

Abstract Service [CAS] No. 75-10-5), 25% by weight HFC-125 (pentafluoroethane, CAS No. 354-33-6) and 52% by weight HFC-134a (1,1,1,2-tetrafluoroethane, CAS No. 811-997-2). The submission may be found in EPA Air Docket A-91-42, item VI-D-293.

EPA previously listed R-407C as an acceptable alternative for hydrochlorofluorocarbon (HCFC)-22 and chlorofluorocarbons (CFCs) (February 8, 1996; 61 FR 4736) and as an acceptable substitute for HCFC blends (December 20, 2002; 67 FR 77927) in various refrigeration and air conditioning end uses under SNAP.

Environmental information. The ozone depletion potential (ODP) of R-407C is zero. The Global Warming Potentials (GWPs) of HFC-32, HFC-125, and HFC-134a are 543, 3450, and 1320, respectively (relative to carbon dioxide, using a 100-year time horizon (United Nations Environment Programme (UNEP) and World Meteorological Organization (WMO) *Scientific Assessment of Ozone Depletion*: 2002).) The atmospheric lifetimes of these constituents as 4.9, 29 and 14.0 years, respectively.

All components of this blend are 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).

Flammability information. While HFC-32 is moderately flammable, the blend as formulated and under worst case fractionated formulation scenarios is not flammable.

Toxicity and exposure data. All components of the blend have 8 hour/day, 40 hour/week workplace environmental exposure limits (WEELs) of 1000 ppm established by the American Industrial Hygiene Association (AIHA). 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. We also expect that users of R-407C will adhere to the AIHA's WEELs.

Comparison to other refrigerants. R-407C is not an ozone depleter; thus, it poses a lower risk for ozone depletion than R-502, a blend of HCFC-22 and CFC-115, the ODS it replaces. R-407C has a comparable or lower GWP than most other substitutes for R-502. Flammability and toxicity risks are low, as discussed above. Thus, we find that R-407C is acceptable because there are no other substitutes that are currently or

potentially available and that provide a substantially reduced risk to public health and the environment in the end uses listed.

2. ISCEON 89

EPA's decision. ISCEON 89 is acceptable for use in new and retrofit equipment as a substitute for R-13B1 in very low temperature refrigeration. ISCEON 89 is a blend of 86% by weight HFC-125 (pentafluoroethane, CAS No. 354-33-6), 9% by weight PFC-218 (octafluoropropane, CAS NO. 76-19-7) and 5% by weight R-290 (propane, CAS No. 74-98-6). The submission may be found in EPA Air Docket A-91-42, item VI-D-293.

Environmental information. The ozone depletion potential (ODP) of ISCEON 89 is zero. Relative to carbon dioxide, using a 100-year time horizon, from the source cited above in IA1, the Global Warming Potentials (GWPs) of HFC-125 and PFC-218 are 3450 and 8690, respectively. The source lists the atmospheric lifetimes as 29 years for HFC-125 and 2600 years for PFC-218. The source does not list a GWP for propane, but it is thought to be on the order of 10 to 20.

Because of the high GWP of HFC-125 and especially PFC-218, EPA strongly encourages prompt identification and repair of any leaks that may occur. EPA notes that most of the R-13B1 alternatives already listed as acceptable for use within the very low temperature refrigeration end use have GWPs as high or higher than this blend, and encourages the continued search for lower-GWP alternatives for this end use. The contribution of these blends to global warming will be minimized through the implementation of the venting prohibition under section 608(c)(2) of the Clean Air Act (See 40 CFR part 82, subpart F). This section and EPA's implementing regulations at subpart F of 40 CFR part 82 prohibit venting or release of substitutes for class I and class II ozone depleting substances used in refrigeration and air-conditioning and require proper handling and disposal of these substances, such as recycling or recovery.

Propane is defined as a 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). HFC-125 and PFC-218 are excluded from the definition of VOC under those regulations.

Flammability information. While propane is flammable, the blend formulated as submitted is not. The

submitter has provided data to indicate that under a worst case fractionation scenario, the blend will have a lower flammable limit (LFL) of 6% by volume. Due to this minor risk of flammability, EPA expects users to take extra precautions while handling this blend, including those listed under *Toxicity and exposure data*, below.

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

Comparison to other refrigerants. ISCEON 89 is not an ozone depleter; thus, it reduces the associated risk compared to R-13B1, the ODS it replaces. ISCEON 89 has a comparable or lower GWP than most other substitutes for R-13B1 in very low temperature refrigeration end use. Thus, we find that ISCEON 89 is acceptable because it reduces overall risk to public health and the environment in the end use listed.

3. RS-44

EPA's decision. RS-44 is acceptable for use in new and retrofit equipment as a substitute for HCFC-22 in the following end uses:

- industrial process refrigeration
- industrial process air conditioning
- ice skating rinks
- cold storage warehouses
- refrigerated transport
- retail food refrigeration
- commercial ice machines
- household refrigerators and freezers
- residential dehumidifiers
- screw chillers
- reciprocating chillers
- centrifugal chillers
- household and light commercial air conditioning

The submitter of RS-44 claims that the composition of this blend is confidential business information. You can find a version of the submission with information claimed confidential by the submitter removed in EPA Air Docket A-91-142, item VI-D-295.

Environmental information. The ozone depletion potential (ODP) of RS-44 is zero. The Global Warming Potentials (GWPs) of the constituents are all below 5000 (relative to carbon