

---

The MSDS format adheres to U.S standards and regulatory requirements and may not meet regulatory requirements in other countries.

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

---

---

**CIRLEX<sup>®</sup> THICK POLYIMIDE LAMINATES, H TYPES**

CIR000001

Revised 8-OCT-1996

Printed 5-JAN-1999

---

**CHEMICAL PRODUCT/COMPANY IDENTIFICATION**

---

Material Identification

CIRLEX<sup>®</sup> is a registered trademark of DUPONT used under license by FRALOCK.

Trade names and Synonyms

CIRLEX<sup>®</sup> HNZT

CIRLEX<sup>®</sup> HZT

CIRLEX<sup>®</sup> CL HN

Company Identification

Manufacturer/Distributor

Fralock  
28525 West Industry Drive  
Valencia, CA 91350

Phone Numbers:

Product Information: (818) 702-6999

---

**COMPOSITION/INFORMATION ON INGREDIENTS**

---

Components

Material  
INERT POLYIMIDE FILM

CASE NUMBER  
100

Exposure limits for the following may apply:

DIMETHYL ACETAMIDE (residual in film) 127-19-5 <1  
POLYIMIDE POLYMER (as nuisance dust)

Components (Remarks)

All reportable ingredients are listed in the TSCA Chemical  
Substance Inventory.

---

## **HAZARDS IDENTIFICATION**

---

Potential Health Effects

INHALATION: Not a probable route of exposure from film.

For the polymer from which the film is made, DuPont  
Recommends treating polymer dust as a nuisance particulate.

SKIN CONTACT: No irritation is expected from handling film.  
Less than 1 ppm dim ethyl acetamide was extracted from film  
By distilled water a 40 deg C for 4 hours.

EYE CONTACT: Not probable route of exposure for film.

INGESTION: Not probable route of exposure for film.

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

Not probable route of exposure for film.

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 an irritation persists.

**INGESTION**

Not probable route of exposure for film.

---

**FIRE FIGHTING MEASURES**

---

**Flammable Properties**

Not a fire or explosion hazard.

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

CIRLEX<sup>®</sup> chars but does not burn in air. CIRLEX<sup>®</sup> 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**

Water, Foam, Dry Chemical, CO<sub>2</sub>.

**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**

Pick up to prevent slipping hazard.

---

**HANDLING AND STORAGE**

---

**Handling (Personnel)**

Wash thoroughly after handling.

**Storage**

Store away from flammable materials.

---

## EXPRSURE CONTROLS/PERSONAL PROTECTION

---

### Engineering Controls

Safe handling of CIRELX<sup>®</sup> thick polyimide laminate at high temperatures (above 200°C) requires adequate ventilation. If small quantities of CIRLEX<sup>®</sup> 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

DIMETHYL ACETAMIDE (residual in film)

|     |          |  |
|-----|----------|--|
| PEL | (OSHA)   | : 10 ppm, 35 mg/m <sup>3</sup> , 8 Hr, TWA, Skin     |
| TLV | (ACGIH)  | : 10 ppm, 36 mg/m <sup>3</sup> , 8 Hr, TWA, Skin, A4 |
| AEL | (DuPont) | : 10 ppm, 8 & 12 Hr. TWA, Skin                       |

POLYIMIDE POLYMER (as nuisance dust)

|      |          |  |
|------|----------|--|
| PEL  | (OSHA)   | : None Established   |
| TLV  | (ACGIH)  | : None Established   |
| AEL* | (DuPont) | : 10 mg/m <sup>3</sup> , 8 Hr. TWA, total dust<br>5 mg/m <sup>3</sup> , 6 Hr. TWA, respirable dust |

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

---

## PHYSICAL AND CHEMICAL PROPERTIES

---

### Physical Data

|                     |                       |
|---------------------|-----------------------|
| Melting Point       | : None                |
| % Volatiles         | : 1% max              |
| Solubility in Water | : Insoluble           |
| Odor                | : No odor             |
| Form                | : Transparent film    |
| Color               | : Dark amber to Black |
| Specific Gravity    | : >1.4                |

---

**STABILITY AND REACTIVITY**

---

Chemical Stability

Stable at normal temperatures and storage conditions.  
Incompatibility with other Materials

None reasonably foreseeable.

Decomposition

At temperatures above 400 deg C, the major off gases are carbon monoxide and carbon dioxide.

---

**ECOLOGICAL INFORMATION**

---

Ecotoxicological Information

Aquatic Toxicity : Film is Insoluble.

---

**DISPOSAL CONSIDERATIONS**

---

Waste Disposal

Landfill or incinerate in compliance with federal, state and local regulations.

---

**TRANSPORTATION INFORMATION**

---

Shipping Information

DOT : Not Regulated.

---

**REGULATORY INFORMATION**

---

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 Sheet with the exceptions indicated.

SUBSTANCES ON THE PENNSYLVANIA HAZARDOUS SUBSTANCES LIST PRESENT AT A CONCERNTRATION OF 1% OR MORE (0.01% FOR SPECIAL HAZARDOUS SUBSTANCES) Dimethyl acetamide (1% maximum)

WARNING SUBSTANCES KNOWN TO THE STATE OF CALIFORNIA TO CAUSE CANCER, BIRTH DEFECTS OR OTHER REPRODUCTIVE HARM: None Known.

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)  
Dimethylacetamide (1% maximum)

---

**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 relate only to the specific material designated herein and does not relate to use in combination with any other material or in any process.

|                         |   |                                      |
|-------------------------|---|--------------------------------------|
| Responsibility for MSDS | : | CIRLEX <sup>®</sup> Customer Service |
| Addresses               | : | Fralock<br>Valencia, CA              |
| Telephone               | : | (800) 372-5625                       |

\*Indicates updated section.

\*\*\*CIRLEX<sup>®</sup> is a registered trademark of DUPONT used under license by FRALOCK.

End of MSDS