

Michael A. Kelly
Executive Vice President

3M Electronics & Energy
Business Group

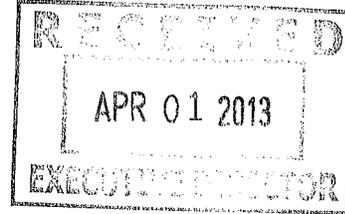
6801 River Place Blvd.
130-03-N-58
Austin, Texas 78726
512 984 3090 Austin Office
651 736 3490 St. Paul Office
512 984 3039 Fax
makelly1@mmm.com

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DLS

March 8, 2013



Mr. Zak Covar, Executive Director
Texas Commission on Environmental Quality
12100 Park 35 Circle, Building F
Austin, TX 78753



Subject: Petition for Adoption of Rules

Dear Director Covar,

In accordance with Texas Administrative Code, Title 30, Part 1, Chapter 20, Rule § 20.15 Petition for Adoption of Rules, the 3M Company respectfully petitions for an addition to Texas Commission on Environmental Quality Rules, Chapter 101 – General Air Quality Rules, Subchapter A: General Rules § 101.1 Definitions, (88) Reportable Quantity (RQ), (A)(i)(III).

According to (88)(A)(ii), the default RQ for individual air contaminant compounds released into the environment is 100 pounds unless a different reportable quantity for a specific chemical or category of chemicals is stated in (88)(A)(i)(I) 40 CFR Part 302, Table 302.4, or (88)(A)(i)(II) 40 CFR Part 355 Appendix A, or (88)(A)(i)(III). The chemical being addressed in this petition is not listed in 40 CFR Part 302 or Part 355 and, since it is not listed in (88)(A)(i)(III), by default the petition chemical then would have a RQ of 100 pounds if released to the environment in the state of Texas.

3M Company manufactures and sells the following petition chemical substance:

3-Pentanone, 1,1,1,2,2,4,5,5,5-nonafluoro-4-(trifluoromethyl)-, CAS No. 756-13-8
ASHRAE nomenclature: FK-5-1-12
Synonym: C6 fluoroketone,

This chemical is sold globally as 3M™ Novec™ 1230 Fire Protection Fluid. Novec 1230 fluid is used to extinguish fires in high valued assets such as computer rooms, data centers, control rooms, telecommunications centers and archival storage (please note the accompanying article on use of Novec 1230 at The Daughters of the Republic of Texas library at the Alamo). These are all assets that cannot be protected with water because water would destroy the contents of the enclosure. Novec 1230 fluid can be used in these applications because it is very low in toxicity, does not conduct electricity, and acts as a gas, leaving no residue behind. The industry refers to an agent with these properties as a “clean agent.” These agents don’t protect entire buildings but, rather, they are installed only in the enclosure that is being protected and only

discharged in the event of a fire. The obvious intent is to never discharge the system except in the event of an emergency. System size will vary dependent on the size of room being protected. A 5000 pound system is a relatively large fire suppression system.

Novec 1230 fluid was approved by the U.S. Environmental Protection Agency's Significant New Alternatives Policy (SNAP) Program in 2002 as a halon replacement and has been sold commercially since 2003. At this point, approximately 25,000 systems have been installed globally. Not only has this chemical proven to be an excellent fire protection medium but, as compared to other clean agent fire suppressants, it offers several unique environmental advantages including:

- Zero ozone depletion potential (ODP)
- Global Warming Potential (GWP) = 1 (2007, IPCC, 100 year ITH)
- Atmospheric lifetime of approximately 5 days

In its approval of Novec 1230 fluid, the U.S. EPA noted,

“EPA has reviewed the potential environmental impacts of this substitute and has concluded that, by comparison to halon 1301 and other acceptable substitutes, C6-perfluoroketone significantly reduces overall risk to the environment. With no ozone-depletion potential, a global warming potential value of less than 100, and an atmospheric lifetime of less than three days, C6-perfluoroketone provides an improvement over use of halon 1301, hydrochlorofluorocarbons (HCFCs) and hydrofluorocarbons (HFCs) in fire protection. We find that C6-perfluoroketone is acceptable because it reduces overall risk to public health and the environment in the end use listed.”

Federal Register Dec. 20, 2002

3M developed Novec 1230 fluid as a replacement product for halons and HFCs in fire suppression. Halon has been phased out of production because of its potent ozone depletion potential. Hydrofluorocarbons (HFCs) currently sold into fire suppression such as HFC-227ea, HFC-125 and HFC-23, are some of the most potent greenhouse gases known. The climate impact of these gases is more than 3000 times greater than CO₂. The accelerating concentration of HFC-227ea in the atmosphere was acknowledged in 2010 by Laube, et al (reference included) and the Montreal Protocol Scientific Assessment Panel has acknowledged that the fire suppression sector is the dominant sector for use of HFC-227ea. These HFCs are targeted under a proposal by the European Union that would ban their use or phase down their production starting in 2015. Similar proposals made under the Montreal Protocol would also phase down their production globally. The fire suppression market is quickly moving to substitute materials such as Novec 1230 fluid that enable greenhouse gas emissions to be reduced by more than 99 % from this sector.

Clean agents are used in areas that may be occupied so agent safety is also an important issue. Of those agents listed in NFPA 2001 (2012), Novec 1230 fluid provides the largest margin of safety. Furthermore, in new building construction, use of Novec 1230 in new fire suppression systems is consistent with LEED certification requirements.

Per Rule § 20.15, our proposed text to be added to § 101.1 Definitions, (88) Reportable Quantity (RQ), (A)(i)(III), would be: **'3-pentanone, 1,1,1,2,2,4,5,5,5-nonafluoro-4-(trifluoromethyl)- (FK-5-1-12) - 5,000 pounds;** It is noted that the names of chemicals in the (88)(A)(i)(III) list are preceded by a letter in parentheses, e.g., (-a-); the appropriate designation

for this new addition is left to TCEQ's discretion although, based on the current list, the most likely designation would appear to be **(-aaa-)**.

Per Rule § 20.15, Texas Government Code § 2001.021 establishes the procedure by which an interested party may petition a state agency for the adoption of a rule and 30 TAC § 20.15 provides such procedures specific to TCEQ.

Rule § 20.15 also requires, 'each petition shall include an allegation of injury or inequity that could result from the failure to adopt the proposed rule.'

The inequity results from the fact that the HFCs listed above have reportable quantities of 5000 pounds meaning that their release from most fire suppression systems would not require reporting. The reportable quantity for Novec 1230 fluid, by default, is 100 pounds. The disparity in these reportable quantities is driving decisions in the market. The requirement to report the discharge of a fire suppression system is enough to drive the Texas market to use potent greenhouse gases rather than replacement technology. In effect, the regulation is currently encouraging the use of potent greenhouse gases where sustainable alternative technologies are available.

The agents referred to above are listed as follows in (88)(A)(i)(III), along with their known GWP and atmospheric lifetimes (Atm.Lf.):

(-y-) 1,1,1,2,3,3,3-heptafluoropropane (HFC-227ea): GWP = 3220, Atm.Lf. = 34 years

(-ii-) pentafluoroethane (HFC-125): GWP = 3500, Atm. Lf. = 29 years

(-yy-) trifluoromethane (HFC-23): GWP = 14800, Atm. Lf = 270 years

Accompanying this letter are several documents in support of the petition chemical including:

- 3M Novec 1230 Fire Protection Fluid Product Information
- 3M Novec 1230 Fire Protection Fluid: Environmental Properties of Novec 1230
- 3M Novec 1230 Fire Protection Fluid Safety Assessment
- 3M Novec 1230 Fire Protection Fluid: BP Chooses Novec 1230 Fluid for Fire Protection
- 3M Novec 1230 Fire Protection Fluid Protects the Alamo at The Daughters of The Republic of Texas Library
- Accelerating growth of HFC-227ea (1,1,1,2,3,3,3-heptafluoropropane) in the atmosphere, J.C. Laube, et al., Atmos. Chem. Phys., 2010, 10, 5903 - 5910.
- Atmospheric Degradation of Perfluoro-2-methyl-3-pentanone: Photolysis, Hydrolysis, and Hydration, S.A. Mabury, et al., Environ. Sci. Technol., 2011, 45 (19), 8030 - 8036.
- Atmospheric Chemistry of C₂F₅C(O)CF(CF₃)₂: Photolysis and Reaction with Cl Atoms, OH Radicals, and Ozone, N. Taniguchi and T. J. Wallington, et al., J. Phys. Chem. A, 2003, 107, 2674 - 2679.
- Photolysis Study of Perfluoro-2-methyl-3-pentanone under Natural Light Conditions, C.J. Nielsen, et al., Environ. Sci. Technol., 2005, 39, 8708 - 8711.
- The large contribution of projected HFC emissions to future climate forcing, G.J.M. Velders and M. McFarland, et al., Proc. Nat. Acad. Sci., 2006, 106 (27), 10949 - 10954.

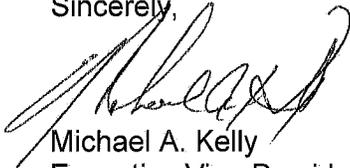
- European Commission, Press Release, Climate action: Commission proposes significant reduction in emissions of climate-warming fluorinated gases, Nov, 7, 2012
- Proposed amendment to the Montreal Protocol, HFC Phasedown Amendment Proposal, United Nations Environment Programme, May 10, 2012

For any additional information, studies, clarifications, etc., please contact 3M's chemical regulatory representative for the petition chemical:

Glen M. Giacoletto, PE
Regulatory Specialist
3M Material Resources Division, Chemical Product Stewardship
3M Center, Bldg. 236-1B-10, St. Paul, Minnesota 55144-1000
Phone: 651-736-4544, E-mail: gmgjacoletto@mmm.com

In summary, 3M requests amendment to General Rules § 101.1 Definitions, (88) Reportable Quantity (RQ), (A)(i)(III) that would establish a RQ of 5000 pounds for Novec 1230 Fluid.

Sincerely,



Michael A. Kelly
Executive Vice-President, 3M Electronics & Energy Business Group
3M Company
3M Austin Center, Bldg. A130-3N-58
6801 River Place Blvd.
Austin, TX 78726-9000
Phone: 512-984-3090

cc: R. Bridges
G. Giacoletto

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ZAK COVAR, EXECUTIVE DIRECTOR
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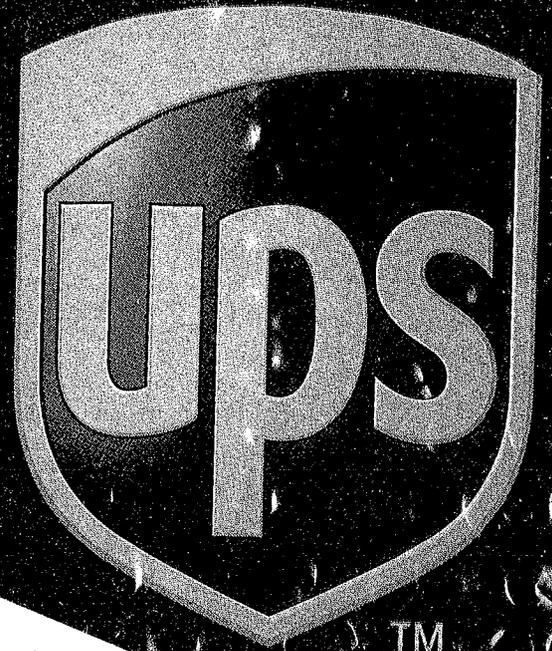
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