

MATERIAL SAFETY DATA SHEET

SECTION I *Product Identification and Emergency Information*

PRODUCT NAME: Pureflow Silver Recovery Cartridge Proprietary Ingredient

CHEMICAL NAME: Thiram (**Tetramethylthiuram disulfide**)

PRODUCT DESCRIPTION: Proprietary blend of materials, including thiram, designed to precipitate metals from photographic and other metal-bearing wastewaters. The proprietary blend of materials, including thiram, is a white powder encapsulated in an inner container within the sealed polyolefin Pureflow silver recovery cartridge. If an unused Pureflow silver recovery cartridge, and the inner container were to be ruptured, the appearance of a white powder would indicate a release of thiram. During use, Pureflow cartridges are filled with waste photochemical solution. This MSDS does not describe the hazards of photochemical solutions.

EMERGENCY PHONE NUMBER: 408-988-4386

MANUFACTURED BY: ECS Refining, 705 Reed St. Santa Clara, Ca. 95050

SECTION II *Hazardous Ingredient Information*

SOLVENT	% TLV (units)
Not Applicable	Not Applicable

HAZARDOUS MIXTURES OF OTHER LIQUIDS, SOLIDS OR GASSES	% TLV (units)
Not Applicable	Not Applicable

SECTION III *Physical Data*

BOILING POINT	SPECIFIC GRAVITY (H₂O = 1)
Not Applicable	~0.7 (bulk density)

VAPOR PRESSURE (mm Hg)	% VOLATILE BY VOLUME (%)
1.72 X 10 ⁻⁵ mm Hg at 25 °C	Not Applicable

SOLUBILITY IN WATER	VAPOR DENSITY (air = 1)
<35mg/L	Not Applicable

EVAPORATION RATE (ether = 1)	APPEARANCE AND ODOR
Not Applicable	A white to off-white granular solid with little to no odor.

SECTION III *Hazards Identification*

Exposure to this product will only occur if a Pureflow cartridge is broken. The hazard identification information provided applies to small quantities of the Product which might be released in the event that a Pureflow cartridge is broken.

Emergency Overview: Dust may be irritating to eyes and upper respiratory tract. Highly toxic to fish and aquatic invertebrates. May cause sensitization by skin contact.

Eye Contact: Causes mild eye irritation. Signs/symptoms may include redness, swelling, pain, and tearing.

Skin Contact: May cause allergic skin reaction. May be absorbed through the skin and product effects similar to those caused by inhalation and/or ingestion.

Inhalation: Exposure to dust particles generated from this material may cause irritation of the respiratory tract. Inhalation may cause alcohol intolerance

Ingestion: May cause alcohol intolerance (Antabuse Effect). May cause headache, dizziness, nausea, vomiting, and gastrointestinal irritation.

SECTION IV *First Aid Measures*

In Eyes: In case of contact, immediately flush eyes with plenty of water for at least 15 minutes and get medical attention if irritation persists.

On Skin: In case of contact, immediately flush skin with plenty of soap and water for at least 15 minutes. Remove contaminated clothing and launder before reuse. Get medical attention if irritation persists.

Inhaled: Remove person to fresh air. If breathing is difficult, get immediate medical attention.

Swallowed: If swallowed, call a physician immediately. Only induce vomiting at the instruction of a physician. Never give anything by mouth to an unconscious person.

Notes To Physician: Treat symptomatically. Exposure by ingestion, inhalation or skin absorption may cause alcohol intolerance (Antabuse Effect)

SECTION V *Toxicological Information*

Acute Oral LD50 (mg/kg): 620 - 1900 mg/kg (rat)

Acute Dermal LD50 (mg/kg): >7940 mg/kg (rat)

Acute Inhalation LC50 (mg/l): >500 mg/m³ (rat)

Principle Routes of Exposure: Dermal - skin. Inhalation.

Ingestion: May cause headache, dizziness, nausea, vomiting, gastrointestinal irritation.

Skin Contact: May cause an allergic skin reaction. May be absorbed through the skin and product effects similar to those caused by inhalation and/or ingestion.

Inhalation: Exposure to dust particles generated from this material may cause irritation of the respiratory tract.

Eye Contact: Causes mild eye irritation. Mild Eye Irritation: signs/symptoms can include redness, swelling, pain, and tearing.

Aggravated Conditions: Alcohol consumption problems.

Carcinogenicity Comment: This product or one of its ingredients present 0.1% or more is NOT listed as a carcinogen or suspected carcinogen by NTP, IARC, or OSHA.

Other: Ingestion of the product may result in vomiting.

Primary Irritation Effect: Practically non-irritating.

Carcinogenicity: Negative in standard tests using bacteria and yeast cells.

Genotoxicity: None

Reproductive/Developmental Toxicity:

High doses caused reproductive effects in rats and mice.

SECTION VI *Ecological Data*

Acute Fish Toxicity: 96Hr LC₅₀ Rainbow Trout 0.13 mg/L 96Hr LC₅₀ Bluegill Sunfish 0.13 mg/L
96Hr LC₅₀ Guppy 0.27 mg/L

Acute Crustaceans Toxicity: 48Hr LC₅₀ Daphnia Magna 0.21 mg/L

Acute Algae Toxicity: 96Hr LC₅₀ 1.00 mg/L

Octanol/Water Coefficient: 1.82 log P

Chemical Fate Information: Hydrolysis Half-life: 9.5 hrs @ pH 3.5, 108 hrs @ pH 5.7, 1123 hrs @ pH 7.0, 3316 hrs @ pH 8.0

SECTION VII *Fire and Explosion Data*

FLASHPOINT

>200°F by closed cup method

FLAMMABLE LIMITS

Not Applicable

EXTINGUISHING MEDIA: Dry chemical, carbon dioxide, 3 – 6% chemical foam AFFF

SPECIAL FIREFIGHTING PROCEDURES: Firefighters must wear SCBA. Do not allow runoff to enter waterways.

UNUSUAL FIRE AND EXPLOSION HAZARDS: Keep work areas free from ignition sources and hot surfaces. Keep sealed containers away from flame due to explosion hazard. Burning material may produce toxic smoke. Carbon monoxide, carbon dioxide and acid gas fumes will be produced if material is burned. Wear suitable protective equipment.

SECTION VIII *Reactivity Data*

INSTABILITY: Stable when stored at room temperature in closed container.

Stable under normal conditions of handling, use and transportation.

POLYMERIZATION: Not Applicable

INCOMPATIBILITY: Strong acids

DECOMPOSITION: Thermal will produce carbon monoxide, carbon dioxide, and acid gases.

SECTION IXI *Spill or Leak Procedures*

Keep all sources of ignition from release. Wear safety glasses and impermeable gloves when handling spilled product. Avoid generating dust. Prevent material from entering drains.

WASTE DISPOSAL: Follow all local, state, and federal regulations.

SECTION X *Handling*

Eye Protection: Wear safety glasses or goggles to protect against exposure.

Handling: Avoid contact with eyes, skin and clothing. Avoid generating or breathing dust. Wash thoroughly with soap and water after handling. Wash hands before eating, drinking, chewing gum, using tobacco or using the toilet.

Exposure Controls/Personal Protection: Use impermeable gloves as a standard industrial handling procedure if cleaning up a spill. Launder any contaminated clothing before reuse.

SECTION XI *Notes*

All information presented herein is based upon data from recognized technical sources. This information is furnished without warranty, expressed or implied, as to accuracy or completeness. It is the user's responsibility to determine the safety, toxicity, suitability of use, handling and disposal of the product. The data in this MSDS relate only to the Product when used as part of Pureflow PF-16 silver recovery cartridges, and do not relate to use in combination with any other material or process. Final determination of suitability of any material for any use is the sole responsibility of the user.