SIGMA-ALDRICH

Material Safety Data Sheet

Version 3.0 Revision Date 07/14/2007 Print Date 09/17/2007

1. PRODUCT AND COMPANY IDENTIFICATION

Product name

: Potassium bromide

Product Number

: 221864

Brand

: Sigma-Aldrich

Company

: Sigma-Aldrich

3050 Spruce Street SAINT LOUIS MO 63103

USA

Telephone

: +1 800-325-5832

Fax

+1 800-325-5052

Emergency Phone #

(314) 776-6555

2. COMPOSITION/INFORMATION ON INGREDIENTS

Formula

: KBr

Molecular Weight

: 119.01 g/mol

CAS-No.	EC-No.	Index-No.	Concentration [%]
Potassium bromide			
7758-02-3	231-830-3		

3. HAZARDS IDENTIFICATION

Emergency Overview

OSHA Hazards

Delayed target organ effects

Irritant

Target Organs

Central nervous system, Eyes

HMIS Classification

Health Hazard: 2

Chronic Health Hazard: *

Flammability: 0
Physical hazards: 0

NFPA Rating

Health Hazard: 2

Fire: 0

Reactivity Hazard: 0

Potential Health Effects

Inhalation Skin May be harmful if inhaled. May cause respiratory tract irritation. May be harmful if absorbed through skin. May cause skin irritation.

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Page 1 of 5

Eyes Ingestion May cause eye irritation. May be harmful if swallowed.

4. FIRST AID MEASURES

General advice

Consult a physician. Show this safety data sheet to the doctor in attendance. Move out of dangerous area.

If breathed in, move person into fresh air. If not breathing give artificial respiration Consult a physician.

In case of skin contact

Wash off with soap and plenty of water. Consult a physician.

In case of eye contact

Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.

If swallowed

Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

5. FIRE-FIGHTING MEASURES

Flammable properties

Flash point

no data available

Ignition temperature

no data available

Suitable extinguishing media

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

Special protective equipment for fire-fighters

Wear self contained breathing apparatus for fire fighting if necessary.

Further information

The product itself does not burn.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions

Use personal protective equipment. Avoid dust formation. Avoid breathing dust. Ensure adequate ventilation.

Environmental precautions

Do not let product enter drains.

Methods for cleaning up

Pick up and arrange disposal without creating dust. Keep in suitable, closed containers for disposal.

7. HANDLING AND STORAGE

Handling

Avoid contact with skin and eyes. Avoid formation of dust and aerosols.

Provide appropriate exhaust ventilation at places where dust is formed.

Storage

Keep container tightly closed in a dry and well-ventilated place.

hygroscopic

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Contains no substances with occupational exposure limit values.

Personal protective equipment

Respiratory protection

Where risk assessment shows air-purifying respirators are appropriate use a dust mask type N95 (US) or type P1 (EN 143) respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Hand protection

Handle with gloves.

Eve protection

Safety glasses

Skin and body protection

Choose body protection according to the amount and concentration of the dangerous substance at the work place.

Hygiene measures

Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance

Form

solid

Colour

no data available

Safety data

pΗ

5.0 - 6 at 119 g/l at 25 °C (77 °F)

Melting point

734 °C (1,353 °F)

Boiling point

1,435 °C (2,615 °F)

Flash point

no data available

Ignition temperature

no data available

Lower explosion limit

no data available

Upper explosion limit

no data available

Vapour pressure

< 0.01 hPa (< 0.01 mmHg) at 20 °C (68 °F)

1 hPa (1 mmHg) at 795 °C (1,463 °F)

Density

2.750 g/cm3

Water solubility

119 g/l at 20 °C (68 °F) - completely soluble

10. STABILITY AND REACTIVITY

Storage stability

Stable under recommended storage conditions.

Conditions to avoid

Exposure to moisture.

Materials to avoid

Strong oxidizing agents, Strong acids, Heavy metal salts, Aluminum, Potassium

Hazardous decomposition products

Hazardous decomposition products formed under fire conditions.

Hydrogen bromide gas, Potassium oxides

11. TOXICOLOGICAL INFORMATION

Acute toxicity

LD50 Oral - rat - 3,070 mg/kg

Remarks: Sense Organs and Special Senses (Nose, Eye, Ear, and Taste):Olfaction:Other changes.

Behavioral:Somnolence (general depressed activity). Behavioral:Ataxia.

Irritation and corrosion

no data available

Sensitisation

no data available

Chronic exposure

Laboratory experiments have shown mutagenic effects.

Signs and Symptoms of Exposure

To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

Potential Health Effects

Inhalation

May be harmful if inhaled. May cause respiratory tract irritation.

Skin Eyes May be harmful if absorbed through skin. May cause skin irritation. May cause eye irritation.

Ingestion

May be harmful if swallowed.

Target Organs

Central nervous system, Eyes,

12. ECOLOGICAL INFORMATION

Elimination information (persistence and degradability)

no data available

Ecotoxicity effects

Toxicity to fish

LC50 - Pimephales promelas (fathead minnow) - > 30 mg/l - 96 h

Further information on ecology

no data available

13. DISPOSAL CONSIDERATIONS

Product

Observe all federal, state, and local environmental regulations. Contact a licensed professional waste disposal service to dispose of this material.

Contaminated packaging

Dispose of as unused product.

14. TRANSPORT INFORMATION

DOT (US)

Not dangerous goods

IMDG

Not dangerous goods

IATA

Not dangerous goods

15. REGULATORY INFORMATION

OSHA Hazards

Delayed target organ effects, Irritant

TSCA Status

On TSCA Inventory

DSL Status

All components of this product are on the Canadian DSL list.

SARA 302 Components

SARA 302: No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components

SARA 313: This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

SARA 311/312 Hazards

Acute Health Hazard, Chronic Health Hazard

Massachusetts Right To Know Components

No Components Listed

Pennsylvania Right To Know Components

CAS-No.

Revision Date

Potassium bromide

7758-02-3

New Jersey Right To Know Components

CAS-No.

Revision Date

Potassium bromide

7758-02-3

California Prop. 65 Components

This product does not contain any chemicals known to State of California to cause cancer, birth, or any other reproductive defects.

16. OTHER INFORMATION

Further information

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MATERIAL SAFETY DATA SHEET

Date Printed: 11/19/2007 Date Updated: 08/30/2007

Version 1.7

Section 1 - Product and Company Information

Product Name

POLYSTYRENE STANDARD, FOR GPC, TYPICAL

MW 50,000

Product Number

330345

Brand

ALDRICH

Company Address Sigma-Aldrich

3050 Spruce Street SAINT LOUIS MO 63103 US

Technical Phone:

800-325-5832

Fax:

800-325-5052

Emergency Phone:

314-776-6555

Section 2 - Composition/Information on Ingredient

Substance Name STYRENE POLYMERS CAS # 9003-53-6 SARA 313

Synonyms

3A * A 3-80 * Afcolene * Afcolene 666 * Afcolene S 100 * Atactic polystyrene * Bactolatex * Bakelite SMD 3500 * BASF III * BDH 29-790 * Bextrene XL 750 * Bicolastic A 75 * Bicolene H * Bio-Beads S-S 2 * BP-Klp * BSB-S 40 * BSB-S-E * Bustren * Bustren K 500 * Bustren K 525-19 * Bustren U 825 * Bustren U 825E11 * Bustren Y 825 * Bustren Y 3532 * Cadco 0115 * Carinex GP * Carinex HR * Carinex HRM * Carinex SB 59 * Carinex SB 61 * Carinex SL 273 * Carinex tgx/MF * Copal Z * Cosden 550 * Cosden 945E * Denka QP3 * Diarex 43G * Diarex HF 55 * Diarex HF 77 * Diarex HF 55-247 * Diarex HS 77 * Diarex HT 88 * Diarex HT 90 * Diarex HT 190 * Diarex HT 500 * Diarex HT 88A * Diarex YH 476 * Dorvon * Dorvon FR 100 * Dow 360 * Dow 456 * Dow 665 * Dow 860 * Dow 1683 * Dow MX 5514 * Dow MX 5516 * Dylark 250 * Dylene * Dylene 8 * Dylene 9 * Dylene 8G * Dylite F 40 * Dylite F 40L * 686E * Edistir RB * Esbrite * Esbrite 2 * Esbrite 4 * Esbrite 4-62 * Esbrite 8 * Esbrite G 10 * Esbrite G-P 2 * Esbrite 500HM * Esbrite LBL * Escorez 7404 * Estyrene 4-62 * Estyrene G 15 * Estyrene G 20 * Estyrene G-P 4 * Estyrene H 61 * Estyrene 500SH * FC-MY 5450 * FG 834 * Foster grant 834 * Gedex * 454H * HF 10 * HF 55 * HF 77 * HH 102 * HHI 11 * HI-Styrol * Hostyren N * Hostyren N 4000 * Hostyren N 7001 * Hostyren N 4000V * Hostyren S * HT 88 * HT 91-1 * HT 88A * HT-F 76 * IT $4\hat{0}$ * K 525 * KB (Polymer) * KM (Polymer) * Koplen 2 * KR 2537 * Krasten 1.4 * Krasten 052 * Krasten SB * Lacqren 506 * Lacqren 550 * LS 061A

RTECS Number:

WL6475000

HMIS RATING

HEALTH: 0

FLAMMABILITY: 0 REACTIVITY: 0

NFPA RATING

HEALTH: 0

FLAMMABILITY: 0 REACTIVITY: 0

For additional information on toxicity, please refer to Section 11.

Section 4 - First Aid Measures

ORAL EXPOSURE

If swallowed, wash out mouth with water provided person is conscious. Call a physician.

INHALATION EXPOSURE

If inhaled, remove to fresh air. If breathing becomes difficult, call a physician.

DERMAL EXPOSURE

In case of contact, immediately wash skin with soap and copious amounts of water.

EYE EXPOSURE

In case of contact with eyes, flush with copious amounts of water for at least 15 minutes. Assure adequate flushing by separating the eyelids with fingers. Call a physician.

Section 5 - Fire Fighting Measures

CONDITIONS OF FLAMMABILITY

Under fire conditions, material may decompose to form flammable and/or explosive mixtures in air.

FLASH POINT

N/A

AUTOIGNITION TEMP

N/A

FLAMMABILITY

N/A

EXTINGUISHING MEDIA

Suitable: Water spray. Carbon dioxide, dry chemical powder, or appropriate foam.

FIREFIGHTING

Protective Equipment: Wear self-contained breathing apparatus and protective clothing to prevent contact with skin and eyes. Specific Hazard(s): Emits toxic fumes under fire conditions.

Section 6 - Accidental Release Measures

PROCEDURE(S) OF PERSONAL PRECAUTION(S)

Exercise appropriate precautions to minimize direct contact with

skin or eyes and prevent inhalation of dust.

METHODS FOR CLEANING UP

Sweep up, place in a bag and hold for waste disposal. Avoid raising dust. Ventilate area and wash spill site after material pickup is complete.

Section 7 - Handling and Storage

HANDLING

User Exposure: Avoid inhalation. Avoid contact with eyes, skin, and clothing. Avoid prolonged or repeated exposure.

STORAGE

Suitable: Keep tightly closed.

Section 8 - Exposure Controls / PPE

ENGINEERING CONTROLS

Safety shower and eye bath. Mechanical exhaust required.

PERSONAL PROTECTIVE EQUIPMENT

Respiratory: Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU). Respiratory protection is not required. Where protection from nuisance levels of dusts are desired, use type N95 (US) or type P1 (EN 143) dust masks.

Hand: Protective gloves.

Eye: Chemical safety goggles.

GENERAL HYGIENE MEASURES

Wash thoroughly after handling.

Section 9 - Physical/Chemical Properties

section) inybicar, on				
Appearance	Physical State:	Solid		
Property	Value	At	Temperature	or Pressure
Molecular Weight pH BP/BP Range MP/MP Range Freezing Point Vapor Pressure Vapor Density Saturated Vapor Conc. SG/Density Bulk Density Odor Threshold Volatile% VOC Content Water Content Solvent Content Evaporation Rate Viscosity Surface Tension Partition Coefficient Decomposition Temp. Flash Point Explosion Limits	N/A			
Flammability	N/A			

N/AAutoignition Temp Refractive Index 1.5916 Optical Rotation N/AN/A Miscellaneous Data N/ASolubility

N/A = not available

Section 10 - Stability and Reactivity

STABILITY

Stable: Stable.

Materials to Avoid: Strong oxidizing agents.

HAZARDOUS DECOMPOSITION PRODUCTS

Hazardous Decomposition Products: Carbon monoxide, Carbon dioxide.

HAZARDOUS POLYMERIZATION

Hazardous Polymerization: Will not occur

Section 11 - Toxicological Information

ROUTE OF EXPOSURE

Skin Contact: May cause skin irritation.

Skin Absorption: May be harmful if absorbed through the skin.

Eye Contact: May cause eye irritation.

Inhalation: Material may be irritating to mucous membranes and

upper respiratory tract. May be harmful if inhaled.

Ingestion: May be harmful if swallowed.

SIGNS AND SYMPTOMS OF EXPOSURE

To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

CHRONIC EXPOSURE - CARCINOGEN

Result: This product is or contains a component that is not classifiable as to its carcinogenicity based on its IARC, ACGIH, NTP, or EPA classification.

Species: Rat

Route of Application: Implant

Dose: 19 MG/KG

Result: Tumorigenic: Equivocal tumorigenic agent by RTECS

criteria. Tumorigenic: Tumors at site or application.

IARC CARCINOGEN LIST

Rating: Group 3 Group 3

Rating: Group 3

Section 12 - Ecological Information

No data available.

Section 13 - Disposal Considerations

APPROPRIATE METHOD OF DISPOSAL OF SUBSTANCE OR PREPARATION Contact a licensed professional waste disposal service to dispose of this material. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber. Observe all federal, state, and local environmental regulations.

Section 14 - Transport Information

DOT

Proper Shipping Name: None

Non-Hazardous for Transport: This substance is considered to be non-hazardous for transport.

TATA

Non-Hazardous for Air Transport: Non-hazardous for air transport.

Section 15 - Regulatory Information

UNITED STATES REGULATORY INFORMATION

SARA LISTED: No

TSCA INVENTORY ITEM: Yes

CANADA REGULATORY INFORMATION

WHMIS Classification: This product has been classified in accordance with the hazard criteria of the CPR, and the MSDS contains all the information required by the CPR.

DSL: Yes

Section 16 - Other Information

DISCLAIMER

For R&D use only. Not for drug, household or other uses.

WARRANTY

The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Inc., shall not be held liable for any damage resulting from handling or from contact with the above product. See reverse side of invoice or packing slip for additional terms and conditions of sale. Copyright 2007 Sigma-Aldrich Co. License granted to make unlimited paper copies for internal use only.

MATERIAL SAFETY DATA SHEET



Date Issued: 12/01/2004 MSDS No: 5015 Date-Revised: 11/09/2007

Revision No: 1

Sorb-It®

1 PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME: Sorb-It® GENERAL USE: Desiccant

MANUFACTURER

Süd-Chemie Performance Packaging 101 Christine Drive Rio Grande Industrial Park Belen NM 87002

Service Number: 505-864-6691

24 HR. EMERGENCY TELEPHONE NUMBERS

CHEMTREC: (800) 424 - 9300 **Outside the U.S. Call Collect:** 001 (703) 527-3887

2. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW

PHYSICAL APPEARANCE: Performance packaging product, size and type vary.

IMMEDIATE CONCERNS: Poses little or no immediate hazard.

POTENTIAL HEALTH EFFECTS

EYES: Route of exposure unlikely. Dust may cause a mechnical irritation which can scratch the eye.

SKIN: No adverse effects expected.

INGESTION: Non-toxic by ingestion. Packets or canisters may pose a choking hazard. Do not swallow.

INHALATION: No adverse effects expected.

MEDICAL CONDITIONS AGGRAVATED: None

ROUTES OF ENTRY: Ingestion, skin
TARGET ORGAN STATEMENT: None

3. COMPOSITION / INFORMATION ON INGREDIENTS

INGREDIENT(S)	CAS	% BY WEIGHT
Pouch, Bag, Canister, Stopper or Cap		1 - 75
Silica Gel	63231-67-4	25 - 99

See Section 8 for Exposure Limits

4. FIRST AID MEASURES

EYES: Do not rub eyes. Flush with lukewarm, gently flowing water for 5 minutes or until the particle/dust is

removed, while holding the eyelid(s) open. Obtain medical attention.

SKIN: Wash with soap and water.

INGESTION: Normally not needed. If whole canisters are ingested, seek medical attention.

INHALATION: Remove to fresh air. Seek medical attention if cough or other symptoms develop or persist.

5. FIRE FIGHTING MEASURES.

FLASHPOINT AND METHOD: Material is not flammable

EXTINGUISHING MEDIA: Use extinguishing agent applicable to surrounding fire.

FIRE FIGHTING PROCEDURES: As in any fire, wear self-contained breathing apparatus operated in pressuredemand mode, (NIOSH approved or equivalent) and full protective gear.

6: ACCIDENTAL RELEASE MEASURES AND MAN

SMALL SPILL: No special precautions required.

LARGE SPILL: With shovel or scoop, place material into appropriate container.

HANDLING AND STORAGE

GENERAL PROCEDURES: There are little or no health hazards associated with intact desiccant package. Do not cut, open or remove chemical agent from package.

HANDLING: Use of proper hygiene practices in the workplace is recommended.

STORAGE: Store in a dry area.

EXPOSU	RE G	UIDE	LINES

ARDOUS COMPONENTS (29 CFR19	10.1200)		
	EXPOSURE LIMITS			
	OSHA PEL		ACGIH TLV	
	ppm	mg/m³	ppm	mg/m³
TWA	[1]	[1]	[2]	[2]
		OSH ppm	OSHA PEL ppm mg/m³	PPM mg/m³ ppm

OSHA TABLE COMMENTS:

- 1. (80 mg/m3)/(%SiO2)
- 2. TLV® withdrawn

ENGINEERING CONTROLS: If user operations generate dust, fume or mist, use ventilation to keep exposure to airborne contaminants below the exposure limit.

PERSONAL PROTECTIVE EQUIPMENT

EYES AND FACE: Follow facility guidelines.

SKIN: Use of proper hygiene practices in the workplace is recommended.

RESPIRATORY: Good general ventilation should be sufficient to control airborne levels.

9 PHYSICALAND CHETICAL PROPERTIES

PHYSICAL STATE: Solid

ODOR: None

pH: Not Determined

PERCENT VOLATILE: None

SOLUBILITY IN WATER: Insoluble

10. STABILITY AND REACTIVITY

STABLE: Yes

HAZARDOUS POLYMERIZATION: No

11. TOXTCOLOGICAL INFORMATION AND THE SECOND PROPERTY OF THE P

ACUTE

ORAL LD₅₀:

Notes: Silica gels are very low in oral toxicity based on comparison to related forms of silica. No adverse effects have been observed in experimental animals following ingestion of any form of amorphous silica. (Silica. In: IARC Monographs on the evaluation of the carcinogenic risk of chemicals to humans. Volume 42. Silica and some silicates, International Agency for Research on Cancer, 1987. p. 39-143)

CARCINOGENICITY

ARCINOGENICITY	NTP Status	IARC Status	OSHA Status
Chemical Name	Not listed.	Not listed.	Not listed.
Silica Gel			

SENSITIZATION: Not sensitizing

12. ECOLOGICAL INFORMATION

ENVIRONMENTAL DATA: Low hazard for usual industrial or commercial handling.

CHEMICAL FATE INFORMATION: This material is of mineral origin. It is not biodegradable.

13. DISPOSAL CONSIDERATIONS

DISPOSAL METHOD: This product, if discarded as sold, is not a Federal RCRA hazardous waste. Processing, use or contamination of this product may change the waste management options. State and local disposal regulations may differ from federal disposal regulations.

14. TRANSPORT INFORMATION

DOT (DEPARTMENT OF TRANSPORTATION) PROPER SHIPPING NAME: Not regulated

15. REGULATORY INFORMATION

UNITED STATES

SARA TITLE III (SUPERFUND AMENDMENTS AND REAUTHORIZATION ACT)

FIRE: No PRESSURE GENERATING: No REACTIVITY: No ACUTE: No CHRONIC: No

313 REPORTABLE INGREDIENTS: Not listed.

CERCLA (COMPREHENSIVE RESPONSE, COMPENSATION, AND LIABILITY ACT)

CERCLA REGULATORY: Not listed.

TSCA (TOXIC SUBSTANCE CONTROL ACT)

TSCA STATUS: All components are listed on the TSCA Inventory or are excluded or exempt.

REGULATIONS

STATE REGULATIONS California

CALIFORNIA PROPOSITION 65: This product does not contain chemical(s) known to the state of California to cause cancer, birth defects, or reproductive harm.

RCRA STATUS: This product, if discarded as sold, is not a Federal RCRA hazardous waste. Processing, use or contamination of this product may change the waste management options. State and local disposal regulations may differ from federal disposal regulations.

CANADA

WHMIS HAZARD SYMBOL AND CLASSIFICATION

Uncontrolled product

WHMIS (WORKPLACE HAZARDOUS MATERIALS INFORMATION SYSTEM): This MSDS has been prepared according to the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all of the information required by the CPR.

CANADA INGREDIENT DISCLOSURE LIST: Does not contain chemicals listed on the Canadian Ingredient Disclosure List

CANADIAN ENVIRONMENTAL PROTECTION ACT: All ingredients are listed on the Canadian Domestic Substances List inventory.

EUROPEAN COMMUNITY

EEC LABEL SYMBOL AND CLASSIFICATION

Not classified as dangerous

16: OTHER INFORMATION

APPROVED BY: Prepared and approved by SHE Dept. Sud-Chemie Inc.

INFORMATION CONTACT: 502-634-7492

REVISION SUMMARY: Revision #: 1 This MSDS replaces the December 01, 2004 MSDS. Any changes in information are as follows: In Section 1 Prepared By In Section 2 Potential Health Effects - Inhalation Potential Health Effects - Ingestion Signs & Symptoms - Eyes Signs & Symptoms - Inhalation Medical Conditions Aggravated Routes of Entry Target Organs In Section 4 Firstaid - Ingestion In Section 9 (Group Field) for pH (Group Field) for Percent Volatile In Section 11 IARC NTP OSHA In Section 15 WHMIS Class Clean Air Act 40 CFR EEC Risk Phrase Codes In Section 16 HMIS Flammability HMIS Health HMIS Reactivity HMIS Ratings Notes NFPA Flammability NFPA Health NFPA Reactivity HMIS Health (chronic '*')

HMIS RATI	NG			
HEALTH:	*		0	
FLAMMABILITY:			1	
PHYSICAL HAZARD			0	
PERSONAL PROTEC	TIC	N:		



HMIS RATINGS NOTES: Personal Protection should be determined based on workplace conditions.

MANUFACTURER DISCLAIMER: The information presented herein is believed to be accurate but is not warranted. Recipients are advised to confirm in advance that the information is current, applicable and suitable to their circumstances.