3M General Offices

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3M

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Mr. Oscar Hernandez
US EPA/OPPT/CCD (7405)
401 M Street, SW
Room E615B
Washington, DC 20460

Dear Oscar:

As part of the ongoing voluntary submission of data and information on perfluorooctane sulfonic acid (PFOS) to EPA by 3M, enclosed is information on use and exposure relating to PFOS (Attachment 1). This information is presented following the format of a "Use and Exposure Information Profile" (UEIP) as recommended to 3M by EPA OPPT management. One UEIP form was prepared to cover the chemical perfluorooctane sulfonic acid (CAS #1763-23-1) and four of its salt forms (CAS #29081-56-9, 29457-72-5, 70225-14-8, 2795-39-3) that are manufactured from the perfluorooctane sulfonic acid.

It is important to emphasize the following points:

- The majority of 3M's fluorochemical production and product commercialization involves higher molecular weight functionalized derivatives made from perfluorooctane sulfonyl fluoride. A relatively small amount of perfluorooctane sulfonic acid and its salts are actually commercialized as finished products (<200,000 lbs/year).

- The secondary reactions producing all of these derivatives are single or sequential batch processes that do not necessarily produce pure products. There may be varying amounts of fluorochemical residuals (unreacted or partially reacted starting materials or intermediates) that are carried forward to the final product. Typically, where present, these residuals can be found at a concentration of 1-2% or less in final products and, in the aggregate, represent roughly 1-2% of total fluorochemical production volume. 3M has implemented an aggressive program to reduce or eliminate such manufacturing residuals in the production of commercialized products. Some of these fluorochemical residuals in 3M products have the potential to degrade or metabolize to PFOS. In addition, during some product use or disposal, the non-fluorochemical moieties added to the sulfonyl fluoride group of POSF can also be removed through a variety of degradation processes (chemical, environmental and metabolic). In such instances, the fluorochemical species ultimately produced as a result of such degradation will generally be PFOS. Therefore, there are other potential

sources of PFOS exposure or release than the actual production of perfluorooctane sulfonic acid or its salts.

- 3M does have data demonstrating the stability of high molecular weight fluorochemical polymers and fluorochemical phosphate esters to various mechanisms of degradation. Therefore, it is believed that degradation of these materials as commercialized products is not the principle source of PFOS to human or environmental exposure. 3M has provided to EPA as a supplemental submission (TSCA Section 8(e) – Perfluorooctane Sulfonate – Docket Numbers 8EHQ-1180-373; 8EHQ-1180-374) the white paper entitled "Sulfonated Perfluorochemicals in the Environment: Sources, Dispersion, Fate and Effects". The information in that paper contains worse case estimates of potential exposure and waste generation. That analysis assumed all fluorochemical products could completely degrade to PFOS and represented that quantitatively as "PFOS equivalents". Our current understanding is that these conservative estimates of PFOS equivalents overstate exposure potential to PFOS.

- EPA received biomonitoring data from 3M on April 24, 2000 indicating that most employees at the Decatur, AL manufacturing site have PFOS found in their serum. The attached UEIP document shows that most PFOS is manufactured at Cottage Grove, MN with only small numbers of exposed employees. The exposure experienced by employees at the Decatur, AL site is to fluorochemical materials that are metabolized or hydrolyzed to PFOS.

Please feel free to contact me if you have any questions regarding this information.

Best regards,

William A. Weppner

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Attachment(s)
- Voluntary Use and Exposure Information Profile – Perfluorooctane Sulfonic Acid and Its Salt Forms