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

RISTON(R) FX515 PHOTOPOLYMER FILM (VAPORS)

CWW00035

Revised 20-JUN-2001

Printed 1-AUG-2001

CHEMICAL PRODUCT/COMPANY IDENTIFICATION

Material Identification

RISTON is a registered trademark of DuPont.

Tradenames and Synonyms

Company Identification

MANUFACTURER/DISTRIBUTOR

DuPont
1007 Market Street
Wilmington, DE 19898

PHONE NUMBERS

Product Information : 1-800-441-7515 (outside the U.S.
302-774-1000)
Transport Emergency : CHEMTREC 1-800-424-9300 (outside U.S.
703-527-3887)
Medical Emergency : 1-800-441-3637 (outside the U.S.
302-774-1000)

COMPOSITION/INFORMATION ON INGREDIENTS

Components

Material	CAS Number	%
ACETONE	67-64-1	60-100
2,2'-AZOBIS 2-METHYL- PROPANENITRILE	78-67-1	1-5
*METHANOL	67-56-1	1-5
ALIPHATIC ALCOHOL		5-10

* 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 concentrations are based on GC/MS analyses of film

vapors. The quantity of vapors is estimated to be 1-3 pounds/million ft² of resist film.

HAZARDS IDENTIFICATION

Potential Health Effects

HEALTH HAZARD INFORMATION:

Control of resist vapors with a DuPont laminator that is installed, operated and maintained in accordance with published instructions assures that airborne concentrations will be maintained at extremely low levels and capable of providing a safe environment for workers. Other laminators and designs should be tested for the adequacy of ventilation.

HUMAN HEALTH EFFECTS OF OVEREXPOSURE:

Skin contact with the vapors or vapor condensate may result in skin irritation with discomfort or rash; or allergic skin rashes.

Eye contact with the vapors may result in eye irritation with discomfort, tearing, or blurring of vision.

Inhalation of the vapors may cause irritation of the upper respiratory passages, with coughing and discomfort. Prolonged inhalation of the vapors may produce nonspecific discomfort, such as nausea, headache, or weakness; or temporary nervous system depression with anaesthetic effects such as dizziness, headache, confusion and incoordination.

HEALTH HAZARD DATA FOR COMPONENTS:

ACETONE

Inhalation 4 hour ALC: 64,000 ppm in rats
Skin Absorption LD50: 20,000 mg/kg in rabbits
Contact with the skin may cause drying due to repeated or prolonged contact. Contact with the eyes may cause irritation with discomfort, tearing or blurring of vision. Inhalation may cause irritation of the upper respiratory passages. Inhalation or ingestion may cause nonspecific discomfort including nausea, headache, weakness, dizziness, incoordination, confusion and or loss of consciousness. Ingestion is not an expected route of exposure for this product. Significant skin permeation and systemic toxicity, after contact appears unlikely. There are no reports of human sensitization.

Animal testing indicates that acetone does not have carcinogenic or mutagenic effects. No animal test reports are available to define developmental or reproductive toxicity.

2,2'-AZOBIS 2-METHYL PROPANENITRILE

Inhalation 4 hour ALC: 950 mg/m³ in rats
Skin Absorption: No information found.
Eye contact may cause eye irritation with discomfort, tearing, or blurring of vision. Inhalation may cause nonspecific discomfort, such as nausea, headache, or weakness; abnormal liver or kidney function as detected by

laboratory tests; liver enlargement; central nervous system irritation with tremors, convulsions and irritability; or fatality from gross overexposure. Individuals with preexisting diseases of the liver, lungs, kidneys or central nervous system may have increased susceptibility to the toxicity of excessive exposures.

METHANOL

Inhalation 1 hour LC50: 14,500 ppm in rats
Skin absorption LD50: 15,800 mg/kg in rabbits
Human health effects of overexposure by inhalation, ingestion, or skin or eye contact may initially include: nonspecific discomfort, such as nausea, headache, or weakness; temporary nervous system depression with anaesthetic effects such as dizziness, headache, confusion, incoordination, and loss of consciousness; or blindness. Higher exposures may lead to these effects: abnormal liver and kidney function as detected by laboratory tests; or fatality from gross overexposure. Skin permeation can occur in amounts capable of producing the effects of systemic toxicity. There are no reports of human sensitization. Individuals with preexisting diseases of the retina or liver may have increased susceptibility to the toxicity of excessive exposures.

As little as 100 ml ingested may cause blindness or fatality.

ALIPHATIC ALCOHOL

No information available.

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

SKIN CONTACT

In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Call a physician. Wash contaminated clothing before reuse.

EYE CONTACT

In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Call a physician.

INGESTION

Ingestion is not an expected route of exposure during normal use

of the product. If ingested, consult a physician.

FIRE FIGHTING MEASURES

Flammable Properties

Flash Point : not determined
Flammable limits in Air, % by Volume
LEL : not determined
UEL : not determined
Autoignition : not determined

Thermal decomposition can lead to evolution of irritating vapors or gases.

Extinguishing Media

Foam, Dry Chemical, CO2.

Fire Fighting Instructions

Wear self-contained breathing apparatus (SCBA) and full protective equipment.

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.

Initial Containment

For condensate, soak up with inert absorbent material and place in waste container for disposal.

HANDLING AND STORAGE

Handling (Personnel)

Avoid breathing vapors or mist. Avoid contact with eyes, skin or clothing.

EXPOSURE CONTROLS/PERSONAL PROTECTION

Engineering Controls

Use sufficient exhaust on laminators to keep exposures below recommended limits. Laminator temperature should be maintained below 125 deg C to minimize vapor generation.

Personal Protective Equipment

RESPIRATORY:

Self-contained breathing apparatus for fire fighting and mist or spray exposures, if necessary.

GLOVES:

Use neoprene gloves when handling laminator interior exhaust system and interior surfaces of connected duct work. Before removing gloves, decontaminate by washing with soap and water.

Exposure Guidelines**Applicable Exposure Limits****ACETONE**

PEL (OSHA) : 1000 ppm, 2400 mg/m³, 8 Hr. TWA
 TLV (ACGIH) : 500 ppm, 1188 mg/m³, A4
 STEL 750 ppm, 1782 mg/m³, A4
 AEL * (DuPont) : 500 ppm, 8 & 12 Hr. TWA

2,2'-AZOBIS 2-METHYL-

PEL (OSHA) : None Established
 TLV (ACGIH) : None Established
 AEL * (DuPont) : 1 mg/m³, 8 Hr. TWA
 0.7 mg/m³, 12 Hr. TWA

METHANOL

PEL (OSHA) : 200 ppm, 260 mg/m³, 8 Hr. TWA
 TLV (ACGIH) : 200 ppm, 8 Hr. TWA, Skin
 STEL 250 ppm
 AEL * (DuPont) : 200 ppm, 8 & 12 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**

Evaporation Rate : <1 (butyl acetate =1)
 Solubility in Water : 0 insoluble

Odor : mild acrylate

Appearance : Vapors are normally colorless, but may appear as white smoke in the absence of exhaust ventilation. Vapors may condense as clear yellow liquid.

STABILITY AND REACTIVITY**Incompatibility with Other Materials**

None reasonably foreseeable.

REGULATORY INFORMATION**State Regulations (U.S.)**

WARNING - SUBSTANCES KNOWN TO THE STATE OF CALIFORNIA TO CAUSE CANCER, BIRTH DEFECTS OR OTHER REPRODUCTIVE HARM- toluene <0.1%, ethyl acrylate <0.1%

OTHER INFORMATION

Additional Information**PRECAUTIONARY STATEMENTS FOR VAPOR CONDENSATE****WARNING! CAUSES EYE, SKIN AND RESPIRATORY IRRITATION.**

Condensate will contain higher percentages of less volatile components, including acrylate monomers, which may cause delayed skin burns and may cause skin sensitization. Avoid contact with eyes, skin and clothing. Avoid breathing mist or vapor. Wash thoroughly with soap and water after handling condensate or wipes. Laminators used to apply Riston(R) film should be designed with adequate ventilation to exhaust these vapors from the workplace. Vapors may condense on cold surfaces near the area where film is heated or in the laminator exhaust duct. Check these surfaces for condensate build-up. Clean often with a cloth barely moistened with isopropyl alcohol.

INFORMATION ON THE CLEAN AIR ACT OF 1990 TITLE VI SECTION 611: CONCERNING OZONE DEPLETING SUBSTANCES -

DuPont Riston(R), Vaclel(R), and VALU(TM) photopolymer resists and solder masks do NOT contain and are NOT manufactured with either Class I or Class II Ozone Depleting Substances.

For further information regarding the safe use of this material, please refer to DuPont technical bulletin, "Handling Procedure for DuPont Photopolymer Films" (T-B9944). (Replacement number for document # H-43328).

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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End of MSDS