

ImagOn Safe Handling Guide

This technical bulletin is an overview of the health and safety issues that may arise in the handling of Photopolymer film. A number of factors must be considered, including the photopolymer components that may affect health, their possible health effects, the means of exposure, and control of these components.

Composition:

ImagOn is a UV light sensitive film used in decorative intaglio printing. It consists of three layers:

- a shiny Mylar coversheet
- a photoreactive dry film
- a dull polyolefin support sheet.

The Mylar and polyolefin sheets protect the film until it is ready to be used. The composition of the film consists of:

- binders (polymers that act as film formers)
- acrylate monomers (ingredients polymerised during ultraviolet light exposure)
- photoinitiators (react with the UV light to cause the monomers to polymerize)
- plasticizers (impart softness and flexibility)
- colorants, adhesion-promoters (improve adhesion of the film)
- chemical agents (for printout image)

Incidence of Health Effects

Approximately 10,000 operators worldwide handle Dupont film daily, but DuPont receives only a few inquiries per year regarding health effects. Although not every instance of related health effects is reported, the records show that few cases occur. Casual contact with this film through normal handling, has not been shown to be a significant route of exposure. The film's photoreactive acrylate monomers are embedded in its polymeric matrix. They do not appear to be transferred to or absorbed by the skin in the sufficient quantities to cause skin irritation. It should be noted that human sensitivity to chemicals will vary. Always follow good hygiene practices when handling any unprotected material.

Health Effects of Acrylates

The photoreactive film is formulated with acrylate monomers. Historical and toxicological data have shown that acrylate monomers can produce potential health effects. These effects can occur with both normal use conditions and with variations anticipated, if the guidelines in this brochure are not followed. Overexposure to the acrylates in the film can have these known effects:

- Respiratory irritation
- Skin irritation (dermatitis)
- Skin sensitization

Respiratory Effects

Inhaling vapors from heated ImagOn film may result in dryness and irritation of the respiratory tract. More harmful effects are possible if basic safety precautions are totally disregarded. DuPont does not recommend heating ImagOn film.

Skin Effects

The incidence of skin irritation resulting from exposure to the acrylates in photoreactive dry film is very low. Skin irritation may take the form of redness and itching of the affected area: there may also be slight blistering. Some people experience a condition that looks very similar to poison ivy (*Rhus toxicodendron*), and is often diagnosed as such. The degree of reaction will vary according to the amount of exposure and the sensitivity of the individual: some persons will be unaffected by contact. If dermatitis effects occur, determining the source of the exposure and implementing the required controls should be given top priority. Make sure gloves are worn when handling unexposed material or developing solution.

Sensitization

Sensitization occurs when the body shows an allergic response to a substance, usually triggered by exposure to a much smaller quantity of the material than is necessary to cause dermatitis. Some people may develop sensitization over a period of time. A typical sensitized response to acrylates is swelling of the face, typically around the eyes, often nearly closing them. DuPont is not aware of any more serious or life-threatening effects

Persons exhibiting sensitization symptoms should be referred to a physician. It is likely that sensitized persons should avoid exposure to acrylates.

Routes Of Exposure To Acrylates

There are several places in the process where there is potential exposure to the acrylate monomers in the dry film. While handling of the film itself and coversheets have not been shown to be significant routes of exposure, they should be considered in any health evaluation especially if repetitive contact may occur.

Contact With The Film

Because the coversheets are in place during most of the handling, there is minimum opportunity for exposure to the acrylates. However constant and prolonged contact would increase the likelihood of skin irritation.

Contact may occur while:

- trimming the film to correct size
- placing film on the plate
- developing the film
- removing the used film
- handling scraps and coversheets.

Following exposure, the Mylar coversheet is removed prior to placing the ImagOn and plate into the developing solution. Unexposed areas of ImagOn should not be allowed to touch the skin. Care should be taken when disposing the coversheets, since they may contain small amounts of residue. Coversheets may contain photopolymer residues and should never be reused for any purpose. Care should also be taken avoid direct contact with the used developing solution.

Protection From Film Contact

Minimize contact with scraps and used coversheets by disposing of them immediate-

ly in a plastic trash bag. Trash bags should be open enough to allow easy disposal of coversheets without having to ball or fold them. Use neoprene or latex gloves to avoid direct contact with coversheets and scraps.

Contact with the film is possible during its removal from the plate. In this step, the plate is placed in the used developer solution and left overnight until the film lifts from the plate. Direct contact with the film and the used developer should be avoided by wearing neoprene gloves similar to dishwashing gloves. Gloves should be changed or washed often to avoid buildup of dirt and contaminants. They should not be turned inside out or used until they look dirty.

Wash hands routinely before using toilets, smoking or eating. Any time skin is directly exposed to unexposed film or developing solution, it should be immediately washed. Careful washing with soap and water is truly effective. It has been shown that prompt washing is effective even for a sensitized person

Health and Safety Questions

For additional information regarding the safe use of DuPont ImagOn dial (919) 248-5027 or (919) 248-5046

In case of medical emergency dial (800) 4441-3637

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