

dioxide, using a 100-year time horizon, from the source listed in IA1).

At least one component of this blend has not been excluded from the definition of VOC under Clean Air Act regulations addressing the development of SIPs to attain and maintain the national ambient air quality standards. 40 CFR 51.100(s).

Flammability information. While at least one component of the blend is moderately flammable, the submitter has provided test results that show the blend as formulated and at worst case formulation and worst case fractionated formulation conditions is not flammable.

Toxicity and exposure data. Components of the blend have workplace guidance level exposure limits on the order of 600 to 1000 ppm. EPA believes this exposure limit will be protective of human health and safety. EPA expects users to follow all recommendations specified in the Material Safety Data Sheet (MSDS) for the blend and the individual components and other safety precautions common in the refrigeration and air conditioning industry.

Comparison to other refrigerants. RS-44 is not an ozone depleter; thus, it reduces risk from ozone depletion compared to CFC-12, the ODS it replaces. RS-44 has a comparable or lower GWP than most other substitutes for HCFC-22. Flammability and toxicity risks are low, as discussed above. Thus, we find that RS-44 is acceptable because it reduces overall risk to public health and the environment in the end uses listed.

B. Solvents Cleaning

1. HFE-7000

Hydrofluoroether (HFE)-7000 is acceptable for use as a substitute for methyl chloroform and CFC-113 in the precision cleaning and electronics cleaning end uses. 3M, the submitter, indicates that this chemical is also known as HFE-301 and propane, 1,1,1,2,2,3,3 hepta fluoro-3-methoxy or 1-(methoxy)-1,1,2,2,3,3,3-heptafluoropropane. The empirical formula is $C_4H_3F_7O$ and it is also identified as $CH_3-O-CF_2-CF_2-CF_3$ and R-E347mcc1. You can find a version of the submission with information claimed confidential by the submitter removed, in EPA Air Docket A-91-42, items VI-D-272 and VI-D-300. EPA previously found HFE-7000 acceptable in several refrigerant end uses (March 22, 2002; 67 FR 13272).

Environmental information. The ODP of HFE-7000 is zero. The GWP is estimated as 400 (derived from

Ninomiya *et al.*, 2000) relative to carbon dioxide, using a 100-year time horizon. Experimental data indicates a lifetime of 4.7 years (Ninomiya *et al.*, 2000).

HFE-7000 is considered a VOC. This chemical is being reviewed by EPA for exclusion from the definition of VOC under Clean Air Act regulations addressing the development of State implementation plans (SIPs) to attain and maintain the national ambient air quality standards. 40 CFR 51.100(s).

Flammability information. This chemical is nonflammable.

Toxicity and exposure data. The manufacturer has recommended an acceptable exposure limit (AEL) of 75 ppm over an eight-hour time-weighted average. EPA has reviewed this exposure limit and believes it is protective of human health and safety. We expect users to follow all recommendations specified in the MSDS for this chemical.

Comparison to other aerosol solvents. HFE-7000 is not an ozone depleter; thus, in the electronics and precision cleaning end uses, it reduces risk overall compared to methyl chloroform and CFC-113, the ODSs it replaces. The GWP and atmospheric lifetime of HFE-7000 are lower than those of several other acceptable alternatives that are cleaning solvents.

C. Foam Blowing

1. Ecomate™

EPA's decision. Ecomate™ is acceptable as a substitute for CFCs and HCFCs in the following end-uses:

- Rigid polyurethane and polyisocyanurate laminated boardstock;
- Rigid polyurethane appliance;
- Rigid polyurethane slabstock and other foams;
- Rigid polyurethane commercial refrigeration and sandwich panels; and
- Polyurethane integral skin foam.

The submitter, Foam Supplies, claims that the composition of Ecomate™ is confidential business information (see docket A-91-42, item VI-D-296).

Environmental information. Ecomate™ has no ODP and very low or zero global warming potential (GWP). Users should be aware that Ecomate™ is not excluded from the definition of volatile organic compound (VOC) under Clean Air Act regulations addressing the development of State implementation plans (SIPs) to attain and maintain the national ambient air quality standards. 40 CFR 51.100(s). For more information refer to the manufacturer of Ecomate™, EPA regulations, and your state or local air quality agency. Also, because Ecomate™ is considered hazardous, spills and disposal should be handled in

accordance with requirements of the Resource Conservation and Recovery Act (RCRA).

Flammability information: Ecomate™ is flammable and should be handled with proper precautions. Use of Ecomate™ will require safe handling and shipping as prescribed by OSHA and DOT (for example, using personal safety equipment and following requirements for shipping hazardous materials at 49 CFR parts 170 through 173). However, when blended with fire retardant, the flammability of Ecomate™ can be reduced to make a formulation that is either combustible or non-flammable (refer to the manufacturer of Ecomate™ for more information). Due to its flammability, EPA is not finding Ecomate™ acceptable for use in spray foam at this time. For information on the safety training requirements for use of flammable blowing agents in spray foam refer to SNAP Notice of Acceptability 11 (64 FR 68039, December 6, 1999) or contact the EPA SNAP program.

Toxicity and exposure data. Ecomate™ should be handled with proper precautions. EPA anticipates that Ecomate™ will be used in such a manner so that any recommendations specified in the manufacturers' Material Safety Data Sheets (MSDSs) are followed. OSHA established a permissible exposure limit for the main component of Ecomate™ of 100 ppm for a time-weighted average over an eight-hour work shift.

Comparison to other foam blowing agents. Ecomate™ is not an ozone depleter; thus, it reduces risk overall compared to the ODS it replaces. Ecomate™ has a comparable or lower GWP than the other substitutes for CFCs and HCFCs in these end uses. Thus, we find that Ecomate™ is acceptable because it reduces overall risk to public health and the environment in the end uses listed.

2. HFC-245fa

EPA's decision. Hydrofluorocarbon (HFC)-245fa is an acceptable substitute for all HCFCs in:

- Rigid polyurethane and polyisocyanurate laminated boardstock;
- Rigid polyurethane appliance;
- Rigid polyurethane slabstock and other foams;
- Rigid polyurethane commercial refrigeration and sandwich panels;
- Phenolic insulation board and bunstock;
- Polyolefin;
- Polystyrene: extruded boardstock and billet;
- Polyurethane integral skin foam.