



The MSDS format adheres to the standards and regulatory requirements of the United States and may not meet regulatory requirements in other countries.

DuPont
Material Safety Data Sheet

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KAP00021 PYRALUX-AC
Revised 28-MAY-2005

CHEMICAL PRODUCT/COMPANY IDENTIFICATION

Material Identification

Pyralux is a registered trademark of DuPont.

Product Use

OSHA Hazard Communication Standard (29 CFR 1910.1200) requirements for Material Safety Data Sheets do not apply to the product described in this information sheet. This product is excluded as an article.

Company Identification

MANUFACTURER/DISTRIBUTOR
DuPont
P.O. Box 89
Circleville, OH 43113

PHONE NUMBERS

Product Information : 1-800-237-4357
Transport Emergency : 1-800-424-9300
Medical Emergency : 1-800-441-3637

COMPOSITION/INFORMATION ON INGREDIENTS

Components

Material	CAS Number	%
Polyimide Film Coated on Copper		100
Film contains:		
Talc, Containing No Asbestos Fibers	14807-96-6	

Exposure limits for the following may apply:

*Copper	7440-50-8
*n-Methylpyrrolidone (residual <1%)	872-50-4

* Disclosure as a toxic chemical is required under Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR part 372.

Components (Remarks)

The specific identity of the polymer is withheld as a trade secret.

HAZARDS IDENTIFICATION

Potential Health Effects

POTENTIAL HEALTH EFFECTS

INHALATION: Not a probable route of exposure for product as shipped. Exposure to talc encapsulated in the polymer is not likely.

The potential for exposure to hazardous vapors or particulates produced during heating or other fabrication activities has not been evaluated. The effects of overexposure to components of this product that may be present during normal use are noted below. Since the composition of the vapors evolved during heating has not been analyzed, the possibility exists for exposure to other hazardous substances not mentioned below.

SKIN CONTACT: No irritation is expected from handling film.

EYE CONTACT: Not a probable route of exposure for film.

INGESTION: Not a probable route of exposure for film.

Inhalation of NMP may cause irritation of the nose and throat with sneezing, sore throat or runny nose; or non-specific effects such as headache, nausea and weakness.

Skin contact with NMP may cause skin irritation with itching, burning, redness, swelling or rash. Human experience or case reports have identified the following potential effects from overexposure: Prolonged contact may cause severe skin irritation with burning, redness, swelling, pain, blisters, cracking, or rash. There are inconclusive or unverified reports of human sensitization. Skin permeation may occur in amounts capable of producing the effects of systemic toxicity.

Eye contact with NMP may cause eye irritation with tearing, pain or blurred vision. Low vapor concentrations did cause eye irritation in some individuals.

Carcinogenicity Information

None of the components present in this material at concentrations equal to or greater than 0.1% are listed by IARC, NTP, OSHA or ACGIH as a carcinogen.

FIRST AID MEASURES

First Aid

INHALATION

If large amounts of dust are inhaled, or if exposed to fumes from overheating or combustion, remove to fresh air. Consult a physician if breathing is difficult or if symptoms persist.

SKIN CONTACT

Wash with soap and water after handling. If skin irritation develops, consult a physician.

EYE CONTACT

Flush eyes with water. Consult a physician if irritation persists.

INGESTION

Not a probable route of exposure for films.

FIRE FIGHTING MEASURES

Flammable Properties

Not a fire or explosion hazard.

The flammability characteristic of polyimide film is reported as "self-extinguishing".

Polyimide film chars but does not burn. However, polyimide film will burn in an atmosphere of 100% oxygen. The major off-gases are carbon dioxide and carbon monoxide.

The processing of polyimide films can cause the generation of static charge. Precautions for static charges should also be taken when removing plastic films used as protective packaging for polyimide films.

Extinguishing Media

Use any available extinguishing media.

Fire Fighting Instructions

None required.

ACCIDENTAL RELEASE MEASURES

Safeguards (Personnel)

NOTE: Review FIRE FIGHTING MEASURES and HANDLING (PERSONNEL) sections before proceeding with clean-up. Use appropriate PERSONAL PROTECTIVE EQUIPMENT during clean-up.

Accidental Release Measures

Practice good housekeeping to prevent and eliminate slipping hazards.

HANDLING AND STORAGE

Handling (Personnel)

Wash thoroughly after handling.

Storage

Store away from flammable materials.

EXPOSURE CONTROLS/PERSONAL PROTECTION

Engineering Controls

Safe handling of polyimide films at high temperatures (above 200 C/ 392 F) requires adequate ventilation. If small quantities of polyimide film are involved, normal air circulation may be all that is needed in case of overheating. Whether or not existing ventilation is adequate at higher temperatures will depend on the combined factors of film quantity, temperature and exposure time.

Personal Protective Equipment

Safety glasses are recommended as good industrial practice.

Respirators are not needed for normal use.

Special protective clothing is not needed for normal use. Gloves are recommended as good industrial practice.

Exposure Guidelines

Applicable Exposure Limits

Talc, Containing No Asbestos Fibers

PEL (OSHA) : 20 mppcf (~3.3 mg/m³), respirable
as 8 Hr TWA
TLV (ACGIH) : 2 mg/m³, respirable dust, 8 Hr. TWA, A4
AEL * (DuPont) : 0.5 mg/m³, 8 & 12 Hr. TWA
respirable dust

Copper

PEL (OSHA) : 0.1 mg/m³, fume, as Cu, 8 Hr. TWA
1 mg/m³, mist, as Cu, 8 Hr. TWA
TLV (ACGIH) : 0.2 mg/m³, fume, 8 Hr. TWA
1 mg/m³, dusts and mists, as Cu, 8 Hr.
TWA
Notice of Intended Changes (2005)
Inorganic compounds, Elemental/Metal
and copper oxides, as Cu 0.1 mg/m³
8 hr TWA, Inhalable fraction, A4
Soluble compounds
0.05 mg/m³ 8 hr TWA, Respirable fraction
A4
AEL * (DuPont) : None Established

n-Methylpyrrolidone (residual <1%)

PEL (OSHA) : None Established
TLV (ACGIH) : None Established
AEL * (DuPont) : 5 ppm, 8 & 12 Hr. TWA, Skin
WEEL (AIHA) : 10 ppm, 8 Hr. TWA, Skin

* AEL is DuPont's Acceptable Exposure Limit. Where governmentally imposed occupational exposure limits which are lower than the AEL are in effect, such limits shall take precedence.

PHYSICAL AND CHEMICAL PROPERTIES

Physical Data

Solubility in Water : Insoluble
Form : Opaque film

STABILITY AND REACTIVITY

Chemical Stability

Stable at normal temperatures and storage conditions.

Incompatibility with Other Materials

None reasonably foreseeable.

(STABILITY AND REACTIVITY - Continued)

Decomposition

At temperatures above 400 C, the major off-gases of polyimide film are carbon monoxide and carbon dioxide.

The quantity and composition of decomposition products will depend on the combined factors of film quantity, temperature and exposure time.

ECOLOGICAL INFORMATION

Ecotoxicological Information

Aquatic Toxicity:

Film is insoluble.

DISPOSAL CONSIDERATIONS

Waste Disposal

Incinerate or landfill in accordance with Federal, State or local laws and ordinances.

TRANSPORTATION INFORMATION

Shipping Information

DOT
Proper Shipping Name : NOT APPLICABLE
Hazard Class : NOT REGULATED

REGULATORY INFORMATION

U.S. Federal Regulations

RCRA
Under RCRA, it is the responsibility of the product user to determine at the time of disposal whether a material containing the product or derived from the product should be classified as a hazardous waste (40 CFR 261.11).

State Regulations (U.S.)

STATE RIGHT-TO-KNOW

No substances on the state hazardous substances list, for the states indicated below, are used in the manufacture of products on this Material Safety Data Sheet, with the exceptions indicated.

(REGULATORY INFORMATION - Continued)

SUBSTANCES ON THE PENNSYLVANIA HAZARDOUS SUBSTANCES LIST PRESENT AT A CONCENTRATION OF 1 % OR MORE (0.01% FOR SPECIAL HAZARDOUS SUBSTANCES)- n-Methylpyrrolidone

WARNING - SUBSTANCES KNOWN TO THE STATE OF CALIFORNIA TO CAUSE CANCER, BIRTH DEFECTS OR OTHER REPRODUCTIVE HARM- n-Methylpyrrolidone

SUBSTANCES ON THE NEW JERSEY WORKPLACE HAZARDOUS SUBSTANCE LIST PRESENT AT A CONCENTRATION OF 1% OR MORE (0.1% FOR SUBSTANCES IDENTIFIED AS CARCINOGENS, MUTAGENS OR TERATOGENS)- n-Methylpyrrolidone

OTHER INFORMATION

Additional Information

MEDICAL USE: CAUTION: Do not use in medical applications involving permanent implantation in the human body. For other medical applications see DuPont CAUTION Bulletin No. H-50102.

The data in this Material Safety Data Sheet relates only to the specific material designated herein and does not relate to use in combination with any other material or in any process.

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Research Triangle Park, NC 27709
Telephone : 919-248-5345 or 919-248-5027

Indicates updated section.

This information is based upon technical information believed to be reliable. It is subject to revision as additional knowledge and experience is gained.

End of MSDS