

PHOTOGRAPHERS' FORMULARY INC.

P.O. Box 950 • Condon MT 59826 • 800-922-5255 • FAX 406-754-2896

PRESCYSOL®

Prescysol is a specially formulated developer unsurpassed in its ability to provide superb negatives with extremely fine grain, remarkably high sharpness, smoothly graduated tones and delicate and translucent highlights. *Prescysol* yields full film speed; you can expose at the makers recommended ISO. *Prescysol* is a tanning and staining developer. As the developer is absorbed, the emulsion is tanned, or hardened, and this hardening is variable, being greater in areas of greater exposure. As the emulsion tans, it inhibits the absorption of further amounts of the developing agent, and so development in these highlight areas is restrained. The lower tanning action in the shadow areas allows development to continue and these areas continue to build, producing negatives with rich, deep shadows, beautifully graduated mid-tones, and delicate highlights. Negatives developed in *Prescysol* particularly using the partial stand method, will yield full speed, exhibit high acutance, and will need considerably less burning-in to areas such as skies. As development proceeds, oxidation and natural by-products of the process stain the emulsion brown, the staining being proportional to the exposure level of the various parts of the negative. The result is a continuously-variable mask of printing density across the tonal range of the negative. Further, as the emulsion is stained mostly *between* the silver grains the effect is to soften the grain and so produce a smoother tonality in large areas such as sky and mist, where grain can normally be such a problem. *Prescysol* is an extremely tolerant developer; films of different make and speed can be developed together at the same time. For example, HP5 400 (120 roll film) and Delta 100 (35mm) despite being of totally different grain structure, can be developed together in the same tank for the same time. In fact, the modern tabular grain films (which require closer control of times and temperatures in normal developers and are more susceptible to burned highlights and blocked shadows) will benefit enormously from being developed in *Prescysol* yielding the fine grain, tone and acutance of which these films are capable.

PHOTOGRAPHERS' FORMULARY

10-1175



Material Safety Data Sheet

NFPA	HMIS	Personal Protective Equipment						
	<table border="1"> <tr> <td>Health Hazard</td> <td style="text-align: center;">3</td> </tr> <tr> <td>Fire Hazard</td> <td style="text-align: center;">0</td> </tr> <tr> <td>Reactivity</td> <td style="text-align: center;">0</td> </tr> </table>	Health Hazard	3	Fire Hazard	0	Reactivity	0	<p>See Section 15.</p>
Health Hazard	3							
Fire Hazard	0							
Reactivity	0							

Section 1. Chemical Product and Company Identification	
Common Name/ Trade Name	Sodium bisulfite
Code	S3700
CAS#	7631-90-5
Manufacturer	SPECTRUM CHEMICAL MFG. CORP. 14422 SOUTH SAN PEDRO STREET GARDENA, CALIFORNIA 90248-9985
RTECS	VZ2000000
TSCA	On the TSCA list.
Commercial Name(s)	Not available
CI#	Not available.
Synonym	Not available.
Chemical Name	
Chemical Family	Not available.
Chemical Formula	NaHSO ₃
Supplier	SPECTRUM QUALITY PRODUCTS 14422 S. SAN PEDRO STREET GARDENA, CA 90248-9985
In case of emergency CHEMTREC (24hr) 800-424-9300 Emergency phone: (310) 516-8000	

Section 2. Composition and Information on Ingredients					
		<i>Exposure Limits</i>			
Name	CAS#	TWA (mg/m ³)	STEL (mg/m ³)	CEIL (mg/m ³)	% by Weight
Sodium bisulfite	7631-90-5				100
Toxicological Data on Ingredients	Sodium bisulfite:				

Section 3. Hazards Identification	
Potential Acute Health Effects	Very dangerous in case of skin contact (irritant), of ingestion. Slightly dangerous to dangerous in case of eye contact (irritant), of inhalation. Very slightly to slightly dangerous in case of skin contact (corrosive, permeator). Corrosive to eyes and skin. The amount of tissue damage depends on length of contact. Eye contact can result in corneal damage or blindness. Skin contact can produce inflammation and blistering. Inhalation of dust will produce irritation to gastro-intestinal or respiratory tract, characterized by burning, sneezing and coughing. Severe over-exposure can produce lung damage, choking, unconsciousness or death. This product may irritate eyes and skin upon contact.
Potential Chronic	CARCINOGENIC EFFECTS: Not available. MUTAGENIC EFFECTS: Not available. TERATOGENIC EFFECTS: Not available. Toxicity of the product to the reproductive system: Not available. Repeated

Health
Effects

exposure of the eyes to a low level of dust can produce eye irritation. Repeated skin exposure can produce local skin destruction, or dermatitis. Repeated inhalation of dust can produce varying degree of respiratory irritation or lung damage.

Section 4. First Aid Measures

Eye
Contact

Check for and remove any contact lenses. IMMEDIATELY flush eyes with running water for at least 15 minutes, keeping eyelids open. COLD water may be used. DO NOT use an eye ointment. Seek medical attention.

Skin
Contact

If the chemical got onto the clothed portion of the body, remove the contaminated clothes as quickly as possible, protecting your own hands and body. Place the victim under a deluge shower. If the chemical touches the victim's exposed skin, such as the hands: Gently and thoroughly wash the contaminated skin with running water and non-abrasive soap. Be particularly careful to clean folds, crevices, creases and groin. COLD water may be used. If irritation persists, seek medical attention. Wash contaminated clothing before reusing.

Hazardous
Skin
Contact

Wash with a disinfectant soap and cover the contaminated skin with an anti-bacterial cream. Seek medical attention.

Inhalation

Allow the victim to rest in a well ventilated area. Seek immediate medical attention.

Hazardous
Inhalation

Evacuate the victim to a safe area as soon as possible. Loosen tight clothing such as a collar, tie, belt or waistband. If breathing is difficult, administer oxygen. If the victim is not breathing, perform mouth-to-mouth resuscitation. WARNING: It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation when the inhaled material is toxic, infectious or corrosive. Seek immediate medical attention.

Ingestion

DO NOT induce vomiting. Have conscious person drink several glasses of water or milk. Seek immediate medical attention.

Hazardous
Ingestion

DO NOT induce vomiting. Examine the lips and mouth to ascertain whether the tissues are damaged, a possible indication that the toxic material was ingested; the absence of such signs, however, is not conclusive. Loosen tight clothing such as a collar, tie, belt or waistband. If the victim is not breathing, perform mouth-to-mouth resuscitation. Seek medical attention.

Section 5. Fire and Explosion Data

Flammability of the Product

Non-flammable.

Auto-Ignition Temperature

Not applicable.

Flash Points

Not applicable.

Flammable Limits

Not applicable.

Products of Combustion	Not applicable.
Fire Hazards in Presence of Various Substances	Not applicable.
Explosion in Presence of Various Substances	Risks of explosion of the product in presence of mechanical impact: Not available. Risks of explosion of the product in presence of static discharge: Not available. No specific information is available in our database regarding the product's risks of explosion in the presence of various materials.
Fire Fighting Media and Instructions	Non-flammable.
Special Remarks on Fire Hazards	No additional remark.
Special Remarks on Explosion Hazards	No additional remark.

Section 6. Accidental Release Measures

Small Spill	Use appropriate tools to put the spilled solid in a convenient waste disposal container.
Large Spill	Corrosive solid. Stop leak if without risk. DO NOT get water inside container. DO NOT touch spilled material. Use water spray to reduce vapors. Prevent entry into sewers, basements or confined areas; dike if needed. Call for assistance on disposal.

Section 7. Handling and Storage

Precautions	Keep container dry. DO NOT breathe dust. Never add water to this product. In case of insufficient ventilation, wear suitable respiratory equipment. If you feel unwell, seek medical attention and show the label when possible. Avoid contact with skin and eyes.
Storage	Corrosive materials should be stored in a separate safety storage cabinet or room.

Section 8. Exposure Controls/Personal Protection

Engineering Controls	Use process enclosures, local exhaust ventilation, or other engineering controls to keep airborne levels below recommended exposure limits. If user operations generate dust, fume or mist, use ventilation to keep exposure to airborne contaminants below the exposure limit.
Personal Protection	Splash goggles. Synthetic apron. Vapor and dust respirator. Be sure to use a MSHA/NIOSH approved respirator or equivalent. Gloves (impervious). Wear appropriate respirator when ventilation is inadequate.
Personal	Splash goggles. Full suit. Vapor and dust respirator. Boots. Gloves. A self contained breathing

Protection in
Case of a
Large Spill

not be sufficient; consult a specialist BEFORE handling this product.

Exposure
Limits

TWA: 5 (mg/m³) from ACGIH Consult local authorities for acceptable exposure limits.

Section 9. Physical and Chemical Properties

Physical state and appearance	Solid.	Odor	Not available.
Molecular Weight	104.07	Taste	Not available.
pH (1% soln/water)	Not available.	Color	Not available.
Boiling Point	Not available.		
Melting Point	Decomposes.		
Critical Temperature	Not available.		
Specific Gravity	1.48 (Water = 1)		
Vapor Pressure	Not available.		
Vapor Density	Not available.		
Volatility	Not available.		
Odor Threshold	Not available.		
Evaporation rate	Not available.		
Viscosity	Not available.		
Water/Oil Dist. Coeff.	Not available.		
Ionicity (in Water)	Not available.		
Dispersion Properties	See solubility in water.		
Solubility	Easily soluble in cold water, hot water.]		

Section 10. Stability and Reactivity Data

Stability	The product is stable.
Instability Temperature	Not available.
Conditions of Instability	No additional remark.
Incompatibility with Various Substances	No specific information is available in our database regarding the reactivity of this material in presence of various other materials.
Corrosivity	Non-corrosive in presence of glass.
Special Remarks on Reactivity	No additional remark.
Special Remarks on Corrosivity	No additional remark.

Section 11. Toxicological Information

Routes of Entry	Ingestion, Inhalation.
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Toxicity to Animals Acute oral toxicity (LD50): 2000 mg/kg (Rat).

Chronic Effects on Humans Toxicity of the product to the reproductive system: Not available.

Other Toxic Effects on Humans Very dangerous in case of skin contact (irritant), of ingestion. Slightly dangerous to dangerous in case of eye contact (irritant), of inhalation. Very slightly to slightly dangerous in case of skin contact (corrosive, permeator).

Special Remarks on Toxicity to Animals No additional remark.

Special Remarks on Chronic Effects on Humans No additional remark.

Special Remarks on other Toxic Effects on Humans No additional remark.

Section 12. Ecological Information

Ecotoxicity Not available.

BOD5 and COD Not available.

Products of Biodegradation Some metallic oxides.

Toxicity of the Products of Biodegradation The products of degradation are more toxic.

Special Remarks on the Products of Biodegradation No additional remark.

Section 13. Disposal Considerations

Waste Disposal Recycle to process, if possible. Consult your local or regional authorities.

Section 14. Transport Information

DOT Classification Not a DOT controlled material (United States).

Identification Not applicable (PIN and PG).

Special Provisions for Transport Not applicable.

DOT (Pictograms)

Section 15. Other Regulatory Information and Pictograms

Federal and State Regulations

Superfund Amendments and Reauthorization Act of 1986 (SARA) Title III requires emergency planning based on Threshold Planning Quantities (TPQs) and release reporting based on Reportable Quantities (RQs) in 40 CFR 355 (used for SARA 302, 304, 311 and 312). Components present in this product at a level which could require reporting under the statute are:

NONE

Superfund Amendments and Reauthorization Act of 1986 (SARA) Title III requires submission of annual report release of toxic chemicals that appear in 40 CFR 372 (used for SARA 313). This information must be included in all MSDSs that are copied and distributed for this material. Components present in this product at a level which could require reporting under the statute are:

NONE

WARNING: This product contains a chemical known to the State of California to cause cancer. Chemical ingredient(s) requiring this warning:

NONE

WARNING: This product contains a chemical known to the State of California to cause birth defects or other reproductive harm. Chemical ingredient(s) requiring this warning: NONE

Other Classifications

WHMIS (Canada)

DSCL (EEC)

Other Classifications

WHMIS (Canada)

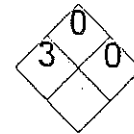
DSCL (EEC)

HMS (U.S.A.)

Health Hazard	1
Fire Hazard	0
Reactivity	0
Personal Protection	

National Fire Protection Association (U.S.A.)

Health



Flammability

Reactivity

Specific hazard

Personal Protective Equipment



Protective Gloves (impervious).



Synthetic apron.



Vapor and dust respirator. Be sure to use a MSHA/NIOSH approved respirator or equivalent. Wear appropriate respirator when ventilation is inadequate.



Splash goggles.

Section 16. Other Information

References Not available.

Catalog Number(s) S1172, S1173

Other Special Considerations No additional remark.

Validated by E. Brull on 12/17/96.

Verified by E. Brull.
Name

Emergency Phone: Number: 10

Notice to Reader

Emergency phone: (310)516-8000 Notice to Reader All chemicals may pose unknown hazards and should be used with caution. This Material Safety Data Sheet (MSDS) applies only to the material as packaged. If this product is combined with other materials, deteriorates, or becomes contaminated, it may pose hazards not mentioned in this MSDS. It shall be the user's responsibility to develop proper methods of handling and personal protection based on the actual conditions of use. While this MSDS is based on technical data judged to be reliable, Spectrum Chemical Mfg. Corp. assumes no responsibility for the completeness or accuracy of the information contained herein.

10-0340



Gardena, CA

Material Safety Data Sheet

NFPA	HMIS		Personal Protective Equipment
	Health Hazard	(3)	<p>See Section 15.</p>
Fire Hazard	(1)		
Reactivity	(0)		

Section 1. Chemical Product and Company Identification			
Common Name/ Trade Name	Pyrocatechol	Code	P4870
Manufacturer	SPECTRUM CHEMICAL MFG. CORP. 14422 SOUTH SAN PEDRO STREET GARDENA, CALIFORNIA 90248-9985	CAS#	120-80-9
		RTECS	UX1050000
		TSCA	On the TSCA list.
Commercial Name(s)	Not available	CI#	Not available.
Synonym	1,2-Benzenediol	In case of emergency	
Chemical Name	Catechol	CHEMTREC (24hr) 800-424-9300	
Chemical Family	Not available.	Emergency phone: (310) 516-8000	
Chemical Formula	C6H6O2		
Supplier	SPECTRUM QUALITY PRODUCTS 14422 S. SAN PEDRO STREET GARDENA, CA 90248-9985		

Section 2. Composition and Information on Ingredients					
		<i>Exposure Limits</i>			
Name	CAS#	TWA (mg/m3)	STEL (mg/m3)	CEIL (mg/m3)	% by Weight
Pyrocatechol	120-80-9				100
Toxicological Data on Ingredients	Pyrocatechol:				

Section 3. Hazards Identification	
Potential Acute Health Effects	Extremely dangerous in case of skin contact (corrosive, irritant), of eye contact (irritant), of ingestion, of inhalation. Very dangerous in case of skin contact (sensitizer, permeator). Corrosive to eyes and skin. Severe over-exposure can result in death. Can be fatal if inhaled or ingested. This product may irritate eyes and skin upon contact. Inflammation of the eye is characterized by redness, watering, and itching. Skin inflammation is characterized by itching, scaling, reddening, or, occasionally, blistering.
Potential Chronic	Extremely dangerous in case of skin contact (corrosive, irritant), of eye contact (irritant), of ingestion, of inhalation. Very dangerous in case of skin contact (sensitizer, permeator). CARCINOGENIC

Health Effects EFFECTS: Not available. **MUTAGENIC EFFECTS:** Not available. **TERATOGENIC EFFECTS:** Not available. The substance is toxic to lungs, mucous membranes. Toxicity of the product to the reproductive system: Not available. Repeated or prolonged exposure to the substance can produce target organs damage. Repeated exposure to an highly toxic material may produce general deterioration of health by an accumulation in one or many human organs. Repeated or prolonged inhalation of dust may lead to chronic respiratory irritation.

Section 4. First Aid Measures

Eye Contact	Check for and remove any contact lenses. IMMEDIATELY flush eyes with running water for at least 15 minutes, keeping eyelids open. COLD water may be used. DO NOT use an eye ointment. Seek medical attention.
Skin Contact	If the chemical got onto the clothed portion of the body, remove the contaminated clothes as quickly as possible, protecting your own hands and body. Place the victim under a deluge shower. If the chemical touches the victim's exposed skin, such as the hands: Gently and thoroughly wash the contaminated skin with running water and non-abrasive soap. Be particularly careful to clean folds, crevices, creases and groin. COLD water may be used. Cover the irritated skin with an emollient. If irritation persists, seek medical attention. Wash contaminated clothing before reusing.
Hazardous Skin Contact	Wash with a disinfectant soap and cover the contaminated skin with an anti-bacterial cream. Seek immediate medical attention.
Inhalation	Allow the victim to rest in a well ventilated area. Seek immediate medical attention.
Hazardous Inhalation	Evacuate the victim to a safe area as soon as possible. Loosen tight clothing such as a collar, tie, belt or waistband. If breathing is difficult, administer oxygen. If the victim is not breathing, perform mouth-to-mouth resuscitation. WARNING: It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation when the inhaled material is toxic, infectious or corrosive. Seek immediate medical attention.
Ingestion	Remove dentures if any. Watch for an obstruction in the victim's mouth. Remove if possible what is causing the obstruction but do not force fingers or a hard object between the victim's teeth. Have conscious person drink several glasses of water or milk. INDUCE VOMITING by sticking finger in throat. Seek immediate medical attention.
Hazardous Ingestion	Examine the lips and mouth to ascertain whether the tissues are damaged, a possible indication that the toxic material was ingested; the absence of such signs, however, is not conclusive. Remove dentures if any. Watch for an obstruction in the victim's mouth. Remove if possible what is causing the obstruction but do not force fingers or a hard object between the victim's teeth. If a soft pad can be inserted between the victim's teeth, it will protect the tongue from being bitten. A badly bleeding tongue immensely complicates the patient's problems. Have conscious person drink several glasses of water or milk. INDUCE VOMITING by sticking finger in throat. Lower the head so that the vomit will not reenter the mouth and throat. If convulsions occur, do not restrain the victim, but do remove objects with which he (she) might injure himself (herself) or orient the victim to prevent him (her) from striking fixed heavy objects. If the convulsions cease, turn the victim on the side or face down so that any fluid in the mouth will drain. Seek immediate medical attention.

Section 5. Fire and Explosion Data

Flammability of the Product	Combustible.
Auto-Ignition Temperature	Not available.
Flash Points	CLOSED CUP: 127.22.C (261.F) OPEN CUP: 136.67.C (278.F)
Flammable Limits	Not available.

Products of Combustion	These products are carbon oxides (CO, CO ₂).
Fire Hazards in Presence of Various Substances	No specific information is available in our database regarding the flammability of this product in presence of various materials.
Explosion in Presence of Various Substances	Risks of explosion of the product in presence of mechanical impact: Not available. Risks of explosion of the product in presence of static discharge: Not available. No specific information is available in our database regarding the product's risks of explosion in the presence of various materials.
Fire Fighting Media and Instructions	SMALL FIRE: Use DRY chemicals, CO ₂ , water spray or foam. LARGE FIRE: Use water spray, fog or foam. DO NOT use water jet.
Special Remarks on Fire Hazards	No additional remark.
Special Remarks on Explosion Hazards	No additional remark.

Section 6. Accidental Release Measures

Small Spill	Use appropriate tools to put the spilled solid in a convenient waste disposal container.
Large Spill	Poisonous solid. Stop leak if without risk. DO NOT get water inside container. DO NOT touch spilled material. Use water spray to reduce vapors. Prevent entry into sewers, basements or confined areas; dike if needed. Eliminate all sources of ignition. Call for assistance on disposal.

Section 7. Handling and Storage

Precautions	Keep locked up. Keep away from heat. Keep away from sources of ignition. Empty containers pose a fire risk, evaporate the residue under a fume hood. Ground all equipment containing material. DO NOT ingest. DO NOT breathe dust. In case of insufficient ventilation, wear suitable respiratory equipment. If ingested, seek medical advice immediately and show the container or the label. Avoid contact with skin and eyes.
Storage	Keep container dry. Keep in a cool place. Ground all equipment containing material. Keep container tightly closed. Keep in a cool, well-ventilated place. Highly toxic or infectious materials should be stored in a separate locked safety storage cabinet or room.

Section 8. Exposure Controls/Personal Protection

Engineering Controls	Use process enclosures, local exhaust ventilation, or other engineering controls to keep airborne levels below recommended exposure limits. If user operations generate dust, fume or mist, use ventilation to keep exposure to airborne contaminants below the exposure limit.
Personal Protection	Splash goggles. Lab coat. Dust respirator. Be sure to use a MSHA/NIOSH approved respirator or equivalent. Gloves (impervious). Wear appropriate respirator when ventilation is inadequate.
Personal	Splash goggles. Full suit. Dust respirator. Boots. Gloves. A self contained breathing apparatus

Protection in
Case of a
Large Spill

sufficient; consult a specialist BEFORE handling this product.

Exposure
Limits

TWA: 5 (ppm) TWA: 20 (mg/m) Consult local authorities for acceptable exposure limits.

Section 9. Physical and Chemical Properties

Physical state and appearance	Solid.	Odor	Slight.
Molecular Weight	110.11	Taste	Sweet. Bitter.
pH (1% soln/water)	Not available.	Color	Colorless.
Boiling Point	245.5.C (473.9.F)		
Melting Point	105.C (221.F)		
Critical Temperature	Not available.		
Specific Gravity	1.344 (Water = 1)		
Vapor Pressure	Not available.		
Vapor Density	3.79 (Air = 1)		
Volatility	Not available.		
Odor Threshold	Not available.		
Evaporation rate	Not available.		
Viscosity	Not available.		
Water/Oil Dist. Coeff.	Not available.		
Ionicity (in Water)	Not available.		
Dispersion Properties	See solubility in water.		
Solubility	Soluble in cold water.		

Section 10. Stability and Reactivity Data

Stability	The product is stable.
Instability Temperature	Not available.
Conditions of Instability	No additional remark.
Incompatibility with Various Substances	No specific information is available in our database regarding the reactivity of this material in presence of various other materials.
Corrosivity	Non-corrosive in presence of glass.
Special Remarks on Reactivity	No additional remark.
Special Remarks on Corrosivity	No additional remark.

Section 11. Toxicological Information

Routes of Entry	Ingestion. Skin contact. Inhalation.
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Toxicity to Animals	Acute oral toxicity (LD50): 210 mg/kg (Guinea pig). Acute dermal toxicity (LD50): 800 mg/kg (Rabbit).
Chronic Effects on Humans	The substance is toxic to lungs, mucous membranes. Toxicity of the product to the reproductive system: Not available.
Other Toxic Effects on Humans	Extremely dangerous in case of skin contact (corrosive, irritant), of eye contact (irritant), of ingestion, of inhalation. Very dangerous in case of skin contact (sensitizer, permeator).
Special Remarks on Toxicity to Animals	No additional remark.
Special Remarks on Chronic Effects on Humans	No additional remark.
Special Remarks on other Toxic Effects on Humans	No additional remark.

<i>Section 12. Ecological Information</i>	
Ecotoxicity	Not available.
BOD5 and COD	Not available.
Products of Biodegradation	These products are carbon oxides (CO, CO2).
Toxicity of the Products of Biodegradation	The products of degradation are more toxic.
Special Remarks on the Products of Biodegradation	No additional remark.

<i>Section 13. Disposal Considerations</i>	
Waste Disposal	Recycle to process, if possible. Consult your local or regional authorities.

<i>Section 14. Transport Information</i>	
DOT Classification	DOT CLASS 6.1: Poisonous material.
Identification	Toxic solid, organic, n.o.s. (Pyrocatechol) UN2811 III
Special Provisions for Transport	No additional remark.

DOT (Pictograms)	
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Section 15. Other Regulatory Information and Pictograms

Federal and State Regulations

Superfund Amendments and Reauthorization Act of 1986 (SARA) Title III requires emergency planning based on Threshold Planning Quantities (TPQs) and release reporting based on Reportable Quantities (RQs) in 40 CFR 355 (used for SARA 302, 304, 311 and 312). Components present in this product at a level which could require reporting under the statute are:

NONE

Superfund Amendments and Reauthorization Act of 1986 (SARA) Title III requires submission of annual report release of toxic chemicals that appear in 40 CFR 372 (used for SARA 313). This information must be included in all MSDSs that are copied and distributed for this material. Components present in this product at a level which could require reporting under the statute are:

Pyrocatechol

Pensylvania Right-To-Know, Hazardous substance List, Hazardous Substances and Special hazardous Substances on the list must be identified when present in products. Components present in this product at a level which could require reporting under the statute are:

Pyrocatechol

Massachusetts Right-To-Know, Substance List (MSL) Hazardous Substances and Extraordinarily Hazardous Substances on the MSL must be identified when present in products. Components present in this product at a level which could require reporting under the statute are:

Pyrocatechol

Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA) requires notification of the National Response Center of release of quantities of Hazardous Substances equal or greater than the reportable quantities (RQs) in 40 CFR 302.4. Components present in this product at a level which could require reporting under the statute are:

Pyrocatechol

WARNING: This product contains a chemical known to the State of California to cause cancer. Chemical ingredient(s) requiring this warning:

NONE

WARNING: This product contains a chemical known to the State of California to cause birth defects or other reproductive harm. Chemical ingredient(s) requiring this warning: NONE

Other Classifications

WHMIS (Canada)

WHMIS CLASS D-1B: Material causing immediate and serious toxic effects (TOXIC).
WHMIS CLASS D-2B: Material causing other toxic effects (TOXIC).

DSCL (EEC)

R39- Danger of very serious irreversible effects.
R41- Risk of serious damage to eyes.
R21/22- Harmful in contact with skin and

Other Classifications	WHMIS (Canada)	WHMIS CLASS D-1B: Material causing immediate and serious toxic effects (TOXIC). WHMIS CLASS D-2B: Material causing other toxic effects (TOXIC).
	DSCL (EEC)	R39- Danger of very serious irreversible effects. R41- Risk of serious damage to eyes. R21/22- Harmful in contact with skin and if swallowed. R26/27/28- Very toxic by inhalation, in contact with skin and if swallowed. R42/43- May cause sensitization by inhalation and skin contact.

HMIS (U.S.A.)	Health Hazard	2	National Fire Protection Association (U.S.A.)	
	Fire Hazard	1		
	Reactivity	0		
	Personal Protection	0		

Personal Protective Equipment		Protective Gloves (impervious).
		Lab coat.
		Dust respirator. Be sure to use a MSHA/NIOSH approved respirator or equivalent. Wear appropriate respirator when ventilation is inadequate.
		Splash goggles.

Section 16. Other Information

References Not available.

Catalog Number(s) P1455

Other Special Considerations No additional remark.

Validated by E. Brull on 12/17/96.


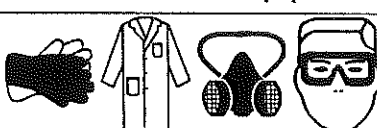
Verified by E. Brull.
Name

Emergency Phone: (310)516-8000

Notice to Reader

All chemicals may pose unknown hazards and should be used with caution. This Material Safety Data Sheet (MSDS) applies only to the material as packaged. If this product is combined with other materials, deteriorates, or becomes contaminated, it may pose hazards not mentioned in this MSDS. It shall be the user's responsibility to develop proper methods of handling and personal protection based on the actual conditions of use. While this MSDS is based on technical data judged to be reliable, Spectrum Chemical Mfg. Corp. assumes no responsibility for the completeness or accuracy of the information contained herein.

Material Safety Data Sheet

NFPA	HMIS	Personal Protective Equipment						
	<table border="1"> <tr> <td>Health Hazard</td> <td style="text-align: center;">2</td> </tr> <tr> <td>Fire Hazard</td> <td style="text-align: center;">3</td> </tr> <tr> <td>Reactivity</td> <td style="text-align: center;">0</td> </tr> </table>	Health Hazard	2	Fire Hazard	3	Reactivity	0	 See Section 15.
Health Hazard	2							
Fire Hazard	3							
Reactivity	0							

Section 1. Chemical Product and Company Identification			
Common Name/ Trade Name	2,5-Dimethoxytetrahydrofuran	Code	D3417
		CAS#	696-59-3
Manufacturer	SPECTRUM CHEMICAL MFG. CORP. 14422 SOUTH SAN PEDRO STREET GARDENA, CALIFORNIA 90248-9985	RTECS	Not available.
		TSCA	On the TSCA list.
Commercial Name(s)	Not available	CI#	Not available.
Synonym	Not available.	In case of emergency CHEMTREC (24hr) 800-424-9300 Emergency phone: (310) 516-8000	
Chemical Name	Not available.		
Chemical Family	Not available.		
Chemical Formula	C ₆ H ₁₂ O ₃		
Supplier	SPECTRUM QUALITY PRODUCTS 14422 S. SAN PEDRO STREET GARDENA, CA 90248-9985		

Section 2. Composition and Information on Ingredients					
			<i>Exposure Limits</i>		
Name	CAS#	TWA (mg/m ³)	STEL (mg/m ³)	CEIL (mg/m ³)	% by Weight
2,5-Dimethoxytetrahydrofuran	696-59-3				100
Toxicological Data on Ingredients	2,5-Dimethoxytetrahydrofuran:				

Section 3. Hazards Identification	
Potential Acute Health Effects	Very dangerous in case of skin contact (irritant), of eye contact (irritant). Slightly dangerous to dangerous in case of skin contact (permeator), of ingestion, of inhalation. This product may irritate eyes and skin upon contact. Inflammation of the eye is characterized by redness, watering, and itching. Skin inflammation is characterized by itching, scaling, reddening, or, occasionally, blistering.
Potential Chronic	CARCINOGENIC EFFECTS: Not available. MUTAGENIC EFFECTS: Not available. TERATOGENIC EFFECTS: Not available. Toxicity of the product to the reproductive system: Not available. There

Health Effects

is no known effect from chronic exposure to this product. Repeated or prolonged exposure is not known to aggravate medical condition.

Section 4. First Aid Measures

Eye Contact	Check for and remove any contact lenses. DO NOT use an eye ointment. Seek medical attention.
Skin Contact	If the chemical got onto the clothed portion of the body, remove the contaminated clothes as quickly as possible, protecting your own hands and body. Place the victim under a deluge shower. If the chemical touches the victim's exposed skin, such as the hands: Gently and thoroughly wash the contaminated skin with running water and non-abrasive soap. Be particularly careful to clean folds, crevices, creases and groin. Cover the irritated skin with an emollient. If irritation persists, seek medical attention. Wash contaminated clothing before reusing.
Hazardous Skin Contact	Wash with a disinfectant soap and cover the contaminated skin with an anti-bacterial cream. Seek medical attention.
Inhalation	Allow the victim to rest in a well ventilated area. Seek immediate medical attention.
Hazardous Inhalation	Evacuate the victim to a safe area as soon as possible. Loosen tight clothing such as a collar, tie, belt or waistband. If breathing is difficult, administer oxygen. If the victim is not breathing, perform mouth-to-mouth resuscitation. Seek medical attention.
Ingestion	Remove dentures if any. Watch for an obstruction in the victim's mouth. Remove if possible what is causing the obstruction but do not force fingers or a hard object between the victim's teeth. Have conscious person drink several glasses of water or milk. INDUCE VOMITING by sticking finger in throat. Seek immediate medical attention.
Hazardous Ingestion	Remove dentures if any. Watch for an obstruction in the victim's mouth. Remove if possible what is causing the obstruction but do not force fingers or a hard object between the victim's teeth. If a soft pad can be inserted between the victim's teeth, it will protect the tongue from being bitten. A badly bleeding tongue immensely complicates the patient's problems. Have conscious person drink several glasses of water or milk. INDUCE VOMITING by sticking finger in throat. Lower the head so that the vomit will not reenter the mouth and throat. If convulsions occur, do not restrain the victim, but do remove objects with which he (she) might injure himself (herself) or orient the victim to prevent him (her) from striking fixed heavy objects. If the convulsions cease, turn the victim on the side or face down so that any fluid in the mouth will drain. Seek medical attention.

Section 5. Fire and Explosion Data

Flammability of the Product	Flammable.
Auto-Ignition Temperature	Not available.
Flash Points	CLOSED CUP: 35.C (95.F)
Flammable Limits	Not available.

Products of Combustion	These products are carbon oxides (CO, CO ₂).
Fire Hazards in Presence of Various Substances	No specific information is available in our database regarding the flammability of this product in presence of various materials.
Explosion in Presence of Various Substances	Risks of explosion of the product in presence of mechanical impact: Not available. Risks of explosion of the product in presence of static discharge: Not available. No specific information is available in our database regarding the product's risks of explosion in the presence of various materials.
Fire Fighting Media and Instructions	SMALL FIRE: Use DRY chemicals, CO ₂ , alcohol foam or water spray. LARGE FIRE: Use alcohol foam, water spray or fog. Cool containing vessels with water jet in order to prevent pressure build-up, autoignition or explosion.
Special Remarks on Fire Hazards	No additional remark.
Special Remarks on Explosion Hazards	No additional remark.

Section 6. Accidental Release Measures

Small Spill	Absorb with an inert material and put the spilled material in an appropriate waste disposal.
Large Spill	Flammable liquid. Keep away from heat. Keep away from sources of ignition. Stop leak if without risk. Absorb with DRY earth, sand or other non-combustible material. DO NOT touch spilled material. Prevent entry into sewers, basements or confined areas; dike if needed. Eliminate all sources of ignition.

Section 7. Handling and Storage

Precautions	Keep away from heat. Keep away from sources of ignition. Ground all equipment containing material. DO NOT ingest. Do not breathe gas, fumes, vapor or spray. In case of insufficient ventilation, wear suitable respiratory equipment. If ingested, seek medical advice immediately and show the container or the label. Avoid contact with skin and eyes.
Storage	Flammable materials should be stored in a separate safety storage cabinet or room. Keep away from heat. Keep away from sources of ignition. Keep container tightly closed. Keep in a cool, well-ventilated place. Ground all equipment containing material. A refrigerated room would be preferable for materials with a flash point lower than 37.8.C (100.F).

Section 8. Exposure Controls/Personal Protection

Engineering Controls	Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapors below their respective threshold limit value. Ensure that eyewash station and safety shower is proximal to the work-station location.
Personal Protection	Splash goggles. Lab coat. Vapor respirator. Be sure to use a MSHA/NIOSH approved respirator or equivalent. Gloves (impervious). Wear appropriate respirator when ventilation is inadequate.
Personal	Splash goggles. Full suit. Vapor respirator. Boots. Gloves. A self contained breathing apparatus

Protection in
Case of a
Large Spill

sufficient; consult a specialist BEFORE handling this product.

Exposure
Limits

Not available.

Section 9. Physical and Chemical Properties

Physical state and appearance	Liquid.	Odor	Not available.
Molecular Weight	132.16	Taste	Not available.
pH (1% soln/water)	Not available.	Color	Not available.
Boiling Point	146.C (294.8.F)		
Melting Point	Not available.		
Critical Temperature	Not available.		
Specific Gravity	1.02 (Water = 1)		
Vapor Pressure	Not available.		
Vapor Density	Not available.		
Volatility	Not available.		
Odor Threshold	Not available.		
Evaporation rate	Not available.		
Viscosity	Not available.		
Water/Oil Dist. Coeff.	Not available.		
Ionicity (in Water)	Not available.		
Dispersion Properties	Not available.		
Solubility	Not available.]		

Section 10. Stability and Reactivity Data

Stability	The product is stable.
Instability Temperature	Not available.
Conditions of Instability	No additional remark.
Incompatibility with Various Substances	No specific information is available in our database regarding the reactivity of this material in presence of various other materials.
Corrosivity	Non-corrosive in presence of glass.
Special Remarks on Reactivity	No additional remark.
Special Remarks on Corrosivity	No additional remark.

Section 11. Toxicological Information

Routes of Entry	Ingestion. Skin contact. Inhalation.
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Toxicity to Animals LD50: Not available. LC50: Not available.

Chronic Effects on Humans Toxicity of the product to the reproductive system: Not available.

Other Toxic Effects on Humans Very dangerous in case of skin contact (irritant), of eye contact (irritant). Slightly dangerous to dangerous in case of skin contact (permeator), of ingestion, of inhalation.

Special Remarks on Toxicity to Animals No additional remark.

Special Remarks on Chronic Effects on Humans No additional remark.

Special Remarks on other Toxic Effects on Humans No additional remark.

Section 12. Ecological Information

Ecotoxicity Not available.

BOD5 and COD Not available.

Products of Biodegradation These products are carbon oxides (CO, CO2).

Toxicity of the Products of Biodegradation The products of degradation are more toxic.

Special Remarks on the Products of Biodegradation No additional remark.

Section 13. Disposal Considerations

Waste Disposal Recycle to process, if possible. Consult your local or regional authorities.

Section 14. Transport Information

DOT Classification DOT CLASS 3: Flammable liquid.

Identification Ether, n.o.s. (Dimethoxytetrahydrofuran) UN3271 III

Special Provisions for Transport No additional remark.

DOT (Pictograms)



Section 15. Other Regulatory Information and Pictograms

**Federal and
State Regulations**

WARNING: This product contains a chemical known to the State of California to cause cancer. Chemical ingredient(s) requiring this warning:

NONE

WARNING: This product contains a chemical known to the State of California to cause birth defects or other reproductive harm. Chemical ingredient(s) requiring this warning: **NONE**

Other Classifications

WHMIS (Canada)

WHMIS CLASS B-2: Flammable liquid with a flash point lower than 37.8.C (100.F).
WHMIS CLASS D-2B: Material causing other toxic effects (TOXIC).

DSCL (EEC)

R10- Flammable.
R18- In use, may form flammable/explosive vapor-air mixture.
R36/38- Irritating to eyes and skin.

Other Classifications

WHMIS (Canada)

WHMIS CLASS B-2: Flammable liquid with a flash point lower than 37.8.C (100.F).
 WHMIS CLASS D-2B: Material causing other toxic effects (TOXIC).

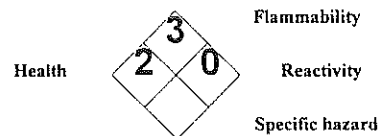
DSCL (EEC)

R10- Flammable.
 R18- In use, may form flammable/explosive vapor-air mixture.
 R36/38- Irritating to eyes and skin.

HMIS (U.S.A.)

Health Hazard	2
Fire Hazard	3
Reactivity	0
Personal Protection	0

National Fire Protection Association (U.S.A.)



Personal Protective Equipment



Protective Gloves (impervious).



Lab coat.



Vapor respirator. Be sure to use a MSHA/NIOSH approved respirator or equivalent. Wear appropriate respirator when ventilation is inadequate.



Splash goggles.

Section 16. Other Information**References** Not available.**Catalog Number(s)** D2525**Other Special Considerations** No additional remark.**Validated by** E. Brull on 12/17/96.**Verified by** E. Brull.
Name**Emergency Phone:** (310)516-8000**Notice to Reader**

All chemicals may pose unknown hazards and should be used with caution. This Material Safety Data Sheet (MSDS) applies only to the material as packaged. If this product is combined with other materials, deteriorates, or becomes contaminated, it may pose hazards not mentioned in this MSDS. It shall be the user's responsibility to develop proper methods of handling and personal protection based on the actual conditions of use. While this MSDS is based on technical data judged to be reliable, Spectrum Chemical Mfg. Corp. assumes no responsibility for the completeness or accuracy of the information contained herein.

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.

Continue on page....2

(2)

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.

Continue on page....3

(3)

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 : 260⁰ C (DEC)
AUTOIGNITION TEMPERATURE : 531⁰ C

Continue on page....4

(4)

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.

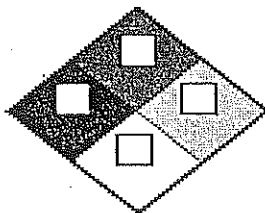
SECTION -IX, TOXICOLOGICAL INFORMATION

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.



Material Safety Data Sheet
 May be used to comply with
 OSHA's Hazard Communication Standard
 29 CFR 1910.1200 Standard must be
 Consulted for specific requirements

U.S. Department of Labor
 Occupational Safety And Health Administration
 (Non-Mandatory Form)
 Form Approved
 OMB No. 1218-0072

Identity (as used on label and list) Glycin CAS# 122-87-2	Note: Blank spaces are permitted, if any item is not applicable, or no information is available, the space must be marked to indicate that.
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Section I

Manufacturer's Name: Photographer's Formulary, Inc.	Emergency Telephone Number: 800-424-9300
Address (Number Street, City, State and Zip): Po Box 950 Condon MT 59826	Telephone Number for Information: 406-754-2891 / 800-922-5255
	Date Prepared: October 19, 2004

Section II – Hazardous Ingredients/Identity Information

Hazardous components (Specific Chemical Identity: Common Name(s))	OSHA PEL	ACGIH TLV	Other Limits	% Optional
Chemical Name or Synonym: N- (P-Hydroxyphenyl) (Glycine)				
Chemical Family: Carboic Acid-Alcohol				
Formula: H0C6 H4NHCH2COOH				

Section III – Physical/Chemical Characteristics:

Boiling Point:	NA	Specific Gravity:	NA
Vapor Pressure: (mm Hg)	NA	Melting Point	230°
Vapor Density (AIR=1)	NA	Evaporation Rate (Butyl Acetate =1)	NA
Solubility in Water: Sparingly soluble			
Appearance and Order: White to off white powder, no odor			

Section IV – Fire and Explosion Hazard Data

Flash Point (Method Used)	Flammable Limits:	LEL	UEL
Extinguishing Media: Water spray, Co2 Dry Chemical			
Special Fire Fighting Procedures:			

Section V – Reactivity Data

Stability	Unstable		Conditions to Avoid:
	Stable	X	

Incompatibility (Materials to Avoid)

Hazardous Polymerization	May Occur		Conditions to Avoid:
	Will Not Occur	X	

Section VI – Health Hazard Data

Route(s) of Entry:	Inhalation:	Skin:	Ingestion:
Health Hazards (Acute and Chronic): Prolonged Exposure may be irritating to the skin or eyes.			
Carcinogenicity:	NTP:	IASC Monographs:	OSHA Regulated:
Signs and symptoms of Exposure			
Medical Conditions Generally Aggravated by Exposure:			
Emergency and First Aid Procedures: Wash with soap and warm water.			
Eye Contact: Flush eyes with water fro 15 minutes.			

Section VII – Precautions for safe Handling and Use:

Steps to be taken in case Material Is Released or Spilled: Remove all sources of ignition, shovel into dry containers, then flush area with water.
Waste Disposal Method: For disposal please contact your local sewer and water authorities
Material may be incinerated or sent to authorized treatment storage disposal facility.
Precautions to be Taken in Handling And Storing:
Other Precautions:

Section VIII – Control Measures

Respiratory Protection (Specify Type) Dust Mask		
Ventilation	Local Exhaust: Yes	Special:
	Mechanical:	Other:
Protective Gloves: Rubber	Eye Protection: Safety Goggles	
Other Protective Clothing or Equipment: Apron		
Work/ Hygienic Practices: Wash hands, face and all equipment used and counter tops.		

10-0420

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

1. IDENTIFICATION OF THE SUBSTANCE & THE COMPANY

CHEMICAL NAME POTASSIUM BROMIDE
CHEMICAL FORMULA KBR
MOLECULAR WEIGHT 120.98

TYPE OF PRODUCT AND USE

REPORT NUMBER: 703

MSDS NO: P21725VS

MAINFRAME UPLOAD DATE: 07/16/04

UNIVAR USA INC.
MATERIAL SAFETY DATA SHEET

PAGE: 002

VERSION: 003

PRODUCT: POTASSIUM BROMIDE

ORDER NO: 226085

PROD NO : 614395

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.

PRODUCT: POTASSIUM BROMIDE

ORDER NO: 226085

PROD NO : 614395

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

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

PRODUCT: POTASSIUM BROMIDE

ORDER NO: 226085
PROD NO : 614395

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.

PRODUCT: POTASSIUM BROMIDE

ORDER NO: 226085
PROD NO : 614395-----
14. TRANSPORTATION INFORMATIONDOT 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)
8,15THE 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

REPORT NUMBER: 703

MSDS NO: P21725VS

MAINFRAME UPLOAD DATE: 07/16/04

UNIVAR USA INC.
MATERIAL SAFETY DATA SHEET

PAGE: 007

VERSION: 003

PRODUCT: POTASSIUM BROMIDE

ORDER NO: 226085

PROD NO : 614395

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

REPORT NUMBER: 703

UNIVAR USA INC.

PAGE: 008

MSDS NO: P21725VS

MATERIAL SAFETY DATA SHEET

MAINFRAME UPLOAD DATE: 07/16/04

VERSION: 003

PRODUCT: POTASSIUM BROMIDE

ORDER NO: 226085

PROD NO : 614395

----- FOR ADDITIONAL INFORMATION -----

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

----- NOTICE -----

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* * * E N D O F M S D S * * *

10-1190 / 1889

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: Na₂CO₃·H₂O

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/m³/2H; irritation eye rabbit: 50 mg severe; investigated as a mutagen, reproductive effector.

Ingredient Category	-----\Cancer Lists\-----		
	---NTP Carcinogen--- Known	Anticipated	IARC
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	8(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)