging can be recycled or disposed of as non-hazardous waste after ensuring it is empty of residue.

Refer to national and local regulations on waste management.

14. TRANSPORT INFORMATION

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

14.1 UN number	Not assigned – not regulated
14.2 UN proper shipping name	Non-applicable
14.3 Transport hazard class(es)	Non-hazardous for transport
14.4 Packing group	N/A
14.5 Environmental hazard	No
14.6 Special precautions for user	None
14.7 Transport in bulk (Annex II MARPOL 73/78, IBC Code)	Not relevant

Transport of dangerous goods by sea (IMDG)

14.1 UN number	Not assigned – not regulated
14.2 UN proper shipping name	Non-applicable
14.3 Transport hazard class(es)	Non-hazardous for transport
14.4 Packing group	N/A
14.5 Marine pollutant	No
14.6 Special precautions for user	None
14.7 Transport in bulk (Annex II MARPOL 73/78, IBC Code)	Not relevant

Transport of dangerous goods by air (IATA/ICAO)

14.1 UN number	Not assigned – not regulated
14.2 UN proper shipping name	Non-applicable
14.3 Transport hazard class(es)	Non-hazardous for transport
14.4 Packing group	N/A
14.5 Environmental hazard	No
14.6 Special precautions for user	None
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

Sodium bicarbonate is listed as a permitted food additive (E500(ii)) in most jurisdictions and is not classified as a hazardous chemical under Indian or international GHS-based regulations. It is recommended to use the information included in this safety data sheet as data used in a risk evaluation of local circumstances.

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 (where applicable to food-grade material)
Manufacture, Storage and Import of Hazardous Chemicals Rules 1989 (not applicable – non-hazardous)

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

Not classified – no hazard statements allocated to this product.

The information provided is for informative purposes and refers to the substance identified 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

Publicly available chemical safety data for sodium bicarbonate (CAS 144-55-8), including PubChem and standard industry safety data sheets.

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 | Koc: Partition coefficient of organic carbon | IARC: International Agency for Research on Cancer | PBT: Persistent, Bioaccumulative and Toxic | vPvB: very Persistent, very Bioaccumulative

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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