FUJIFILM

MATERIAL SAFETY DATA SHEET

Product Number: 000000000000800575

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: **Durimide® 7505**

1. PRODUCT AND COMPANY IDENTIFICATION

REVISION DATE:	01-23-2005
SUPERCEDES:	01-10-2005
MSDS NO:	01635
SYNONYMS:	None
CHEMICAL FAMILY:	Photosensitive polyimide precursor solution
DESCRIPTION / USE:	Manufacture of microelectronic devices
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
N-methyl-2-pyrrolidone	872-50-4	50 - 70
Polyamic acid ester	PMN-98-799	25 - 40
Methacrylate monomer	109-17-1	4 - 6
Organotitanium complex	Proprietary	0.8 - 1.5

3. HAZARDS IDENTIFICATION

OSHA Hazard Classification: combustible liquid, eye irritant, skin irritant, respiratory irritant, liver toxin, lung toxin, developmental toxin, possible weak skin sensitizer

Routes of Entry:	Inhalation, skin, eyes, ingestion
Chemical Interactions:	No known interactions
Medical Conditions Aggravated:	Respiratory diseases including asthma and bronchitis, Pre-existing liver diseases, Dermatitis may be aggravated following exposure.

Human Threshold Response Data

Odor Threshold:	Not established
Irritation Threshold:	Not established

Hazardous Materials Identification System/National Fire Protection Association Classifications

Hazard Ratings:	Health	Flammability	Reactivity
HMIS	2*	2	0
NFPA	Not established		

Immediate (Acute) Health Effects

Inhalation Toxicity:	Not expected to be toxic by inhalation. Exposure to high concentrations may result in alterations to the liver and lungs. High concentrations may cause nausea and dizziness.
Inhalation Irritation:	High concentrations are moderately irritating to the eyes, nose, throat, and lungs.
Skin Contact:	Skin contact may cause moderate irritation consisting of transient redness and swelling. This irritant effect would not be expected to result in permanent damage.
Eye Contact	May cause severe irritation, consisting of redness, swelling, and mucous membrane discharge to the conjunctiva. Any visual impairment or corneal damage would be expected to clear within several days. 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.
Ingestion Toxicity:	Not expected to be toxic by ingestion unless large amounts are swallowed.

Acute Target Organ Toxicity: Eyes, Skin, Respiratory Tract, Liver

Prolonged (Chronic) Health Effects

Carcinogenicity:	This product is not known or reported to be carcinogenic by any reference source including IARC, OSHA, NTP or EPA.
Reproductive and Developmental Toxicity:	May cause embryo or fetal toxicity from high inhalation, dermal or oral exposures. Industrial exposures kept below occupational exposure guidelines will not pose a risk to the developing offspring.
Sensitization:	May cause allergic skin sensitization in some individuals.
Inhalation:	Prolonged or repeated exposure will cause more severe irritation and possibly lung damage.
Skin Contact:	Dermal contact may cause defatting of skin and/or dermatitis.
Ingestion:	There are no known or reported effects from chronic ingestion except for effects similar to those experienced from single exposure.

Chronic Target Organ Toxicity:	Liver, Lungs, Skin
Supplemental Health Hazard Information:	No additional health information available.

4. FIRST AID MEASURES

Inhalation:	IF INHALED: Remove individual to fresh air. Seek medical attention if breathing becomes difficult.

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 laundered 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: Immediately drink water to dilute. Consult a physician if symptoms develop. Never give anything by mouth to an unconscious person.

5. FIRE FIGHTING MEASURES

Flammability Summary (OSHA): Combustible.

Flammable Properties

Flash Point:	Approximately 81 Deg. C. / 178 Deg. F. (Test Method: Cleveland Closed Cup)
Autoignition Temperature:	No data
Upper Flammable/Explosive Limit, % in air:	No data
Lower Flammable/Explosive Limit, % in air:	No data
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:	In case of fire, use normal fire fighting equipment including a NIOSH approved self-contained breathing apparatus (SCBA). Use water to cool containers.
Hazardous Combustion Products:	carbon monoxide, carbon dioxide, Oxides of nitrogen

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:	Hazardous concentrations in air may be found in local spill area and immediately downwind. 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 and slightly soluble in water. Notify all downstream users of possible contamination. Divert water flow around spill if possible and safe to do so. Contain all liquid for treatment and/or disposal as a (potential) hazardous waste. Continue to handle as described in land spill.
Land Release:	Create a dike or trench to contain materials. Absorb spill with inert material (e.g., dry sand, clay, earth or commercial absorbent), then place in a chemical waste container. Decontaminate all clothing and the spill area using a detergent and flush with large amounts of water. Contain all contaminated water for disposal and/or treatment.

Additional Spill Information:	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. Remove all sources of ignition.

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. Avoid direct exposure to sunlight or ultraviolet (UV) light sources. Keep refrigerated.
Shelf Life Limitations:	See label or certificate of analysis for shelf life if applicable.
Incompatible Materials for Storage:	Refer to Section 10, "Incompatible Materials."
Do Not Store At temperatures Above:	-15 Deg. C. 5 Deg. F.
Do Not Store At Temperatures Below:	-20 Deg. C. -4 Deg. F.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Ventilation:	Local exhaust ventilation or other engineering controls are normally required when handling or using this product.

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):	NIOSH approved air purifying respirator with organic vapor cartridge and dust/mist filter. 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.
Eyes:	Use chemical goggles. Emergency eyewash should be provided in the immediate work area.
Protective Clothing Type:	Impervious

Exposure Limit Data

CHEMICAL NAME	CAS #	OSHA PEL / STEL	ACGIH LIMITS	AIHA WEEL
1-Methyl-2-pyrrolidone	872-50-4	None established	None established	10 ppm TWA; 40 mg/m3 TWA skin absorber

CHEMICAL NAME	NIOSH Immediately Dangerous to Life or Health:
The IDLH has not been established for this product.	

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical State:	viscous liquid

Color:	yellow
Odor	mild characteristic
Molecular Weight:	Not Applicable/Mixture
pH	(@ 25 Deg. C) Not applicable
Octanol/Water Coeff:	No data
Solubility in Water:	50 - 70 %
Bulk Density:	1.16 g/cc
Specific Gravity:	(@ 25 Deg. C) 1.16
Vapor Density:	> 1.00 (air =1)
Vapor Pressure:	(@ 25 Deg. C) No data
Evaporation Rate:	No data
Boiling Point:	Approximately 203 Deg. C. Approximately 397 Deg. F.
Freezing Point:	No data
Volatiles, % by vol.:	50 - 70 %
VOC Content %w/w / lbs/gal:	60.07 / 5.81
HAP Content %w/w / lbs/gal:	0.07 / 0.01

10. STABILITY AND REACTIVITY

Stability and Reactivity Summary:	Stable under normal conditions. Static discharge may cause ignition at temperatures at or above the flash point.
Reactive Properties:	Combustible
Hazardous Polymerization:	Will not occur
Conditions to Avoid:	Sparks, open flame, other ignition sources, and elevated temperatures.
Chemical Incompatibility:	strong oxidizing agents, acids
Decomposition Temperature:	No data
Product May Be Unstable At Temperatures Above:	No data

11. TOXICOLOGICAL INFORMATION

Component Animal Toxicology

Oral LD50 value: N-methyl-2-pyrrolidone	Oral LD50: Rat = 3.9 g/kg
Dermal LD50 value: N-methyl-2-pyrrolidone	Dermal LD50 Rabbit = 8 g/kg
Inhalation LC50 value: N-methyl-2-pyrrolidone	Inhalation LC50 (4h) Rat > 5.1 mg/l

Product Animal Toxicity:	
Oral LD50 value:	Rat Approximately 2 g/kg
Dermal LD50 value:	Rabbit Believed to be > 2 g/kg
Inhalation LC50 value:	No data
Skin Irritation:	This material is expected to be moderately irritating.
Eye Irritation:	This material is expected to be severely irritating.
Skin Sensitization:	May cause allergic skin sensitization in some individuals.
Reproductive and Developmental Toxicity: Component Data:	May cause embryo or fetal toxicity from high inhalation, dermal or oral exposures.

N-methyl-2-pyrrolidone	Animal testing has shown evidence of fetal toxicity (preimplantation loss and delayed ossification) in the absence of maternal toxicity. No structural malformations were observed without the presence of maternal toxicity. Industrial exposures kept below occupational exposure guidelines will not pose a risk to the developing offspring.
Mutagenicity:	Not known or reported to be mutagenic.
Component Data:	
N-methyl-2-pyrrolidone	This chemical has been shown to be non-mutagenic based on a battery of assays.
Carcinogenicity:	This chemical is not known or reported to be carcinogenic by any reference source including IARC, OSHA, NTP, or EPA.
Component Data:	
N-methyl-2-pyrrolidone	This material did not cause cancer in long-term animal studies.

12. ECOLOGICAL INFORMATION

Ecological Toxicity Values:

N-methyl-2-pyrrolidone	Bluegill LC50 = 832 mg/l.
	Fathead minnow, LC50 = 1072 mg/l.
	Rainbow trout (Salmo gairdneri), LD 50 = 3048 mg/l.

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:	If this product becomes a waste, it DOES NOT meet the criteria of a hazardous waste as defined under 40 CFR 261, in that it does not exhibit the characteristics of hazardous waste of Subpart C, nor is it listed as a hazardous waste under Subpart D.
Potential US EPA Waste Codes:	Not applicable
Disposal Methods:	As a nonhazardous liquid waste, it should be disposed of in accordance with local, state and federal regulations by incineration.

Components subject to land ban restrictions: No components subject to land ban restrictions.

14. TRANSPORT INFORMATION

THIS MATERIAL IS NOT REGULATED AS A DOT HAZARDOUS MATERIAL.

DOT Description (49 CFR 172.101):

Land (U.S. DOT):	NOT REGULATED
Air (IATA/ICAO):	Not Regulated
Water (IMO):	Not Regulated
	Flash Point: (C) >61

15. REGULATORY INFORMATION

UNITED STATES:

Toxic Substances Control Act (TSCA): The components of this product are either listed on the Toxic Substances Control Act Chemical Substances Inventory or are introduced into commerce in accordance with the provisions of a low volume PMN exemption notification.

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: Chronic
Physical: Fire

Emergency Planning & Community Right to Know (40 CFR 355, App. A):
Extremely Hazardous Substance Section 302 - Threshold Planning Quantity:
Not applicable
Reportable Quantity (40 CFR 302.4):
None listed

Supplier Notification Requirements (40 CFR 372.45), 313 Reportable Components
N-Methyl-2-pyrrolidinone 1.0 percent de minimis concentration

Clean Air Act VOC Section 111 1-Methyl-2-pyrrolidone

State Right-to-Know Regulations Status of Ingredients

Pennsylvania:	2-Pyrrolidinone, 1-methyl-
New Jersey:	Not listed
Massachusetts:	1-Methyl-2-pyrrolidone

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 #	
1-Methyl-2-pyrrolidone	872-50-4	Reproductive, initial date June 15, 2001

16. OTHER INFORMATION

MSDS REVISION STATUS:
Section(s) Revised: 3, 8, 11
MAJOR REFERENCES: Available upon request.

THIS MATERIAL SAFETY DATA SHEET (MSDS) HAS BEEN PREPARED IN COMPLIANCE WITH THE FEDERAL OSHA HAZARD COMMUNICATION STANDARD, 29 CFR 1910.1200. THE INFORMATION INTHIS MSDS SHOULD BE PROVIDEDTO ALL WHO WILL USE, HANDLE, STORE, TRANSPORT, OR OTHERWISE BE EXPOSED TO THIS PRODUCT. THIS INFORMATION HAS BEEN PREPARED FOR THE GUIDANCE OF PLANT ENGINEERING, OPERATIONS AND MANAGEMENT AND FOR PERSONS WORKING WITH OR HANDLING THIS PRODUCT. FUJIFILM ELECTRONIC BELIEVES THIS INFORMATION TO BE RELIABLE AND UP TO DATE AS OF THE DATE OF PUBLICATION BUT, MAKES NO WARRANTY THAT IT IS. ADDITIONALLY, IF THIS MSDS IS MORE THAN THREE YEARS OLD, YOU SHOULD CONTACT FUJIFILM ELECTRONIC MATERIALS AT THE PHONE NUMBER 1-800-553-6546 (CUSTOMER SERVICE) TO MAKE CERTAIN DOCUMENT IS CURRENT.