

# DuPont™ DryFilm

## COATING AND RELEASE SYSTEMS

### Safe Handling of Heated DuPont™ DryFilm Dispersions

Overheating polymers, including those in the PTFE polymers in DuPont™ DryFilm RA and 2000 fluorotelomer dispersions, may liberate potentially hazardous vapors and particulate material. Heating DuPont™ DryFilm RA or 2000 dispersion products above 290°C (554°F) may produce a fine particulate material upon condensation. When heated above its thermal decomposition temperature (350°C [662°F] for RA and 400°C [752°F] for 2000), oxidation of the polymer may occur, producing acid gases, such as carbon fluoride, hydrogen fluoride, and fine particulate decomposition products. A summary of these precautions is contained in the brochure "DuPont™ Dry Film Dispersions"; the MSDSs on DuPont™ DryFilm dispersion products and the appropriate solvents can be consulted for more detailed information. Before using DuPont™ DryFilm, read the MSDS and the detailed information in the latest edition of "Guide to the Safe Handling of Fluoropolymer Resins," published by the Fluoropolymers Division of the Society of the Plastics Industry and available from DuPont. Chapter 4 describes proper ventilation for industrial handling.

Inhalation of freshly generated PTFE particulate (either from condensation of boiling polymer or from thermally decomposed polymer) may produce a flu-like syndrome known as polymer fume fever. This transient condition is produced from the inhalation of large concentrations of ultrafine particles derived from the condensation of overheated PTFE. These particles are typically less than 100 nm in diameter and exist initially at a high concentration. However, aerosols containing these particles are inherently unstable and rapidly coagulate to a much larger particle size. The available data suggests that the coagulated aerosol is much less hazardous than the freshly derived fume, although the conditions under which a hazardous atmosphere becomes less hazardous has not been theoretically or empirically determined.

The hazards associated with particulates and decomposition products can be addressed by following good industrial hygiene practices and providing adequate ventilation. End users of PTFE can monitor air flow, differential pressure, or air turnover rates to ensure that their ventilation is adequate.

Ultrafine aerosols cannot be seen with the unaided eye, so no visual clues exist for their presence. A feasible method for detecting ultrafine aerosols in workplace environments does not yet exist. Given the current state of knowledge, the ACGIH recommends that *exposure concentrations to polytetrafluoroethylene (PTFE) degradation products be maintained at as low a concentration as practical*. ACGIH does state that qualitative measurements of fluoride can be used to determine an index of exposure to PTFE degradation products.

Open and use containers only in well-ventilated areas using local exhaust ventilation (LEV). Vapors and fumes liberated during hot processing, or from smoking tobacco or cigarettes contaminated with DuPont™ DryFilm may cause flu-like symptoms (chills, fever, sore throat). Symptoms may not occur until several hours after exposure and pass within about 24 hours. Vapors and fumes liberated during hot processing should be exhausted completely from the work area; contamination of tobacco with polymers should be avoided.

The American Conference of Governmental Industrial Hygienists publishes "Industrial Ventilation: A Manual of Recommended Practice."

Copies can be obtained directly from ACGIH, 6500 Glenway Ave., Bldg., D-7, Cincinnati, OH 45211-4438, telephone: (513) 742-2020, fax: (513) 742-3355.



*The miracles of science™*

**For more information or technical assistance, call: (800) 424-7502**

**United States** (800) 424-7502  
E-mail: krytox@usa.dupont.com

**Canada** (800) 387-2122  
E-mail: products@can.dupont.com

**Europe, Mideast, and Africa** +41 22 717 5086  
E-mail: lubricants@lux.dupont.com

**Asia/Pacific**—Including India—(65) 6586 3073  
E-mail: krytox.lubricants@sgp.dupont.com

**Mexico and Central America** +011 52 55 5722 1150  
E-mail: ceac@mex.dupont.com

**South America**—All Countries—55 11 4166 8601  
E-mail: produtos.brasil@bra.dupont.com

**[www.dupont.com/releasesystems](http://www.dupont.com/releasesystems)**

Copyright © 2008. The DuPont Oval, DuPont™, and The miracles of science™ are trademarks or registered trademarks of E.I. du Pont de Nemours and Company or its affiliates. All rights reserved.  
H-97554-1 (01/08) Printed in the U.S.A.

The information set forth herein is furnished free of charge and based on technical data that DuPont believes to be reliable. It is intended for use by persons having technical skill, at their own risk. Because conditions of use are outside our control, we make no warranties, express or implied, and assume no liability in connection with any use of this information. Nothing herein is to be taken as license to operate under or a recommendation to infringe any patents.



*The miracles of science™*