SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1 Product identifier

- Trade name: BICAR ® USP Grade 2
- Chemical name: Sodium hydrogencarbonate
- Synonyms: Sodium bicarbonate
- Molecular formula: NaHCO3

1.2 Relevant identified uses of the substance or mixture and uses advised against

Uses of the Substance / Mixture
- Food/ feedstuff additives
- Detergent
- Chemical industry
- Glass industry
- Foaming agent
- Water treatment
- Environmental protection
- Purifying flue gas
- Animal feedstuff

1.3 Details of the supplier of the safety data sheet

Company
SOLVAY CHEMICALS, INC.
3737 Buffalo Speedway,
Suite 800,
Houston, TX 77098
USA
Tel: +1-800-7658292; +1-713-5256800
Fax: +1-713-5257804

1.4 Emergency telephone

FOR EMERGENCIES INVOLVING A SPILL, LEAK, FIRE, EXPOSURE OR ACCIDENT CONTACT: CHEMTREC 800-424-9300 within the United States and Canada, or 703-527-3887 for international collect calls.

SECTION 2: Hazards identification

Although WHMIS has not adopted the environmental portion of the GHS regulations, this document may include information on environmental effects

2.1 Classification of the substance or mixture

Hazardous Products Regulations (WHMIS 2015)
- Not classified as hazardous product under the regulation above.

2.2 Label elements

Hazardous Products Regulations (WHMIS 2015)
- Not labelled as hazardous product under the regulation above.
2.3 Other hazards which do not result in classification
   - Product dust may be irritating to eyes, skin and respiratory system.

SECTION 3: Composition/information on ingredients

3.1 Substance

WHMIS Hazardous Ingredients and Impurities

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>Identification number</th>
<th>Concentration [% wt/wt or V/V]</th>
</tr>
</thead>
<tbody>
<tr>
<td>Carbonic acid sodium salt (1:1)</td>
<td>144-55-8</td>
<td>&gt;= 98</td>
</tr>
</tbody>
</table>

3.2 Mixture

Not applicable, this product is a substance.

SECTION 4: First aid measures

4.1 Description of first-aid measures

In case of inhalation
   - Move to fresh air.
   - If symptoms persist, call a physician.

In case of skin contact
   - Wash off with soap and water.

In case of eye contact
   - Rinse thoroughly with plenty of water, also under the eyelids.
   - If eye irritation persists, consult a specialist.

In case of ingestion
   - Rinse mouth with water.
   - If symptoms persist, call a physician or Poison Control Center immediately.

4.2 Most important symptoms and effects, both acute and delayed

In case of inhalation
   Effects
   - No hazards to be specially mentioned.

In case of skin contact
   Effects
   - No hazards to be specially mentioned.
   - Repeated or prolonged exposure
   - Contact with dust can cause mechanical irritation or drying of the skin.

In case of eye contact
   Effects
   - Dust contact with the eyes can lead to mechanical irritation.

In case of ingestion
   Effects
   - Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhea.

4.3 Indication of any immediate medical attention and special treatment needed
Notes to physician
- When symptoms persist or in all cases of doubt seek medical advice.

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media
- Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

Unsuitable extinguishing media
- None.

5.2 Special hazards arising from the substance or mixture

Specific hazards during fire fighting
- Not combustible.

Hazardous combustion products:
- none
- Barium oxide
- Other hazardous decomposition products may be formed.

5.3 Advice for firefighters

Special protective equipment for fire-fighters
- In the event of fire, wear self-contained breathing apparatus.
- Use personal protective equipment.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Advice for non-emergency personnel
- Evacuate personnel to safe areas.
- Avoid dust formation.

Advice for emergency responders
- Use personal protective equipment.
- Sweep up to prevent slipping hazard.
- Prevent further leakage or spillage.

6.2 Environmental precautions
- Do not flush into surface water or sanitary sewer system.
- Prevent any mixture with an acid into the sewer/drain (gas formations).

6.3 Methods and materials for containment and cleaning up
- Pick up and transfer to properly labeled containers.
- Keep in suitable, closed containers for disposal.

6.4 Reference to other sections
- Refer to protective measures listed in sections 7 and 8.
SECTION 7: Handling and storage

7.1 Precautions for safe handling
- Ensure adequate ventilation.
- Minimize dust generation and accumulation.
- Avoid contact with skin and eyes.
- Keep away from incompatible products

Hygiene measures
- When using do not eat, drink or smoke.
- Wash hands before breaks and at the end of workday.
- Handle in accordance with good industrial hygiene and safety practice.

7.2 Conditions for safe storage, including any incompatibilities

Technical measures/Storage conditions
- Store in original container.
- Keep in a dry place.
- Keep in properly labeled containers.
- Keep container closed.

- Keep away from:
  - Incompatible products

Packaging material

Suitable material
- Paper.
- Polyethylene

- Polypropylene
- Woven plastic material.
- Polyethylene

Unsuitable material
- no data available

7.3 Specific end use(s)
- no data available
SECTION 8: Exposure controls/personal protection

Introductory Remarks: These recommendations provide general guidance for handling this product. Because specific work environments and material handling practices vary, safety procedures should be developed for each intended application. Assistance with selection, use and maintenance of worker protection equipment is generally available from equipment manufacturers.

8.1 Control parameters

Components with workplace occupational exposure limits

Consult local authorities for acceptable exposure limits.

<table>
<thead>
<tr>
<th>Ingredients</th>
<th>Value type</th>
<th>Value</th>
<th>Basis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Carbonic acid sodium salt (1:1)</td>
<td>TWA</td>
<td>10 mg/m³</td>
<td>Solvay Acceptable Exposure Limit</td>
</tr>
</tbody>
</table>

Components with workplace occupational exposure limits

<table>
<thead>
<tr>
<th>Ingredients</th>
<th>Value type</th>
<th>Value</th>
<th>Basis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Particles not otherwise specified (PNOS)</td>
<td>TWA</td>
<td>10 mg/m³</td>
<td>American Conference of Governmental Industrial Hygienists</td>
</tr>
</tbody>
</table>

Form of exposure: Inhalable fraction

The goal of the TLV®-CS Committee is to recommend TLVs® for all substances for which there is evidence of health effects at airborne concentrations encountered in the workplace. When a sufficient body of evidence exists for a particular substance, a TLV® is established. Thus, by definition the substances covered by this recommendation are those for which little data exist. The recommendation at the end of this Appendix is supplied as a guideline rather than a TLV® because it is not possible to meet the standard level of evidence used to assign a TLV®. In addition, the PNOS TLV® and its predecessors have been misused in the past and applied to any unlisted particles rather than those meeting the criteria listed below. The recommendations in this Appendix apply to particles that: - Do not have an applicable TLV®; - Are insoluble or poorly soluble in water (or, preferably, in aqueous lung fluid if data are available); and - Have low toxicity (i.e. are not cytotoxic, genotoxic or otherwise chemically reactive with lung tissue, and do not emit ionizing radiation, cause immune sensitization, or cause toxic effects other than by inflammation or the mechanism of 'lung overload'). ACGIH® believes that even biologically inert, insoluble, or poorly soluble particles may have adverse effects and recommends that airborne concentrations should be kept below 3 mg/m³, respirable particles, and 10 mg/m³, inhalable particles, until such time as a TLV® is set for a particular substance.
Form of exposure: Respirable fraction

The goal of the TLV®-CS Committee is to recommend TLVs® for all substances for which there is evidence of health effects at airborne concentrations encountered in the workplace. When a sufficient body of evidence exists for a particular substance, a TLV® is established. Thus, by definition the substances covered by this recommendation are those for which little data exist. The recommendation at the end of this Appendix is supplied as a guideline rather than a TLV® because it is not possible to meet the standard level of evidence used to assign a TLV®. In addition, the PNOS TLV® and its predecessors have been misused in the past and applied to any unlisted particles rather than those meeting the criteria listed below. The recommendations in this Appendix apply to particles that: - Do not have an applicable TLV®; - Are insoluble or poorly soluble in water (or, preferably, in aqueous lung fluid if data are available); and - Have low toxicity (i.e. are not cytotoxic, genotoxic or otherwise chemically reactive with lung tissue, and do not emit ionizing radiation, cause immune sensitization, or cause toxic effects other than by inflammation or the mechanism of "lung overload"). ACGIH® believes that even biologically inert, insoluble, or poorly soluble particles may have adverse effects and recommends that airborne concentrations should be kept below 3 mg/m³, respirable particles, and 10 mg/m³, inhalable particles, until such time as a TLV® is set for a particular substance.

### 8.2 Exposure controls

**Control measures**

**Engineering measures**
- Provide appropriate exhaust ventilation at places where dust is formed.
- Apply technical measures to comply with the occupational exposure limits.

**Individual protection measures**

**Respiratory protection**
- Use only respiratory protection that conforms to international/national standards.
- Use NIOSH approved respiratory protection.

**Hand protection**
- Impervious gloves

**Eye protection**
- Safety goggles

**Skin and body protection**
- No special protective equipment required.

**Hygiene measures**
- When using do not eat, drink or smoke.
- Wash hands before breaks and at the end of workday.
- Handle in accordance with good industrial hygiene and safety practice.
## SECTION 9: Physical and chemical properties

Physical and Chemical properties here represent typical properties of this product. Contact the business area using the Product information phone number in Section 1 for its exact specifications.

### 9.1 Information on basic physical and chemical properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
</table>
| **Appearance**                   | Form: crystalline, powder  
|                                  | Physical state: solid  
|                                  | Color: white  
| **Odor**                         | odorless                                                             |
| **Odor Threshold**               | no data available                                                    |
| **Molecular weight**             | 84.01 g/mol                                                           |
| **pH**                           | 8.4 (ca. 8.4 g/l) ( 77 °F (25 °C))  
|                                  | Water  
|                                  | 8.6 (ca. 52 g/l)                                                     |
| **pKa**                          | 6.3                                                                  |
| **Melting point/freezing point** | Melting point/range: ()  
|                                  | Decomposition: yes                                                   |
| **Initial boiling point and boiling range** | Boiling point/boiling range: ()  
|                                  | Thermal decomposition: yes                                           |
| **Flash point**                  | Not applicable, inorganic                                           |
| **Evaporation rate (Butylacetate = 1)** | no data available                                                 |
| **Flammability (solid, gas)**    | The product is not flammable.                                       |
| **Flammability / Explosive limit**| Explosiveness:  
|                                  | Not expected                                                        |
| **Autoignition temperature**     | The product is not flammable.                                       |
| **Vapor pressure**               | Thermal decomposition                                                |
| **Vapor density**                | Not applicable                                                       |
| **Density**                      | 2.21 kg/dm³                                                          |
|                                  | Bulk density: 500 - 1,300 kg/m³                                       |
| **Relative density**             | 2.21 - 2.23 (68 °F (20 °C))                                          |
Solubility

Water solubility:
- 69 g/l (32 °F (0 °C))
- 93 g/l (68 °F (20 °C))
- 165 g/l (140 °F (60 °C))

Solubility in other solvents:
- Other: soluble
- Alcohol: slightly soluble
- Not applicable, inorganic

Partition coefficient: n-octanol/water
- Not applicable, inorganic

Decomposition temperature
- > 122 °F (> 50 °C)

Viscosity
- Viscosity, dynamic: Not applicable

Explosive properties
- no data available

Oxidizing properties
- Not expected

9.2 Other information
- no data available

SECTION 10: Stability and reactivity

10.1 Reactivity
- Incompatible with acids.
- Decomposes slowly on exposure to water.

10.2 Chemical stability
- Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions
- None

10.4 Conditions to avoid
- Exposure to moisture.
- To avoid thermal decomposition, do not overheat.

10.5 Incompatible materials
- Acids

10.6 Hazardous decomposition products
- None

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity
- LD50: > 4,000 mg/kg - Rat, male and female
Method: according to a standardized method
The product has a low acute toxicity
Unpublished reports

Acute inhalation toxicity
LC50 - 4.5 h (Dust): > 4.74 mg/l - Rat, male and female
Method: according to a standardized method
Not classified as hazardous for acute inhalation toxicity according to GHS.
Unpublished reports

Acute dermal toxicity
no data available

Acute toxicity (other routes of administration)
no data available

Skin corrosion/irritation
Rabbit
slight irritation
Method: OECD Test Guideline 404
Unpublished reports

Serious eye damage/eye irritation
Rabbit
slight irritation
Method: OECD Test Guideline 405
Unpublished reports

Respiratory or skin sensitization
no data available

Mutagenicity
Genotoxicity in vitro
Strain: Escherichia coli
with and without metabolic activation
negative
Method: according to a standardized method
Published data

Ames test
with metabolic activation
negative
Method: Mutagenicity (Salmonella typhimurium - reverse mutation assay)
Published data

Genotoxicity in vivo
no data available

Carcinogenicity
no data available

This product does not contain any ingredient designated as probable or suspected human carcinogens by:
IARC
Toxicity for reproduction and development

Toxicity to reproduction / fertility  
no data available

Developmental Toxicity/Teratogenicity

Rat, female  
Application Route: Oral  
NOAEL teratogenicity: > 340 mg/kg  
Method: according to a standardized method  
Highest dose tested  
The product is not considered to be embryotoxic / fetotoxic.  
Unpublished reports

Rabbit, female  
Application Route: Oral  
NOAEL teratogenicity: > 330 mg/kg  
Method: according to a standardized method  
Highest dose tested  
The product is not considered to be embryotoxic / fetotoxic.  
Unpublished reports

STOT

STOT-single exposure  
Routes of exposure: Oral, Inhalation  
The substance or mixture is not classified as specific target organ toxicant, single exposure according to GHS criteria.

STOT-repeated exposure

no data available

Aspiration toxicity

no data available

SECTION 12: Ecological information

12.1 Toxicity

Aquatic Compartment

Acute toxicity to fish

LC50 - 96 h : 7,100 mg/l - Lepomis macrochirus (Bluegill sunfish)  
flow-through test  
Analytical monitoring: yes

Method: according to a standardized method  
Unpublished internal reports  
Not harmful to fish (LC/LL50 > 100 mg/L)
Acute toxicity to daphnia and other aquatic invertebrates.

EC50 - 48 h : 4,100 mg/l - Daphnia magna (Water flea)
flow-through test
Analytical monitoring: yes
Method: according to a standardized method
Unpublished internal reports
Not harmful to aquatic invertebrates. (EC/EL50 > 100 mg/L)

Toxicity to aquatic plants
no data available

Toxicity to microorganisms
no data available

Chronic toxicity to fish
no data available

Chronic toxicity to daphnia and other aquatic invertebrates.

NOEC: > 576 mg/l - 21 Days - Daphnia magna (Water flea)
semi-static test
Analytical monitoring: no
Method: OECD Test Guideline 211
Highest concentration tested
Published data
No adverse chronic effect observed up to and including the threshold of 1 mg / L.

Chronic Toxicity to aquatic plants
no data available

12.2 Persistence and degradability

Abiotic degradation
Stability in water
Product dissociates rapidly to corresponding ions on contact with water.

Physical- and photo-chemical elimination
no data available

Biodegradation

Biodegradability
Not applicable, inorganic substance

12.3 Bioaccumulative potential

Partition coefficient: n-octanol/water
Not applicable, inorganic substance
12.4 Mobility in soil

Adsorption potential (Koc) According to the data on the constituents non-significant adsorption internal evaluation

Known distribution to environmental compartments no data available

12.5 Results of PBT and vPvB assessment

Not applicable, inorganic substance

12.6 Other adverse effects no data available

Ecotoxicity assessment

Acute aquatic toxicity Not harmful to aquatic life (LC/LL50, EC/EL50 > 100 mg/L)

Chronic aquatic toxicity No adverse chronic effect observed up to and including the threshold of 1 mg / L.

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Product Disposal
- Contact waste disposal services.
- If recycling is not practicable, dispose of in compliance with local regulations.
- Dilute with plenty of water.
- Neutralize with acid.
- In accordance with local and national regulations.

Advice on cleaning and disposal of packaging
- Where possible recycling is preferred to disposal or incineration.
- Clean container with water.
- Dispose of rinse water in accordance with local and national regulations.
- Must be incinerated in a suitable incineration plant holding a permit delivered by the competent authorities.

SECTION 14: Transport information

TDG not regulated
Note: The above regulatory prescriptions are those valid on the date of publication of this sheet. Given the possible evolution of transportation regulations for hazardous materials, it would be advisable to check their validity with your sales office.

SECTION 15: Regulatory information

15.1 Notification status

<table>
<thead>
<tr>
<th>Inventory Information</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>United States TSCA Inventory</td>
<td>Listed on Inventory</td>
</tr>
<tr>
<td>Mexico INSQ (INSQ)</td>
<td>In compliance with the inventory</td>
</tr>
<tr>
<td>Canadian Domestic Substances List (DSL)</td>
<td>Listed on Inventory</td>
</tr>
<tr>
<td>New Zealand. Inventory of Chemical Substances</td>
<td>In compliance with the inventory</td>
</tr>
<tr>
<td>Australia Inventory of Chemical Substances (AICS)</td>
<td>Listed on Inventory</td>
</tr>
<tr>
<td>Japan. CSCL - Inventory of Existing and New Chemical Substances</td>
<td>Listed on Inventory</td>
</tr>
<tr>
<td>Korea. Korean Existing Chemicals Inventory (KECI)</td>
<td>Listed on Inventory</td>
</tr>
<tr>
<td>China. Inventory of Existing Chemical Substances in China (IECSC)</td>
<td>Listed on Inventory</td>
</tr>
<tr>
<td>Philippines Inventory of Chemicals and Chemical Substances (PICCS)</td>
<td>Listed on Inventory</td>
</tr>
<tr>
<td>Mexico INSQ (INSQ)</td>
<td>Listed on Inventory</td>
</tr>
<tr>
<td>New Zealand. Inventory of Chemical Substances</td>
<td>Listed on Inventory</td>
</tr>
<tr>
<td>EU. European Registration, Evaluation, Authorisation and Restriction of Chemical (REACH)</td>
<td>If product is purchased from Solvay in Europe it is in compliance with REACH, if not please contact the supplier.</td>
</tr>
</tbody>
</table>

15.2 National Regulations

no data available

SECTION 16: Other information

Revision Date:
03/17/2017

NFPA (National Fire Protection Association) - Classification

<table>
<thead>
<tr>
<th>Category</th>
<th>Classification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Health</td>
<td>1 slight</td>
</tr>
<tr>
<td>Flammability</td>
<td>0 minimal</td>
</tr>
<tr>
<td>Instability or Reactivity</td>
<td>0 minimal</td>
</tr>
<tr>
<td>Special Notices</td>
<td>None</td>
</tr>
</tbody>
</table>
HMIS (Hazardous Materials Identification System (Paint & Coating)) - Classification

Health 1 slight
Flammability 0 minimal
Reactivity 0 minimal
PPE Determined by User; dependent on local conditions

Key or legend to abbreviations and acronyms used in the safety data sheet
- TWA 8-hour, time-weighted average
- SAEL Solvay Acceptable Exposure Limit
- ACGIH American Conference of Governmental Industrial Hygienists
- OSHA Occupational Safety and Health Administration
- NTP National Toxicology Program
- IARC International Agency for Research on Cancer
- NIOSH National Institute for Occupational Safety and Health

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information, and belief at the date of its publication. Such information is only given as a guidance to help the user handle, use, process, store, transport, dispose, and release the product in satisfactory safety conditions and is not to be considered as a warranty or quality specification. It should be used in conjunction with technical sheets but do not replace them. Thus, the information only relates to the designated specific product and may not be applicable if such product is used in combination with other materials or in any other manufacturing process, unless otherwise specifically indicated. It does not release the user from ensuring he is in conformity with all regulations linked to its activity.