

OH-92-1 Acceptable Exposure Limit for HCFC-123 Lowered
OFFICE OF HEALTH

HEALTH HAZARD ALERT

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On June 21, 1991, the DuPont Corporation announced results of a 2-year toxicity study involving the chemical 2,2-dichloro-1,1,1-trifluoroethane (HCFC-123), a chlorofluorocarbon (CFC) substitute. The HCFC-123 is used as a refrigerant in chillers that generate low temperature brines, as well as in the blowing agent FORMACEL, which is used for generating insulating foams. The CFC substitutes were developed because CFCs are linked to the reduction of the earth's ozone layer.

The DuPont animal toxicity studies showed the development of nonmalignant (not cancer-producing) tumors in rats. As a result, DuPont lowered their Acceptable Exposure Limit (AEL) for HCFC-123 to 10 parts per million (ppm) for an 8 to 12 hour workday--a level far below the limit formerly allowed for CFCs. Field experience at DuPont facilities shows that HCFC-123 levels have been as low as 8 ppm and as high as 20 ppm when making or breaking hose connections and during routine maintenance procedures.

The CFC substitutes, such as HCFC-123, may not always adapt to, or be compatible with, the existing machinery. Some plastics or rubbers deteriorate or decompose on contact with CFC substitute products. DuPont advises that a check for compatibility between new CFC substitutes and existing machinery and equipment be made before the new CFC products are used.

DuPont advised that worker exposure to HCFC-123 should be controlled and recommended several forms of engineering controls for work with this product. These include air monitors, alarm systems, air dischargers, ventilation exhausts, and strict maintenance standards (American Society of Heating, Refrigeration and AirConditioning Engineers Standard 15-1989).

These forms of engineering controls do not lessen the potential toxicity of HCFC-123, but rather reduce and monitor HCFC123 exposures.

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