

Sodium Bicarbonate

Safety data sheet in the 16-section GHS format · CAS 144-55-8

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1. Identification of the substance and of the supplier

Product name	Sodium Bicarbonate
Synonyms	baking soda, bicarb, sodium hydrogen carbonate, edible soda, sodium bicarbonate powder
C.A.S. number	144-55-8 (EC 205-633-8)
Molecular formula	NaHCO ₃
Grade supplied	Technical grade
Product group	Alkalis & Bases
Identified uses	Flue-gas treatment, Effluent & process pH, Food, feed & pharma, Leather & textiles, Fire & cleaning
Supplier	Velora Chemicals Private Limited
Emergency contact	Medical, fire or spill emergency — call the emergency services first: 112 (all-India), 101 fire, 108 ambulance. Velora Chemicals Private Limited does not at present operate a 24-hour chemical emergency advice line, and this sheet does not pretend otherwise. Every consignment despatched by road carries an emergency information panel under rule 134 of the Central Motor Vehicles Rules 1989 bearing a number from which expert advice on this material can be obtained, and the producer's safety data sheet issued with the consignment carries the producer's own 24-hour number where one is operated. For product, grade and documentation queries in business hours: +91 99255 22674.

2. Hazards identification

GHS signal word	Not classified under EU CLP (no harmonised Annex VI entry), and this is the position taken by ILO ICSC 1044 and by several major producers. A minority of producers self-classify for mild eye effects with signal word Warning. See ghs_hazards - you must choose a basis and state it.
Hazard classification	THERE IS NO HARMONISED CLP ANNEX VI ENTRY for sodium bicarbonate, so every classification in circulation is a supplier or registrant self-classification, and the sheets genuinely disagree. The majority position, including ILO ICSC 1044, is NO classification: ICSC states 'no hazard classification according to GHS criteria', and a major bicarbonate producer states the product 'is not considered hazardous'. The minority position classifies for mild eye effects: Tata Chemicals' GHS sheet gives Eye Irrit. 2B - H320 (causes eye irritation), and other producer sheets give Eye Irrit. 2 - H319 with signal word Warning. A caution on copying: the Tata sheet prints the signal word 'Danger' alongside Category 2B, which is internally inconsistent - Eye Irrit. 2/2B carries 'Warning', never 'Danger' - so do not reproduce that pairing. Decide which basis you are adopting for your own SDS, state it explicitly in Section 2, and make the label match; do not present a self-classification as though it were an EU harmonised one.

3. Composition / information on ingredients

Substance	Sodium Bicarbonate
C.A.S. number	144-55-8 (EC 205-633-8)

Molecular weight	84.0 (ILO ICSC 1044); producer sheets give 84.01 and 84.05
Composition	Technical grade

4. First-aid measures

Eye contact	Flush the open eye with running water for at least 15 minutes, holding the eyelids apart; remove contact lenses if easily possible and continue rinsing. Refer for medical attention if irritation, redness or discomfort persists. The effect is mechanical abrasion plus mild alkalinity rather than corrosive injury.
Skin contact	Brush off the dry powder, then wash the affected skin with soap and water. Remove and launder contaminated clothing. Medical attention is not normally required; prolonged contact with wet powder can cause mild irritation or dryness.
Inhalation	Move the casualty to fresh air. Rinse the nose and mouth with water. Refer for medical attention if coughing or throat irritation persists. Heavy dust exposure irritates the nose and upper airway mechanically.
Ingestion	Rinse the mouth and give one or two glasses of water to drink. Do NOT induce vomiting. Small ingestions are of low concern - sodium bicarbonate is a food ingredient and a medicinal antacid. A large ingestion can produce painful gas distension of the stomach, belching and, through the sodium and alkali load, metabolic disturbance; seek medical advice if a large amount has been swallowed, and particularly for a child, anyone on a salt-restricted diet, or anyone with heart or kidney disease.

5. Fire-fighting measures

Flash point	Not flammable - sodium bicarbonate is itself a fire-extinguishing agent and is the active powder in BC dry-powder extinguishers
Suitable extinguishing media	Water fog, foam, dry chemical powder or carbon dioxide, chosen to suit the surrounding fire. The substance itself does not contribute fuel.
Unsuitable extinguishing media	Do not use a high-pressure water jet: it will spread the material and the fire.
Special hazards arising from the substance	Hazardous gases and decomposition products may be formed in a fire, from this substance or from its packaging and the materials stored with it. Packaging and pallets are themselves a substantial fire load. That is true even though the contents do not contribute fuel.
Advice for fire-fighters	Fire-fighters must wear self-contained breathing apparatus and full protective clothing. Keep unnecessary personnel away and upwind. Prevent firefighting run-off from entering drains, surface water or groundwater.

6. Accidental release measures

Keep unnecessary personnel away and upwind, and ventilate. Wear the protective equipment in section 8, including respiratory protection, before approaching. Eliminate ignition sources and prohibit smoking before approaching. Avoid raising dust, and never blow a spilled powder down with compressed air. Dry-collect — vacuum with a HEPA-filtered unit, or sweep gently without raising dust — into labelled, closable containers for disposal under section 13. A spill inside a vessel, tank, silo, container or pit is a confined-space job: test the atmosphere and work under permit. A fine powder makes a floor slippery, especially once wet, so treat every wetted surface as slippery until it has been washed and dried. Prevent entry to drains, surface water and groundwater. Do not return spilled material to the original container; a damaged bag should be overpacked into a labelled outer rather than decanted into an unmarked one.

7. Handling and storage

- Store in a cool, dry, covered store, away from acids and away from heat. Sodium bicarbonate picks up moisture and cakes in Indian monsoon humidity, and prolonged storage above about 50 °C will slowly convert it to soda ash. In practice moisture

pickup and caking are what limit shelf life in Indian conditions, so rotate stock and keep bags sealed and off damp floors.

- It is not classified as a dangerous good for transport and is not corrosive. There is no harmonised GHS classification, but producer safety data sheets in India do classify it — Tata Chemicals, for one, as Eye Irrit. 2B, H320 — so work from the safety data sheet for the lot you receive rather than from a blanket “not classified”. It is mildly alkaline in contact with moisture and no occupational exposure limit is assigned. Use dust extraction at tipping and bag-splitting points, side-shielded glasses and a dust mask.
- It reacts with acids and releases carbon dioxide, sometimes vigorously. Do not add it to a closed or nearly full vessel of acid; add it slowly, with venting and stirring.
- Carbon dioxide is heavier than air, so dosing bicarbonate into acidic effluent in a sump, pit or covered tank displaces oxygen at the bottom. Treat that as confined-space work: ventilate, gas-test before entry, and never lean into the opening. Keep it segregated from strong oxidisers as well as from acids.
- Sodium bicarbonate is also traded in food, feed and pharmacopoeial grades, and those are separate regulated channels, not a different bag of the same thing. Food grade sits under the FSSAI regime, where the distributor is a food business operator in its own right and needs its own licence; IP-grade material is a drug substance and needs a wholesale drug licence (Form 20B/21B) from the state drug controller. We list technical grade here and will not quote a food or pharmacopoeial grade unless the licensing is in place at both ends. Tell us the end use at the enquiry stage.

Storage: Store in closed original bags or containers in a cool, dry, well-ventilated place, protected from moisture and from excessive heat - keep well below 50 C, the temperature at which decomposition begins. Store away from acids and from ammonium compounds, and away from strong-smelling materials, solvents and fuels, which the powder absorbs readily and which will ruin a food- or pharma-grade consignment. Keep bags off damp floors, do not stack where condensation can reach them, and rotate stock; assay falls slowly in humid storage. For a technical grade destined for a food or feed customer, segregate from non-food chemicals entirely.

8. Exposure controls / personal protection

Engineering controls. Enclose every transfer, tipping, bag-slitting and sampling point and fit local exhaust extraction at each, and keep airborne concentrations below the limit in force at the place of use. Provide an eyewash within reach of the working position, and a safety shower wherever the material is classified corrosive or irritant or is handled in quantity. Do not eat, drink or smoke in the handling area; wash before breaks. Where no limit is stated above, occupational exposure limits vary by jurisdiction: check the limit in force at the place of use and the producer's sheet for the grade supplied, and record which value your assessment adopted. Select eye, skin and respiratory protection on the strength of a measured or modelled exposure assessment, not on this sheet alone.

9. Physical and chemical properties

Appearance	White, odourless fine crystalline powder or small crystals with a slightly saline, alkaline taste
Physical state	Solid (crystalline powder)
Melting / freezing point	Not applicable - it decomposes rather than melting. ILO ICSC 1044: begins to decompose at about 50 C and decomposes completely at 270 C, giving off carbon dioxide and water and leaving sodium carbonate. One producer sheet lists 270 C as a 'melting point'; that is the decomposition temperature and should not be published as a melting point.
Boiling point	Not applicable
Relative density	Relative density about 2.1-2.2 g/cm ³ (true density; ILO ICSC 1044 gives 2.1 g/cm ³). Bulk density depends entirely on grade and granulation - a US producer quotes 66 lb/ft ³ (about 1060 kg/m ³) for a standard grade, while light and fine technical powders are considerably lower. Use the producer's figure for the specific grade in silo and packaging calculations.
Solubility in water	Soluble - 9.3 g/100 mL (93 g/L) at 20 C (ILO ICSC 1044); producer data 88-96 g/L at 20 C. Solubility rises with temperature, but heating the solution drives off carbon dioxide and converts it progressively to sodium carbonate, so a hot solution is no longer pure bicarbonate.
pH	8.3 in a 1% w/v aqueous solution at 25 C; 8.6 in a 5% solution (producer data). Mildly alkaline and self-buffering. Always state the concentration - the two figures are the same product measured differently, not a quality difference.

Flash point	Not flammable - sodium bicarbonate is itself a fire-extinguishing agent and is the active powder in BC dry-powder extinguishers
Auto-ignition / ignition temperature	Not available
Explosive / dust-explosion properties	Not available
Vapour pressure	Not available
Vapour density	Not available
Partition coefficient (log Pow)	Not available
Particle characteristics	Not available
Molecular weight	84.0 (ILO ICSC 1044); producer sheets give 84.01 and 84.05

10. Stability and reactivity

Incompatible materials	Acids of every kind - vigorous effervescence with rapid evolution of carbon dioxide and heat; in a closed or partly closed container this is a pressure-rupture hazard, and in a confined space the carbon dioxide is an asphyxiation hazard. Strong oxidising agents. Sodium-potassium alloy. Ammonium salts and ammonium compounds - evolve ammonia on contact and on heating (ILO ICSC 1044). Some metals, including aluminium, in the presence of moisture. Keep dry: absorbed moisture causes caking and slow loss of carbon dioxide, lowering assay. It also readily picks up odours.
Conditions to avoid	Store in closed original bags or containers in a cool, dry, well-ventilated place, protected from moisture and from excessive heat - keep well below 50 C, the temperature at which decomposition begins. Store away from acids and from ammonium compounds, and away from strong-smelling materials, solvents and fuels, which the powder absorbs readily and which will ruin a food- or pharma-grade consignment. Keep bags off damp floors, do not stack where condensation can reach them, and rotate stock; assay falls slowly in humid storage. For a technical grade destined for a food or feed customer, segregate from non-food chemicals entirely.

11. Toxicological information

The health hazards classified for this substance are listed in section 2, and the corresponding first-aid measures in section 4. Numerical toxicological endpoints are not reproduced here: refer to the producer's safety data sheet for the grade supplied, and to the ECHA and PubChem entries for the substance.

12. Ecological information

Where section 2 or section 14 classifies this substance as hazardous to the aquatic environment, prevent any release to drains, surface water or groundwater and treat aqueous effluent before discharge. Otherwise, refer to the producer's sheet.

13. Disposal considerations

Dispose of the substance and its container through an authorised facility under the Hazardous and Other Wastes (Management and Transboundary Movement) Rules, 2016 where the waste is scheduled under those Rules, and otherwise as non-hazardous industrial waste, in each case under the conditions of the State Pollution Control Board consent in force at the site. Whether a particular waste stream is scheduled depends on the substance and on what it has been mixed with, so classify the waste before consigning it. Do not reuse empty containers for any other purpose.

14. Transport information

UN number	Not regulated for transport
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Class	Not applicable - not a dangerous good under ADR, IMDG, IATA, DOT or TDG
Packing group	Not applicable
Proper shipping name	Not applicable - not regulated for transport

15. Regulatory information

Supply in India is subject to the Manufacture, Storage and Import of Hazardous Chemical Rules, 1989 where the substance is scheduled, and to any product-specific licensing named on the product page. Classification and labelling follow the GHS as adopted in the jurisdiction of use.

Note: THE CLASSIFICATION QUESTION IS THE THING TO GET RIGHT HERE. Sodium bicarbonate has no harmonised classification in CLP Annex VI, so there is no single legally correct EU classification, and published sheets split two ways. ILO ICSC 1044 and several major producers record no GHS classification at all; a minority of producers, including Tata Chemicals in India, self-classify it for eye irritation - Tata as Eye Irrit. 2B / H320, others as Eye Irrit. 2 / H319 with signal word Warning. Both positions are defensible, but a published SDS must pick one, say in Section 2 that it is a self-classification and not a harmonised entry, and carry a label that matches. Watch for the inconsistency on the Tata sheet, which pairs Category 2B with the signal word 'Danger'; that combination is not valid under GHS and should not be copied. Other points that mislead readers: the figure 270 C is a DECOMPOSITION temperature, not a melting point, and decomposition actually begins around 50 C, which is why a hot warehouse quietly costs you assay and why the product must not be dried at elevated temperature; true density (about 2.2 g/cm³) and bulk density (roughly 1060 kg/m³ for a standard grade, lower for light powders) differ by a factor of two, so an unqualified 'density' is ambiguous; and the pH figures 8.3 and 8.6 are the same material at 1% and 5% concentration, not two different qualities. Finally, 'technical grade' is a purity and handling designation, not a hazard designation - the hazard profile of technical, food and pharmaceutical bicarbonate is the same, and the difference lies in impurity limits, particle size and the manufacturing controls behind them. The product is not regulated for transport in any mode.

16. Other information

Version	1.0
Date of issue	07 October 2026
Supersedes	No previous version
Regulatory basis as at the date of issue	EU CLP Regulation 1272/2008 as amended, including Annex VI harmonised classifications; UN Model Regulations and the IMDG Code Amendment 42-24, mandatory from 1 January 2026; ADR 2025; and, in India, the Manufacture, Storage and Import of Hazardous Chemical Rules 1989 and the Central Motor Vehicles Rules 1989.

How this sheet was compiled and what governs. This sheet was prepared by Velora Chemicals Private Limited as the supplier, from PubChem, the ECHA CLP inventory including Annex VI harmonised classifications, ILO International Chemical Safety Cards and published producer safety data sheets. Values that could not be confirmed from those sources are shown as "Not available" rather than estimated. **The producer's safety data sheet for the specific grade and lot supplied is the governing document** and is issued with the consignment; where the two differ, the producer's sheet prevails. This sheet carries no warranty of the properties of any particular batch. Velora Chemicals Private Limited is a bulk supplier and trader, not a manufacturer.

Sources consulted: https://chemicalsafety.ilo.org/dyn/icsc/showcard.display?p_version=2&p_card_id=1044;
<https://www.tatachemicals.com/upload/images/sodium-bicarbonate-tcl-sds-ghs-2021.pdf>;
https://www.wesoda.com/media/r11luasp/bicarb-food-grade-144-55-8_usp-v313_aghs_we-soda.pdf