MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY

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INTEROFFICE COMMUNICATION

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TO: File for FC-247 (CAS No. 136797-56-3)

FROM: Robert Sills, Toxics Unit Supervisor, Air Quality Division

SUBJECT: ITSL being withdrawn

DATE: December 15, 2017

The previous Initial Threshold Screening Level (ITSL) for FC-247 was 24 µg/m^3, with annual averaging time, established on June 17, 1992 (Locey, 1992). The basis for that ITSL was an oral rat LD-zero (0% death, reported as LD50 > 5000 mg/kg), as submitted to MDEQ-AQD by 3M Company, for Scotchgard Brand Fabric Protector FC-247. The ITSL was developed as part of a review of a Permit to Install application submitted to MDEQ-AQD for a process that was proposed to use and emit to the ambient air the FC-247 product. The MSDS for FC-247 submitted as part of that permit application stated that the ingredients of FC-247 were: water 61-62%; fluoroalkyl polymer mixture (5206P, 5225P, 5085P, 5080P), CAS# "Trade Secret", 30%; ethylene glycol 8%; and, sorbitan, mono-9-octadecanoate, poly (oxy-1,2-ethanediyl) derivs,. (Z)-, CAS# 9005-65-6, 0.1-3.0%. Locey (1992) stated that 3M would not release the CAS# for the trade secret component of the mixture.

In October, 2017, AQD withdrew the ITSL for FC-247 because it was quite dated and we did not feel it was appropriate and defensible. We realized that this product's "fluoroalkyl polymer mixture" in Scotchgard consisted of members of the PFAS class (per-and polyfluoroalkyl substances). Literature indicates that the PFAS members in Scotchgard may include PFOS and PFOA (MPCA, 2017); and, that PFOS was previously the key ingredient in Scotchgard (Betts, 2007). The 3M Company (2017) Safety Data Sheet continues to withhold as a "trade secret" the CAS# and specific name of the "fluorochemical urethane" currently in their Scotchgard product. Other PFAS compounds are also emerging contaminants of concern in Michigan. It did not seem appropriate to continue to have an ITSL in place for a mixture that was calculated based on an LD-zero for that mixture, with a key ingredient that was not clearly identified for AQD at the time of ITSL derivation but which is now known (as PFAS) to be an emerging contaminant of concern due to toxicity, persistence and bioaccumulation. AQD intends to pursue the development of screening levels as needed for specific PFAS compounds.

References:

3M Company. 2017. Safety Data Sheet for Scotchgard Rug and Carpet Protector. 11/14/17. http://multimedia.3m.com/mws/mediawebserver?mwsId=SSSSSuUn_zu8l00xMYtSm8_vOv70k17zHvu9lxtD7SSSSSS--

Betts, K.S. 2007. Perfluoroalkyl acids: what is the evidence telling us? Environ. Health Perspt. 115(5): A250-A256. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC1867999/

Locey, B. 1992. Memo to file for FC-247. June 17, 1992. MDEQ-AQD Toxics Unit files.

Minnesota Pollution Control Agency (MPCA). 2017. PFC Investigation and Clean Up. Website report retrieved 12/15/17. https://www.pca.state.mn.us/waste/pfc-investigation-and-clean