

May 30, 2000



Dr. Charles Auer
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Office of Pollution Prevention and Toxics
United States Environmental Protection Agency
401 M Street, Southwest
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Re: Information of Perfluorooctane Sulfonates
And Related Compounds – UEIP Forms

Dear Charlie:

3M is enclosing the completed "Use and Exposure Information Profiles" or "UEIPs" for compounds related to perfluorooctane sulfonates. As explained in my cover letter to the May 18th submittal to EPA, we needed additional time to clarify industrial hygiene and other release information to ensure that the data in the profiles is accurate and placed in appropriate context.

The enclosed information covers certain compounds related to perfluorooctane sulfonate as listed in Table 1 of the document entitled: "Sulfonated Perfluorochemicals in the Environment: Sources, Dispersion, Fate and Effects", at 12 (March 1, 2000). Specifically the UEIPs provided cover the following chemicals:

- *Perfluorooctanesulfonyl fluoride
- *Perfluorooctanesulfonamide
- *Perfluorooctane sulfonylamido (ethyl) acetate
- *Perfluorodecanesulfonate
- *N-ethyl perfluorooctanesulfonamide
- *N-methyl perfluorooctanesulfonamide
- *N-ethylperfluorooctane sulfonamidoethanol
- *N-methylperfluorooctane sulfonamidoethanol
- *N-ethylperfluorooctanesulfonamidoethyl acrylate
- *N-ethylperfluorooctanesulfonamidoethyl methacrylate
- *N-methyl perfluorooctanesulfonamidoethyl acrylate

A UEIP is not provided for one of the compounds, , perfluorohexane sulfonate, listed in Table 1 because it is not an octyl sulfonate.

With respect to industrial hygiene information, you should be aware that each 3M plant that produces sulfonated fluorochemicals has an industrial hygienist on staff and is supported by a corporate industrial hygiene group. 3M's industrial hygiene program focuses on task-based exposure assessment and control. Exposures are identified and assessed qualitatively and/or quantitatively. Qualitative assessments are performed by an industrial hygienist. Quantitative assessments include task-based personal sampling for certain, specific fluorochemicals and/or source or area sampling. The results of the assessments support decisions on exposure control. Engineering controls are preferred, but personal protective equipment may be used on an interim basis or when effective engineering control is not feasible.

In certain situations, 3M has gathered personal industrial hygiene monitoring data for the specific compounds and have included that data in the profile. In some situations, there is no chemical-specific personal industrial hygiene monitoring data, but area/source monitoring data and/or surface wipe sampling data for the specific material may be available at the facility. These area/source sample results and/or surface wipe sample results are used to target areas with employee exposure potential as part of exposure assessment under 3M's industrial hygiene program and are not measurements of actual employee exposures. Hence, they are not included with this submission. In other situations, neither personal sampling data nor area/source data have been collected for a specific chemical.

The sample results of any air monitoring are compared to 3M's voluntary exposure guideline (EG) of 0.1 mg/m³ (milligrams of fluorochemical per cubic meter of air) for various fluorochemical compounds. The EG is an 8-hour time-weighted average (TWA) personal breathing zone exposure chosen to minimize potential for uptake.

Similar to the industrial hygiene program, each 3M facility that produces sulfonated fluorochemicals has one or more environmental engineers on-site and is also supported by a corporate and division level environmental organization. The environmental engineers assist the process engineers with calculations and emission estimates. The corporate environmental organization develops methods for analyzing emissions. In addition to these resources, several teams were established in recent years to identify, characterize and reduce specific fluorochemical emissions from the manufacturing sites.

While analytical methods have improved over time, large variability still exists for certain matrices and compounds, so data available for this report is mostly of a qualitative nature. Although limited monitoring data exists, most emission and waste estimates are based upon process models and engineering calculations. Engineering calculations, however, have limitations with respect to fluorochemicals because fluorochemical losses were not always included in the analysis of each intermediate step.

The accuracy of the emissions data submitted varies due to several factors. Batch process system emissions are difficult to measure due to quickly changing process conditions, venting pressures and difficulty in isolating processes to take measurements. Additionally, the unique characteristics of these compounds cause them to behave differently from conventional compounds, and physical chemical data properties are not available for all intermediate reaction steps.

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Please do not hesitate to contact me at 651-733-6374 should you have any questions.

Very truly yours,

A handwritten signature in cursive script, reading "William A. Weppner".

William A. Weppner, Ph.D.
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Attachments