

# PHOTOGRAPHERS' FORMULARY

## FORMULARY LOW CONTRAST PAPER DEVELOPER 120

Formulary Developer 120 is equivalent to the older Ansco 120. It is a soft, metol-based, paper developer and is most useful in portrait photography. In general, Developer 120 will print half-a-grade softer than indicated by the paper with only a minimal amount of contrast reduction. The print will have good blacks and neutral toners.

### CHEMICALS CONTAINED IN THIS KIT

Your kit will contain the following chemicals:

CHEMICAL	KIT SIZE	
	1 LITER	2 LITERS
Metol	12.3 g	24.6 g
Sodium Sulfite	36 g	72 g
Sodium Carbonate monohydrate	36 g	72 g
Potassium Bromide	1.8 g	3.6 g

### CHEMICAL SAFETY

All chemicals are dangerous and must be treated with respect. Please read the warning on each package.

Metol - some individuals become sensitized (develop allergic symptoms or rashes) when using Metol. If this should occur, discontinue use and call a physician.

The user assumes all risks upon accepting these chemicals. IF FOR ANY REASON YOU DO NOT WANT TO ASSUME ALL RISKS, PLEASE RETURN THE CHEMICALS FOR A FULL REFUND WITHIN THIRTY DAYS.

Please consult with local sewer and water authorities regarding proper disposal of darkroom chemicals in your area.

### MIXING THE STOCK SOLUTION

You will need a 1 liter (or 2 liter) storage bottle and a glass mixing bowl of the appropriate size.

CHEMICAL	KIT SIZE	
	1 LITER	2 LITERS
Distilled water (52°C/125°F)	750 ml	1500 ml
Metol	12.3 g	24.6 g
Sodium Sulfite	36 g	72 g
Sodium Carbonate monohydrate	36 g	72 g
Potassium Bromide	1.8 g	3.6 g
Distilled water (20°C/68°F)	1000 ml	2000 ml



10-0710

**MATERIAL SAFETY DATA SHEET  
(M. S. D. S.)**

**SECTION – I, CHEMICAL IDENTIFICATION**

NAME OF PRODUCT : METOL (p-METHYL AMINOPHENOL SULPHATE)  
CHEMICAL FORMULA :  $\text{HOC}_6\text{H}_4\text{NHCH}_3 \frac{1}{2} \text{H}_2\text{SO}_4$   
CAS NO. : 55-55-0

**SECTION – II, HAZARDS IDENTIFICATION**

- TOXIC BY INHALATION, IN CONTACT WITH SKIN AND IF SWALLOWED.
- IRRITATING TO EYES, RESPIRATORY SYSTEM AND SKIN.
- IN CASE OF ACCIDENT OR IF YOU FEEL UNWELL, SEEK MEDICAL ADVICE IMMEDIATELY (SHOW THE LABEL WHERE POSSIBLE).
- IN CASE OF CONTACT WITH EYES, RINSE IMMEDIATELY WITH PLENTY OF WATER AND SEEK MEDICAL ADVICE.
- WEAR SUITABLE PROTECTIVE CLOTHING, GLOVES AND EYE/FACE PROTECTION.

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### SECTION – III, FIRST-AID MEASURES

- IN CASE OF CONTACT, IMMEDIATELY FLUSH EYES WITH PLENTY AMOUNTS OF WATER FOR AT LEAST 15 MINUTES.
- IN CASE OF CONTACT, IMMEDIATELY WASH SKIN WITH SOAP AND COPIOUS AMOUNTS OF WATER.
- IF INHALED, REMOVE TO FRESH AIR. IF NOT BREATHING GIVE ARTIFICIAL RESPIRATION. IF BREATHING IS DIFFICULT, GIVE OXYGEN.
- IF SWALLOWED, WASH OUT MOUTH WITH WATER PROVIDED PERSON IS CONSCIOUS. CALL A PHYSICIAN.
- WASH CONTAMINATED CLOTHING BEFORE REUSE.

### SECTION – IV, FIRE FIGHTING MEASURES

- EXTINGUISHING MEDIA  
WATER SPRAY.  
CARBON DIOXIDE, DRY CHEMICAL POWDER OR APPROPRIATE FOAM.
- SPECIAL FIREFIGHTING PROCEDURES  
WEAR SELF-CONTAINED BREATHING APPARATUS AND PROTECTIVE CLOTHING TO PREVENT CONTACT WITH SKIN AND EYES.
- UNUSUAL FIRE AND EXPLOSIONS HAZARDS  
EMITS TOXIC FUMES UNDER FIRE CONDITIONS.

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### SECTION – V, ACCIDENTAL RELEASE MEASURES

- WEAR SELF-CONTAINED BREATHING APPARATUS, RUBBER BOOTS AND HEAVY RUBBER GLOVES.
- SWEEP UP, PLACE IN A BAG AND HOLD FOR WASTE DISPOSAL.
- VENTILATE AREA AND WASH SPILL SITE AFTER MATERIAL PICKUP IS COMPLETE.

### SECTION – VI, SAFE HANDLING / PERSONAL PROTECTION

- WEAR APPROPRIATE RESPIRATOR, CHEMICAL-RESISTANT GLOVES, SAFETY GOGGLES.
- SAFETY SHOWER AND EYE BATH.
- USE ONLY IN A CHEMICAL FUME HOOD.
- DO NOT BREATHE DUST.
- AVOID CONTACT WITH EYES, SKIN AND CLOTHING.
- AVOID PROLONGED OR REPEATED EXPOSURE.
- WASH THOROUGHLY AFTER HANDLING.
- TOXIC.
- IRRITANT.
- POSSIBLE SENSITIZER.
- KEEP TIGHTLY CLOSED.
- PROTECT FROM LIGHT.

### SECTION – VII, PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE AND ODOR	:	WHITE CRYSTALS, ODORLESS
PHYSICAL PROPERTIES		
MELTING POINT	:	260 <sup>0</sup> C (DEC)
AUTOIGNITION TEMPERATURE	:	531 <sup>0</sup> C

Continue on page....4

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## **SECTION -VIII, STABILITY AND REACTIVITY**

- INCOMPATIBILITIES  
ACIDS  
ACIDS CHLORIDES  
ACID ANHYDRIDES  
OXIDIZING AGENTS  
SENSITIVE TO LIGHT

- HAZARDOUS COMBUSTION OR DECOMPOSITION PRODUCTS

THERMAL DECOMPOSITION MAY PRODUCE CARBON MONOXIDE, CARBON DIOXIDE, AND NITROGEN OXIDES.  
SULFUR OXIDES.

## **SECTION -IX, TOXICOLOGICAL INFORMATION**

### **ACUTE EFFECTS**

- HARMFUL IF SWALLOWED, INHALED OR ABSORBED THROUGH SKIN.
- CAUSES EYE AND SKIN IRRITATION.
- MATERIAL IS IRRITATING TO MUCOUS MEMBRANES AND UPPER RESPIRATORY TRACT.
- PROLONGED OR REPEATED EXPOSURE MAY CAUSE ALLERGIC REACTIONS IN CERTAIN SENSITIVE INDIVIDUALS.
- TO THE BEST OF OUR KNOWLEDGE, THE CHEMICAL, PHYSICAL, AND TOXICOLOGICAL PROPERTIES HAVE NOT BEEN THOROUGHLY INVESTIGATED.

## **SECTION -X, OTHER INFORMATION**

The information submitted is based on our current knowledge and experience. In view of the many factors that may affect processing and application, these data do not relieve processor from the responsibility of carrying out their own tests and experiments, neither do they imply any legally binding assurance of certain properties or of suitability for a specific purpose. It is the responsibility of those to whom we supply our products to ensure that any proprietary rights and existing laws and legislation are observed.



THATCHER COMPANY MATERIAL SAFETY DATA SHEET

PRODUCT: SODIUM SULFITE, CATALYZED

Page 1 of 3

MSDS Date: December 2, 2003

Emergency Contact: 1-800-424-9300

SECTION I

PRODUCT NAME: Sodium Sulfite, Catalyzed

CHEMICAL NAME: Sodium Sulfite, catalyzed

CHEMICAL FAMILY: Inorganic Sulfite

SYNONYMS: B 501; Catalyzed Anhydrous Sodium Sulfite

FORMULA: Na<sub>2</sub>SO<sub>3</sub> + catalyst

DOT SHIPPING INFORMATION:

Not DOT Regulated

SECTION II - HAZARDOUS INGREDIENTS

This material contains no ingredients which are known by Thatcher Company to be hazardous unless listed below.

HAZARDOUS MATERIAL	CAS NUMBER	w/w %	EXPOSURE LIMITS IN AIR
Sodium Sulfite	7757-83-7		TLV = 5 mg/m <sup>3</sup>
Cobalt Sulfate (as Co)	10124-43-3		TLV = 0.05 mg/m <sup>3</sup> * PEL = 0.1 mg/m <sup>3</sup>

\*recommended

The specific identity of some ingredients may be withheld for confidential business purposes. However, all known potential health effects from exposure to these ingredients are being addressed.

SECTION III - PHYSICAL DATA

BOILING POINT (F): N/A

SPECIFIC GRAVITY: 2.633 @ 15.4 EC

VAPOR PRESSURE (mm Hg): N/A

% VOLATILE, BY VOLUME: N/A

VAPOR DENSITY (air = 1): N/A

EVAPORATION RATE: N/A

SOLUBILITY IN WATER: Soluble

APPEARANCE AND ODOR: White to pink crystals or powder with saline, sulfurous taste.

SECTION IV - FIRE AND EXPLOSION DATA

FLASH POINT: Nonflammable

FLAMMABLE LIMITS:

Lel: N/A Uel: N/A

EXTINGUISHING MEDIA:



THATCHER COMPANY MATERIAL SAFETY DATA SHEET  
PRODUCT: SODIUM SULFITE, CATALYZED  
Page 2 of 3

Use any.

**SPECIAL FIRE-FIGHTING PROCEDURES:**

Wear self-contained breathing apparatus if necessary.

**UNUSUAL FIRE AND EXPLOSION HAZARDS:**

When heated, catalyzed sodium sulfite decomposes and emits highly toxic fumes of sodium oxide and sulfur oxides.

**SECTION V - REACTIVITY DATA**

**STABILITY:** Stable

**HAZARDOUS POLYMERIZATION:** Will not occur.

**CONDITIONS OR MATERIALS TO AVOID:**

None.

**HAZARDOUS DECOMPOSITION PRODUCTS:**

When heated, catalyzed sodium sulfite decomposes and emits toxic fumes of sodium oxide and sulfur oxides.

**SECTION VI - HEALTH HAZARD DATA**

**CARCINOGENIC LISTING:**

NTP: No ingredients listed in this section.

IARC MONOGRAPHS: No ingredients listed in this section.

OSHA 29 CFR 1910: No ingredients listed in this section.

**ENTRY ROUTES & EFFECTS OF OVEREXPOSURE:**

**Contact:** Contact may irritate eyes.

**Ingestion:** If swallowed, can cause irritation of stomach, nausea and gas.

**STATEMENT OF PRACTICAL TREATMENT:**

**Contact:** Flush exposed area thoroughly with soap and water. For eyes, flush with cool water for at least 15 minutes. If irritation persists, get medical attention.

**Ingestion:** If swallowed, give several glasses of water and call a physician immediately.

**SECTION VII - SPECIAL PRECAUTIONS**





THATCHER COMPANY MATERIAL SAFETY DATA SHEET  
PRODUCT: SODIUM SULFITE, CATALYZED  
Page 3 of 3

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**HANDLING AND STORAGE PRECAUTIONS:**

Store in a cool, dry area .

**STEPS TO BE TAKEN IF MATERIAL SPILLS OR LEAKS:**

Wear proper safety equipment. Sweep up material and put into drums. Flush residue to sewer with large amounts of water (if permitted).

**WASTE DISPOSAL METHOD:**

Dispose of in landfill. Comply with all local, state and federal regulations.

**OTHER PRECAUTIONS:**

N/A

**SECTION VIII - SPECIAL PROTECTION INFORMATION**

**RESPIRATORY PROTECTION:**

Use dust mask as needed to avoid breathing dust.

**VENTILATION:**

Use adequate ventilation.

**EYE PROTECTION:**

Wear goggles or safety glasses.

**SKIN PROTECTION:**

Wear rubber gloves.

**OTHER PROTECTIVE EQUIPMENT:**

None required.

ACGIH = American Conference of Governmental Industrial Hygienists  
CL = Ceiling Level  
IARC = International Agency for Research on Cancer: Monographs  
OSHA = Occupational Safety and Health Administration  
N/A = Not Applicable  
NTP = National Toxicology Program: Annual Report on Carcinogens  
PEL = Permissible Exposure Level (OSHA)  
TLV = Threshold Limit Value (ACGIH)  
TWA = Time Weighted Average over 8 Hours  
STEL = Short Term Exposure Limit (ACGIH)  
ND = Not Determined

This information is, to the best of our knowledge, accurate but may not be complete. THATCHER COMPANY furnishes this information in good faith, but without warranty, representation or guarantee of its accuracy, completeness, or reliability.

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10-1190

# MATERIAL SAFETY DATA SHEET

## SODIUM CARBONATE MONOHYDRATE

### 1. Product Identification

**Synonyms:** Carbonic acid, disodium salt monohydrate; disodium carbonate monohydrate; Soda ash

**CAS No.:** 5968-11-6 (Anhydrous) 5968-11-6 (Monohydrate)

**Molecular Weight:** 124.00

**Chemical Formula:** Na<sub>2</sub>CO<sub>3</sub>.H<sub>2</sub>O

**Product Codes:** CANTON LABORATORIES : 47040, 67160, 57042

### 2. Composition/Information on Ingredients

Ingredient Hazardous	CAS No	Percent	
Sodium Carbonate	5968-11-6	99.5-100.5%	No

### 3. Hazards Identification

#### Emergency Overview

**DANGER! MAY CAUSE EYE BURNS. HARMFUL IF SWALLOWED OR INHALED. CAUSES IRRITATION TO SKIN AND RESPIRATORY TRACT.**

Health Rating: 1 - Slight

Flammability Rating: 0 - None

Reactivity Rating: 1 - Slight

Contact Rating: 2 - Moderate

Lab Protective Equip: GOGGLES; LAB COAT; VENT HOOD; PROPER GLOVES

Storage Color Code: Orange (General Storage)

#### Potential Health Effects

##### Inhalation:

Inhalation of dust may cause irritation to the respiratory tract. Symptoms from excessive inhalation of dust may include coughing and difficult breathing. Excessive contact is known to cause damage to the nasal septum.

##### Ingestion:

Sodium carbonate is only slightly toxic, but large doses may be corrosive to the

gastro-intestinal tract where symptoms may include severe abdominal pain, vomiting, diarrhea, collapse and death.

**Skin Contact:**

Excessive contact may cause irritation with blistering and redness. Solutions may cause severe irritation or burns.

**Eye Contact:**

Contact may be corrosive to eyes and cause conjunctival edema and corneal destruction. Risk of serious injury increases if eyes are kept tightly closed. Other symptoms may appear from absorption of sodium carbonate into the bloodstream via the eyes.

**Chronic Exposure:**

Prolonged or repeated skin exposure may cause sensitization.

## 4. First Aid Measures

**Inhalation:**

Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.

**Ingestion:**

If swallowed, DO NOT INDUCE VOMITING. Give large quantities of water. Never give anything by mouth to an unconscious person. Get medical attention immediately.

**Skin Contact:**

Immediately flush skin with plenty of soap and water for at least 15 minutes. Remove contaminated clothing and shoes. Get medical attention. Wash clothing before reuse. Thoroughly clean shoes before reuse.

**Eye Contact:**

Immediately flush eyes with plenty of water for at least 15 minutes, lifting lower and upper eyelids occasionally. Get medical attention immediately.

**Note to Physician:**

Consider endoscopy in all suspected cases of sodium carbonate poisoning. Perform blood analysis to determine if dehydration, acidosis, or other electrolyte imbalances occurred.

## 5. Fire Fighting Measures

**Fire:**

Not considered to be a fire hazard.

**Explosion:**

Not considered an explosion hazard, but sodium carbonate may explode when applied to red-hot aluminum.

**Fire Extinguishing Media:**

Use any means suitable for extinguishing surrounding fire.

**Special Information:**

Use protective clothing and breathing equipment appropriate for the surrounding fire.

## 6. Accidental Release Measures

Ventilate area of leak or spill. Wear appropriate personal protective equipment as specified in Section 8. Spills: Sweep up and containerize for reclamation or disposal. Vacuuming or wet sweeping may be used to avoid dust dispersal.

## 7. Handling and Storage

Keep in a tightly closed container, stored in a cool, dry, ventilated area. Protect against physical damage. Isolate from incompatible substances. Containers of this material may be hazardous when empty since they retain product residues (dust, solids); observe all warnings and precautions listed for the product.

## 8. Exposure Controls/Personal Protection

### **Airborne Exposure Limits:**

None established.

### **Ventilation System:**

A system of local and/or general exhaust is recommended to keep employee exposures as low as possible. Local exhaust ventilation is generally preferred because it can control the emissions of the contaminant at its source, preventing dispersion of it into the general work area. Please refer to the ACGIH document, *Industrial Ventilation, A Manual of Recommended Practices*, most recent edition, for details.

### **Personal Respirators (NIOSH Approved):**

For conditions of use where exposure to dust or mist is apparent and engineering controls are not feasible, a particulate respirator (NIOSH type N95 or better filters) may be worn. If oil particles (e.g. lubricants, cutting fluids, glycerine, etc.) are present, use a NIOSH type R or P filter. For emergencies or instances where the exposure levels are not known, use a full-face positive-pressure, air-supplied respirator. **WARNING:** Air-purifying respirators do not protect workers in oxygen-deficient atmospheres.

### **Skin Protection:**

Wear protective gloves and clean body-covering clothing.

### **Eye Protection:**

Use chemical safety goggles and/or full face shield where dusting or splashing of solutions is possible. Maintain eye wash fountain and quick-drench facilities in work area.

## 9. Physical and Chemical Properties

### **Appearance:**

White crystalline powder.

### **Odor:**

Odorless.

### **Solubility:**

30 g/100 ml water @ 60C (140F)

### **Density:**

2.25

**pH:**

Aqueous solutions are strongly alkaline.

**% Volatiles by volume @ 21C (70F):**

0

**Boiling Point:**

400C (752F)

**Melting Point:**

851C (1564F) Loses water at ca. 100C.

## 10. Stability and Reactivity

**Stability:**

Stable under ordinary conditions of use and storage.

**Hazardous Decomposition Products:**

Oxides of carbon and sodium oxide.

**Hazardous Polymerization:**

Will not occur.

**Incompatibilities:**

Fluorine, aluminum, phosphorous pentoxide, sulfuric acid, zinc, lithium, moisture, calcium hydroxide and 2,4,6-trinitrotoluene. Reacts violently with acids to form carbon dioxide.

**Conditions to Avoid:**

Moisture, heat, dusting and incompatibles.

## 11. Toxicological Information

For anhydrous sodium carbonate: Oral rat LD50: 4090 mg/kg; inhalation rat LC50: 2300 mg/m<sup>3</sup>/2H; irritation eye rabbit: 50 mg severe; investigated as a mutagen, reproductive effector.

Ingredient Category	-----\Cancer Lists\-----		
	---NTP Carcinogen---		IARC
	Known	Anticipated	
Sodium Carbonate (5968-11-6)	No	No	None

## 12. Disposal Considerations

Whatever cannot be saved for recovery or recycling should be managed in an appropriate and approved waste disposal facility. Processing, use or contamination of this product may change the waste management options. State and local disposal regulations may differ from federal disposal regulations. Dispose of container and unused contents in accordance with federal, state and local requirements.

## 13. Transport Information

Not regulated.

## 14. Regulatory Information

-----\Chemical Inventory Status - Part 1\-----				
Ingredient	TSCA	EC	Japan	
Australia				
Sodium Carbonate (5968-11-6)	Yes	Yes	Yes	Yes

-----\Chemical Inventory Status - Part 2\-----				
Ingredient	Korea	DSL	NDSL	Phil.
Sodium Carbonate (5968-11-6)	Yes	Yes	No	Yes

-----\Federal, State & International Regulations - Part 1\-----				
Ingredient	-SARA 302-		-SARA 313-	
	RQ	TPQ	List	Chemical
Catg.				
Sodium Carbonate (5968-11-6)	No	No	No	No

-----\Federal, State & International Regulations - Part 2\-----			
Ingredient	CERCLA	-RCRA-	-TSCA-
Sodium Carbonate (5968-11-6)	No	261.33	B(d)

Chemical Weapons Convention: No      TSCA 12(b): No      CDTA: No  
 SARA 311/312: Acute: Yes      Chronic: No      Fire: No      Pressure: No  
 Reactivity: No      (Pure / Solid)

**Poison Schedule: S5**

**WHMIS:**

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.

## 15. Other Information

**NFPA Ratings:** Health: 2 Flammability: 0 Reactivity: 0

**Label Hazard Warning:**

**DANGER! MAY CAUSE EYE BURNS. HARMFUL IF SWALLOWED OR INHALED. CAUSES IRRITATION TO SKIN AND RESPIRATORY TRACT.**

**Label Precautions:**

Do not get in eyes.

Avoid breathing dust.

Keep container closed.

Use with adequate ventilation.

Wash thoroughly after handling.

**Label First Aid:**

In case of contact, immediately flush eyes or skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Wash clothing before reuse. If swallowed, DO NOT INDUCE VOMITING. Give large

quantities of water. Never give anything by mouth to an unconscious person. If inhaled, remove to fresh air. Get medical attention for any breathing difficulty. In all cases, get medical attention.

**Product Use:**

Laboratory Reagent.

**Prepared by: CANTON LABORATORIES**

Phone Number: (+91) 265 643119/638001 (INDIA)



REPORT NUMBER: 703  
MSDS NO: P21725VS  
MAINFRAME UPLOAD DATE: 07/16/04

UNIVAR USA INC.  
MATERIAL SAFETY DATA SHEET

PAGE: 001  
VERSION: 003

PRODUCT: POTASSIUM BROMIDE

ORDER NO: 226085  
PROD NO : 614395

PHOTOGRAPHERS FORMULARY  
CALL IN ADVANCE TO MEET  
7079 HWY 83 N.  
BOX 89  
CONDON ,MT 59826

UNIVAR USA INC.  
6100 CARILLON POINT , KIRKLAND

(425)889-3400  
, WA 98033

----- EMERGENCY ASSISTANCE -----

FOR EMERGENCY ASSISTANCE INVOLVING CHEMICALS CALL - CHEMTREC  
(800)424-9300

\*\*\*\*\*  
PRODUCT IDENTIFICATION  
\*\*\*\*\*

PRODUCT NAME: POTASSIUM BROMIDE  
MSDS NUMBER: P21725VS  
DATE ISSUED: 11/19/02  
SUPERCEDES: NEW  
ISSUED BY: 006137  
REVIEWED DATE: 07/16/2004  
THIS MSDS HAS BEEN REVIEWED ON 07/16/2004, AND IS  
CURRENT AS OF THE DATE ISSUED ABOVE.

MATERIAL SAFETY DATA SHEET

I. IDENTIFICATION OF THE SUBSTANCE & THE COMPANY

CHEMICAL NAME POTASSIUM BROMIDE  
CHEMICAL FORMULA KBR  
MOLECULAR WEIGHT 120.98

TYPE OF PRODUCT AND USE

PRODUCT: POTASSIUM BROMIDE

ORDER NO: 226085

PROD NO : 614395

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FOR USE IN PHOTOGRAPHIC EMULSIONS AND DEVELOPING SOLUTIONS  
HEAT STABILIZER IN NYLON  
BROMINATING AGENT

COMPANY BROMINE COMPOUNDS LTD.  
P.O.B 180, BEER SHEVA 84101, ISRAEL  
TEL +972-8-6297830

SUPPLIER AMERIBROM, INC.  
2115 LINWOOD AVENUE, FORT LEE, NEW JERSEY 07024-5004  
USA TEL: 201 242 6560

EMERGENCY TELEPHONE CHEMTREC (800)424-9300

## 2. COMPOSITION / INFORMATION ON INGREDIENTS

COMPONENTS	WEIGHT %	ACGIH-TLV DATA	OSHA (PEL) DATA
POTASSIUM BROMIDE 7758-02-3	99.5	NOT DETERMINED	NOT DETERMINED

## 3. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW WHITE, ODOURLESS, CRYSTALLINE SOLID  
IRRITANT TO EYES

### POTENTIAL HEALTH EFFECTS:

- EYE CONTACT IRRITANT
- SKIN CONTACT NOT IRRITANT TO INTACT SKIN. SLIGHTLY IRRITANT ON PROLONGED CONTACT TO ABRADED SKIN.
- INHALATION MAY CAUSE IRRITATION TO MUCOUS MEMBRANES AND UPPER RESPIRATORY TRACT.
- INGESTION MAY CAUSE FALLING ASLEEP, MUSCULAR INCOORDINATION AND RESPIRATORY DEPRESSION.

ABDOMINAL PAIN, NAUSEA AND VOMITING.

## 4. FIRST-AID MEASURES

EYE CONTACT HOLDING THE EYELIDS APART, FLUSH EYES PROMPTLY WITH COPIOUS FLOWING WATER FOR AT LEAST 20 MINUTES.

GET MEDICAL ATTENTION IMMEDIATELY.

SKIN CONTACT REMOVE CONTAMINATED CLOTHING. WASH SKIN THOROUGHLY WITH MILD SOAP AND PLENTY OF WATER FOR AT LEAST 15 MINUTES. WASH CLOTHING BEFORE RE-USE.

REPORT NUMBER: 703

UNIVAR USA INC.

PAGE: 003

MSDS NO: P21725VS

MATERIAL SAFETY DATA SHEET

MAINFRAME UPLOAD DATE: 07/16/04

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GET MEDICAL ATTENTION IF IRRITATION OCCURS.

INHALATION IN CASE OF DUST INHALATION OR BREATHING FUMES RELEASED FROM HEATED MATERIAL, REMOVE PERSON TO FRESH AIR.

KEEP HIM QUIET AND WARM. APPLY ARTIFICIAL RESPIRATION IF NECESSARY AND GET MEDICAL ATTENTION IMMEDIATELY.

INGESTION IF SWALLOWED, WASH MOUTH THOROUGHLY WITH PLENTY OF WATER AND GIVE WATER TO DRINK.

GET MEDICAL ATTENTION IMMEDIATELY.

NOTE: NEVER GIVE AN UNCONSCIOUS PERSON ANYTHING TO DRINK.

NOTES TO THE PHYSICIAN IN CASE OF INGESTION INDUCE VOMITING IN ALERT PATIENT. NO SPECIFIC ANTIDOTE. TREAT SYMPTOMATICALLY AND SUPPORTIVELY.

#### 5 FIRE-FIGHTING MEASURES

FLASH POINT NONE

FLAMMABLE/EXPLOSION LIMITS NOT FLAMMABLE

AUTO-IGNITION TEMPERATURE NOT APPLICABLE

SUITABLE EXTINGUISHING MEDIA MATERIAL IS NOT COMBUSTIBLE. USE EXTINGUISHING MEDIA APPROPRIATE TO SURROUNDING FIRE CONDITIONS.

#### FIRE FIGHTING PROCEDURE

COOL CONTAINERS WITH WATER SPRAY. IN CLOSED STORES, PROVIDE FIRE-FIGHTERS WITH SELF-CONTAINED BREATHING APPARATUS IN POSITIVE PRESSURE MODE.

#### UNUSUAL FIRE AND EXPLOSION

HAZARDS WILL DECOMPOSE FROM CA. 800 C RELEASING POISONOUS AND CORROSIVE FUMES OF HBR.

#### 6. ACCIDENTAL RELEASE MEASURES

PERSONAL PRECAUTIONS WEAR RESPIRATOR, CHEMICAL SAFETY GOGGLES, RUBBER GLOVES AND BOOTS.

METHODS FOR CLEANING UP SWEEP UP, PLACE IN A BAG AND HOLD FOR WASTE DISPOSAL OR POSSIBLE RE-USE.

AVOID RAISING DUST.

VENTILATE AREA AND WASH SPILL SITE AFTER MATERIAL PICKUP IS COMPLETE.

#### 7. HANDLING AND STORAGE

PRODUCT: POTASSIUM BROMIDE

ORDER NO: 226085

PROD NO : 614395

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HANDLING AVOID BODILY CONTACT.  
KEEP CONTAINERS TIGHTLY CLOSED.  
STORAGE HYGROSCOPIC. AVOID EXPOSURE TO MOISTURE.  
STORE IN A DRY, COOL, WELL-VENTILATED AREA AWAY FROM INCOMPATIBLE MATERIALS  
(SEE "MATERIALS TO AVOID").

#### 8. EXPOSURE CONTROLS / PERSONAL PROTECTION

VENTILATION REQUIREMENTS MECHANICAL EXHAUST REQUIRED.  
VENTILATION MUST BE SUFFICIENT TO MAINTAIN TLV-TWA BELOW 10 MG/M3 (ACGIH  
RECOMMENDATION FOR PARTICULATES (INSOLUBLE) NOT OTHERWISE SPECIFIED (PNOS)).

#### PERSONAL PROTECTIVE EQUIPMENT:

- RESPIRATORY PROTECTION DUST RESPIRATOR
- HAND PROTECTION PVC GLOVES RUBBER GLOVES
- EYE PROTECTION CHEMICAL SAFETY GOGGLES
- SKIN AND BODY PROTECTION BODY COVERING CLOTHES AND BOOTS

HYGIENE MEASURES SAFETY SHOWER AND EYE BATH SHOULD BE PROVIDED. DO NOT EAT,  
DRINK OR SMOKE UNTIL AFTER-WORK SHOWERING AND CHANGING CLOTHES.

#### 9. PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE	WHITE, ODOURLESS, CRYSTALLINE SOLID
MELTING POINT/RANGE	734 C
BOILING POINT/RANGE	1435 C
VAPOUR PRESSURE	1 MM HG AT 795 C
VAPOR DENSITY	NOT APPLICABLE UNDER STANDARD CONDITIONS
EVAPORATION RATE (ETHER=1)	NOT APPLICABLE UNDER STANDARD CONDITIONS

#### SOLUBILITY:

- SOLUBILITY IN WATER 65.5 G/100ML AT 20 C
- 102 GR/100ML AT 100 C
- SOLUBILITY IN OTHER SOLVENTS ALCOHOL: 0.142 G/1 00G AT 25 C

SPECIFIC GRAVITY 2.75  
DECOMPOSITION TEMPERATURE FROM CA. 800 C

#### 10. STABILITY AND REACTIVITY

STABILITY HYGROSCOPIC.  
STABLE UNDER NORMAL CONDITIONS  
MATERIALS TO AVOID STRONG OXIDANTS  
STRONG ACIDS  
HEAVY METAL SALTS  
REACTS EXPLOSIVELY WITH BROMINE TRIFLUORIDE  
CONDITIONS TO AVOID EXPOSURE TO MOISTURE  
HEATING ABOVE DECOMPOSITION TEMPERATURE

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HAZARDOUS DECOMPOSITION

PRODUCTS HBR

HAZARDOUS POLYMERIZATION WILL NOT OCCUR

11. TOXICOLOGICAL INFORMATION

ACUTE TOXICITY:

- RAT ORAL LD50 > 5000 MG/KG
- EYE IRRITATION (RABBIT) IRRITANT
- DERMAL IRRITATION (RABBIT) NOT IRRITANT

CHRONIC TOXICITY REPEATED SKIN CONTACT MAY CAUSE DERMATITIS.

REPEATED ORAL INTAKE OF BROMIDES (>9 MG/KG BODY WEIGHT/DAY) MAY AFFECT THE CENTRAL NERVOUS SYSTEM. WARNING SYMPTOMS INCLUDE MENTAL DULLNESS, SLURRED SPEECH, WEAKENED MEMORY, APATHY, ANOREXIA, CONSTIPATION, DROWSINESS AND LOSS OF SENSITIVITY TO TOUCH AND PAIN.

MUTAGENICITY NOT MUTAGENIC BY THE AMES TEST

CARCINOGENICITY NOT KNOWN TO BE A CARCINOGEN.

NOT CLASSIFIED BY IARC.

NOT INCLUDED IN NTP 9TH REPORT ON CARCINOGENS.

12. ECOLOGICAL INFORMATION

ENVIRONMENTAL FATE KBR IS AN INORGANIC SALT, WHICH FULLY DISSOCIATES IN AQUATIC ENVIRONMENT TO BROMIDE AND POTASSIUM IONS. IT ALSO UNDERGOES DEGRADATION IN SOIL TO BROMIDE ION (NO FURTHER DEGRADATION OR BIODEGRADATION WILL OCCUR).

AQUATIC TOXICITY:

- LC50, FISH 3200 MG/L, 5 DAYS (RAINBOW TROUT)
- 48 HOUR-EC50, DAPHNIA MAGNA >100 MG/L

AVIAN TOXICITY:

- ORAL LD50, BOBWHITE QUAIL >2500 MG/KG
- DIETARY LC50, BOBWHITE QUAIL 6000 PPM

BIOACCUMULATIVE POTENTIAL BIOACCUMULATION IS NOT LIKELY TO OCCUR SINCE THIS MATERIAL IS HIGHLY SOLUBLE IN WATER.

13. DISPOSAL CONSIDERATIONS

WASTE DISPOSAL ADD INTO A LARGE VESSEL CONTAINING WATER AND DRAIN INTO SEWER WITH AMPLE WATER. OBSERVE ALL FEDERAL, STATE AND LOCAL ENVIRONMENTAL REGULATIONS WHEN DISPOSING OF THIS MATERIAL.

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14. TRANSPORTATION INFORMATION

DOT NOT REGULATED  
IMO NOT REGULATED  
ICAO/IATA NOT REGULATED

## 15. REGULATORY INFORMATION

USA REPORTED IN THE EPA TSCA INVENTORY

CANADA LISTED IN DSL

EEC NO. 231-830-3

JAPAN LISTED IN MITI (1-108)

AUSTRALIA LISTED IN AICS

CHINA INVENTORY LISTED

SOUTH KOREA LISTED IN ECL (KE-29079)

SWITZERLAND GIFTKLASSE 3

PHILIPPINES LISTED IN PICCS

## 16. OTHER INFORMATION

THIS DATA SHEET CONTAINS CHANGES FROM THE PREVIOUS VERSION IN SECTION(S)  
8,15

THE HSE POLICY OF DEAD SEA BROMINE GROUP

DEAD SEA BROMINE GROUP (DSBG) IS THE WORLD'S LARGEST PRODUCER OF ELEMENTAL  
BROMINE AND A RECOGNIZED LEADER IN THE DEVELOPMENT AND SUPPLY OF BROMINE  
COMPOUNDS.

DSBG IS COMMITTED TO RESPONSIBLY MANAGE ITS PRODUCTS AT ALL STAGES OF THEIR  
LIFE CYCLE IN ORDER TO PROTECT HUMAN HEALTH AND THE ENVIRONMENT.  
THIS RESPONSIBILITY APPLIES THROUGHOUT DEVELOPMENT, MANUFACTURE,  
TRANSPORTATION, USE, RECYCLE AND DISPOSAL OF DSBG PRODUCTS.

WITHIN THIS FRAMEWORK DSBG IS COMMITTED TO:

- \* COMPLY WITH NATIONAL AND INTERNATIONAL REGULATORY REQUIREMENTS
- \* CONFORM TO THE ISO 14001 AND OHSAS 18001 REQUIREMENTS FOR ENVIRONMENTAL AND OCCUPATIONAL HEALTH & SAFETY MANAGEMENT SYSTEMS AND PERIODICALLY EVALUATE PERFORMANCE AS PART OF THE COMPANY'S EXISTING QUALITY AUDITS SYSTEM
- \* DESIGN PRODUCTS AND PROCESSES WHICH PREVENT RISK TO HEALTH AND THE ENVIRONMENT AT PRODUCTION SITES AND ALONG THE SUPPLY CHAIN
- \* IMPROVE EFFICIENCY IN USE OF ENERGY & NATURAL RESOURCES, PROMOTE RECYCLING AND WASTE MANAGEMENT THROUGH SAFE & ENVIRONMENTALLY SOUND END OF LIFE

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PROGRAMS

- \* WORK FOR CONTINUAL IMPROVEMENT IN HSE PERFORMANCE
- \* REGULARLY ASSESS AND RESPONSIBLY MANAGE HEALTH, SAFETY AND ENVIRONMENTAL RISKS ASSOCIATED WITH PRODUCTS AND PROCESSES
- \* EDUCATE AND TRAIN ALL MANAGERS AND EMPLOYEES TO IMPROVE THEIR HSE PERFORMANCE
- \* DISTRIBUTE UPDATED INFORMATION CONCERNING ITS POLICY AND PRODUCTS TO ITS WORKERS, CUSTOMERS AND OTHER INTERESTED PARTIES THROUGH MATERIAL SAFETY DATA SHEET (MSDS), WORKERS' SAFETY SHEETS AND THROUGH THE DSBG INTERNET SITE
- \* DEVELOP BUSINESS RELATIONSHIPS WITH RESPONSIBLE SUPPLIERS, TRANSPORTERS AND DISTRIBUTORS AND PROVIDE THEM WITH HSE SUPPORT, INFORMATION AND TRAINING
- \* SUPPORT PRODUCT STEWARDSHIP PROGRAMS IN COOPERATION WITH CUSTOMERS, DISTRIBUTORS AND TRANSPORTERS
- \* ALLOCATE THE NECESSARY RESOURCES FOR IMPLEMENTATION OF THIS POLICY

PREPARED BY HSE DIVISION IN ISRAEL

TELEPHONE: +/972-8-6297830

TELEFAX: +/972-8-6297832

WWW.DSBG.COM

END OF SAFETY DATA SHEET

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----- FOR ADDITIONAL INFORMATION -----  
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CONTACT: MSDS COORDINATOR UNIVAR USA INC.  
DURING BUSINESS HOURS, PACIFIC TIME (425)889-3400

10/28/04 08:52 PRODUCT: 614395 CUST NO: 113365 ORDER NO: 226085

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