

Coming Changes for FM-200 and ECARO-25 Fire Suppression Agents

Beginning in late 2021, new environmental regulations will begin to affect the fire suppression agents FM-200® and ECARO-25®—systems commonly installed and inspected by ORR Protection. The regulations are part of a new law passed in the U.S. called the American Innovation and Manufacturing (AIM) Act of 2020.

Enacted on December 27, 2020, the new regulations require the gradual phase-down of hydrofluorocarbon (HFC) chemicals. Under the authority and administration of the Environmental Protection Agency, an 85% reduction in the U.S. manufacture and import of HFC chemicals will be required by 2036. Several chemicals used in refrigeration and fire protection are affected and the AIM Act also facilitates future substitutes.

Regulations begin in 2022 with an initial 10% reduction. The fire suppression industry has already actively been moving toward that goal, resulting in a cost increase of virgin HFC Agents. FM-200 (HFC-227ea) cost increases of 500-800% have begun in late 2021. ECARO-25 (HFC-125) prices are also expected to rise nearly 50% in 2022. ECARO-25 is seeing a less dramatic increase because the chemical is used for several applications other than fire suppression and higher production rates will hold down costs.

The law creates a system of HFC allocations for manufacturers and retailers. The companies with allowances can create or import HFCs according to the size of the allowance they hold. The law also creates exchange values (EV) for HFCs according to their global warming potential (GWP) values. FM-200 and ECARO-25 fall in the upper third of the 24 blends of HFCs that the law regulates.

The EV and demand for a particular chemical will influence allocation holders to produce one or more products over another. With fire suppression agents being a

small percentage of the manufactured base of HFCs, the scarcity of FM-200 and ECARO-25 will be driven up in coming years.

There is a secondary market which exists today for recycled fire suppression agents. As fire suppression systems are decommissioned, third-party companies purchase the gas in the fire suppression cylinders and hold it to sell to other fire suppression system users. This secondary market has traditionally been used for system recharge or for system users who are looking for a cheaper alternative to virgin gas.

Agent recyclers in the U.S. see a repeatable consumption rate of their products year over year and have gas banked for years of future consumption. It is predicted there is a suitable supply of FM-200 and ECARO-25 available for system recharges waiting at agent recyclers. It should be noted that recycled gas before being re-sold is tested for purity standards according to the Halon Alternatives Research Corporation's *Code of Practice for Use of Recycled Halogenated Clean Agents*¹. Pricing for recycled agents may fluctuate with demand but have historically remained steady and we expect that to continue.

For the fire suppression industry, a similar major regulatory event happened in the early 1990's when Halon suppression agents, primarily Halon 1301, were banned from production for environmental reasons. At that time, it caused a race for alternatives which was successful.

The change occurring with the AIM Act, while impactful, will be blunted by the existing availability of several alternatives to FM-200 and ECARO-25, namely 3M NOVEC 1230[®], FK-5-1-12, and inert gas systems including IG-55 (ProInert[®]), IG-541 (Inergen[®]), and IG-100.

There are several new agents being developed at this time with varying degrees of success. When a new clean fire suppression agent is found viable and suitably tested, new delivery platforms will be designed around them. The new agent will be listed on the EPA's SNAP list² and the agent will be written into NFPA 2001, *Standard on Clean Agent Fire Extinguishing Systems*³.



Clean agent systems are used for fire hazards because they extinguish fires without water, are gaseous and can address shielded fires, are electrically non-conductive, are safe for human occupancy, and don't require cleanup after the discharge. Chemical manufacturers must find new gasses with environmentally-friendly chemistry that meet all the attributes of a clean agent system.

Existing FM-200 and ECARO-25 system users should know that there is no rush to replace their systems. The relative infrequency of discharge of the systems and the availability of recycled gas at a reasonable price should allow systems to remain viable for approximately 20 years. Furthermore, system users needing virgin gas for a system expansion will still be able to purchase it for years to come, but at the market price.

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¹ Halon Alternatives Research Corporation – Code of Practice for Use of Recycled Halogenated Clean Agents – https://aaa94fef-0623-4c29-b6fd-b8e7d00dad97.filesusr.com/ugd/4e7dd1_4ab7295ac47e4bdea67020750f544f1b.pdf

² U.S. EPA Significant New Alternatives Policy (SNAP) Program – <https://www.epa.gov/snap>

³ NFPA 2001 Standard on Clean Agent Fire Extinguishing Systems – <https://www.nfpa.org/2001/>