MATERIAL SAFETY DATA SHEET (MSDS)

Section I Chemical Product & Company Identification

Preparation Information : This MSDS was prepared by David M. Stone, President, PHOTOGRAPHIC SOLUTIONS, INC. phone : (508) 759-2322

Date prepared 15 MAY 2006

Product Identifier : **PEC-12®**

Manufactured by : PHOTOGRAPHIC SOLUTIONS, INC.
260 Main St
Buzzards Bay, MA 02532

Emergency Phone : CHEMTREC (800) 424-9300 24 hours / 7 days

Product Use : PEC-12® is intended for removing non-water based stains, markings and debris from conventional silver-based photographic emulsions (films and/or prints whether in color or B&W) . It is best to spray a few drops onto a soft lint free applicator and then wipe the moistened applicator lightly over the area to be cleaned.

Hazardous Ingredients

1) Chemical Identity - alkanol and carboxylic acid ester
2) The specific ingredients are classified as Confidential Business Information (CBI) by the Hazardous Materials Information Review Commission. Registry # 6627 was granted on 15 MAY 2006.

Section II Composition and Ingredient Information

Chemical Identity **:** The specific ingredients are classified as a TRADE SECRET pursuant to 29CFR 1910.1200(i) and the Massachusetts Department of Public Health's Trade Secret registration # 99-155-001. Concentrations of the chemical used in PEC-12 are also considered A Trade Secret and are proprietary.

The specific ingredients are classified as Confidential Business Information (CBI) by the Hazardous Materials Information Review Commission. Registry # 6627 was granted on 06 MAR 1996

Section III Hazards Identification

FLAMMABLE LIQUID
Causes Eye Irritation
Ingestion may cause blindness.

Avoid prolonged breathing of vapors as it may cause dizziness, nausea and/or headache.
Avoid prolonged and/or repeated skin contact as it may cause drying, cracking and/or irritation.
NFPA Hazard Rating : **Health 1; Flammability - 3; Chemical Reactivity - 0**
Personal Protection - C

Section IV First Aid Measures

If **inhaled**, remove person to fresh air. Treat symptomatically. Get medical attention if symptoms persist. In case of **eye contact**, immediately flush eyes with plenty of water for at least 20 minutes. Remove contact lenses. Get medical attention. In case of **skin contact**, wash skin with soap and water. Remove contaminated clothing. Get medical attention if symptoms occur. Wash clothing before re-use. If **ingested**, do not dilute with fluids and do not induce vomiting. Seek immediate medical attention. If breathing has stopped, trained personnel should begin artificial respiration immediately. If the heart has stopped, trained personnel should begin cardiopulmonary resuscitation immediately.

Section V Fire Fighting Measures

IN CASE OF FIRE : Wear self-contained breathing apparatus and protective clothing.
Vapors may travel a considerable distance causing a flash fire or flashback. Use a dry chemical carbon dioxide (CO_2) , or foam. Keep fire exposed containers cool with a water spray. Water may be ineffective in fire-fighting.
Hazardous combustion products : Carbon monoxide (CO) and Carbon Dioxide (CO_2**)**

CBI#1 ACGIH/TLV of 1000ppm OSHA PEL of 1000 ppm
CBI#2 ACGIH/TLV of 150ppm OSHA PEL of 200 ppm ACGIH/STEL of 200 ppm

Section VI Accidental Release Measures

Procedures to be used in case of leak/spill : Eliminate all ignition sources. Assure adequate ventilation and/or respirators for clean-up personnel. For large spills use water spray to disperse vapors and flush spill area. Prevent runoff from entering drains, sewers and streams. Wipe smaller spills with untreated clean cloths, wipes or vermiculite. Dispose of same by incineration.

Waste Disposal : Dispose of minute excess by placing container out doors and allow to evaporate.

Section VII Handling & Storage

Handling procedures & equipment : Product should be sprayed into a cloth or swab (the applicator) by lightly and partially depressing sprayer. Applicator should be touching sprayer when spraying as this will eliminate a large percentage of product from becoming airborne and significantly reduce wasting product. When used as directed and intended, this product does not require special handling procedures, HOWEVER, when product is in constant or repeated use, adequate ventilation must be provided, and protective gloves should be worn. Because PEC-12 is designed to remove skin oils from film/prints, persons with chronically dry or sensitive skin, excema, etc. should wear gloves regardless of frequency of handling.

Storage requirements : Store away from heat and/or ignition sources, open flames, etc. For added safety, a storage cabinet specifically designed for flammable liquids should be utilized.

Section VIII Exposure Controls & Personal Protection

NFPA Hazard Rating : **Personal Protection - C**
Respiratory protection : a respirator for organic solvents should be used if airborne cannot be maintained below recommended limits (12 air changes per hour or 850ppm). **Eye protection** : wear safety goggles with side shields. **Skin protection** : gloves should be worn for prolonged or repeated contact. A high quality plastic examination glove should be adequate. **Recommended decontamination facilities** : eye bath and washing facilities.

Exposure Limits : 850 ppm ACGIH ; OSHA STEL-C value of 200ppm.

Section IX Physical & Chemical Properties
1) Physical form & color : a colorless liquid at room temperature
2) Odor & Odor threshold : a distinctive "fruity" odor ; 850 ppm
3) Specific Gravity at 77^{o}F : .824 (water = 1)
4) Vapor Pressure at 68^{o}F (mm Hg) = 43.2
5) Vapor Density > 1 (air=1)
6) Evaporation rate >1 (Butyl acetate=1)
7) Boiling Point = 165 ^{o}F
8) Freezing Point = +/- -100 ^{o}F
9) pH = 7.0
10) Coefficient of water/oil distribution : No oil or water present
11) Conditions of flammability : exposure to sparks and open flame
12) Means of extinction: CO_2 , foam or dry chemicals
13) Flash point : 75 ^{o}F using Tag Closed Cup method
14) Upper flammable limit : 15% volume in air STP
15) Lower flammable limit : 2% volume in air STP
16) Auto Ignition temperature: +/- 750^{o}F
17) Sensitivity to mechanical impact : insensitive at 550 inch pounds
18) Sensitivity to static discharge : not available
19) Solubility in water : readily soluble

Section X Stability & Reactivity
1) Conditions under which the product is chemically unstable : none.
2) Incompatibility :

CBI#1 : This ingredient is incompatible and causes violent reactions or ignitions with the following substances : Acetyle Bromide,Platinum,Potassium *tert*-butoxide,Phosphorus III oxide,Sodium, and Disulfuryl DiFloride (violent reaction when mixed at ambient temperatures)
CBI#2 : This ingredient is incompatible with Potassium *tert*-butoxide

3) Conditions of reactivity : on exposure to strong oxidizing agents
4) Hazardous decomposition products : Carbon monoxide (CO) and carbon dioxide (CO_2)
5) Hazardous polymerization : will not occur

Section XI Toxicological Information

Routes of entry : inhalation, skin, ingestion , eyes
Effects of acute exposure : ingestion may cause nausea, vomiting, flushing, central nervous system depression or excitement, drowsiness, impaired perception, incoordination, stupor, coma, altered blood fats, abnormal heart rhythm and respiratory arrest. Acute inhalation may cause headache, irritation of the nose & upper respiratory tract and eyes, narcosis, numbness & difficulty breathing.
Effects of chronic exposure : Chronic ingestion of an ingredient in the product has been shown to cause degeneration of the liver in experimental animals. Chronic dermal exposure to the product has been shown to cause dermatitis in experimental animals. Chronic dermal exposure to product can result in dry and fissured skin.
Chronic ingestion of CBI#1 causes degeneration of the brain, peripheral nerves, heart and skeletal muscles as well as testicular and sperm effects as stated in section 3.1.3 of the TPS.
Irritancy : an irritant to the eyes causing a burning sensation
Acute Toxicity Data :
CBI#1 LD_{50} (oral, rat) value : 10600 mg/kg ; Dermal rabbit LD50 > 16000 mg/kg ; rat LC50 of 31000 mg/m^3 (4h, vapor) ;; CBI#2 oral rat LD50 of 10768 mg/kg cited as 12.2 ml/kg and dermal rabbit LD50>17600mg/kg cited as 20 ml/kg (density = 0.88)
and a rat LC50 160ppm (740 mg/m^3)

Skin irritation (guinea pig) : slight
Eye irritation (rabbit) : moderate
Reproductive toxicity : NOELS could not be determined.

Mutagenicity: CBI#1 has produced mutagenic effects in germ cells and somatic cells *in vivo* and in himan lymphocytes *in vitro* as stated in Section 10 of the TPS.

Fetotoxicity / Teratatoxicity : CBI#1 has been found to cause teratogenic, fetotoxic, and developmental effects at high doses in experimental animals in the presence of maternal toxicity as stated in section 9 of the TPS.

Synergisms : CBI#1 has synergistic effects with carbon tetrachloride, trichloroethylene, chloroform, N-butyraoxime and manganese as stated in section 11 of the TPS.

Section XII Ecological Information

This summary is designed to provide assistance should an accidental spill occur during shipment and does not address discharges to sanitary sewers or publicly owned treatment facilities. This product is expected to have a high BOD (Biochemical Oxygen Demand) and a potential to cause oxygen depletion in aquatic systems. It has a low potential to affect aquatic organisms and a low potential to persist in the environment. When diluted with large volumes of water, this product is not expected to have a significant impact as it is readily biodegradable and is not expected to bioconcentrate.

Section XIII Disposal Considerations

Incinerate. Residual vapors should be allowed to evaporate from empty container before discarding. Applicators which contain product in the amounts required for normal usage may be left to evaporate.

PEC-12® contains no chemicals which are classified as F001 or F002 as defined in the EPA Hazardous Waste list, July 1 1995 Edition of 40CFR Chapter 1, Section 261.31.

Section XIV Transportation Information

DOT : not regulated. if packaged according to DOT and/or carrier's requirements for ground/surface transport for Other Regulated Materials, Class D (ORM-D)

IATA : Consumer Commodity, ID8000
Class 9 Packing Instruction 910 (There is no Packing Group Designation)
for International air shipments only

IMDG : regulated. (UN1993)
page # 3230
Flammable Liquid NOS & Marine Pollutant

This product may be shipped via surface (ground) services if properly packaged and marked as a CONSUMER COMMODITY ORM-D. Consult carrier regulations for packaging requirements and suitability of mailing of ORM-D materials.

SPECIAL NOTE : Many carriers may not or will not allow this product to be shipped without knowing the specific chemical identities involved. In such cases, because of the Trade Secret designation, the product may not be offered for transport via these carriers.

Section XV Regulatory Information

This MSDS has been prepared in accordance with the requirements of the OSHA Hazard Communication Standard 29CFR1910.1200.

OZONE DEPLETING CHEMICALS (CFC'S or HCFC's) : **NONE**

CARCENOGENICITY : components present in concentrations of 0.1% or more :
Internat'l Agency for Research on Cancer (IARC) : **NOT LISTED**
Amer. Conference of Governmental Industrial Hygienists (ACGIH) : **NOT LISTED**
Nat'l Toxicology Program (NTP) : **NOT LISTED**
Occupational Safety & Health Admin. (OSHA) : **NOT LISTED**

CALIF. PROPOSITION 65 (The Safe Drinking Water & Toxic Enforcement Act of 1986 : Materials known to the State to cause cancer : **NONE**

CALIF. PROPOSITION 65 (The Safe Drinking Water & Toxic Enforcement Act of 1986 : Materials known to the State to cause adverse reproductive effects : **NONE**

Chemicals subject to the reporting requirements of SARA Title III and 40CFR part 372 : **NONE**

SARA Section 311 and 312 Hazard Classifications : fire hazard ; immediate (acute) health hazard
CERCLA and DOT reportable quantities : 5000 lb.
US Substance Control Act (TOSCA) : One or more of the ingredients are listed.

In addition to Class B disclosed on the Form 1 Part II, ingredients in this product also meet the following WHMIS classification criteria:
Class D1B - acute inhalation toxicity of CBI #2 (section 11.3.2).

Class D2A - in vivo mutagenicity of CBI #1 on germ cells (section 12.3 of TPS)

Class D2B - eye irritation of CBI #1 as stated in Section 12.3 of the TPS.
- eye irritation of CBI #2.

Section XVI Other Information

This product is sold for professional photographic use only. It is not to be used or sold for personal, family or household use. Manufacturer can assume no liability if product is used in any manner inconsistent with its labeling or intent.

The information accumulated herein is believed to be accurate but is not warranted to be, whether originating with the company or not. Recipients are advised to confirm in advance of need that the information is current, applicable and suitable to their circumstances.

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