SAFETY DATA SHEET
North American Version

SODIUM BICARBONATE

1. PRODUCT AND COMPANY IDENTIFICATION

1.1. Identification of the substance or preparation

Product name	:	SODIUM BICARBONATE
Product grade(s)	:	USP Grade 1 USP Grade 1 TFF Animal Feed Technical Grade 1 Technical Grade 5 Coarse Industrial Grade USP Grade 2 USP Grade 5 BICAR® Z / TEC
Chemical Name	:	Sodium hydrogencarbonate
Synonyms	:	Bicar, Sodium bicarb
Molecular formula	:	NaHCO3
Molecular Weight	:	84.02 g/mol

1.2. Use of the Substance/Preparation

Recommended use	:	- Food/feedstuff additives - Detergent - Chemical industry - Glass industry - Foaming agents - Water treatment - Environmental protection - Purifying flue gas - Animal feed

1.3. Company/Undertaking Identification

Address	:	RESEARCH PRODUCTS, INC. P.O. BOX 705 THEODORE, AL. 36590 251-653-0030

1.4. Emergency and contact telephone numbers

Emergency telephone	:	**1 (800) 424-9300 CHEMTREC ® (USA & Canada)** **01-800-00-214-00 (MEX. REPUBLIC)**
Contact telephone number (product information):	:	**US: +1-800-765-8292 (Product information)** **US: +1-713-525-6500 (Product information)**

2. HAZARDS IDENTIFICATION

RESEARCH PRODUCTS, INC.
OF ALABAMA
P.O. BOX 705
6311 HIGHWAY 90 WEST
THEODORE, ALABAMA 36590
OFF. (205) 653-0030
FAX (205) 653-0036

2.1. Emergency Overview:

NFPA	:	H= 0 F= 0 I= 0 S= None
HMIS	:	H= 0 F= 0 R= 0 PPE = Supplied by User, dependent on local conditions

General Information

Appearance	:	crystalline, powder
Colour	:	white
Odour	:	odourless

2.2. Potential Health Effects:

Inhalation
- Mechanical irritation from the particulates generated by the product.

Eye contact
- Mechanical irritation from the particulates generated by the product.

Skin contact
- Mechanical irritation from the particulates generated by the product.

Ingestion
- Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhoea.

Other toxicity effects
- See section 11: Toxicological Information

2.3. Environmental Effects:
- See section 12: Ecological Information

3. COMPOSITION/INFORMATION ON INGREDIENTS

Sodium bicarbonate

CAS-No.	:	144-55-8
Concentration	:	>= 99.0 %

4. FIRST AID MEASURES

4.1. Inhalation
- Remove the subject from dusty environment and let him blow his nose.

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

4.3. Skin contact
- Wash off with plenty of water.

4.4. Ingestion
- If a large amount is swallowed, get medical attention.

If victim is conscious:
- If swallowed, rinse mouth with water (only if the person is conscious).

If victim is unconscious but breathing:
- not applicable

5. FIRE-FIGHTING MEASURES

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

5.2. Extinguishing media which shall not be used for safety reasons
- None.

5.3. Special exposure hazards in a fire
- Not combustible.

5.4. Hazardous decomposition products
- none

5.5. Special protective equipment for fire-fighters
- No special precautions required.

6. ACCIDENTAL RELEASE MEASURES

6.1. Personal precautions
- Refer to protective measures listed in sections 7 and 8.

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 for cleaning up
- Sweep up and shovel into suitable containers for disposal.
- Avoid dust formation.
- Keep in properly labelled containers.
- Keep in suitable, closed containers for disposal.
- Treat recovered material as described in the section "Disposal considerations".

7. HANDLING AND STORAGE

7.1. Handling
- Keep away from Incompatible products.

7.2. Storage
- Keep in a dry place.
- Store in original container.
- Keep container closed.
- Keep away from Incompatible products.

7.3. Packaging material
- Paper + PE.
- Polyethylene
- Polypropylene
- Woven plastic material + PE.

7.4. Other information
- Avoid dust formation.
- Refer to protective measures listed in sections 7 and 8.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1. Exposure Limit Values

Sodium bicarbonate

- SAEL (Solvay Acceptable Exposure Limit) 2007
  TWA = 10 mg/m3
- US. ACGIH Threshold Limit Values
  Remarks: none established

Sodium bicarbonate

- SAEL (Solvay Acceptable Exposure Limit) 2007
  TWA = 10 mg/m3
- US. ACGIH Threshold Limit Values
  Remarks: none established

Particles not otherwise specified (PNOS)

- US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000) 02 2006
  Permissible exposure limit = 5 mg/m3
  Remarks: respirable dust fraction, All inert or nuisance dusts, whether mineral, inorganic, or organic, not listed specifically by substance name are covered by the Particulates Not Otherwise Regulated (PNOR) limit which is the same as the inert or nuisance dust limit of Table Z-3.
- US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000) 02 2006
  Permissible exposure limit = 15 mg/m3
  Remarks: Total dust, All inert or nuisance dusts, whether mineral, inorganic, or organic, not listed specifically by substance name are covered by the Particulates Not Otherwise Regulated (PNOR) limit which is the same as the inert or nuisance dust limit of Table Z-3.
- US. OSHA Table Z-3 (29 CFR 1910.1000) 2000
  time weighted average = 15 millions of particles per cubic foot of air
  Remarks: respirable dust fraction
- US. OSHA Table Z-3 (29 CFR 1910.1000) 2000
  time weighted average = 50 millions of particles per cubic foot of air
  Remarks: Total dust
- US. OSHA Table Z-3 (29 CFR 1910.1000) 2000
  time weighted average = 5 mg/m3
  Remarks: respirable dust fraction
- US. OSHA Table Z-3 (29 CFR 1910.1000) 2000
  time weighted average = 15 mg/m3
  Remarks: Total dust
- US. OSHA Table Z-1-A (29 CFR 1910.1000) 1989
  time weighted average = 5 mg/m3
  Remarks: respirable dust fraction
- US. OSHA Table Z-1-A (29 CFR 1910.1000) 1989
  time weighted average = 15 mg/m3
  Remarks: Total dust
- US. ACGIH Threshold Limit Values 2008
  time weighted average = 10 mg/m3
  Remarks: Inhalable particles.

ACGIH® and TLV® are registered trademarks of the American Conference of Governmental Industrial Hygienists.
SAEL = Solvay Acceptable Exposure Limit, Time Weighted Average for 8 hour workdays. No Specific TLV STEL (Short Term Exposure Level) has been set. Excursions in exposure level may exceed 3 times the TLV TWA for no more than a total of 30 minutes during a workday and under no circumstances should they exceed 5 times the TLV TWA

8.2. Engineering controls

- Ensure adequate ventilation.
- Provide appropriate exhaust ventilation at places where dust is formed.
- Refer to protective measures listed in sections 7 and 8.
- Apply technical measures to comply with the occupational exposure limits.

8.3. Personal protective equipment

8.3.1. Respiratory protection

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

8.3.2. Hand protection

- Wear suitable gloves.

8.3.3. Eye protection

- Dust proof goggles, if dusty.

8.3.4. Skin and body protection

- None.

8.3.5. 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.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1. General Information

Appearance	:	crystalline, powder
Colour	:	white
Odour	:	odourless

9.2. Important health safety and environmental information

pH	:	8.6 *Concentration*: 52 g/l
Boiling point/boiling range	:	*Remarks*: not applicable, Thermal decomposition
Flash point	:	*Remarks*: not applicable
Flammability	:	*Lower explosion limit*: *Remarks*: The product is not flammable.
Explosive properties	:	*Explosion danger*: *Remarks*: Not explosive
Oxidizing properties	:	*Remarks*: Non oxidizer
Vapour pressure	:	*Remarks*: not applicable
Relative density / Density	:	2.22
Bulk density	: :	from 0.5 - 1.2 kg/dm3 from 31 - 75 lb/ft3
Solubility	: : : :	Water 96 g/l *Temperature*: 20 °C (68 °F) Other slightly soluble Alcohol
Partition coefficient: n-octanol/water	:	*Remarks*: not applicable

Viscosity	:	1.2 mPa.s
Vapour density	:	*Remarks*: not applicable

9.3. Other data

Melting point/range	:	*Remarks*: not applicable, Decomposition
Auto-flammability	:	*Remarks*: The product is not flammable.
Decomposition temperature	:	> 60 °C (140 °F)

10. STABILITY AND REACTIVITY

10.1. Stability

- Stable under recommended storage conditions.

10.2. Conditions to avoid

- none
- Keep at temperature not exceeding: 60 °C (140 °F)

10.3. Materials to avoid

- Acids

10.4. Hazardous decomposition products

- none

11. TOXICOLOGICAL INFORMATION

Toxicological data

Acute oral toxicity
- LD50, rat, > 4,000 mg/kg

Acute inhalation toxicity
- LC50, rat, > 4.74 mg/l

Acute dermal irritation/corrosion
- LD50, Remarks: no data available

Skin irritation
- rabbit, Mild skin irritation

Eye irritation
- rabbit, Mild eye irritation

Sensitisation
- no data available

Chronic toxicity
- no observed effect

Genetic toxicity in vitro
- Genotoxicity in vitro, Tests on bacterial or mammalian cell cultures did not show mutagenic effects.

Teratogenicity
- Oral route (gavage), 10 days, Various species, 330 mg/kg, Did not show teratogenic effects in animal experiments.

Remarks
- Health injuries are not known or expected under normal use.

12. ECOLOGICAL INFORMATION

12.1. Ecotoxicity effects

Acute toxicity

- Fishes, Oncorhynchus mykiss, LC50, 96 h, 7,700 mg/l
- Fishes, Oncorhynchus mykiss, NOEC, 96 h, 2,300 mg/l
- Fishes, Lepomis macrochirus, LC50, 96 h, 7,100 mg/l
- Fishes, Lepomis macrochirus, NOEC, 96 h, 5,200 mg/l
- Crustaceans, Daphnia magna, EC50, 48 h, 4,100 mg/l
- Crustaceans, Daphnia magna, NOEC, 48 h, 3,100 mg/l

12.2. Mobility

- Water, Soil/sediments
  Remarks: Solubility
- Water, Soil/sediments
  Remarks: Mobility

12.3. Persistence and degradability

Abiotic degradation

- Water, hydrolyses
  Result: acid/base equilibrium as a function of pH
  Degradation products: carbonic acid/bicarbonate/carbonate

Biodegradation

- Remarks: The methods for determining the biological degradability are not applicable to inorganic substances.

12.4. Bioaccumulative potential

- Result: not applicable

12.5. Other adverse effects

- no data available

12.6. Remarks

- Ecological injuries are not known or expected under normal use.

13. DISPOSAL CONSIDERATIONS

13.1. Waste from residues / unused products

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

13.2. Packaging treatment

- To avoid treatments, as far as possible, use dedicated containers.
- or
- Clean container with water.
- Dispose of rinse water in accordance with local and national regulations.
- The empty and clean containers are to be reused in conformity with regulations.
- or
- Must be incinerated in a suitable incineration plant holding a permit delivered by the competent authorities.

14. TRANSPORT INFORMATION

- Sea (IMO/IMDG)
- not regulated
- Air (ICAO/IATA)
- not regulated
- U.S. Dept of Transportation
- not regulated
- It is recommended that ERG Guide number 111 be used for all non-regulated material.
- Canadian Transportation of Dangerous Goods
- not regulated

15. REGULATORY INFORMATION

15.1. Inventory Information

Australian Inventory of Chemical Substances (AICS)	: -	In compliance with inventory.
Canadian Domestic Substances List (DSL)	: -	In compliance with inventory.
Korean Existing Chemicals List (ECL)	: -	In compliance with inventory.
EU list of existing chemical substances (EINECS)	: -	In compliance with inventory.
Japanese Existing and New Chemical Substances (MITI List) (ENCS)	: -	In compliance with inventory.
Inventory of Existing Chemical Substances (China) (IECS)	: -	In compliance with inventory.
Philippine Inventory of Chemicals and Chemical Substances (PICCS)	: -	In compliance with inventory.
Toxic Substance Control Act list (TSCA)	: -	In compliance with inventory.
New Zealand Inventory (In preparation) (NZ)	: -	All components on composite list considered for transfer.

15.2. Other regulations

US. EPA Emergency Planning and Community Right-To-Know Act (EPCRA) SARA Title III Section 302 Extremely Hazardous Substance (40 CFR 355, Appendix A)

- not regulated.

US. EPA Emergency Planning and Community Right-To-Know Act (EPCRA) SARA Title III Section 313 Toxic Chemicals (40 CFR 372.65) - Supplier Notification Required

- not regulated.

US. EPA CERCLA Hazardous Substances (40 CFR 302)

- not regulated.

US. New Jersey Worker and Community Right-to-Know Act (New Jersey Statute Annotated Section 34:5A-5)
- not regulated.

US. Pennsylvania Worker and Community Right-to-Know Law (34 Pa. Code Chap. 301-323)
- not regulated.

US. California Safe Drinking Water & Toxic Enforcement Act (Proposition 65)
- This product does not contain any chemicals known to State of California to cause cancer, birth, or any other reproductive defects.

15.3. **Classification and labelling**

Canada. Canadian Environmental Protection Act (CEPA). WHMIS Ingredient Disclosure List (Can. Gaz., Part II, Vol. 122, No. 2)
- Not listed

Remarks: This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all the information required by the Controlled Products Regulations.

EC Label
- Not classified according to Directive 67/548/EEC.

16. OTHER INFORMATION

Ratings :

NFPA (National Fire Protection Association)
Health = 0 Flammability = 0 Instability = 0 Special =None

HMIS (Hazardous Material Information System)
Health = 0 Fire = 0 Reactivity = 0 PPE : Supplied by User; dependent on local conditions

Further information
- System maintenance
- Distribute new edition to clients

Material Safety Data Sheets contain country specific regulatory information; therefore, the MSDS's provided are for use only by customers of the company mentioned in section 1 in North America. If you are located in a country other than Canada, Mexico or the United States, please contact the Solvay Group company in your country for MSDS information applicable to your location. The previous information is based upon our current knowledge and experience of our product and is not exhaustive. It applies to the product as defined by the specifications. In case of combinations or mixtures, one must confirm that no new hazards are likely to exist. In any case, the user is not exempt from observing all legal, administrative and regulatory procedures relating to the product, personal hygiene, and integrity of the work environment. (Unless noted to the contrary, the technical information applies only to pure product). To our actual knowledge, the information contained herein is accurate as of the date of this document. However, neither the company mentioned in section 1 nor any of its affiliates makes any warranty, express or implied, including merchantability or fitness for use, or accepts any liability in connection with this information or its use. This information is for use by technically skilled persons at their own discretion and risk and does not relate to the use of this product in combination with any other substance or any other process. This is not a license under any patent or other proprietary right. The user alone must finally determine suitability of any information or material for any contemplated use, the manner of use and whether any patents are infringed. This information gives typical properties only and is not to be used for

specification purposes. The company mentioned in section 1 reserves the right to make additions, deletions or modifications to the information at any time without prior notification. Trademarks and/or other products of the company mentioned in section 1 referenced herein are either trademarks or registered trademarks of the company mentioned in section 1 or its affiliates, unless otherwise indicated.