1 **Identification of substance:**

Product details:

**Product name:** Sodium hydrogen carbonate

**Stock number:**
- A17005
- L13292

**Manufacturer/Supplier:**
Alfa Aesar, A Johnson Matthey Company
Johnson Matthey Catalog Company, Inc.
30 Bond Street
Ward Hill, MA 01835-8099
Emergency Phone: (978) 521-6300
CHEMTREC: (800) 424-9300
Web Site: www.alfa.com

**Information Department:** Health, Safety and Environmental Department

**Emergency information:**
During normal hours the Health, Safety and Environmental Department. After normal hours call Chemtrec at (800) 424-9300.

2 **Composition/Data on components:**

**Chemical characterization:**

Description: (CAS#)
Sodium hydrogen carbonate (CAS# 144-55-8): 100%

**Identification number(s):**
- EINECS Number: 205-633-8

3 **Hazards identification**

**Hazard description:** Not applicable

**Information pertaining to particular dangers for man and environment:** Not applicable

**Classification system**

**HMIS ratings (scale 0-4)**

<table>
<thead>
<tr>
<th>HEALTH</th>
<th>1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fire</td>
<td>1</td>
</tr>
<tr>
<td>Reactivity</td>
<td>1</td>
</tr>
</tbody>
</table>

**GHS label elements**
Void

4 **First aid measures**

**After inhalation**
Supply fresh air. If required, provide artificial respiration. Keep patient warm. Seek immediate medical advice.

**After skin contact**
Immediately wash with water and soap and rinse thoroughly. Seek immediate medical advice.

**After eye contact**
Rinse opened eye for several minutes under running water. Then consult a doctor.

**After swallowing** Seek medical treatment.

5 **Fire fighting measures**

**Suitable extinguishing agents**
Carbon dioxide, extinguishing powder or water spray. Fight larger fires with water spray or alcohol resistant foam.

**Special hazards caused by the material, its products of combustion or resulting gases:**
In case of fire, the following can be released:
- Carbon monoxide and carbon dioxide
- Sodium oxide

**Protective equipment:**
- Wear self-contained respirator.
- Wear fully protective impervious suit.

6 **Accidental release measures**

**Person-related safety precautions:**
Wear protective equipment. Keep unprotected persons away.
Ensure adequate ventilation

(Contd. on page 2)
Product name: Sodium hydrogen carbonate

Measures for environmental protection:
Do not allow material to be released to the environment without proper governmental permits.

Measures for cleaning/collecting: Pick up mechanically.

Additional information:
See Section 7 for information on safe handling
See Section 8 for information on personal protection equipment.
See Section 13 for disposal information.

7 Handling and storage

Handling
Information for safe handling:
Keep container tightly sealed.
Store in cool, dry place in tightly closed containers.
No special precautions are necessary if used correctly.

Information about protection against explosions and fires: Keep ignition sources away.

Storage
Requirements to be met by storerooms and receptacles: No special requirements.

Further information about storage conditions:
Keep container tightly sealed.
Store in cool, dry conditions in well sealed containers.

8 Exposure controls and personal protection

Additional information about design of technical systems:
Properly operating chemical fume hood designed for hazardous chemicals and having an average
face velocity of at least 100 feet per minute.

Components with limit values that require monitoring at the workplace: Not required.

Additional information: No data

Personal protective equipment
General protective and hygienic measures
The usual precautionary measures for handling chemicals should be followed.
Keep away from foodstuffs, beverages and feed.
Remove all soiled and contaminated clothing immediately.
Wash hands before breaks and at the end of work.

Breathing equipment: Use suitable respirator when high concentrations are present.

Protection of hands:
Impervious gloves
Check protective gloves prior to each use for their proper condition.

Material of gloves
The selection of suitable gloves not only depends on the material, but also on quality.
Quality will vary from manufacturer to manufacturer.

Eye protection: Safety glasses

Body protection: Protective work clothing.

9 Physical and chemical properties:

<table>
<thead>
<tr>
<th>General Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>Form: Powder</td>
</tr>
<tr>
<td>Color: White</td>
</tr>
<tr>
<td>Odor: Odorless</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Change in condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Melting point/Melting range: 170°C (338°F)</td>
</tr>
<tr>
<td>Boiling point/Boiling range: Not determined</td>
</tr>
<tr>
<td>Sublimation temperature / start: Not determined</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Flash point:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not applicable</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Ignition temperature:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not determined</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Decomposition temperature:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not determined</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Danger of explosion:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Product does not present an explosion hazard.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Explosion limits:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lower: Not determined</td>
</tr>
<tr>
<td>Upper: Not determined</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Vapor pressure:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not determined</td>
</tr>
</tbody>
</table>

(Contd. on page 3)
Material Safety Data Sheet
acc. to OSHA and ANSI

Printing date 09/02/2009
Reviewed on 09/01/2009

Product name: Sodium hydrogen carbonate

Density at 20°C (68°F): 2.159 g/cm³

10 Stability and reactivity

Thermal decomposition / conditions to be avoided:
Decomposition will not occur if used and stored according to specifications.

Materials to be avoided: Oxidizing agents

Dangerous reactions: No dangerous reactions known

Dangerous products of decomposition:
Carbon monoxide and carbon dioxide
Sodium oxide

11 Toxicological information

Acute toxicity:

<table>
<thead>
<tr>
<th>LD50 values that are relevant for classification:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oral</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>Irritation of skin</td>
</tr>
<tr>
<td>Irritation of eyes</td>
</tr>
<tr>
<td>30 mg/3D-I (human)</td>
</tr>
<tr>
<td>100 mg/4S (rabbit)</td>
</tr>
</tbody>
</table>

Primary irritant effect:
- on the skin: May cause irritation
- on the eye: May cause irritation

Sensitization: No sensitizing effects known.

Other information (about experimental toxicology):
- Reproductive effects have been observed on tests with laboratory animals.
- Mutagenic effects have been observed on tests with laboratory animals.

Subacute to chronic toxicity:

- The Registry of Toxic Effects of Chemical Substances (RTECS) reports the following effects in laboratory animals:
  - Lungs, Thorax, or Respiration - other changes.
  - Kidney, Ureter, Bladder - urine volume increased.
  - Nutritional and Gross Metabolic - changes in sodium.
  - Nutritional and Gross Metabolic - changes in potassium.
  - Nutritional and Gross Metabolic - metabolic acidosis.
  - Cardiac - other changes.
  - Gastrointestinal - nausea or vomiting.
  - Blood - changes in serum composition (e.g. TP, bilirubin, cholesterol).
  - Reproductive - Specific Developmental Abnormalities - other developmental abnormalities.

Additional toxicological information:
To the best of our knowledge the acute and chronic toxicity of this substance is not fully known.
No classification data on carcinogenic properties of this material is available from the EPA, IARC, NTP, OSHA or ACGIH.

12 Ecological information:

General notes:
- Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.
- Do not allow material to be released to the environment without proper governmental permits.

13 Disposal considerations

Product:
Recommendation: Consult state, local or national regulations to ensure proper disposal.

Uncleaned packagings:
Recommendation: Disposal must be made according to official regulations.

14 Transport information

Not a hazardous material for transportation.

DOT regulations:
Hazard class: None

(Contd. on page 4) USA
Product name: Sodium hydrogen carbonate

Land transport ADR/RID (cross-border)
ADR/RID class: None

Maritime transport IMDG:
IMDG Class: None
Marine pollutant: No

Air transport ICAO-TI and IATA-DGR:
ICAO/IATA Class: None

Transport/Additional information: Not dangerous according to the above specifications.

15 Regulations
Product related hazard informations:
Observe the general safety regulations when handling chemicals
National regulations
All components of this product are listed in the U.S. Environmental Protection Agency Toxic Substances Control Act Chemical substance Inventory.
All components of this product are listed on the Canadian Domestic Substances List (DSL).

Information about limitation of use: For use only by technically qualified individuals.

16 Other information:
Employers should use this information only as a supplement to other information gathered by them, and should make independent judgement of suitability of this information to ensure proper use and protect the health and safety of employees. This information is furnished without warranty, and any use of the product not in conformance with this Material Safety Data Sheet, or in combination with any other product or process, is the responsibility of the user.

Department issuing MSDS: Health, Safety and Environmental Department.
Contact: Zachariah Holt

Abbreviations and acronyms:
ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)
RID: Règlement international concernant le transport des marchandises dangereuses par chemin de fer (Regulations Concerning the International Transport of Dangerous Goods by Rail)
IMDG: International Maritime Code for Dangerous Goods
DOT: US Department of Transportation
IATA: International Air Transport Association
IATA-DGR: Dangerous Goods Regulations by the "International Air Transport Association" (IATA)
ICAO: International Civil Aviation Organisation
ICAO-TI: Technical Instructions by the "International Civil Aviation Organization" (ICAO)
EINECS: European Inventory of Existing Commercial Chemical Substances
HMIS: Hazardous Materials Identification System (USA)
LC50: Lethal concentration, 50 percent
LD50: Lethal dose, 50 percent