

1. PRODUCT AND COMPANY IDENTIFICATION

Product Identity: Standard B&W Film Developer

Recommended use of the chemical and restrictions on use: Developer for black and white film

Supplier: Sprint Systems of Photography, Inc.
60 Kindergarten St.
Woonsocket, RI 02895
Telephone: +1 800 356-5073

Emergency Phone: For Chemical Emergency
Call ChemTel (1-800-255-3924)

SDS Date of Preparation: 10/6/16

2. HAZARDS IDENTIFICATION

Classification in accordance with US OSHA Hazcom 2012 and Canada WHMIS 2015:

Carcinogen Category 2
Eye Damage Category 1
Germ Cell Mutagen Category 2
Skin Sensitizer Category 1B
Toxic to Reproduction Category 1B
Toxic to Reproduction Category 2
Specific Target Organ Toxicity – Repeated Exposure Category 2

GHS Label Elements:



Danger!

Statements of Hazard

Causes serious eye damage.
May cause an allergic skin reaction.
Suspected of causing genetic defects.
Suspected of causing cancer.
May damage the unborn child.
Suspected of damaging fertility or the unborn child. May cause damage to kidneys through prolonged or repeated ingestion.

Precautionary Phrases

Obtain special instructions before use.
Do not handle until all safety precautions have been read and understood.
Do not breathe mist or vapor.
Contaminated work clothing must not be allowed out of the workplace.
Wear protective gloves, protective clothing, and eye protection. If exposed or concerned: Get medical attention.

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.

IF ON SKIN: Wash with plenty of water.

If skin irritation or rash occurs: Get medical attention.

Take off contaminated clothing and wash it before reuse.

Store locked up.

Dispose of contents and container in accordance with local and national regulations.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Component	CAS No.	Amount
Sodium Metabisulfite	7681-57-4	5-15%
Potassium Tetraborate Tetrahydrate	12045-78-2	<10%
Ethylene Glycol	107-21-1	<3%
Hydroquinone	123-31-9	<3%
Diethylene Glycol	111-46-6	<2%
Dimethyl Formamide	68-12-2	<2%
Sodium Metaborate Dihydrate	10555-76-7	<2%

The exact concentration is being withheld as a trade secret.

4. FIRST AID MEASURES

Eye: Rinse cautiously with water for several minutes. Remove contact lenses if present and easy to do then continue rinsing. Get immediate medical attention.

Skin: Remove contaminated clothing and shoes. Flush skin thoroughly with water for several minutes. Get medical attention if irritation or rash occurs. Launder clothing before re-use.

Ingestion: Seek immediate medical attention for ingestion of large amounts. Call local poison control center or go to an emergency department. Never give anything by mouth to or induce vomiting in an unconscious or drowsy person.

Inhalation: Remove victim to fresh air and keep comfortable for breathing. Get medical attention if symptoms occur and persist.

Most Important Symptoms: May cause serious eye irritation, redness, tearing and corneal damage. May cause skin sensitization. Inhalation may cause respiratory irritation. May damage fertility or the unborn child. Suspected of causing genetic defects. Suspected of causing cancer. Risk of cancer depends on duration and level of exposure. May cause damage to the kidneys through prolonged or repeated ingestion. May be absorbed through the skin. Prolonged overexposure may cause lung, liver and kidney damage. Ingestion may cause abdominal discomfort or pain, nausea, vomiting, dizziness, drowsiness, malaise, blurring of vision, irritability, back pain, decrease in urine output, kidney failure, and central nervous system effects.

Indication of immediate medical attention/special treatment: Immediate medical attention is required for eye contact.

Immediate medical attention may be required for ingestion of large amounts of ethylene glycol and if symptoms occur. The principal toxic effects of ethylene glycol, when swallowed, are kidney damage and metabolic acidosis. The combination of metabolic acidosis, an osmol gap and oxalate crystals in the urine is evidence of ethylene glycol poisoning.

Pulmonary edema with hypoxemia has been described in a number of patients following poisoning with ethylene glycol. Respiratory support with mechanical ventilation may be required.

There may be cranial nerve involvement in the late stages of toxicity from swallowed ethylene glycol. In particular, effects have been reported involving the seventh, eighth, and ninth cranial nerves, presenting with bilateral facial paralysis, diminished hearing and dysphagia.

Ethanol is antidotal and its early administration may block the formation of nephrotoxic metabolites of ethylene glycol in the liver. The objective is to rapidly achieve and maintain a blood ethanol level of approximately 100 mg/dl by giving a loading dose of ethanol followed by a maintenance dose. Intravenous administration of ethanol is the preferred route. Ethanol blood levels should be checked frequently. Hemodialysis may be required. In many areas, Fomepizole® administration has replaced ethanol therapy.

4-Methyl pyrazole (Fomepizole®), a potent inhibitor of alcohol dehydrogenase, has been used therapeutically to decrease the metabolic consequences of ethylene glycol poisoning. Fomepizole® is easier to use clinically than ethanol, does not cause CNS depression or hypoglycemia and requires less monitoring than ethanol. Additional therapeutic modalities which may decrease the adverse consequences of ethylene glycol metabolism are the administration of both thiamine and pyridoxine. As there are complicated and serious overdoses, we recommend you consult with the toxicologists at your poison control center.

5. FIRE FIGHTING MEASURES

Suitable (and Unsuitable) Extinguishing Media: Use media appropriate for the surrounding environment.

Specific Hazards Arising From the Chemical: Fire may produce carbon dioxide, carbon monoxide, and sulfur oxide.

Special Protective Equipment and Precautions for Fire-Fighters: Firefighters should wear NIOSH approved positive pressure self-contained breathing apparatus (SCBA) and full protective clothing for all fires involving chemicals. Contain water used in firefighting from entering sewers or natural waterways.

6. ACCIDENTAL RELEASE MEASURES

Personal Precautions, Protective Equipment, and Emergency Procedures: Avoid contact with eyes, skin and clothing. Do not breathe mist or vapors. Wear personal protective as described in Section 8. Avoid releases to the environment.

Methods and Materials for Containment and Cleaning Up: Contain and collect using inert absorbent materials, such as sand and diatomaceous earth, and place in appropriate containers for disposal. Report releases as required by local, state and federal authorities.

7. HANDLING AND STORAGE

Precautions for Safe Handling: Avoid contact with eyes, skin and clothing. Do not breathe mist or vapors. Wear protective clothing and equipment as described in Section 8. Wash thoroughly with soap and water after handling. Keep containers closed when not in use.

Do not reuse containers. Empty containers retain product residues and contaminants which can be hazardous. Follow all SDS precautions when handling empty containers.

Conditions for Safe Storage, Including Any Incompatibilities: Store in a cool, dry, well ventilated area away from heat and incompatible materials. Protect from physical damage.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Exposure Guidelines:

Sodium Metabisulfite	5 mg/m ³ TWA (ACGIH TLV)
Potassium Tetraborate Tetrahydrate	None Established
Ethylene Glycol	100 mg/m ³ CEIL (ACGIH TLV)
Hydroquinone	1 mg/m ³ TWA (ACGIH TLV) 2 mg/m ³ TWA (OSHA PEL)
Diethylene Glycol	10 mg/m ³ TWA (AIHA WEEL)
Dimethyl Formamide	10 ppm TWA (ACGIH TLV) (Skin) 10 ppm TWA (OSHA PEL) (Skin)
Sodium Metaborate Dihydrate	None Established

Engineering Controls: Use with adequate ventilation to maintain exposure levels below the exposure limits.

Respiratory Protection: In operations where exposures limits are exceeded, an approved respirator with dust/mist cartridges or supplied air respirator should be used. Respirator selection and use should be based on contaminant type, form and concentration. Follow applicable regulations and good Industrial Hygiene practice.

Skin Protection: Wear butyl rubber or other impervious gloves where contact is likely. Contact your glove supplier for selection assistance.

Eye Protection: Chemical safety goggles should be worn where splashing is possible.

Other: None known.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance and Odor: Light yellow to brown liquid with a sulfur dioxide odor.

Physical State: Liquid	Odor Threshold: No data available
Vapor Density: 0.6	Initial Boiling Point/Range: >100°C (>212°F)
Solubility In Water: Soluble	Vapor Pressure: No data available
Relative Density: 1.2	Evaporation Rate: Not applicable (Buac=1)
Melting/Freezing Point: No data available	pH: 8.7
VOC Content: Not determined	Octanol/Water Coefficient: No data available
Solubility: No data available	Decomposition Temperature: Not available
Viscosity: No data available	Flammability (solid, gas): Not applicable
Flashpoint: >200°F (>93°C) (PMCC)	Autoignition Temperature: Not data available

Flammable Limits: LEL: Not applicable UEL: Not applicable	
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10. STABILITY AND REACTIVITY

Reactivity: Not normally reactive.

Chemical Stability: Stable under normal storage and handling conditions.

Possibility of Hazardous Reactions: None known.

Conditions to Avoid: Avoid extreme temperatures.

Incompatible Materials: Acidic materials, strong oxidizers, metals, and organic materials.

Hazardous Decomposition Products: Decomposition may yield carbon dioxide, carbon monoxide, and sulfur oxide.

11. TOXICOLOGICAL INFORMATION

HEALTH HAZARDS:

Eye: May cause serious eye irritation, redness, tearing and corneal damage.

Skin: This product is not a skin irritant. The primary dermal irritation score was 0.08 following a 4-hour occluded dermal exposure in a modified FHSA/CPSC Design, 16 CFR 1500. May cause an allergic skin reaction (sensitization).

Ingestion: May cause abdominal discomfort or pain, nausea, vomiting, dizziness, drowsiness, malaise, blurring of vision, irritability, back pain, decrease in urine output, kidney failure, and central nervous system effects, including irregular eye movements, convulsions and coma. Cardiac failure, pulmonary edema and severe kidney damage may develop from swallowing large amounts of ethylene glycol. A few reports have been published describing the development of weakness of the facial muscles, diminishing hearing, and difficulty with swallowing, during the late stages of severe poisoning.

Inhalation: Inhalation of vapors or mists may cause mucous membrane and respiratory irritation. High vapor concentrations may produce headache, nausea, dizziness and irregular eye movements.

Chronic: Ethylene Glycol: A few reports have been published describing the development of weakness of the facial muscles, diminishing hearing, and difficulty with swallowing, during the late stages of severe poisoning. Prolonged occupational overexposure may cause effects on the nervous system and lung damage. Ethylene glycol has been shown to cause birth defects in studies with laboratory animals. However, the significance of this finding to humans has not been determined.

Sensitization: This product is classified as a skin sensitizer. Hydroquinone is classified as a skin sensitizer.

Carcinogenicity: Hydroquinone was tested by the NTP in 2 year gavage studies with rats and mice. There was some evidence of carcinogenic activity of hydroquinone for male F344/N rats, as shown by marked increase in tubular cell adenomas of the kidney. For the female F344/N rats, there was some evidence of carcinogenic activity as shown by increases in mononuclear cell leukemia. There was no evidence of carcinogenic for male B6C3F1 mice administered 50 or 100 mg/kg in water by gavage. There was some evidence of carcinogenic activity for female B6C3F1 mice which were increases in hepatocellular neoplasms, mainly adenomas. Administration of hydroquinone was associated with thyroid follicular cell hyperplasia in both male and female mice and anisokaryosis, multinucleated hepatocytes, and basophilic foci of the liver in male mice. Hydroquinone is a confirmed animal carcinogen with unknown relevance to humans. Hydroquinone is listed by IARC as Unclassifiable as

to Carcinogenicity in Human (group 3). None of the other components present are listed as a carcinogen or suspected carcinogen by IARC, NTP, ACGIH, or OSHA.

Germ Cell Mutagenicity: This product is suspected of causing genetic defects. Hydroquinone is classified as a mutagen. Ethylene glycol: Two chronic feeding studies, using rats and mice, have not produced any evidence that ethylene glycol causes dose-related increases in tumor incidence or a different pattern of tumors compared with untreated controls. The absence of carcinogenic potential for ethylene glycol has been supported by numerous in vitro genotoxicity studies showing that it does not produce mutagenic or clastogenic effects.

Reproductive Toxicity: This product is classified as toxic to reproduction. Inorganic borates have been reported to cause adverse reproductive and developmental effects in laboratory animals given high oral doses. Ethylene Glycol: Ethylene glycol has been shown to produce dose-related teratogenic effects in rats and mice when given by gavage or in drinking water at high concentrations or doses. Also, in a preliminary study to assess the effects of exposure of pregnant rats and mice to aerosols at concentrations 150, 1,000 and 2,500 mg/m³ for 6 hours a day throughout the period of organogenesis, teratogenic effects were produced at the highest concentrations, but only in mice. The conditions of these latter experiments did not allow a conclusion as to whether the developmental toxicity was mediated by inhalation of aerosol, percutaneous absorption of ethylene glycol from contaminated skin, or swallowing of ethylene glycol as a result of grooming the wetted coat. In a further study, comparing effects from high aerosol concentration by whole-body or nose-only exposure, it was shown that nose-only exposure resulted in maternal toxicity (1,000 and 2,500 mg/m³) and developmental toxicity in the fetus with minimal evidence of teratogenicity (2,500 mg/m³). The no-effects concentration (based on maternal toxicity) was 500 mg/m³. In a further study in mice, no teratogenic effects could be produced when ethylene glycol was applied to the skin of pregnant mice over the period of organogenesis. The above observations suggest that ethylene glycol is to be regarded as an animal teratogen; there is currently no available information to suggest that ethylene glycol caused birth defects in humans. Cutaneous application of ethylene glycol is ineffective in producing developmental toxicity; exposure to high aerosol concentration is only minimally effective in producing developmental toxicity; the major route for producing developmental toxicity is perorally.

Numerical Measures of Toxicity:

Product ATE: >2000 mg/kg (oral), >2000 mg/kg (skin), >50 mg/L (inhalation)

Sodium Metabisulfite: Oral rat LD₅₀: 3200 mg/kg, Inhalation rat LC₅₀: > 5.5 mg/L/4 hr, Skin rat LD₅₀: > 2000 mg/kg

Potassium Tetraborate Tetrahydrate: Not toxicity data available

Ethylene Glycol: Oral rat LD₅₀: 7712 mg/kg; Inhalation rat LC₅₀: >200 mg/m³/4hr; Skin rabbit LD₅₀: > 3500 mg/kg

Hydroquinone: Oral rat LD₅₀: 367 mg/kg, Skin rabbit LD₅₀: > 2000 mg/kg

Diethylene Glycol: Oral rat LD₅₀: 12,565 mg/kg; Skin rabbit LD₅₀: 11,890 mg/kg

Dimethyl Formamide: Oral rat LD₅₀: 3010 mg/kg, Inhalation rat LC₅₀: > 5.85 mg/L/4 hr, Skin rat LD₅₀: > 3160 mg/kg

Sodium Metaborate Dihydrate: Oral rat LD₅₀: 2330 mg/kg, Inhalation rat LC₅₀: > 2.04 mg/L/4 hr, Skin rabbit LD₅₀: > 2000 mg/kg

12. ECOLOGICAL INFORMATION

Ecotoxicity:

Sodium Metabisulfite: 96hr LC₅₀ Leuciscus idus: > 220 - < 460 mg/L

Ethylene Glycol: 96 hr LC₅₀ Fathead minnow 49,000-57,000 mg/L, 48 hr EC₅₀ Daphnia magna - 46,300 mg/L, 72 hr EC₅₀ Selenastrum capricornutum (algae) 6,500-13,000 mg/L

Hydroquinone: 96 hr LC₅₀ Rainbow trout: 0.638 mg/L, 48 hr EC₅₀ Daphnia magna: 0.134 mg/L, 48 hr NOEC Daphnia magna: 0.095 mg/L, 21 day NOEC Daphnia magna: 0.0057 mg/L (M-factor acute: 10, M-factor chronic: 1)

Diethylene Glycol: 96hr LC₅₀ Lepomis macrochirus (Bluegill fish): 1,000 mg/L

Dimethyl Formamide: 96 hr LC₅₀ Lepomis macrochirus: 7100 mg/L

Sodium Metaborate Dihydrate: 96 hr LC₅₀ Limanda limanda: 74 mg/L

This product is very toxic to aquatic life and toxic to aquatic life with long lasting effects. Releases to the environment should be avoided.

Persistence and Degradability:

Ethylene Glycol: Readily biodegradable - >90% in 28 days

Hydroquinone: Readily biodegradable 70% in 14 days

Diethylene glycol: Readily biodegradable -90% in 28 days.

Dimethyl Formamide: Readily biodegradable 100% in 21 days.

Bioaccumulative Potential: Diethylene glycol is not expected to bioaccumulate in aquatic organisms. The BCF for ethylene glycol is 10 in fish which suggests the potential for bioaccumulation in aquatic organisms is low.

Mobility in Soil: Diethylene glycol is expected to have a high rate of mobility in soil. Ethylene glycol is expected to have a very high mobility in soil.

Other Adverse Effects: No data available.

13. DISPOSAL CONSIDERATIONS

Dispose in accordance with local and national environmental regulations.

RCRA Waste Code: Not regulated.

14. TRANSPORT INFORMATION

DOT Hazardous Materials Description:

Proper Shipping Name: Not Regulated

UN Number: Not applicable

Hazard Class/Packing Group: Not applicable

Labels Required: Not applicable

IMDG Shipping Name: Environmentally hazardous substance, liquid, n.o.s. (Hydroquinone)

UN Number: UN3082

IMDG Hazard Class/Packing Group: 9, PG III

IMDG Hazard Labels Required: Class 9, Marine Pollutant

IATA Shipping Name: Environmentally hazardous substance, liquid, n.o.s. (Hydroquinone)

UN Number: None

IATA Hazard Class/Packing Group: 9, PG III

IATA Hazard Labels Required: Class 9, Marine Pollutant

15. REGULATORY INFORMATION

CERCLA 103 Reportable Quantity: This product has an RQ of 3,333 based on the RQ of Hydroquinone of 100 lbs. Many states have more stringent release reporting requirements. Report spills required under federal, state and local regulations.

Hazard Category for Section 311/312: Acute Health, Chronic Health

Section 313 Toxic Chemicals: This product contains the following chemicals subject to Annual Release Reporting Requirements Under SARA Title III, Section 313 (40 CFR 372):

Component	CAS No.	Amount
Ethylene Glycol	107-21-1	<3%
Hydroquinone	123-31-9	<3%
Dimethyl Formamide	68-12-2	<2%

Section 302 Extremely Hazardous Substances (TPQ): Hydroquinone 500/10,000 lbs

STATE REGULATIONS:

California Proposition 65: This product can expose you to chemicals including Ethylene glycol, which is known to the State of California to cause birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov.

INTERNATIONAL CHEMICAL INVENTORY STATUS:

United States TSCA: All the components are listed.

Canada DSL: This product contains a component that is listed on the Non-Domestic Substances List (NDSL).

16. OTHER INFORMATION

NFPA Rating: Health = 3

Flammability = 1

Instability = 0

HMIS Rating: Health = 3*

Flammability = 1

Physical Hazard = 0

*Chronic Health Hazard

Date of Current Revision: 10/6/16

Revision Summary: New SDS

Date of Previous Revision: None

NOTICE

This above information is believed to be correct but does not propose to be all inclusive and shall be used only as a guide. Sprint Systems of Photography, Inc. shall not be held liable for any damage resulting from handling or from contact with the above product. This information relates only to the product designated herein and does not relate to its use in combination with any other material or process.