

**PHOTOGRAPHERS' FORMULARY**

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

**Gum Bichromate Kits 07-0100 & 07-0105**

Contains chemicals to make approximately 35-40 8 x 10 prints

The following is a general overview on how to gum print. It is meant simply as a summary of the process.

For complete details on gum printing please refer to *Gum Printing* by Stephen Livick, available from Photographers' Formulary Inc. (cat. No. 08-0055), or from the author at [www.livick.com](http://www.livick.com)

**CHEMICALS CONTAINED IN THIS KIT**

This kit contains the following chemicals:

Chemical	Amount
Potassium Dichromate	40 grams
Pure 100% Liquid Gum Arabic	250 ml
Potassium Metabisulfite	10 grams
Gelatin	10 grams
Glyoxal	15 ml
Pigment(s)	1 or 3

It is also recommended that you purchase a gram scale capable of measuring down to 1/2 gram if you wish to be proficient in gum printing.

**CHEMICAL SAFETY**

All chemicals are dangerous and must be treated with respect. This kit contains one chemical that needs special attention. Potassium Dichromate: This is both a toxic and an oxidizer. To dispose of excess potassium dichromate, always wash the solid down a drain with copious amounts of water. Never dispose of the solid in a wastepaper basket. Spillage of a dichromate solution on the skin will cause a chemical burn, which will appear as an ulceration. In addition, all chromium salts are potential carcinogens. We strongly advise you to use disposable rubber gloves when handling this compound or its solutions. Clean all trays and containers thoroughly with water followed by soap and water. Dispose of all excess dichromate salts and their solutions down a drain with large volumes of water.

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07-0105

A 1000-watt quartz lamp and photofloods can be used, as well as the sun. If you are using fluorescent black light remember to adjust your negatives accordingly, as these types of lights tend to print flat.

**DRYING THE PAPER:**

Suspend the print to dry on a line in your work area. Drying normally takes overnight or several hours with a smaller print. Dry the print naturally. Force drying the paper with heat could affect the registration on subsequent coats.

**PRINTING SECOND AND THIRD EMULSION COATINGS:**

This will build depth in the print. A color combination in "free form" gum printing is what makes gum printing "fun". For example if you print a blue coat first followed by a red coat the result is a purple magenta looking print. There are many combinations, you just need to find the right combination that you like best for the images you are printing.

**DEVELOPING THE PRINT:**

This procedure is done under low-light conditions (a 40-watt bulb) until the print is fully under the water.

You will need three trays of 68°F (20°C) clean water. Once exposed remove the negative and "quickly" place the paper in the first water bath, **FACE DOWN**. Gently poke a few times to keep the print submerged. Ten minutes in each tray. When finished hang to dry.

**CLEARING THE DICHROMATE STAIN:**

This final stage should be carried out when the printing is completely finished. If you are doing three emulsion coatings, you will not clear the print until the end, after all three colors have been applied to the paper. Do this step once per print. Mix 5 grams of Potassium Metabisulfite with 500 ml of distilled water and put it into a plastic spray bottle. This solution should be mixed just before clearing the prints. Spray this solution on the image surface of your print and let sit for one minute, then wash the print for ten minutes. Be careful at this stage, as the surface is susceptible to damage. If you are testing colors and wish to see the "true" color you must clear the print of the dichromate stain.

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07-0105

## SAFETY DATA SHEET

Version 4.8  
Revision Date 02/04/2016  
Print Date 05/28/2016

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**1. PRODUCT AND COMPANY IDENTIFICATION****1.1 Product identifiers**

Product name : Potassium dichromate

Product Number : 483044  
Brand : Aldrich  
Index-No. : 024-002-00-6

CAS-No. : 7778-50-9

**1.2 Relevant identified uses of the substance or mixture and uses advised against**

Identified uses : Laboratory chemicals, Synthesis of substances

**1.3 Details of the supplier of the safety data sheet**

Company : Sigma-Aldrich  
3050 Spruce Street  
SAINT LOUIS MO 63103  
USA

Telephone : +1 800-325-5832

Fax : +1 800-325-5052

**1.4 Emergency telephone number**

Emergency Phone # : (314) 776-6555

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**2. HAZARDS IDENTIFICATION****2.1 Classification of the substance or mixture****GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)**

Oxidizing solids (Category 2), H272  
Acute toxicity, Oral (Category 3), H301  
Acute toxicity, Inhalation (Category 2), H330  
Acute toxicity, Dermal (Category 4), H312  
Skin corrosion (Category 1B), H314  
Serious eye damage (Category 1), H318  
Respiratory sensitisation (Category 1), H334  
Skin sensitisation (Category 1), H317  
Germ cell mutagenicity (Category 1B), H340  
Carcinogenicity (Category 1B), H350  
Reproductive toxicity (Category 1B), H360  
Specific target organ toxicity - repeated exposure, Inhalation (Category 1), Cardio-vascular system, H372  
Acute aquatic toxicity (Category 1), H400  
Chronic aquatic toxicity (Category 1), H410

For the full text of the H-Statements mentioned in this Section, see Section 16.

**2.2 GHS Label elements, including precautionary statements**

Pictogram



Signal word

Danger

Hazard statement(s)	
H272	May intensify fire; oxidizer.
H301	Toxic if swallowed.
H312	Harmful in contact with skin.
H314	Causes severe skin burns and eye damage.
H317	May cause an allergic skin reaction.
H330	Fatal if inhaled.
H334	May cause allergy or asthma symptoms or breathing difficulties if inhaled.
H340	May cause genetic defects.
H350	May cause cancer.
H360	May damage fertility or the unborn child.
H372	Causes damage to organs (Cardio-vascular system) through prolonged or repeated exposure if inhaled.
H410	Very toxic to aquatic life with long lasting effects.
Precautionary statement(s)	
P201	Obtain special instructions before use.
P202	Do not handle until all safety precautions have been read and understood.
P210	Keep away from heat.
P220	Keep/Store away from clothing/ combustible materials.
P221	Take any precaution to avoid mixing with combustibles.
P260	Do not breathe dust/ fume/ gas/ mist/ vapours/ spray.
P264	Wash skin thoroughly after handling.
P270	Do not eat, drink or smoke when using this product.
P271	Use only outdoors or in a well-ventilated area.
P272	Contaminated work clothing should not be allowed out of the workplace.
P273	Avoid release to the environment.
P280	Wear protective gloves/ protective clothing/ eye protection/ face protection.
P284	Wear respiratory protection.
P301 + P310 + P330	IF SWALLOWED: Immediately call a POISON CENTER or doctor/ physician. Rinse mouth.
P301 + P330 + P331	IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
P303 + P361 + P353	IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
P304 + P340 + P310	IF INHALED: Remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER or doctor/ physician.
P305 + P351 + P338 + P310	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER or doctor/ physician.
P308 + P313	IF exposed or concerned: Get medical advice/ attention.
P333 + P313	If skin irritation or rash occurs: Get medical advice/ attention.
P363	Wash contaminated clothing before reuse.
P370 + P378	In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish.
P391	Collect spillage.
P403 + P233	Store in a well-ventilated place. Keep container tightly closed.
P405	Store locked up.
P501	Dispose of contents/ container to an approved waste disposal plant.

### 2.3 Hazards not otherwise classified (HNOC) or not covered by GHS - none

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## 3. COMPOSITION/INFORMATION ON INGREDIENTS

### 3.1 Substances

Synonyms	:	Potassium bichromate
Formula	:	Cr <sub>2</sub> K <sub>2</sub> O <sub>7</sub>
Molecular weight	:	294.18 g/mol
CAS-No.	:	7778-50-9

EC-No. : 231-906-6  
Index-No. : 024-002-00-6

### Hazardous components

Component	Classification	Concentration
<b>Potassium dichromate</b> Included in the Candidate List of Substances of Very High Concern (SVHC) according to Regulation (EC) No. 1907/2006 (REACH)		
	Ox. Sol. 2; Acute Tox. 3; Acute Tox. 2; Acute Tox. 4; Skin Corr. 1B; Eye Dam. 1; Resp. Sens. 1; Skin Sens. 1; Muta. 1B; Carc. 1B; Repr. 1B; STOT RE 1; Aquatic Acute 1; Aquatic Chronic 1; H272, H301, H312, H314, H317, H330, H334, H340, H350, H360, H372, H410	<= 100 %

For the full text of the H-Statements mentioned in this Section, see Section 16.

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## 4. FIRST AID MEASURES

### 4.1 Description of first aid measures

#### General advice

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

#### If inhaled

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

#### In case of skin contact

Take off contaminated clothing and shoes immediately. Wash off with soap and plenty of water. Take victim immediately to hospital. Consult a physician.

#### In case of eye contact

Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician. Continue rinsing eyes during transport to hospital.

#### If swallowed

Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

### 4.2 Most important symptoms and effects, both acute and delayed

The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

### 4.3 Indication of any immediate medical attention and special treatment needed

No data available

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## 5. FIREFIGHTING MEASURES

### 5.1 Extinguishing media

#### Suitable extinguishing media

Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

### 5.2 Special hazards arising from the substance or mixture

Potassium oxides, Chromium oxides

### 5.3 Advice for firefighters

Wear self-contained breathing apparatus for firefighting if necessary.

### 5.4 Further information

Use water spray to cool unopened containers.

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## 6. ACCIDENTAL RELEASE MEASURES

### 6.1 Personal precautions, protective equipment and emergency procedures

Wear respiratory protection. Avoid dust formation. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. Avoid breathing dust.  
For personal protection see section 8.

### 6.2 Environmental precautions

Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

### 6.3 Methods and materials for containment and cleaning up

Sweep up and shovel. Contain spillage, and then collect with an electrically protected vacuum cleaner or by wet-brushing and place in container for disposal according to local regulations (see section 13). Keep in suitable, closed containers for disposal.

### 6.4 Reference to other sections

For disposal see section 13.

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## 7. HANDLING AND STORAGE

### 7.1 Precautions for safe handling

Avoid contact with skin and eyes. Avoid formation of dust and aerosols. Further processing of solid materials may result in the formation of combustible dusts. The potential for combustible dust formation should be taken into consideration before additional processing occurs.

Provide appropriate exhaust ventilation at places where dust is formed. Keep away from sources of ignition - No smoking. Keep away from heat and sources of ignition.

For precautions see section 2.2.

### 7.2 Conditions for safe storage, including any incompatibilities

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

Storage class (TRGS 510): Strongly oxidizing hazardous materials

### 7.3 Specific end use(s)

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

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## 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

### 8.1 Control parameters

#### Components with workplace control parameters

Component	CAS-No.	Value	Control parameters	Basis
	Remarks	See Table Z-2 for the exposure limit for any operations or sectors where the exposure limit in § 1910.1026 is stayed or is otherwise not in effect Substance listed; for more information see OSHA document 1910.1026		
Potassium dichromate	7778-50-9	TWA	0.050000 mg/m3	USA. ACGIH Threshold Limit Values (TLV)
		Upper Respiratory Tract irritation Cancer Substances for which there is a Biological Exposure Index or Indices (see BEI® section) Confirmed human carcinogen varies		
		PEL	0.005000 mg/m3	OSHA Specifically Regulated Chemicals/Carcinogens
		1910.1026 This standard applies to occupational exposures to chromium (VI) in all forms and compounds in general industry, except: (a) Exposures that occur in the application of pesticides regulated by the Environmental Protection Agency or another Federal government		

		agency ( e.g., the treatment of wood with preservatives); (b) Exposures to portland cement; or (c) Where the employer has objective data demonstrating that a material containing chromium or a specific process, operation, or activity involving chromium cannot release dusts, fumes, or mists of chromium (VI) in concentrations at or above 0.5 µgm/m3 as an 8-hour time-weighted average (TWA) under any expected conditions of use. Chromium (VI) [hexavalent chromium or Cr(VI)] means chromium with a valence of positive six, in any form and in any compound OSHA specifically regulated carcinogen		
		PEL	0.005000 mg/m3	OSHA Specifically Regulated Chemicals/Carcinogens
		1910.1026 This standard applies to occupational exposures to chromium (VI) in all forms and compounds in general industry, except: (a) Exposures that occur in the application of pesticides regulated by the Environmental Protection Agency or another Federal government agency ( e.g., the treatment of wood with preservatives); (b) Exposures to portland cement; or (c) Where the employer has objective data demonstrating that a material containing chromium or a specific process, operation, or activity involving chromium cannot release dusts, fumes, or mists of chromium (VI) in concentrations at or above 0.5 µgm/m3 as an 8-hour time-weighted average (TWA) under any expected conditions of use. Chromium (VI) [hexavalent chromium or Cr(VI)] means chromium with a valence of positive six, in any form and in any compound OSHA specifically regulated carcinogen		
		See Table Z-2 for the exposure limit for any operations or sectors where the exposure limit in § 1910.1026 is stayed or is otherwise not in effect Substance listed; for more information see OSHA document 1910.1026		
		See 1910.1026. See Table Z-2 for the exposure limit for any operations or sectors where the exposure limit in 1910.1026 is stayed or are otherwise not in effect.		
		TWA	0.05 mg/m3	USA. ACGIH Threshold Limit Values (TLV)
		Upper Respiratory Tract irritation Cancer Substances for which there is a Biological Exposure Index or Indices (see BEI® section) Confirmed human carcinogen varies		
		PEL	0.005 mg/m3	OSHA Specifically Regulated Chemicals/Carcinogens
		1910.1026 This standard applies to occupational exposures to chromium (VI) in all forms and compounds in general industry, except: (a) Exposures that occur in the application of pesticides regulated by the Environmental Protection Agency or another Federal government agency ( e.g., the treatment of wood with preservatives); (b) Exposures to portland cement; or (c) Where the employer has objective data demonstrating that a material containing chromium or a specific process, operation, or activity involving chromium cannot release dusts, fumes, or mists of chromium (VI) in concentrations at or above 0.5 µgm/m3 as an 8-hour time-weighted average (TWA) under any expected conditions of use. Chromium (VI) [hexavalent chromium or Cr(VI)] means chromium with a valence of positive six, in any form and in any compound OSHA specifically regulated carcinogen		

### Biological occupational exposure limits

Component	CAS-No.	Parameters	Value	Biological specimen	Basis
Potassium dichromate	7778-50-9	Total chromium	25.0000 µg/l	Urine	ACGIH - Biological Exposure Indices (BEI)
	Remarks	End of shift at end of workweek			
		Total chromium	10.0000 µg/l	Urine	ACGIH - Biological Exposure Indices (BEI)
		Increase during shift			
		Total chromium	25.0000 µg/l	Urine	ACGIH - Biological Exposure Indices (BEI)
		End of shift at end of workweek			
		Total chromium	10.0000 µg/l	Urine	ACGIH - Biological Exposure Indices (BEI)
		Increase during shift			
		Total chromium	25 µg/l	Urine	ACGIH - Biological Exposure Indices (BEI)
		End of shift at end of workweek			
		Total chromium	10 µg/l	Urine	ACGIH - Biological Exposure Indices (BEI)
		Increase during shift			

## 8.2 Exposure controls

### Appropriate engineering controls

Avoid contact with skin, eyes and clothing. Wash hands before breaks and immediately after handling the product.

### Personal protective equipment

#### Eye/face protection

Face shield and safety glasses Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

#### Skin protection

Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

#### Full contact

Material: Nitrile rubber

Minimum layer thickness: 0.11 mm

Break through time: 480 min

Material tested: Dermatril® (KCL 740 / Aldrich Z677272, Size M)

#### Splash contact

Material: Nitrile rubber

Minimum layer thickness: 0.11 mm

Break through time: 480 min

Material tested: Dermatril® (KCL 740 / Aldrich Z677272, Size M)

data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 87300, e-mail sales@kcl.de, test method: EN374

If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the CE approved gloves. This recommendation is advisory only and must be evaluated by an industrial hygienist and safety officer familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.

### Body Protection

Complete suit protecting against chemicals, The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

### Respiratory protection

Where risk assessment shows air-purifying respirators are appropriate use a full-face particle respirator type N100 (US) or type P3 (EN 143) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

### Control of environmental exposure

Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

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## 9. PHYSICAL AND CHEMICAL PROPERTIES

### 9.1 Information on basic physical and chemical properties

- |   |  |
|---|--|
| a) Appearance                                   | Form: crystalline  |
| b) Odour  | No data available  |
| c) Odour Threshold                              | No data available  |
| d) pH   | 3.5 - 5.0 at 29.4 g/l at 25 °C (77 °F)                                   |
| e) Melting point/freezing point                 | Melting point/range: 398 °C (748 °F) - lit.                              |
| f) Initial boiling point and boiling range      | No data available  |
| g) Flash point                                  | Not applicable   |
| h) Evaporation rate                             | No data available  |
| i) Flammability (solid, gas)                    | No data available  |
| j) Upper/lower flammability or explosive limits | No data available  |
| k) Vapour pressure                              | No data available  |
| l) Vapour density                               | No data available  |
| m) Relative density                             | 2.680 g/cm <sup>3</sup>  |
| n) Water solubility                             | ca.29.4 g/l at 20 °C (68 °F)   |
| o) Partition coefficient: n-octanol/water       | log Pow: 5   |
| p) Auto-ignition temperature                    | No data available  |
| q) Decomposition temperature                    | No data available  |
| r) Viscosity                                    | No data available  |
| s) Explosive properties                         | No data available  |
| t) Oxidizing properties                         | The substance or mixture is classified as oxidizing with the category 2. |

### 9.2 Other safety information

No data available

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## 10. STABILITY AND REACTIVITY

### 10.1 Reactivity

No data available

## 10.2 Chemical stability

Stable under recommended storage conditions.

## 10.3 Possibility of hazardous reactions

No data available

## 10.4 Conditions to avoid

No data available

## 10.5 Incompatible materials

Organic materials, Do not store near acids., Powdered metals, Hydrazine

## 10.6 Hazardous decomposition products

Other decomposition products - No data available

In the event of fire: see section 5

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## 11. TOXICOLOGICAL INFORMATION

### 11.1 Information on toxicological effects

#### Acute toxicity

LD50 Oral - Rat - male - 168 mg/kg

LD50 Oral - Rat - female - 90.5 mg/kg

LC50 Inhalation - Rat - female - 4 h - 0.088 mg/l

LD50 Dermal - Rabbit - > 2,000 mg/kg  
(OECD Test Guideline 402)

No data available

#### Skin corrosion/irritation

No data available

#### Serious eye damage/eye irritation

No data available

#### Respiratory or skin sensitisation

May cause sensitisation by inhalation and skin contact.

#### Germ cell mutagenicity

May alter genetic material.

In vivo tests showed mutagenic effects

#### Carcinogenicity

This is or contains a component that has been reported to be carcinogenic based on its IARC, OSHA, ACGIH, NTP, or EPA classification.

Possible human carcinogen

IARC: 1 - Group 1: Carcinogenic to humans (Potassium dichromate)

NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

OSHA: OSHA specifically regulated carcinogen (Potassium dichromate)

#### Reproductive toxicity

Presumed human reproductive toxicant

No data available

#### Specific target organ toxicity - single exposure

No data available

#### Specific target organ toxicity - repeated exposure

Inhalation - Causes damage to organs through prolonged or repeated exposure. - Cardio-vascular system

**Aspiration hazard**

No data available

**Additional Information**

RTECS: HX7680000

Ulceration, Material is extremely destructive to tissue of the mucous membranes and upper respiratory tract, eyes, and skin.

Stomach - Irregularities - Based on Human Evidence

Stomach - Irregularities - Based on Human Evidence

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**12. ECOLOGICAL INFORMATION****12.1 Toxicity**

Toxicity to fish	LC50 - Lepomis macrochirus - 0.131 mg/l - 96.0 h mortality NOEC - Pimephales promelas (fathead minnow) - 6 mg/l - 7.0 d
Toxicity to daphnia and other aquatic invertebrates	mortality NOEC - Daphnia (water flea) - 0.016 - 0.064 mg/l - 7 d EC50 - Daphnia magna (Water flea) - 0.035 mg/l - 48 h
Toxicity to algae	EC50 - Pseudokirchneriella subcapitata - 0.31 mg/l - 72 h

**12.2 Persistence and degradability**

No data available

**12.3 Bioaccumulative potential**

Bioaccumulation	Oncorhynchus mykiss (rainbow trout) - 180 d - 200 µg/l Bioconcentration factor (BCF): 17.4
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**12.4 Mobility in soil**

No data available

**12.5 Results of PBT and vPvB assessment**

PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

**12.6 Other adverse effects**

An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.  
Very toxic to aquatic life with long lasting effects.

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**13. DISPOSAL CONSIDERATIONS****13.1 Waste treatment methods****Product**

Burn in a chemical incinerator equipped with an afterburner and scrubber but exert extra care in igniting as this material is highly flammable. Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber.

**Contaminated packaging**

Dispose of as unused product.

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**14. TRANSPORT INFORMATION****DOT (US)**

UN number: 3086      Class: 6.1 (5.1)      Packing group: II  
Proper shipping name: Toxic solids, oxidizing, n.o.s. (Potassium dichromate)  
Reportable Quantity (RQ): 10 lbs

Poison Inhalation Hazard: No

**IMDG**

UN number: 3086      Class: 6.1 (5.1)      Packing group: II      EMS-No: F-A, S-Q  
 Proper shipping name: TOXIC SOLID, OXIDIZING, N.O.S. (Potassium dichromate)  
 Marine pollutant:yes

**IATA**

UN number: 3086      Class: 6.1 (5.1)      Packing group: II  
 Proper shipping name: Toxic solid, oxidizing, n.o.s. (Potassium dichromate)

**15. REGULATORY INFORMATION****SARA 302 Components**

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

**SARA 313 Components**

The following components are subject to reporting levels established by SARA Title III, Section 313:

	CAS-No.	Revision Date
Potassium dichromate	7778-50-9	1993-04-24

**SARA 311/312 Hazards**

Reactivity Hazard, Acute Health Hazard, Chronic Health Hazard

**Massachusetts Right To Know Components**

	CAS-No.	Revision Date
Potassium dichromate	7778-50-9	1993-04-24

**Pennsylvania Right To Know Components**

	CAS-No.	Revision Date
Potassium dichromate	7778-50-9	1993-04-24

**New Jersey Right To Know Components**

	CAS-No.	Revision Date
Potassium dichromate	7778-50-9	1993-04-24

**California Prop. 65 Components**

WARNING! This product contains a chemical known to the State of California to cause cancer.

	CAS-No.	Revision Date
Potassium dichromate	7778-50-9	2014-06-06

WARNING: This product contains a chemical known to the State of California to cause birth defects or other reproductive harm.

	CAS-No.	Revision Date
Potassium dichromate	7778-50-9	2014-06-06

**16. OTHER INFORMATION****Full text of H-Statements referred to under sections 2 and 3.**

Acute Tox.	Acute toxicity
Aquatic Acute	Acute aquatic toxicity
Aquatic Chronic	Chronic aquatic toxicity
Carc.	Carcinogenicity
Eye Dam.	Serious eye damage
H272	May intensify fire; oxidizer.
H301	Toxic if swallowed.
H312	Harmful in contact with skin.
H314	Causes severe skin burns and eye damage.
H317	May cause an allergic skin reaction.
H318	Causes serious eye damage.
H330	Fatal if inhaled.
H334	May cause allergy or asthma symptoms or breathing difficulties if inhaled.
H340	May cause genetic defects.

H350 May cause cancer.  
H360 May damage fertility or the unborn child.  
H372 Causes damage to organs through prolonged or repeated exposure if inhaled.  
H400 Very toxic to aquatic life.  
H410 Very toxic to aquatic life with long lasting effects.

**HMIS Rating**

Health hazard: 4  
Chronic Health Hazard: \*  
Flammability: 0  
Physical Hazard 3

**NFPA Rating**

Health hazard: 4  
Fire Hazard: 0  
Reactivity Hazard: 3  
Special hazard.I: OX

**Further information**

Copyright 2016 Sigma-Aldrich Co. LLC. License granted to make unlimited paper copies for internal use only.  
The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See [www.sigma-aldrich.com](http://www.sigma-aldrich.com) and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

**Preparation Information**

Sigma-Aldrich Corporation  
Product Safety – Americas Region  
1-800-521-8956

Version: 4.8

Revision Date: 02/04/2016

Print Date: 05/28/2016



**Carcinogenicity:** This product does not contain any known carcinogens.

**Signs and Symptoms of Overexposure:**

N/Ap

**Medical Conditions Aggravated by Overexposure :**

N/Ap

**Emergency First Aid Procedures:**

**Eye Contact:** Flush eyes with copious amounts of water. If irritation develops, consult a physician.

**Skin Contact:** Wash with soap and water.

**Inhalation:** Not a hazard under normal conditions of use.

**Ingestion:** If a large amount has been ingested, induce vomiting.

**PRECAUTIONS FOR USE AND DISPOSAL**

**Spills:** Soak up spill with suitable absorbent or flush with plenty of water to sewer. Rinse area with water.

**Waste Disposal:** Rinse to sewer.

**Special Storage and Handling Precautions:**

None

**CONTROL MEASURES**

**Respiratory Protection:** Not required.

**Ventilation:** Local  Mechanical  Special

**Eye Protection:** Not normally required.

**Gloves:** Not normally required.

**Other:** None

**REGULATORY INFORMATION**

**DOT Ground Shipping Description:** NOT RESTRICTED

**IATA Air Shipping Description:** NOT RESTRICTED

**TSCA Status:** All ingredients in this product are listed.

**SARA Section 313:** None

**ADDITIONAL INFORMATION**

This MSDS prepared under the direction of: Wayne Koontz, Safety Director 10/19/87

Revised: 8/24/2011 PR

Revision: 1108

Date Printed: August 24, 2011

The information contained herein is furnished without warranty of any kind. Users should consider this data a supplement to other information gathered by them and are responsible for completeness of information to assure proper use of these materials and the safety and health of their employees.

# SAFETY DATA SHEET

**Preparation Date:** No data available

**Revision Date:** 04/24/2015

**Revision Number:** G1

**Product identifier**

**Product code:** P1346  
**Product Name:** POTASSIUM METABISULFITE, CRYSTAL, NF

**Other means of identification**

**Synonyms:** Dipotassium pyrosulfite; Dipotassium disulfite; Dipotassium metabisulfite; Potassium disulfite; Pyrosulfurous acid, dipotassium salt  
**CAS #:** 16731-55-8  
**RTECS #** TT4920000  
**CI#:** Not available

**Recommended use of the chemical and restrictions on use**

**Recommended use:** No information available.  
**Uses advised against** No information available

**Supplier:** Spectrum Chemicals and Laboratory Products, Inc.  
14422 South San Pedro St.  
Gardena, CA 90248  
(310) 516-8000

**Order Online At:** <https://www.spectrumchemical.com>

**Emergency telephone number** Chemtrec 1-800-424-9300  
**Contact Person:** Martin LaBenz (West Coast)  
**Contact Person:** Ibad Tirmiz (East Coast)

## 2. HAZARDS IDENTIFICATION

**Classification**

This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Serious eye damage/eye irritation	Category 2A
Respiratory sensitization	Category 1A
Skin sensitization	Category 1B

**Label elements**

**Danger****Hazard statements**

May be harmful if swallowed  
Causes serious eye irritation  
May cause allergy or asthma symptoms or breathing difficulties if inhaled  
May cause an allergic skin reaction  
May ignite in milling or grinding  
Liberates sulfur dioxide on contact with acids or in fire

**Hazards not otherwise classified (HNOC)**

Not Applicable

**Other hazards**

May be harmful if inhaled

**Precautionary Statements - Prevention**

Wash face, hands and any exposed skin thoroughly after handling  
Avoid breathing dust/fume/gas/mist/vapors/spray  
In case of inadequate ventilation wear respiratory protection  
Contaminated work clothing should not be allowed out of the workplace  
Wear protective gloves/protective clothing/eye protection/face protection

**Precautionary Statements - Response**

Specific treatment (see .? on this label)  
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice/attention.  
IF ON SKIN: Wash with plenty of soap and water  
If skin irritation or rash occurs: Get medical advice/attention  
Wash contaminated clothing before reuse  
IF INHALED: If breathing is difficult, remove victim to fresh air and keep at rest in a position comfortable for breathing. If experiencing respiratory symptoms: Call a POISON CENTER or doctor/physician.

**Precautionary Statements - Disposal**

Dispose of contents/container to an approved waste disposal plant

**3. COMPOSITION/INFORMATION ON INGREDIENTS**

Components	CAS-No.	Weight %	Trade Secret
Potassium Metabisulfite 16731-55-8	16731-55-8	100	*

**4. FIRST AID MEASURES****First aid measures****General Advice:**

Poison information centers in each State capital city can provide additional assistance for scheduled poisons (13 1126)

#### 4. FIRST AID MEASURES

<b>Skin Contact:</b>	Wash off immediately with soap and plenty of water removing all contaminated clothes and shoes. Get medical attention. If skin irritation persists, call a physician.
<b>Eye Contact:</b>	Flush eye with water for 15 minutes. Get medical attention if irritation occurs. If symptoms persist, call a physician.
<b>Inhalation:</b>	Move to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.
<b>Ingestion:</b>	Do not induce vomiting without medical advice. Never give anything by mouth to an unconscious person. Obtain medical attention.

#### **Most important symptoms and effects, both acute and delayed**

<b>Symptoms</b>	Causes serious eye irritation. May cause allergic skin reaction. May cause allergy or asthma symptoms or breathing difficulties if inhaled. May be harmful if inhaled. May be harmful if swallowed.
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#### **Indication of any immediate medical attention and special treatment needed**

<b>Notes to Physician:</b>	Treat symptomatically
----------------------------	-----------------------

#### **Protection of first-aiders**

First-Aid Providers: Avoid exposure to blood or body fluids. Wear gloves and other necessary protective clothing. Dispose of contaminated clothing and equipment as bio-hazardous waste

#### 5. FIRE-FIGHTING MEASURES

#### **Extinguishing Media**

**Suitable Extinguishing Media:** The product is not flammable.

**Unsuitable Extinguishing Media:** No information available.

#### **Specific hazards arising from the chemical**

**Hazardous Combustion Products:** No information available.

**Specific hazards:** When heated to decomposition it emits toxic fumes  
It may ignite during milling or grinding (when powdering it)

#### **Special Protective Actions for Firefighters**

**Specific Methods:** No information available.

**Special Protective Equipment for Firefighters:** As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear

## 6. ACCIDENTAL RELEASE MEASURES

### Personal precautions, protective equipment and emergency procedures

**Personal Precautions:** Ensure adequate ventilation. Use personal protective equipment. Avoid contact with skin, eyes and clothing. Keep people away from and upwind of spill/leak. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Remove all sources of ignition.

**Environmental precautions** Prevent further leakage or spillage if safe to do so. Prevent product from entering drains. Prevent entry into waterways, sewers, basements or confined areas.

### Methods and material for containment and cleaning up

**Methods for containment** Stop leak if you can do it without risk. Cover with plastic sheet to prevent spreading.

**Methods for cleaning up** Sweep up and shovel into suitable containers for disposal. Clean contaminated surface thoroughly.

## 7. HANDLING AND STORAGE

### Precautions for safe handling

#### **Technical Measures/Precautions:**

Provide sufficient air exchange and/or exhaust in work rooms. Keep away from incompatible materials.

#### **Safe Handling Advice:**

Wear personal protective equipment. Avoid contact with skin, eyes and clothing. Do not ingest. Do not breathe vapours/dust. Handle in accordance with good industrial hygiene and safety practice.

### Conditions for safe storage, including any incompatibilities

#### **Technical Measures/Storage Conditions:**

Keep container tightly closed in a dry and well-ventilated place. Store at room temperature in the original container. Store away from incompatible materials. Air sensitive. Heat sensitive.

#### **Incompatible Materials:**

Acids. Oxidizing agents.

## 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

### Control parameters

#### **National occupational exposure limits**

##### **United States**

Components	OSHA	NIOSH	ACGIH	AIHA WHEEL
Potassium Metabisulfite - 16731-55-8	None	None	None	None

##### **Canada**

Components	Alberta	British Columbia	Ontario	Quebec
Potassium Metabisulfite - 16731-55-8	None	None	None	None

##### **Australia and Mexico**

Components	Australia	Mexico
Potassium Metabisulfite 16731-55-8	None	None

## Appropriate engineering controls

### Engineering measures to reduce exposure:

Ensure adequate ventilation. 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.

## Individual protection measures, such as personal protective equipment

### Personal Protective Equipment

<b>Eye protection:</b>	Safety glasses. Safety glasses with side-shields.
<b>Skin and body protection:</b>	Chemical resistant apron. Gloves. Long sleeved clothing.
<b>Respiratory protection:</b>	Effective dust mask. Wear respirator with dust filter..
<b>Hygiene measures:</b>	Avoid contact with skin, eyes and clothing. Wash hands before breaks and immediately after handling the product. When using, do not eat, drink or smoke.

## 9. PHYSICAL AND CHEMICAL PROPERTIES

<b>Physical state:</b> Solid.	<b>Appearance:</b> Crystals. Powder.	<b>Color:</b> White.
<b>Odor:</b> Sulfurous.	<b>Taste</b> No information available	<b>Molecular/Formula weight:</b> 222.33
<b>Formula:</b> K <sub>2</sub> S <sub>2</sub> O <sub>5</sub>	<b>Flash point (°C):</b> No data available	<b>Flashpoint (°C/°F):</b> No information available.
<b>Flash Point Tested according to:</b> Not available	<b>Lower Explosion Limit (%):</b> No information available	<b>Upper Explosion Limit (%):</b> No information available
<b>Autoignition Temperature (°C/°F):</b> No information available	<b>pH:</b> No information available	<b>Melting point/range(°C/°F):</b> No information available
<b>Boiling point/range(°C/°F):</b> No information available	<b>Decomposition temperature(°C/°F):</b> 150°C/302°F	<b>Bulk density:</b> No information available
<b>Specific gravity:</b> 2.34	<b>Density (g/cm<sup>3</sup>):</b> No information available	<b>Vapor pressure @ 20°C (kPa):</b> No information available
<b>Evaporation rate:</b> No information available	<b>Vapor density:</b> 2.3	<b>VOC content (g/L):</b> No information available
<b>Odor threshold (ppm):</b> No information available	<b>Partition coefficient (n-octanol/water):</b> No information available	<b>Viscosity:</b> No information available
<b>Miscibility:</b> No information available	<b>Solubility:</b> Easily soluble in cold water Easily soluble in hot water Insoluble in alcohol Soluble in acids Soluble in alkaline	

## 10. STABILITY AND REACTIVITY

### Reactivity

Reactive with acids

Reactive with oxidizing agents

Liberates sulfur dioxide in contact with acids. Air sensitive. Moisture sensitive. It oxidizes to in air to sulfate, more readily in presence of moisture

### Chemical stability

#### **Stability:**

Stable under recommended storage conditions

#### **Possibility of Hazardous Reactions:**

Hazardous polymerization does not occur

#### **Conditions to avoid:**

Heat. Incompatible materials. Exposure to air. Exposure to moisture.

#### **Incompatible Materials:**

Acids. Oxidizing agents.

#### **Hazardous decomposition products:**

No information available

### Other Information

#### **Corrosivity:**

No information available

#### **Special Remarks on Corrosivity:**

No information available

## 11. TOXICOLOGICAL INFORMATION

### Information on likely routes of exposure

#### **Principal Routes of Exposure:**

Ingestion. Inhalation.

### Acute Toxicity

#### **Component Information**

*Potassium Metabisulfite - 16731-55-8*

**LD50/oral/rat** = 1800 mg/kg Oral LD50 Rat

**LD50/oral/mouse** = No information available

**LD50/dermal/rat** = No information available

**LD50/dermal/rabbit** = No information available

**LC50/inhalation/rat** = No information available

**LC50/inhalation/mouse** = No information available

**Other LD50 or LC50 information** = No information available

#### **Product Information**

**LD50/oral/rat** =

**VALUE- Acute Tox Oral** = No information available

**LD50/oral/mouse** =

**Value - Acute Tox Oral** = No information available

**LD50/dermal/rabbit**

**VALUE-Acute Tox Dermal** = No information available

**Product code:** P1346

**Product name:** POTASSIUM  
METABISULFITE, CRYSTAL, NF

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**LD50/dermal/rat**

VALUE -Acute Tox Dermal = No information available

**LC50/inhalation/rat**

VALUE-Vapor = No information available

VALUE-Gas = No information available

VALUE-Dust/Mist = No information available

**LC50/Inhalation/mouse**

VALUE-Vapor = No information available

VALUE - Gas = No information available

VALUE - Dust/Mist = No information available

**Symptoms****Skin Contact:** May cause allergic skin reaction.**Eye Contact:** Causes serious eye irritation.

**Inhalation** May cause allergy or asthma symptoms or breathing difficulties if inhaled.  
**Ingestion** May cause gastrointestinal tract irritation with abdominal pain, nausea, vomiting and diarrhea. May cause allergic/hypersensitivity/anaphylactoid reaction. Some asthmatics are said to be sensitive to minute amounts of sulfites in foods. It may cause a worsening of asthma in asthmatics. Individuals sensitive to sulfides may experience stomach upset, tightness in the chest, or wheezing. Extremely large concentrations may produce central nervous system, seizures, hypotension, tachycardia, and cardiovascular collapse.

**Aspiration hazard** No information available**Delayed and immediate effects as well as chronic effects from short and long-term exposure****Chronic Toxicity** No information available**Sensitization:** No information available**Mutagenic Effects:** No information available**Carcinogenic effects:** Not considered carcinogenic

Components	ACGIH - Carcinogens	IARC	NTP	OSHA HCS - Carcinogens	Australia - Prohibited Carcinogenic Substances	Australia - Notifiable Carcinogenic Substances
Potassium Metabisulfite	Not listed	Monograph 54 [1992] Sulfur dioxide and some sulfites bisulfites and metabisulfites	Not listed	Not listed	Not listed	Not listed

**Reproductive toxicity** No data is available**Reproductive Effects:** No information available**Developmental Effects:** No information available**Teratogenic Effects:** No information available**Specific Target Organ Toxicity****Product code:** P1346**Product name:** POTASSIUM METABISULFITE, CRYSTAL, NF

STOT - single exposure No information available  
 STOT - repeated exposure No information available  
 Target Organs: No information available

**12. ECOLOGICAL INFORMATION**

**Ecotoxicity**

**Ecotoxicity effects:** No data available.

*Potassium Metabisulfite - 16731-55-8*

**Freshwater Fish Species Data:** 220 - 460 mg/L LC50 Leuciscus idus 96 h static 1  
 460 - 1000 mg/L LC50 Brachydanio rerio 96 h static 1

**Persistence and degradability:** No information available

**Bioaccumulative potential:** No information available

**Mobility:** No information available

**13. DISPOSAL CONSIDERATIONS**

**Disposal Methods**

**Waste from residues / unused products:**  
 Waste must be disposed of in accordance with Federal, State and Local regulation.

**Contaminated packaging:**  
 Empty containers should be taken for local recycling, recovery or waste disposal

Components	RCRA - F Series Wastes	RCRA - K Series Wastes	RCRA - P Series Wastes	RCRA - U Series Wastes
Potassium Metabisulfite	None	None	None	None

**14. TRANSPORT INFORMATION**

**DOT**  
**UN-No:** Not Regulated  
**Proper Shipping Name:** No information available  
**Hazard Class:** No information available  
**Subsidiary Risk:** No information available  
**Packing Group:** None  
**ERG No:** No information available  
**Marine Pollutant:** No data available  
**DOT RQ (lbs):** No information available

**TDG (Canada)**  
**UN-No:** Not Regulated  
**Proper Shipping Name:** No information available  
**Hazard Class:** No information available  
**Subsidiary Risk:** No information available

## 14. TRANSPORT INFORMATION

**Packing Group:** No information available  
**Description:** No information available

### ADR

**UN-No:** Not Regulated  
**Proper Shipping Name:** No information available  
**Hazard Class:** No information available  
**Packing Group:** No information available  
**Subsidiary Risk:** No information available  
**Classification Code:** No information available  
**Description:** No information available  
**CEPIC Tremcard No:** No information available

### IMO / IMDG

**UN-No:** Not Regulated  
**Proper Shipping Name:** No information available  
**Hazard Class:** No information available  
**Subsidiary Risk:** No information available  
**Packing Group:** No information available  
**Description:** No information available  
**IMDG Page:** No information available  
**Marine Pollutant** No information available  
**MFAG:** No information available  
**Maximum Quantity:** No information available

### RID

**UN-No:** Not Regulated  
**Proper Shipping Name:** No information available  
**Hazard Class:** No information available  
**Subsidiary Risk:** No information available  
**Packing Group:** No information available  
**Classification Code:** No information available  
**Description:** No information available

### ICAO

**UN-No:** Not Regulated  
**Proper Shipping Name:** No information available  
**Hazard Class:** No information available  
**Subsidiary Risk:** No information available  
**Packing Group:** No information available  
**Description:** No information available

### IATA

**UN-No:** Not Regulated  
**Proper Shipping Name:** No information available  
**Hazard Class:** No information available  
**Subsidiary Risk:** No information available  
**Packing Group:** No information available  
**Description:** No information available

## 15. REGULATORY INFORMATION

### International Inventories

Components	U.S. TSCA	KOREA KECL	Philippines (PICCS)	Japan ENCS	CHINA	Australia (AICS)	EINECS-No.
Potassium Metabisulfite	Present	Present KE-12700	Present	Present (1)-453	Present	Present	Present 240-795-3

## U.S. Regulations

Potassium Metabisulfite

FDA - Food Additives Generally Recognized as Safe (GRAS): 21 CFR 182.3637

FDA - 21 CFR - Total Food Additives 182.3637

## California Prop. 65: Safe Drinking Water and Toxic Enforcement Act of 1986.

### Chemicals Known to the State of California to Cause Cancer:

WARNING: This product contains a chemical known to the State of California to cause cancer. (See table below)

### Chemicals Known to the State of California to Cause Reproductive Toxicity:

WARNING: This product contains a chemical known to the State of California to cause birth defects or other reproductive harm (See table below)

Components	Carcinogen	Developmental Toxicity	Male Reproductive Toxicity	Female Reproductive Toxicity:
Potassium Metabisulfite	Not Listed	Not Listed	Not Listed	Not Listed

## CERCLA/SARA

Components	CERCLA - Hazardous Substances and their Reportable Quantities	Section 302 Extremely Hazardous Substances and TPQs	Section 302 Extremely Hazardous Substances and RQs	Section 313 - Chemical Category	Section 313 - Reporting de minimis
Potassium Metabisulfite	None	None	None	None	None

## U.S. TSCA

Components	TSCA Section 5(a)2 - Chemicals With Significant New Use Rules (SNURS)	TSCA 8(d) -Health and Safety Reporting
Potassium Metabisulfite	Not Applicable	Not Applicable

## Canada

### WHMIS hazard class:

D2B Toxic materials

### Canada Controlled Products Regulation:

This product has been classified according to the hazard criteria of the CPR (Controlled Products Regulation) and the MSDS contains all of the information required by the CPR.

Components	WHMIS Ingredient Disclosure List -
Potassium Metabisulfite	1 %

## Inventory

Components	Canada (DSL)	Canada (NDSL)
Potassium Metabisulfite	Present	Not Listed

Components	CEPA Schedule I - Toxic Substances	CEPA - 2010 Greenhouse Gases Subject to Mandatory Reporting
Potassium Metabisulfite	Not listed	Not listed

**EU Classification****R-phrase(s)**

R31 - Contact with acids liberates toxic gas.

R36/37/38 - Irritating to eyes, respiratory system and skin.

**S -phrase(s)**

S26 - In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

S36/37 - Wear suitable protective clothing and gloves.

Components	Classification	Concentration Limits:	Safety Phrases
Potassium Metabisulfite		No information	

The product is classified in accordance with Annex VI to Directive 67/548/EEC

**Indication of danger:**

None.

**16. OTHER INFORMATION**

## 16. OTHER INFORMATION

**Revision Date:** 04/24/2015  
**Prepared by:** Sonia Owen

**Disclaimer:** All chemicals may pose unknown hazards and should be used with caution. This Safety Data Sheet (SDS) 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 SDS. The physical properties reported in this SDS are obtained from the literature and do not constitute product specifications. Information contained herein does not constitute a warranty, whether expressed or implied, as to the safety, merchantability or fitness of the goods for a particular purpose. Spectrum Chemicals & Laboratory Products, Inc. assumes no responsibility for results obtained or for incidental or consequential damages, including lost profits, arising from the use of these data. No warranty against infringement of any patent, copyright or trademark is made or implied. 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 SDS is based on technical data judged to be reliable, Spectrum assumes no responsibility for the completeness or accuracy of the information contained herein.

**End of Safety Data Sheet**

## SAFETY DATA SHEET

Version 3.15  
Revision Date 10/14/2015  
Print Date 06/20/2016

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**1. PRODUCT AND COMPANY IDENTIFICATION****1.1 Product identifiers**

Product name : Glyoxal solution

Product Number : 128465  
Brand : Sigma-Aldrich

**1.2 Relevant identified uses of the substance or mixture and uses advised against**

Identified uses : Laboratory chemicals, Synthesis of substances

**1.3 Details of the supplier of the safety data sheet**

Company : Sigma-Aldrich  
3050 Spruce Street  
SAINT LOUIS MO 63103  
USA

Telephone : +1 800-325-5832  
Fax : +1 800-325-5052

**1.4 Emergency telephone number**

Emergency Phone # : (314) 776-6555

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**2. HAZARDS IDENTIFICATION****2.1 Classification of the substance or mixture****GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)**

Acute toxicity, Inhalation (Category 4), H332  
Skin irritation (Category 2), H315  
Serious eye damage (Category 1), H318  
Skin sensitisation (Category 1), H317  
Germ cell mutagenicity (Category 2), H341

For the full text of the H-Statements mentioned in this Section, see Section 16.

**2.2 GHS Label elements, including precautionary statements**

Pictogram



Signal word : Danger

Hazard statement(s)

H315 : Causes skin irritation.  
H317 : May cause an allergic skin reaction.  
H318 : Causes serious eye damage.  
H332 : Harmful if inhaled.  
H341 : Suspected of causing genetic defects.

Precautionary statement(s)

P201 : Obtain special instructions before use.  
P202 : Do not handle until all safety precautions have been read and understood.  
P261 : Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray.

P264	Wash skin thoroughly after handling.
P271	Use only outdoors or in a well-ventilated area.
P272	Contaminated work clothing should not be allowed out of the workplace.
P280	Wear protective gloves/ protective clothing/ eye protection/ face protection.
P302 + P352	IF ON SKIN: Wash with plenty of soap and water.
P304 + P340 + P312	IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER or doctor/ physician if you feel unwell.
P305 + P351 + P338 + P310	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER or doctor/ physician.
P308 + P313	IF exposed or concerned: Get medical advice/ attention.
P333 + P313	If skin irritation or rash occurs: Get medical advice/ attention.
P362	Take off contaminated clothing and wash before reuse.
P405	Store locked up.
P501	Dispose of contents/ container to an approved waste disposal plant.

### 2.3 Hazards not otherwise classified (HNOC) or not covered by GHS - none

## 3. COMPOSITION/INFORMATION ON INGREDIENTS

### 3.2 Mixtures

Synonyms : Oxalaldehyde  
Ethanedial

Formula :  $C_2H_2O_2$   
Molecular weight : 58.04 g/mol

#### Hazardous components

Component	Classification	Concentration
<b>Ethandial</b>		
CAS-No. 107-22-2	Acute Tox. 4; Skin Irrit. 2; Eye Dam. 1; Skin Sens. 1; Muta. 2; H315, H317, H318, H332, H341	>= 30 - < 50 %
EC-No. 203-474-9		
Index-No. 605-016-00-7		

For the full text of the H-Statements mentioned in this Section, see Section 16.

## 4. FIRST AID MEASURES

### 4.1 Description of first aid measures

#### General advice

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

#### If inhaled

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

#### In case of skin contact

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

#### In case of eye contact

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

#### If swallowed

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

### 4.2 Most important symptoms and effects, both acute and delayed

The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

### 4.3 Indication of any immediate medical attention and special treatment needed

No data available

---

## 5. FIREFIGHTING MEASURES

### 5.1 Extinguishing media

#### Suitable extinguishing media

Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

### 5.2 Special hazards arising from the substance or mixture

Carbon oxides

### 5.3 Advice for firefighters

Wear self-contained breathing apparatus for firefighting if necessary.

### 5.4 Further information

No data available

---

## 6. ACCIDENTAL RELEASE MEASURES

### 6.1 Personal precautions, protective equipment and emergency procedures

Use personal protective equipment. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas.

For personal protection see section 8.

### 6.2 Environmental precautions

Prevent further leakage or spillage if safe to do so. Do not let product enter drains.

### 6.3 Methods and materials for containment and cleaning up

Soak up with inert absorbent material and dispose of as hazardous waste. Keep in suitable, closed containers for disposal.

### 6.4 Reference to other sections

For disposal see section 13.

---

## 7. HANDLING AND STORAGE

### 7.1 Precautions for safe handling

Avoid contact with skin and eyes. Avoid inhalation of vapour or mist.

For precautions see section 2.2.

### 7.2 Conditions for safe storage, including any incompatibilities

Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage.

Storage class (TRGS 510): Non Combustible Liquids

### 7.3 Specific end use(s)

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

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## 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

### 8.1 Control parameters

#### Components with workplace control parameters

Component	CAS-No.	Value	Control parameters	Basis
Ethandial	107-22-2	TWA	0.100000 mg/m3	USA. Workplace Environmental Exposure Levels (WEEL)
	Remarks	Dermal Sensitization Notation		
		TWA	0.100000 mg/m3	USA. ACGIH Threshold Limit Values (TLV)
		Upper Respiratory Tract irritation Larynx metaplasia Not classifiable as a human carcinogen Sensitizer		
		TWA	0.1 mg/m3	USA. ACGIH Threshold Limit Values (TLV)
		Dermal Sensitization		

		Upper Respiratory Tract irritation Larynx metaplasia 2015 Adoption Not classifiable as a human carcinogen		
		TWA	0.1 mg/m3	USA. Workplace Environmental Exposure Levels (WEEL)
		Dermal Sensitization Notation		

## 8.2 Exposure controls

### Appropriate engineering controls

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

### Personal protective equipment

#### Eye/face protection

Tightly fitting safety goggles. Faceshield (8-inch minimum). Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

#### Skin protection

Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

#### Full contact

Material: Nitrile rubber

Minimum layer thickness: 0.11 mm

Break through time: 480 min

Material tested: Dermatril® (KCL 740 / Aldrich Z677272, Size M)

#### Splash contact

Material: Nitrile rubber

Minimum layer thickness: 0.11 mm

Break through time: 480 min

Material tested: Dermatril® (KCL 740 / Aldrich Z677272, Size M)

data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 87300, e-mail sales@kcl.de, test method: EN374

If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the CE approved gloves. This recommendation is advisory only and must be evaluated by an industrial hygienist and safety officer familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.

#### Body Protection

Complete suit protecting against chemicals, The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

#### Respiratory protection

Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multi-purpose combination (US) or type ABEK (EN 14387) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

#### Control of environmental exposure

Prevent further leakage or spillage if safe to do so. Do not let product enter drains.

## 9. PHYSICAL AND CHEMICAL PROPERTIES

### 9.1 Information on basic physical and chemical properties

- |                    |   |
|--------------------|---|
| a) Appearance      | Form: clear, liquid<br>Colour: colourless |
| b) Odour           | No data available                         |
| c) Odour Threshold | No data available                         |

d) pH	No data available
e) Melting point/freezing point	No data available
f) Initial boiling point and boiling range	No data available
g) Flash point	No data available
h) Evaporation rate	No data available
i) Flammability (solid, gas)	No data available
j) Upper/lower flammability or explosive limits	No data available
k) Vapour pressure	No data available
l) Vapour density	No data available
m) Relative density	1.270 g/cm <sup>3</sup>
n) Water solubility	No data available
o) Partition coefficient: n-octanol/water	No data available
p) Auto-ignition temperature	No data available
q) Decomposition temperature	No data available
r) Viscosity	No data available
s) Explosive properties	No data available
t) Oxidizing properties	No data available

## 9.2 Other safety information

No data available

---

## 10. STABILITY AND REACTIVITY

### 10.1 Reactivity

No data available

### 10.2 Chemical stability

Stable under recommended storage conditions.

### 10.3 Possibility of hazardous reactions

No data available

### 10.4 Conditions to avoid

No data available

### 10.5 Incompatible materials

Strong bases, Strong oxidizing agents

### 10.6 Hazardous decomposition products

Other decomposition products - No data available  
In the event of fire: see section 5

---

## 11. TOXICOLOGICAL INFORMATION

### 11.1 Information on toxicological effects

#### Acute toxicity

No data available

Inhalation: No data available

Dermal: No data available

No data available

**Skin corrosion/irritation**

No data available

**Serious eye damage/eye irritation**

No data available

**Respiratory or skin sensitisation**

No data available

**Germ cell mutagenicity**

No data available

**Carcinogenicity**

IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

**Reproductive toxicity**

No data available

No data available

**Specific target organ toxicity - single exposure**

No data available

**Specific target organ toxicity - repeated exposure**

No data available

**Aspiration hazard**

No data available

**Additional Information**

RTECS: Not available

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

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**12. ECOLOGICAL INFORMATION**

**12.1 Toxicity**

No data available

**12.2 Persistence and degradability**

No data available

**12.3 Bioaccumulative potential**

No data available

**12.4 Mobility in soil**

No data available

**12.5 Results of PBT and vPvB assessment**

PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

**12.6 Other adverse effects**

No data available

---

## 13. DISPOSAL CONSIDERATIONS

### 13.1 Waste treatment methods

#### Product

Contact a licensed professional waste disposal service to dispose of this material. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber. Offer surplus and non-recyclable solutions to a licensed disposal company.

#### Contaminated packaging

Dispose of as unused product.

---

## 14. TRANSPORT INFORMATION

#### DOT (US)

Not dangerous goods

#### IMDG

Not dangerous goods

#### IATA

Not dangerous goods

---

## 15. REGULATORY INFORMATION

#### SARA 302 Components

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

#### SARA 313 Components

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

#### SARA 311/312 Hazards

Acute Health Hazard, Chronic Health Hazard

#### Massachusetts Right To Know Components

No components are subject to the Massachusetts Right to Know Act.

#### Pennsylvania Right To Know Components

	CAS-No.	Revision Date
Water	7732-18-5	
Ethandial	107-22-2	2007-03-01

#### New Jersey Right To Know Components

	CAS-No.	Revision Date
Water	7732-18-5	
Ethandial	107-22-2	2007-03-01

#### California Prop. 65 Components

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

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## 16. OTHER INFORMATION

#### Full text of H-Statements referred to under sections 2 and 3.

Acute Tox.	Acute toxicity
Eye Dam.	Serious eye damage
H315	Causes skin irritation.
H317	May cause an allergic skin reaction.
H318	Causes serious eye damage.
H332	Harmful if inhaled.
H341	Suspected of causing genetic defects.

Muta.	Germ cell mutagenicity
Skin Irrit.	Skin irritation
Skin Sens.	Skin sensitisation

**HMIS Rating**

Health hazard:	2
Chronic Health Hazard:	*
Flammability:	0
Physical Hazard	0

**NFPA Rating**

Health hazard:	2
Fire Hazard:	0
Reactivity Hazard:	0

**Further information**

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**Preparation Information**

Sigma-Aldrich Corporation  
Product Safety – Americas Region  
1-800-521-8956

Version: 3.15

Revision Date: 10/14/2015

Print Date: 06/20/2016

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sigma-aldrich.com

## SAFETY DATA SHEET

Version 4.8  
Revision Date 06/24/2014  
Print Date 06/20/2016

### 1. PRODUCT AND COMPANY IDENTIFICATION

#### 1.1

Product identifiers

Product name : Gelatin, from porcine skin

Product Number : G2500

Brand : Sigma

CAS-No. :  
9000-70-8

#### 1.2

Relevant identified uses of the substance or mixture and uses advised against

Identified uses : Laboratory chemicals, Manufacture of substances

#### 1.3

Details of the supplier of the safety data sheet

Company :

Sigma-Aldrich

3050 Spruce Street

SAINT LOUIS MO 63103

USA

Telephone : +1 800-325-5832

Fax : +1 800-325-5052

#### 1.4

Emergency telephone number

Emergency Phone # :

(314) 776-6555

### 2. HAZARDS IDENTIFICATION

#### 2.1

Classification of the substance or mixture

Not a hazardous substance or mixture.

## 2.2

GHS Label elements, including precautionary statements  
Not a hazardous substance or mixture.

## 2.3

Hazards not otherwise classified (HNOC) or not covered by GHS -none

## 3. COMPOSITION/INFORMATION ON INGREDIENTS

### 3.1 Substances

CAS-No. : 9000-70-8

EC-No. : 232-554-6

No ingredients are hazardous according to OSHA criteria.

No components need to be disclosed according to the applicable regulations.

## 4. FIRST AID MEASURES

### 4.1

Description of first aid measures

If inhaled

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

In case of skin contact

Wash off with soap and plenty of water.

In case of eye contact

Flush eyes with water as a precaution.

If swallowed

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

### 4.2

Most important symptoms and effects, both acute and delayed

The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

### 4.3

Indication of any immediate medical attention and special treatment needed

no data available

## 5. FIREFIGHTING MEASURES

### 5.1

Extinguishing media

Suitable extinguishing media

Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

### 5.2

Special hazards arising from the substance or mixture

Nature of decomposition products not known.

### 5.3

Advice for firefighters

Wear self contained breathing apparatus for fire fighting if necessary.

### 5.4

Further information

no data available

## 6. ACCIDENTAL RELEASE MEASURES

### 6.1

Personal precautions, protective equipment and emergency procedures

Avoid dust formation. Avoid breathing vapours, mist or gas.

For personal protection see section 8.

### 6.2

Environmental precautions

Do not let product enter drains.

### 6.3

Methods and materials for containment and cleaning up

Sweep up and shovel. Keep in suitable, closed containers for disposal.

### 6.4

Reference to other sections

For disposal see section 13.

## 7. HANDLING AND STORAGE

### 7.1

Precautions for safe handling

Provide appropriate exhaust ventilation at places where dust is formed.

For precautions see section 2.2.

### 7.2

Conditions for safe storage, including any incompatibilities

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

Keep in a dry place. Keep in a dry place.

### 7.3

Specific end use(s)

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

## 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

### 8.1

Control parameters

Components with workplace control parameters

Contains no substances with occupational exposure limit values.

### 8.2

Exposure controls

Appropriate engineering controls

General industrial hygiene practice.

Personal protective equipment

Eye/face protection

Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin protection

Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Body Protection

Choose body protection in relation to its type, to the concentration and amount of dangerous substances, and to the specific work-place., The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection

Respiratory protection is not required. Where protection from nuisance levels of dusts are desired, use type

N95 (US) or type P1 (EN 143) dust masks. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Control of environmental exposure

Do not let product enter drains.

## 9. PHYSICAL AND CHEMICAL PROPERTIES

### 9.1 Information on basic physical and chemical properties

a) Appearance Form: powder

Colour: light yellow

b) Odour no data available

c) Odour Threshold no data available

d) pH 4.0 -7 at 66.7 g/l at 60 °C (140 °F)

e) Melting point/freezing point no data available

f) Initial boiling point and boiling range no data available

g) Flash point no data available

h) Evaporation rate no data available

i) Flammability (solid, gas) no data available

j) Upper/lower flammability or explosive limits no data available

k) Vapour pressure no data available

l) Vapour density no data available

m) Relative density no data available

n) Water solubility no data available

o) Partition coefficient: n-octanol/water no data available

p) Auto-ignition temperature no data available

q) Decomposition temperature no data available

r) Viscosity no data available

s) Explosive properties no data available

t) Oxidizing properties no data available

### 9.2 Other safety information

no data available

## 10. STABILITY AND REACTIVITY

### 10.1

Reactivity

no data available

10.2

Chemical stability

Stable under recommended storage conditions.

10.3

Possibility of hazardous reactions

no data available

10.4

Conditions to avoid

Exposure to moisture may affect product quality.

10.5

Incompatible materials

Strong oxidizing agents

10.6

Hazardous decomposition products

Other decomposition products -no data available

In the event of fire: see section 5

## 11. TOXICOLOGICAL INFORMATION

11.1

Information on toxicological effects

Acute toxicity

no data available

Inhalation: no data available

Dermal: no data available

no data available

Skin corrosion/irritation

no data available

Serious eye damage/eye irritation

no data available

Respiratory or skin sensitisation

no data available

Germ cell mutagenicity

no data available

## Carcinogenicity

IARC: No component of this product present at levels greater than or equal to 0.1% is identified as

probable, possible or confirmed human carcinogen by IARC.

ACGIH: No component of this product present at levels greater than or equal to 0.1% is identified as a

carcinogen or potential carcinogen by ACGIH.

NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a

known or anticipated carcinogen by NTP.

OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a

carcinogen or potential carcinogen by OSHA.

## Reproductive toxicity

no data available

no data available

## Specific target organ toxicity -single exposure

no data available

## Specific target organ toxicity -repeated exposure

no data available

## Aspiration hazard

no data available

## Additional Information

RTECS: LX8580000

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

## 12. ECOLOGICAL INFORMATION

### 12.1

#### Toxicity

no data available

12.2

Persistence and degradability  
no data available

12.3

Bio-accumulative potential  
no data available

12.4

Mobility in soil  
no data available

12.5

Results of PBT and vPvB assessment  
PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6

Other adverse effects  
no data available

### 13. DISPOSAL CONSIDERATIONS

13.1

Waste treatment methods

Product

Offer surplus and non-recyclable solutions to a licensed disposal company.

Contaminated packaging

Dispose of as unused product.

### 14. TRANSPORT INFORMATION

DOT (US)

Not dangerous goods

IMDG

Not dangerous goods

IATA

Not dangerous goods

### 15. REGULATORY INFORMATION

SARA 302 Components

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

#### SARA 313 Components

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

#### SARA 311/312 Hazards

No SARA Hazards

#### Massachusetts Right To Know Components

No components are subject to the Massachusetts Right to Know Act.

#### Pennsylvania Right To Know Components

#### New Jersey Right To Know Components

Gelatin Gelatin

CAS-No.

9000-70-8

Revision Date

California Prop. 65 Components

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

#### 16. OTHER INFORMATION

HMIS Rating

Health hazard:

Chronic Health Hazard:

Flammability:

Physical Hazard

0

0

0

NFPA Rating

Health hazard:

Fire Hazard:

Reactivity Hazard:

0

0

0

## Further information

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## Preparation Information

Sigma-Aldrich Corporation  
Product Safety –  
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Version: 4.8 Revision Date: 06/24/2014 Print Date: 06/20/2016

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