GAGAN Agarwal

11/15/06

Supercedes

DY. S. Campbell

FUJIFILM

MATERIAL SAFETY DATA SHEET

Product Number: 000000000000838227

FOR ANY HEALTH & MEDICAL EMERGENCY, 24 HOURS /7 DAYS CALL:	**1-800-365-8951**
FOR ALL TRANSPORTATION ACCIDENTS, CALL CHEMTREC:	1-800-424-9300
FOR ALL MSDS REQUESTS & QUESTIONS,CALL CUSTOMER SERVICE:	1-800-553-6546

PRODUCT NAME: **MICROSTRIP®**

1. PRODUCT AND COMPANY IDENTIFICATION

REVISION DATE:	01-10-2005
SUPERCEDES:	01-09-2005
MSDS NO:	01026
SYNONYMS:	None
CHEMICAL FAMILY:	Organic mixture
DESCRIPTION / USE:	Photoresist Stripper
FORMULA:	Not applicable/Mixture

FUJIFILM ELECTRONIC MATERIALS U.S.A., INC. 80 CIRCUIT ROAD NORTH KINGSTOWN, RI 02852

2. COMPOSITION / INFORMATION ON INGREDIENTS

CAS or CHEMICAL NAME	CAS #	% Range
Percholorethylene	127-18-4	30 - 35
Benzene, 1,2-dichloro-	95-50-1	25 - 30
Benzenesulfonic acid, dodecyl-	27176-87-0	20 - 25
Phenol, 2-methyl-	95-48-7	15 - 25

3. HAZARDS IDENTIFICATION

OSHA Hazard Classification: corrosive to eyes, corrosive to skin, corrosive to mucous membranes, eye hazard, skin hazard, liver toxin, kidney toxin, nervous system toxin, lung toxin, blood toxin, possible carcinogen

Routes of Entry:	Inhalation, skin, eyes, ingestion
Chemical Interactions:	alcohols Clordecone (Kepone) Alloxan or streptozotocin (diabetic inducers) Polychlorinated and polybrominated biphenyls

Medical Conditions Aggravated: blood disorders, Liver, kidney, central nervous system disorders

Human Threshold Response Data

Odor Threshold:	
Percholorethylene	50.0 ppm
Benzene, 1,2-dichloro-	0.3 ppm
Irritation Threshold:	
Percholorethylene	100.0 - 200.0 ppm

Hazardous Materials Identification System/National Fire Protection Association Classifications

Hazard Ratings:	Health	Flammability	Reactivity
HMIS	3*	0	0
NFPA	Not established		

Immediate (Acute) Health Effects

Inhalation Toxicity:	Not expected to cause significant toxicity unless there is prolonged exposure to high concentrations. Inhalation of high concentrations may result in central nervous system (CNS) effects such as dizziness, weakness, fatigue, nausea, headache, and lack of coordination. Inhalation of high concentrations may cause cardiac sensitization leading to risk of arrhythmia (irregular heartbeat).
Inhalation Irritation:	Inhalation of this material may produce severe irritating and/or corrosive effects to the nose, mouth, throat, and respiratory tract. It may cause burns which can result in symptoms which may include coughing, wheezing, choking, shortness of breath, chest pain, and impairment of lung function.
Skin Contact:	Dermal exposure can cause severe irritation characterized by redness and swelling. Prolonged skin exposure may cause scab formation and/or permanent damage. Dermal contact may cause defatting of skin and/or dermatitis.
Skin Absorption:	Moderately toxic if absorbed through the skin. Effects are similar to inhalation exposure.
Eye Contact	Severe irritation and/or burns can occur following exposure. Direct contact may cause impairment of vision and corneal damage. Rinsing of the eye should take place immediately. Reversible corneal opacity or visual impairment may occur if this product is not washed out promptly and left in the eye for an extended period of time.
Ingestion Irritation:	Ingestion may cause irritation of the gastrointestinal tract and gastrointestinal discomfort with any or all of the following symptoms: nausea, vomiting, lethargy or diarrhea. Significant exposure to this material can lead to serious health effects and/or death. Aspiration may lead to lung damage.
Ingestion Toxicity:	Slightly toxic if swallowed. Exposure to large quantities of this material may result in liver and kidney damage, based on animal studies.

Acute Target Organ Toxicity: Blood, Eyes, Skin, Liver, Kidneys, Lungs, Central nervous system

Prolonged (Chronic) Health Effects

Carcinogenicity:	Contains a substance that has caused cancer in high dose studies in laboratory animals. There is no evidence that the substance is carcinogenic to humans.
Reproductive and Developmental Toxicity:	No reproductive or developmental risk to humans is expected from exposure to this product.

Inhalation:	Prolonged or repeated exposure may cause kidney, liver and blood damage. Prolonged or repeated exposure may cause lung damage. Inhalation may cause severe central nervous system depression (including unconsciousness).
Skin Contact:	Prolonged or repeated exposure may cause more severe irritation. Dermal contact may cause defatting of skin and/or dermatitis.
Skin Absorption:	Prolonged or repeated exposure, may lead to harmful amounts of material being absorbed through the skin.
Ingestion:	Chronic (repeated) exposure has resulted in liver and other tumors. Other effects are similar to inhalation exposure.

Chronic Target Organ Toxicity:	Blood, Liver, Kidneys, Central nervous system, Skin
Supplemental Health Hazard Information:	No additional health information available.

4. FIRST AID MEASURES

Inhalation:	IF INHALED: Remove individual to fresh air. If not breathing, give artificial respiration. If breathing is difficult or respiratory irritation develops, give oxygen. Call for medical assistance.
Skin Contact:	IF ON SKIN: Immediately flush skin with plenty of water for 15 minutes. If clothing comes in contact with the product, the clothing should be removed immediately and lanudered before re-use. Seek medical attention.
Eyes:	IF IN EYES: Immediately flush eyes with plenty of water for at least 15 minutes while holding eyelids apart. Call a physician immediately.
Ingestion:	IF SWALLOWED: Call a physician immediately. DO NOT induce vomiting unless directed to do so by a physician. Never give anything by mouth to an unconscious person.

5. FIRE FIGHTING MEASURES

Flammability Summary (OSHA):	Product is not known to be flammable, combustible, pyrophoric or explosive.

Flammable Properties

Flash Point:	> 99 Deg. C. / > 210 Deg. F. (Test Method: Tag Closed Cup)
Autoignition Temperature:	No data
Upper Flammable/Explosive Limit, % in air:	9 %
Lower Flammable/Explosive Limit, % in air:	2 %
Fire/Explosion Hazards:	Material may be ignited if preheated to temperatures above the flash point in the presence of a source of ignition.
Extinguishing Media:	Use alcohol foam, carbon dioxide,dry chemical or water spray when fighting fires. Water or foam may cause frothing if liquid solvent or oil is burning but it still may be a useful extinguishing agent if carefully applied to the fire.
Fire Fighting Instructions:	Response to this material requires the use of a full encapsulated suit and full-face (NIOSH approved) self-contained breathing apparatus (SCBA). Use water to cool containers.
Hazardous Combustion Products:	Sulfur containing gases, Hydrogen chloride, carbon dioxide, carbon monoxide, Phosgene

6. ACCIDENTAL RELEASE MEASURES

Personal Protection for Emergency Situations:	Additional protective clothing must be worn to prevent personal contact with this material. Those items include but are not limited to boots, impervious gloves, hard hat, splash-proof goggles, impervious clothing, i.e., chemically impermeable suit, self-contained breathing apparatus.

Spill Mitigation Procedures

Air Release:	Vapors may be suppressed by the use of water fog. Contain all liquid for treatment and/or disposal as a (potential) hazardous waste.
Water Release:	This material is heavier than water. This material is insoluble in water. Contain all liquid for treatment and/or disposal as a (potential) hazardous waste. Notify all downstream users of possible contamination. Divert water flow around spill if possible and safe to do so.
Land Release:	Create a dike or trench to contain materials. If unable to remove as a liquid, absorb in clay, sand or a commercial absorbent. Decontaminate all clothing and the spill area using a detergent and flush with large amounts of water. Absorb spill with inert material (e.g., dry sand, clay, earth or commercial absorbent), then place in a chemical waste container. Contain all contaminated water for disposal and/or treatment.
Additional Spill Information:	Hazardous concentrations in air may be found in local spill area and immediately downwind. Stop source of spill as soon as possible and notify appropriate personnel. Utilize emergency response personal protection equipment prior to the start of any response. Evacuate all non-essential personnel. Dispose of spill residues per guidelines under Section 13, Disposal Consideration.

7. HANDLING AND STORAGE

Handling:	Do not take internally. Avoid contact with skin, eyes and clothing. Upon contact with skin or eyes, wash off with water. Avoid breathing mist or vapor. Ground and bond containers when transferring material.
Storage:	Store in a cool dry ventilated location, away from sources of ignition or other incompatible conditions and chemicals. Keep container(s) closed. Store away from heat.
Shelf Life Limitations:	See label or certificate of analysis for shelf life if applicable.
Incompatible Materials for Storage:	Refer to Section 10, "Incompatible Materials."

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Ventilation:	Local exhaust ventilation or other engineering controls are necessary when handling or using this product. Use local exhaust ventilation to maintain levels below exposure limits.

Protective Equipment for Routine Use of Product

Respiratory Protection:	Wear a NIOSH approved respirator if levels above the exposure limits are possible.
Respirator Type(s):	A NIOSH approved air purifying respirator with organic vapor cartridge. Air purifying respirators should not be used in oxygen deficient or IDLH atmospheres or if exposure concentrations exceed ten (10) times the published limit.
Skin:	Avoid skin contact by wearing gloves, an apron and other protective equipment. Wash hands and other exposed areas thoroughly with soap and water immediately after any contact. A full impervious suit is recommended if exposure is possible to a large portion of the body.
Eyes:	Use chemical goggles and a faceshield.
Protective Clothing Type:	Impervious

Exposure Limit Data

CHEMICAL NAME	CAS #	OSHA PEL / STEL	ACGIH LIMITS	AIHA WEEL
Perchloroethylene (Tetrachloroethylene)	127-18-4	100 ppm TWA; C 200 ppm C 200 ppm	100 ppm STEL 25 ppm TWA	Not Established
o-Dichlorobenzene	95-50-1	C 50 ppm; C 300 mg/m3	50 ppm STEL 25 ppm TWA	Not Established

CHEMICAL NAME	NIOSH Immediately Dangerous to Life or Health:
Tetrachloroethylene	Potential NIOSH carcinogen.
o-Dichlorobenzene	200 ppm IDLH
o-Cresol	250 ppm IDLH

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical State:	clear liquid
Color:	amber
Odor	strong aromatic
Molecular Weight:	Not Applicable/Mixture
pH	Not applicable
Octanol/Water Coeff:	No data
Solubility in Water:	insoluble
Bulk Density:	1.25 g/cc
Specific Gravity:	1.25
Vapor Density:	5.00 (air =1)
Vapor Pressure:	(@ 20 Deg. C) 15 mmHg
Evaporation Rate:	No data
Boiling Point:	121 - 218 Deg. C. 250 - 425 Deg. F.
Freezing Point:	No data
Volatiles, % by vol.:	70 - 80 %

10. STABILITY AND REACTIVITY

Stability and Reactivity Summary:	May become unstable at elevated temperatures and/or pressure. Stable under normal conditions. Not sensitive to mechanical shock. Static discharge may cause ignition at temperatures at or above the flash point.
Reactive Properties:	Product is sensitive to electrical static discharge.
Hazardous Polymerization:	Will not occur
Conditions to Avoid:	Temperatures above the flash point in combination with sparks, open flames, or other sources of ignition.
Chemical Incompatibility:	strong oxidizing agents
Hazardous Decomposition Products:	oxides of sulfur , carbon dioxide, carbon monoxide, hydrogen chloride, phosgene

Decomposition Temperature:	No data
Product May Be Unstable At Temperatures Above:	120 Deg. C. 248 Deg. F.

11. TOXICOLOGICAL INFORMATION

Component Animal Toxicology

Oral LD50 value: No data

Dermal LD50 value: No data

Inhalation LC50 value: No data

Product Animal Toxicity:

Oral LD50 value:	Approximately 0.5 g/kg
Dermal LD50 value:	Believed to be 2 - 3 g/kg
Inhalation LC50 value:	Believed to be 200- 2000 ppm; slightly toxic
Skin Irritation:	This material is expected to be corrosive.
Eye Irritation:	This material is expected to cause irreversible effects to the cornea with impairment of vision or corrosion to the eyes.

Reproductive and Developmental Toxicity:	Not known or reported to cause reproductive or developmental toxicity. No reproductive or developmental risk to humans is expected from exposure to this product.
Component Data:	
Perchloroethylene	This chemical has been tested in laboratory animals and no evidence of teratogenicity, embryotoxicity or fetotoxicity was seen.
Benzene, 1,2-dichloro-	This chemical has been tested in laboratory animals and no evidence of teratogenicity, embryotoxicity or fetotoxicity was seen.
Phenol, 2-methyl-	This chemical has been tested in laboratory animals and no evidence of teratogenicity, embryotoxicity or fetotoxicity was seen.
Mutagenicity:	Not known or reported to be mutagenic.
Component Data:	
Perchloroethylene	This product has been tested for mutagenicity. Tests revealed both positive and negative results. Based on the weight of evidence, we judge this product NOT to be a mutagenic hazard.
Benzene, 1,2-dichloro-	This product has been tested for mutagenicity. Tests revealed both positive and negative results.
Phenol, 2-methyl-	This product has been tested for mutagenicity. Tests revealed both positive and negative results.
Carcinogenicity:	Animal studies indicate that a component of this product may have the potential to cause cancer in humans. However, there is no evidence that the substance is carcinogenic to humans.
Component Data:	
Perchloroethylene	This chemical is considered to be a suspect human carcinogen based on animal data.
Benzene, 1,2-dichloro-	This material did not cause cancer in long-term animal studies. The International Agency for Research on Cancer (IARC) has classified this product or a component of this product as a Group 3 substance, Unclassifiable as to Its Carcinogenicity to Humans.
Phenol, 2-methyl-	Animal studies suggest that this chemical has cancer-promoting activity when appied to the skin.

12. ECOLOGICAL INFORMATION

Ecological Toxicity Values:

Perchloroethylene	96 hr. LC50: = 10 - 100 ppm
Benzene, 1,2-dichloro-	96 hr. LC50: < 1 - 10 ppm

Phenol, 2-methyl-	96 hr. LC50: = 1 - 10 ppm Mosquito fish 48 hr. LC50: 24 ppm Bluegill 96 hr. LC50: = 10 ppm

13. DISPOSAL CONSIDERATIONS

CARE MUST BE TAKEN TO PREVENT ENVIRONMENTAL CONTAMINATION FROM THE USE OF THIS MATERIAL. THE USER OF THIS MATERIAL HAS THE RESPONSIBILITY TO DISPOSE OF UNUSED MATERIAL, RESIDUES AND CONTAINERS IN COMPLIANCE WITH ALL RELEVANT LOCAL, STATE AND FEDERAL LAWS AND REGULATIONS REGARDING TREATMENT, STORAGE AND DISPOSAL FOR HAZARDOUS AND NONHAZARDOUS WASTES.

Waste Disposal Summary:	Spent or discarded material is a hazardous waste.
Potential US EPA Waste Codes:	D039 D023
Disposal Methods:	As a hazardous liquid waste, it must be disposed of in accordance with local, state and federal regulations in a permitted hazardous waste treatment, storage and disposal facility by incineration.

Components subject to land ban restrictions: Tetrachloroethylene
o-Dichlorobenzene
o-Cresol

14. TRANSPORT INFORMATION

THIS MATERIAL IS REGULATED AS A DOT HAZARDOUS MATERIAL.
DOT Description (49 CFR 172.101):

Land (U.S. DOT):	RQ, CORROSIVE LIQUIDS, TOXIC, N.O.S., (CONTAINS ALKYL BENZENE SULFONIC ACID, O-CRESOL) , 8, (6.1) , UN 2922 , PG II
Air (IATA/ICAO):	CORROSIVE LIQUIDS, TOXIC, N.O.S., (CONTAINS ALKYL BENZENE SULFONIC ACID, O-CRESOL) 8, (6.1), UN 2922, PG II
Water (IMO):	CORROSIVE LIQUIDS, TOXIC, N.O.S., (CONTAINS ALKYL BENZENE SULFONIC ACID, O-CRESOL) 8, (6.1), UN 2922, PG II Flash Point: (C) >61

Hazard Label/Placard:	(Primary)	CORROSIVE
	(Subsidiary)	TOXIC

Reportable Quantity (49 CFR 172.101, Appendix):

Perchloroethylene	final RQ = 100 pounds (45.4 kg); also listed as Ethene, tetrachloro-; also listed as Tetrachloroethene; also listed as Tetrachloroethylene DOT regulated marine pollutant; also listed as Tetrachloroethylene; ;
1,2-Dichlorobenzene	final RQ = 100 pounds (45.4 kg); also listed as Benzene, 1,2-dichloro- DOT regulated marine pollutant
Dodecylbenzenesulfonic acid	final RQ = 1000 pounds (454 kg)
o-Cresol	Not Applicable

Emergency Response Guide Number: 154

15. REGULATORY INFORMATION

UNITED STATES:
Toxic Substances Control Act (TSCA): The components of this product are listed on the TSCA Inventory of Existing Chemical Substances.

Pesticide acceptance indication: US EPA Registration Number: Not applicable

Superfund Amendments and Reauthorization Act (SARA) Title III:

Hazard Categories Sections 311/312 (40 CFR 370.2):

Health:	Acute
	Chronic
Physical:	None

Emergency Planning & Community Right to Know (40 CFR 355, App. A):

Extremely Hazardous Substance Section 302 - Threshold Planning Quantity:

Cresol, o-	TPQ = 1000/10,000 pounds; RQ = 100 pounds

Reportable Quantity (40 CFR 302.4):

Tetrachloroethylene	final RQ = 100 pounds (45.4 kg)
o-Dichlorobenzene	final RQ = 100 pounds (45.4 kg)
Dodecylbenzenesulfonic acid	final RQ = 1000 pounds (454 kg)
o-Cresol	final RQ = 100 pounds (45.4 kg)

Supplier Notification Requirements (40 CFR 372.45), 313 Reportable Components

Tetrachloroethylene (Perchloroethylene)	form R reporting required for 0.1% de minimis concentration
1,2-Dichlorobenzene	form R reporting required for 1.0% de minimis concentration
o-Cresol	form R reporting required for 1.0% de minimis concentration

Clean Air Act Socmi:	Tetrachloroethylene (Perchloroethylene) o-Dichlorobenzene o-Cresol and cresylic acid
Clean Air Act Organic HAP 40 CFR Section 61.01(b)	Tetrachloroethylene (Perchloroethylene) o-Cresol and cresylic acid
Clean Air Act VOC Section 111	Perchloroethylene o-Dichlorobenzene o-Cresol
Clean Air Act Haz. Air Pollutants Section 112	Tetrachloroethylene (Perchloroethylene) o-Cresol,

State Right-to-Know Regulations Status of Ingredients

Pennsylvania:	Ethene, tetrachloro- Benzene, 1,2-dichloro- Benzenesulfonic acid, dodecyl- Phenol, 2-methyl-
New Jersey:	Tetrachloroethylene 1,2-Dichlorobenzene Dodecylbenzenesulfonic acid o-Cresol
Massachusetts:	Tetrachloroethylene, o-Dichlorobenzene, Dodecylbenzenesulfonic acid, o-Cresol

CALIFORNIA SAFE DRINKING WATER AND TOXIC ENFORCEMENT ACT OF 1986 - Proposition 65: "WARNING: This product contains a chemical(s) known to the State of California to cause cancer and/or birth defects or other reproductive harm."

CAS or CHEMICAL NAME	CAS #	
Tetrachloroethylene (Perchloroethylene)	127-18-4	carcinogen; initial date 4/1/88

16. OTHER INFORMATION

MSDS REVISION
STATUS:
Section(s) Revised: XV (EU only)

MAJOR REFERENCES: Available upon request.

- Barlow, S.M. and Sullivan, F.M., Reproductive Hazards of Industrial Chemicals, Academic Press, 1982.
- Shephard, T.H., Catalog of Teratogenic Agents, Sixth Edition, The John Hopkins University Press, 1989.
- Criteria for a Recommended Standard Occupational Exposure to Tetrachloroethylene (Perchloroethylene), NIOSH, PB-266 583, July 1976.
- McGregor, D.B., et al., Responses of the L5178Y tk+/tk- Mouse Lymphoma Cell Forward Mutation Assay, Environmental and Molecular Mutagenesis 12:85-154 (1988).
- Schwetz, B.K., et al, The Effect of Maternally Inhaled Trichloroethylene, Perchloroethylene, Methyl Chloroform, and Methylene Chloride on Embryonal and Fetal Development in Mice and Rats, Toxicology and Applied Pharmacology 32, 84-96 (1975).
- NTP Technical Report on the Toxicology and Carcinogenesis Studies of 1,2 Dichlorobenzene in F344/N Rats and B6C3F 1 Mice, NIH Publication No. 86-2511, October 1985.