

Material Safety Data Sheet

DuPont
Electronics

- PYRALIN® Polyimide Coatings
- DITAC® IC Adhesives
- Photovoltaic Coatings

Semiconductor Materials,
Services and Technologies

***** IDENTIFICATION *****

NAME: PI2703 SYNONYMS: POLYIMIDE COATING. PI2703
CHEM.FAMILY: Pyralin(R) Polyimide FORMULA: Proprietary.
Coating.

MANUFACTURER: INFORMATION & EMERGENCY TELEPHONE NOS:
E.I.DuPont de Nemours & Co. INFORMATION: Product: (800)441-7515
Electronics Department EMERGENCIES: Medical: (800)441-3637
Wilmington, De 19898 in Canada: (613)348-3616
Transportation (CHEMTREC): (800)424-9300

***** PHYSICAL DATA *****

FORM: Viscous Liquid. ODOR: Aromatic.
APPEARANCE: Colorless to Amber. SOLUBILITY IN WATER: Slight.

***** HAZARDOUS COMPONENTS *****

Ingredient(s):	CAS#	V.P. mm Hg @ 20C	Weight %
Acetone.	67-64-1	180.	1 - 5%
Toluene.	108-88-3	27.	< .1%
4-Butyrolactone.	96-48-0	1.	30 - 60%
Tetraethylene Glycol Diacrylate.	17831-71-9	< 0.001	1 - 5%
Photosensitive Polyimide Resin.			30 - 60%
Proprietary Ingredient(s).			1 - 5%

***** HAZARDOUS REACTIVITY *****

INSTABILITY:
The product is normally stable.

INCOMPATIBILITY:

PI2703/C01
04/24/90



dispensing machine, and spin coating. Mist and solvent vapors will evolve if spray application is used. During wafer drying, 125 - 150 C, and final curing, 350 - 450 C, the remaining solvent(s) will evaporate. Potential overexposure to other chemicals used in the operation such as wafer etchants and cleaners should also be considered. Well designed area and personal air sampling and analysis can show if exposures are within established limits. Properly designed local ventilation and process enclosure are effective ways to limit employee exposure where needed.

In addition to meeting exposure limits, it is always prudent to use all practical means to minimize employee exposure to chemicals. A significant difference in overall exposure can be made with practical measures such as:

- * Inhalation - minimizing by keeping jars of product covered
- * Eye - avoiding contact by wearing chemical splash goggles where there is splash potential
- * Ingestion - avoiding by washing hands before eating, drinking or smoking, and restricting these activities to outside the work area.

PRINCIPAL HEALTH EFFECTS:

>>>Acetone

Toxic effects described in animals include: No skin irritation; Eye irritation; Central nervous system effects; Drowsiness. Additional animal tests have shown: No carcinogenic activity. Human health effects of overexposure may include: Nonspecific discomfort, e.g., nausea, headache or weakness; Irritation of the upper respiratory passages; Temporary nervous system depression with anaesthetic effects, e.g., dizziness, headache, confusion, incoordination, and loss of consciousness. In addition: Significant skin permeation appears unlikely.

>>>Toluene

Toxic effects described in animals include: No skin sensitization; Skin irritation; Eye irritation; Central nervous system effects; Liver effects; Cardiac effects. Additional animal tests have shown: No mutagenic toxicity in bacterial or mammalian cell cultures; No embryotoxic activity; No carcinogenic activity; No reproductive activity. Human health effects of overexposure may include: Skin irritation with discomfort or rash; Eye irritation with discomfort, tearing, or blurring of vision; Irritation of the upper respiratory passages; Temporary nervous system depression with anaesthetic effects, e.g., dizziness, headache, confusion, incoordination, and loss of consciousness. Human effects of higher level acute or chronic overexposure may include: Temporary nervous system depression with anaesthetic effects, e.g., dizziness, headache, confusion, incoordination, and loss of consciousness; Nonspecific discomfort, e.g., nausea or constipation; Abnormal liver function as detected by laboratory tests; Abnormal kidney function as detected by laboratory tests; Fatality from gross overexposure. In addition: Significant skin permeation appears unlikely.

Name/Units	AIHA		ACGIH		OSHA	
	8hr	15min	8hr	15min	8hr	15min
ACETONE						
Units: ppm			750	1000	750	1000
TOLUENE						
Units: ppm			100	150	100	150
TETRAETHYLENE GLYCOL DIACRYLATE						
Units: mg/m3	1					

Also, DuPont has established and observes the following limits:

Name/Units	12 hr	8hr	15min	Ceiling
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TOLUENE				
Units: ppm	100	100		
TETRAETHYLENE GLYCOL DIACRYLATE				
Units: mg/m3	0.5	0.5		

Notes on exposure limits:

OSHA Permissible Exposure Limits (PELs) are included in 29 CFR 1910.1000, Subpart Z, or specific substance standards;
 ACGIH Threshold Limit Values (TLVs) are published by the American Conference of Governmental Industrial Hygienists, 6500 Glenway Ave., Cincinnati, OH 45211;
 AIHA Workplace Environmental Exposure Levels (WEELs) are published by the American Industrial Hygiene Assoc., 475 Wolf Ledges Pkwy., Akron, OH 44311;
 C (ceiling) indicates a limit not to go above for any time period;
 S (skin) indicates skin absorption may contribute significantly to the internal toxicity of the ingredient.

***** FIRST AID INSTRUCTIONS *****

Skin Contact: For skin contact, immediately wash skin with soap and plenty of water.

Eye Contact: For eye contact, immediately flush eyes with plenty of water for at least 15 minutes. Call a physician.

Inhalation: If inhaled, remove to fresh air immediately. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Call a physician.

Ingestion: If swallowed, do not induce vomiting. Immediately give two glasses of water or activated charcoal slurry. Never give anything by mouth to an unconscious person. Call a physician. **INSTRUCTIONS TO PHYSICIANS:** To prepare activated charcoal slurry, suspend 50g activated charcoal in 400 ml water in a plastic bottle and shake well. Administer 5 ml/kg, or 350 ml for an average adult.

***** PROTECTION INFORMATION *****

Adequate local ventilation should be used to keep exposures below applicable limits;
 Other engineering controls such as totally enclosed handling systems are also preferred;

Contain spill at source by diking or absorbing with sand. Do not allow spill to spread to or intentionally flush to sewer or ground. Wash area thoroughly. Adequately ventilate area; Spill residue, cleaning rags and absorbant may be considered hazardous. (See Waste Disposal Section.).

Waste Disposal:

Components of this product may be considered hazardous; Consult applicable Federal, State, and local regulations for allowable disposal methods.

***** PRODUCT INFORMATION *****

Contains photoreactive chemicals. Open and use under yellow light.

Contaminated Items:

Empty product containers, contaminated clothing and cleaning materials, etc. should be considered hazardous until decontaminated or properly disposed of. (See Waste Disposal Section.).

Storage:

Store product in a refrigerated location (0-4F), away from sunlight or ultraviolet light to ensure product viscosity stability;
Do not store the product in areas where vapors may contact sources of heat, sparks or open flame.

***** ADDITIONAL INFORMATION *****

The following ingredients are subject to the reporting requirements of section 313 of Title III of the Superfund Amendment and Reauthorization Act of 1986 and 40 CFR part 372:

INGREDIENT(S)	Weight %
Acetone, 67-64-1	1 - 5%

This product is a physical mixture. The health effects information about this product is based on the individual ingredients; The data in this Material Safety Data Sheet relates only to the specific product designated herein and does not relate to its use in combination with any other material or in any process.

Date of latest MSDS revision: 04/24/90

Person Responsible for MSDS: Environmental Technologist
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