



MSDS: 0000380
Print Date: 03/04/2011
Revision Date: 03/04/2011

MATERIAL SAFETY DATA SHEET

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product Name: FM® 1000 Adhesive Film
Synonyms: None
Chemical Family: Mixture
Molecular Formula: Mixture
Molecular Weight: Mixture

CYTEC INDUSTRIES INC., FIVE GARRET MOUNTAIN PLAZA, WOODLAND PARK, NEW JERSEY 07424, USA
For Product Information call 1-800/652-6013. Outside the USA and Canada call 1-973/357-3193.

EMERGENCY PHONE (24 hours/day) - For emergency involving spill, leak, fire, exposure or accident call:

Asia Pacific:

Australia - +61-3-9663-2130 or 1800-033-111

China (PRC) - +86 10 5100 3039 (Carechem24 China)

New Guinea - +61-3-9663-2130

New Zealand - +61-3-9663-2130 or 0800-734-607

All Others - +65 3158 1074 (Carechem24 Singapore)

Canada: +1-905-356-8310 (Cytec Welland, Canada plant)

Europe/Africa/Middle East (Carechem24 UK):

Europe, Middle East, Africa, Israel - +44 (0) 1235 239 670

Middle East, Africa (Arabic speaking countries) - +44 (0) 1235 239 671

Latin America:

Brazil - 0800 0111 767 (SOS Cotec)

Chile - +56-2-247-3600 (CITUC QUIMICO)

All Others - +52-376-73 74122 (Cytec Atequiza, Mexico plant)

USA: +1-703-527-3887 or 1-800-424-9300 (CHEMTREC #CCN6083)

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2. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW

APPEARANCE AND ODOR:

Color:	white
Appearance:	film
Odor:	odorless

STATEMENTS OF HAZARD:

WARNING! MAY CAUSE SEVERE ALLERGIC SKIN REACTION
CAUSES SKIN IRRITATION

CHRONIC HAZARD WARNING:

CONTAINS MATERIAL WHICH CAUSED CANCER IN LABORATORY ANIMAL TESTS
Risk of cancer depends on duration and level of exposure

POTENTIAL HEALTH EFFECTS

EFFECTS OF EXPOSURE:

Based on the physical form of this product, exposure by the oral or inhalation route is unlikely. The acute dermal (rabbit) LD50 value is estimated to be greater than 2000 mg/kg. Allergic skin reactions or primary skin irritation may be produced by prolonged or repeated dermal contact with this material. Exposure to vapor during heat curing may cause irritation or injury of the respiratory tract and eye irritation. Overexposure to vapors may cause central nervous system depression. Refer to Section 11 for toxicology information on the regulated components of this product.

3. COMPOSITION/INFORMATION ON INGREDIENTS

OSHA REGULATED COMPONENTS

Component / CAS No.	%	Carcinogen
Polyamide -	40 - 70	-
Diglycidyl resorcinol ether 101-90-6	20 - 22	IARC 2B NTP
Titanium Dioxide 13463-67-7	~ 1.5	IARC 2B
Methanol 67-56-1	~ 2	-

4. FIRST AID MEASURES

Eye Contact:

Not an expected route of exposure.

Skin Contact:

Wash immediately with plenty of water and soap. Flush with a continuous flow of lukewarm water until material is removed. Remove contaminated clothing and shoes without delay. Obtain medical attention. Do not reuse contaminated clothing without laundering. Destroy or thoroughly clean shoes before reuse.

Ingestion:

Not an expected route of exposure.

Inhalation:

Remove to fresh air. If breathing is difficult, give oxygen. Obtain medical advice if there are persistent symptoms.

5. FIRE-FIGHTING MEASURES

Suitable Extinguishing Media:

Use water spray or fog, carbon dioxide or dry chemical.

Protective Equipment:

Firefighters, and others exposed, wear self-contained breathing apparatus. Wear full firefighting protective clothing. See MSDS Section 8 (Exposure Controls/Personal Protection).

6. ACCIDENTAL RELEASE MEASURES

Personal precautions:

Where exposure level is not known, wear approved, positive pressure, self-contained respirator. Where exposure level is known, wear approved respirator suitable for level of exposure. Refer to Section 8 (Exposure Controls/Personal Protection) for appropriate personal protective equipment.

Methods For Cleaning Up:

Sweep up into containers for disposal. Flush spill area with water.

Environmental Precautions:

None known

7. HANDLING AND STORAGE

HANDLING

Precautionary Measures: Avoid contact with skin and clothing. Wash thoroughly after handling.

Special Handling Statements: Heating or curing of unused rolls or sheets of product prior to disposal is not recommended. Heating a large mass of product can lead to a rapid decomposition reaction, generating heat, smoke and possibly fire.

STORAGE

None

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Engineering Measures:

Where this material is not used in a closed system, good enclosure and local exhaust ventilation should be provided to control exposure when spraying or curing at elevated temperatures.

Respiratory Protection:

Where exposures are below the established exposure limit, no respiratory protection is required. Where exposures exceed the established exposure limit, use respiratory protection recommended for the material and level of exposure. A full facepiece respirator also provides eye and face protection. Cutting, grinding or sanding of parts fabricated after curing may create respirable dust particles. Respiratory protection appropriate for this dust may be required. Refer to components listed above for potential hazardous components in the dust.

Eye Protection:

Wear eye/face protection such as chemical splash proof goggles or face shield. Eyewash equipment and safety shower should be provided in areas of potential exposure.

Skin Protection:

Avoid skin contact. Wear impermeable gloves and suitable protective clothing. Barrier creams may be used in conjunction with the gloves to provide additional skin protection.

Additional Advice:

Food, beverages, and tobacco products should not be carried, stored, or consumed where this material is in use. Before eating, drinking, or smoking, wash face and hands thoroughly with soap and water. It is recommended that a shower be taken after completion of workshift especially if significant contact has occurred. Work clothing should then be laundered prior to reuse. Street clothing should be stored separately from work clothing and protective equipment. Work clothing and shoes should not be taken home.

Exposure Limit(s)

13463-67-7 Titanium Dioxide

OSHA (PEL): 15 mg/m³ total dust (TWA)
ACGIH (TLV): 10 mg/m³ (TWA)
Other Value: Not established

67-56-1 Methanol

OSHA (PEL): 200 ppm (TWA)
260 mg/m³ (TWA)
ACGIH (TLV): 250 ppm (STEL)
(skin)
200 ppm (TWA)
Other Value: Not established

9. PHYSICAL AND CHEMICAL PROPERTIES

Color: white
Appearance: film
Odor: odorless
Boiling Point: Not applicable
Melting Point: Not applicable
Vapor Pressure: Not applicable
Specific Gravity/Density: ~1.1
Vapor Density: Not applicable
Percent Volatile (% by wt.): Negligible
pH: Not applicable
Saturation In Air (% By Vol.): Not applicable
Evaporation Rate: Not applicable
Solubility In Water: negligible
Volatile Organic Content: 10 - 20 gm/L
Flash Point: Not applicable
Flammable Limits (% By Vol): Not available
Autoignition Temperature: Not available
Decomposition Temperature: Not applicable
Partition coefficient (n-octanol/water): Not applicable
Odor Threshold: Not available

10. STABILITY AND REACTIVITY

Stability: Stable
Conditions To Avoid: None known
Polymerization: Will not occur
Conditions To Avoid: None known
Materials To Avoid: Strong oxidizing agents.
Hazardous Decomposition Products: Carbon monoxide (CO)
Carbon dioxide
Ammonia (NH₃)
oxides of nitrogen

11. TOXICOLOGICAL INFORMATION

13. DISPOSAL CONSIDERATIONS

Environmental exposure from substances of this preparation are limited due to the physical form of the product. This material is not classified as dangerous for the environment.

12. ECOLOGICAL INFORMATION

California Proposition 65 Warning (applicable in California only) - This product contains (a) chemical(s) known to the State of California to cause cancer.

Methanol has acute oral (rat) and dermal (rabbit) LD50 values of >5600 mg/kg and 15800 mg/kg, respectively. The 4-hour inhalation exposure LC50 (rat) for methanol vapor is 64,000 ppm (83.78 mg/L). Acute exposure to methanol vapor may cause headache and gastrointestinal irritation. Chronic or extreme inhalation exposure to vapors can cause blurred vision, serious eye damage, central nervous depression and death. Ingestion and inhalation of methanol has caused blindness in humans. Ingestion can also cause harmful effects on the central nervous system and gastrointestinal systems and can lead to death in extreme cases. Absorption of methanol can cause systemic toxicity. It has been reported that chronic skin absorption of methanol has caused ocular disturbances and blindness. Methanol has also been reported to be a teratogen and fetotoxin in laboratory animals and has demonstrated mutagenic activity, in vivo, in mammalian cells. Methanol may cause moderate eye and skin irritation. Literature also reports an oral (rat) LD50 value of 13.0 ml/kg (10g/kg).

Acute exposure to titanium dioxide dust is not likely to cause adverse effects. Chronic exposure to titanium dioxide may cause some lung fibrosis. Inhalation of titanium dioxide dust at 50 times the nuisance dust level caused lung fibrosis and a slight increase in lung tumor incidence in laboratory rats. When titanium dioxide was fed to rats and mice over lifetime in a carcinogen bioassay, it was not carcinogenic.

Diglycidyl resorcinol ether (DGRE) has an oral LD50 (rat) of 400 mg/kg from a repeat dose regimen. Other literature reports an oral LD50 (rat) value of 2,570 mg/kg. The dermal (rabbit) LD50 is >500 mg/kg. A single 8-hour exposure to air saturated with diglycidyl resorcinol ether produced no mortality in rats. DGRE produced severe skin irritation in humans. Allergic skin reactions have also been observed which can be severe in certain individuals. DGRE was found to be mutagenic in the Ames test (Salmonella typhimurium (TA100 and TA1535)), with or without metabolic activation. In oral gavage studies conducted by the National Toxicology Program (NTP), DGRE was found to be carcinogenic in male and female rats and mice, causing both benign and malignant neoplasms of the forestomach. However, no skin tumors occurred in 30 female mice that received skin paintings of 1% solution DGRE in benzene three times per week for life. DGRE has shown positive results for mutagenicity in in vitro mammalian cell line tests and chinese hamster ovary cells and mouse lymphoma cells. Diglycidyl resorcinol ether is a chemical known to the State of California to cause cancer.

Polyamide is predicted to have low toxicity by ingestion or dermal contact based on similar resins. The acute oral (rat) LD50 and acute dermal (rabbit) LD50 values are estimated to be >5000 mg/kg and >2000 mg/kg, respectively. Based on its physical form, inhalation is an unlikely route of exposure. In studies with rabbits, similar resins were not irritating to the skin but caused moderate, transient eye irritation.

Toxicological information on the regulated components of this product is as follows:
Toxicological information for the product is found under Section 2. HAZARDS IDENTIFICATION.

11. TOXICOLOGICAL INFORMATION

13. DISPOSAL CONSIDERATIONS

The information on RCRA waste classification and disposal methodology provided below applies only to the product, as supplied. If the material has been altered or contaminated, or it has exceeded its recommended shelf life, the guidance may be inapplicable. Hazardous waste classification under federal regulations (40 CFR Part 261 et seq) is dependent upon whether a material is a RCRA `listed hazardous waste` or has any of the four RCRA `hazardous waste characteristics.` Refer to 40 CFR Part 261.33 to determine if a given material to be disposed of is a RCRA `listed hazardous waste`; information contained in Section 15 of this MSDS is not intended to indicate if the product is a `listed hazardous waste.` RCRA Hazardous Waste Characteristics: There are four characteristics defined in 40 CFR Section 261.21-61.24: Ignitability, Corrosivity, Reactivity, and Toxicity. To determine Ignitability, see Section 9 of this MSDS (flash point). For Corrosivity, see Sections 9 and 14 (pH and DOT corrosivity). For Reactivity, see Section 10 (incompatible materials). For Toxicity, see Section 3 (composition). Federal regulations are subject to change. State and local requirements, which may differ from or be more stringent than the federal regulations, may also apply to the classification of the material if it is to be disposed. The Company encourages the recycle, recovery and reuse of materials, where permitted, as an alternate to disposal as a waste. The Company recommends that organic materials classified as RCRA hazardous wastes be disposed of by thermal treatment or incineration at EPA approved facilities. The Company has provided the foregoing for information only; the person generating the waste is responsible for determining the waste classification and disposal method.

14. TRANSPORT INFORMATION

This section provides basic shipping classification information. Refer to appropriate transportation regulations for specific requirements.

US DOT

Dangerous Goods? Not applicable/Not regulated

TRANSPORT CANADA

Dangerous Goods? Not applicable/Not regulated

ICAO / IATA

Dangerous Goods? Not applicable/Not regulated

IMO

Dangerous Goods? Not applicable/Not regulated

15. REGULATORY INFORMATION

Inventory Information

United States (USA): All components of this product are included on the TSCA Chemical Inventory or are not required to be listed on the TSCA Chemical Inventory.

Canada: All components of this product are included on the Domestic Substances List (DSL) or are not required to be listed on the DSL.

Australia: All components of this product are included in the Australian Inventory of Chemical Substances (AICS) or are not required to be listed on AICS.

China: All components of this product are included on the Chinese inventory or are not required to be listed on the Chinese inventory.

Japan: All components of this product are included on the Japanese (ENCS) inventory or are not required to be listed on the Japanese inventory.

Korea: All components of this product are included on the Korean (ECL) inventory or are not required to be listed on the Korean inventory.

Philippines: All components of this product are included on the Philippine (PICCS) inventory or are not required to be listed on the Philippine inventory.

OTHER ENVIRONMENTAL INFORMATION

The following components of this product may be subject to reporting requirements pursuant to Section 313 of CERCLA (40 CFR 372), Section 12(b) of TSCA, or may be subject to release reporting requirements (40 CFR 307, 40 CFR 311, etc.) See Section 13 for information on waste classification and waste disposal of this product.

Component / CAS No.	%	TPQ (lbs)	RQ(lbs)	S313	TSCA 12B
Methanol 67-56-1	~ 2	None	5000	Yes	No
Diglycidyl resorcinol ether 101-90-6	20 - 22	None	0	Yes	No

PRODUCT HAZARD CLASSIFICATION UNDER SECTION 311 OF SARA

- Acute
- Chronic

16. OTHER INFORMATION

NFPA Hazard Rating (National Fire Protection Association)

Health: 2 - Materials that, under emergency conditions, can cause temporary incapacitation or residual injury.

Fire: 1 - Materials that must be preheated before ignition can occur.

Instability: 0 - Materials that in themselves are normally stable, even under fire exposure conditions.

Reasons For Issue:
 Revised Section 1
 Revised Section 2
 Revised Section 3
 Revised Section 8

Randy Deskin, Ph.D., DABT +1-973-357-3100

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