Fireaway Statement on 3M™ Novec™ 1230 Fire Protection Fluid and FK-5-1-12

Stat-X® Aerosol Fire Suppression

On December 20, 2022, Minnesota-based 3M released a statement announcing "… it will exit per- and polyfluoroalkyl substance (PFAS) manufacturing and work to discontinue the use of PFAS across its product portfolio by the end of 2025." 3M has since confirmed that, as part of this initiative, they will be discontinuing the manufacture of 3M Novec 1230 Fire Protection Fluid.[1]

This release has had significant ramifications across the industrial world, including special hazard fire protection.

As you may know, the 3M Novec 1230 product is a branded form of the chemical FK-5-1-12 or CAS No. 75-13-8 (there are many different chemical names used for this compound). FK-5-1-12 is manufactured by numerous chemical companies throughout the world and has been listed under many different brand names on the EPA SNAP list.[2] The agent specifications are further described in NFPA 2001 *Standard on Clean Agent Fire Extinguishing Systems*.

With the already established phasedown in the production of Hydrofluorocarbons (HFC's) through the US AIM Act[3], and 2016 Kigali Amendment[4], Fireaway believes it prudent to question the long-term viability of these fluorine based chemical compounds. While Halon's and HFC's have both been regulated for their adverse environmental impact, the PFAS's are more likely to be scrutinized and perhaps eventually regulated due to their potentially dangerous health effects. The 3M statement notwithstanding, the US EPA and NFPA have not altered their position regarding PFAS and PFAS by-products of chemical manufacturing. Regulation of this sort can often take many years.

As an industry, we should consider the potential impact of manufacturing FK-5-1-12 (under any brand, in any region) now, as well as the evolving regulatory process(es) around the world. The relevant facts related to these areas of interest are as follows:

(1) 3M is one of the largest, most respected chemical manufacturing companies in the world. In general, when 3M makes a statement or establishes a specific position, consumers and other companies take notice.

(2) The statement specifically reads, "…{3M} see an opportunity to lead in a rapidly evolving external regulatory and business landscape…" We presume 3M believes regulation is on the horizon regarding PFAS and chemical manufacturing processes that produce PFAS as a by-product.

(3) Even as regulatory bodies debate the long-term status of PFAS, business owners should carefully consider any decision to purchase or support products that knowingly produce PFAS as part of the manufacturing process. Would this be considered good corporate stewardship?

(4) There is much debate within several industries about what chemicals are considered PFAS, what chemicals produce PFAS during the manufacturing process, and what fluorine-based chemicals are safe. Fireaway has researched and cross-referenced several different documents and websites related to FK-5-1-12 and CAS No. 756-13-8:

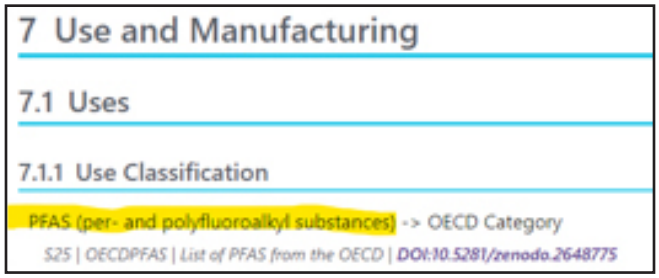
   a. Section 3: Composition/information on ingredients of the 3M Novec 1230 safety data sheet[5] indicates the product is 99.5% by weight, CAS 756-13-8. A longer, more formal chemical name is also provided, see below.

SECTION 3: Composition/information on ingredients

3M™ Novec ™ 1230 Fire Protection Fluid 04/20/22

Ingredient	C.A.S. No.	% by Wt
1,1,1,2,2,4,5,5,5-NONAFLUORO-4-(TRIFLUOROMETHYL)-3-PENTANONE	756-13-8	>= 99.5

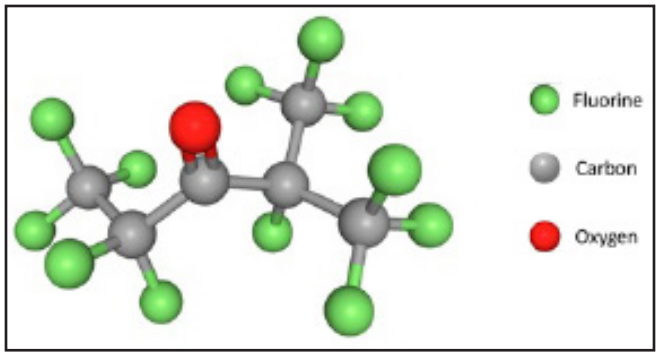
b. Referencing the CAS No. **756-13-8**, a web entry is found on the US National Institute of Health run website PubChem.[6] Section 7.1.1 of this page clearly identifies this substance as a PFAS.



(5) The national authorities of Denmark, Germany, the Netherlands, Norway, and Sweden have submitted a proposal to ECHA (European Chemical Agency) to restrict per- and polyfluoroalkyl substances (PFASs) under REACH, the European Union's (EU) policy for chemical regulation.[7] ECHA will publish the detailed proposal, one of the broadest in the EU's history, on 7 February 2023. It is anticipated that **these regulations will include FK-5-1-12**.

(6) The European Chemicals Agency (ECHA), an agency of the European Union, has defined a PFAS as, *"substances that contain at least one fully fluorinated methyl (CF3-) or methylene (-CF2-) carbon atom (without any H/Cl/Br/I atom attached to it)"*.[8]

Below is the molecular structure of FK-5-1-12, showing three (3) fluorinated methyl (CF3-) groups and one (1) methylene (-CF2-) group. By this definition, it can be reasonably concluded FK-5-1-12 is considered a PFAS by the European Union.



Fireaway, the manufacturer of Stat-X®, the global leader in aerosol fire suppression, is in a unique position to provide an **environmentally stable and cost-effective alternative** to both HFC fire suppression products (being phased out through the AIM act) and PFAS and PFAS generating products like 3M™ Novec™ 1230™ and FK-5-1-12. It is further important to recognize that the Stat-X compound in factory-new condition, and the aerosol produced after activation **do not** contain HFC's or other fluorine-based compounds.

To learn more about Stat-X and the variety of applications that can be protected, visit www.statx.com.

Stat-X® aerosol fire suppression is an alternative to highly regulated chemical systems.

Sources

[1]https://news.3m.com/2022-12-20-3M-to-Exit-PFAS-Manufacturing-by-the-End-of-2025

[2]https://www.epa.gov/snap/substitutes-total-flooding-agents (6th row in table)

[3]https://www.statx.com/whitepaper/what-does-the-aim-act-mean-for-fire-suppression/

[4]https://www.state.gov/u-s-ratification-of-the-kigali-amendment/

[5]https://multimedia.3m.com/mws/mediawebserver?mwsId=SSSSSuUn_zu8l00x482xNx29Mv70k17zHvu9lxtD7SSSSSS--

[6]https://pubchem.ncbi.nlm.nih.gov/compound/Perfluoro_2-methyl-3-pentanone#section=Use-and-Manufacturing

[7]https://echa.europa.eu/-/echa-receives-pfass-restriction-proposal-from-five-national-authorities

[8]https://echa.europa.eu/registry-of-restriction-intentions/-/dislist/details/0b0236e18663449b#:~:text=Per%2D%20and%20polyfluoroalkyl%20substances%20(PFAS)&text=PFAS%20are%20defined%20as%20substances,I%20atom%20attached%20to%20it).

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