

## Summary PFOS Oral Rat Toxicology Screen

Study Numbers: 3M - T-6295, NOTOX - 242933, 3M Analytical - FACT-TOX-120.3

Compound: Perfluorooctane sulfonate, potassium salt (C<sub>8</sub>F<sub>17</sub>SO<sub>3</sub>K)

Study Title toxicology: Exploratory 28-Day Oral Toxicity Study with Telomer Alcohol, Telomer Acrylate, PFBS, PFHS and PFOS (positive control) by Daily Gavage in the Rat Followed by a 14/28-Day Recovery Period

Study Title analytical: Report of Data for Exploratory 28-Day Oral Toxicity Study with Telomer Alcohol, Telomer Acrylate, PFBS, PFHS and PFOS

Report Dates: 27 April 1999 (toxicology) and 11 June 1999 (analytical)

Study Monitors: Marvin Case and Paul Lieder

Study Summary: A group of 14 male and 14 female rats received the compound, positive control, orally at a dose of 3 mg/kg/day for 28 days. Then 8/sex were necropsied and the remaining 6/sex animals entered recovery period (no treatment). Three/sex were necropsied after two weeks of recovery and the remaining 3/sex after four weeks of recovery. A similar group of 14/sex rats served as controls and were orally dosed with vehicle – 1% aqueous carboxymethyl cellulose.

Clinical signs were hunched posture in two females during the last two weeks of treatment; one male had swollen abdomen during last few days of treatment. Female body weights were significantly reduced during the second half of treatment. At the end of the 28 days of compound administration, the mean female body weights were ↓ 12.3%. However, during the 28-day recovery period, both male and female animals had reduced body weight gain – males ↓ 10.8% and females ↓ 14.5% less than controls. These body weight effects correlated some with reduced food consumption as males had reduced consumption during 4<sup>th</sup> week of treatment and females had reduced consumption during the 3<sup>rd</sup> and 4<sup>th</sup> weeks of treatment.

Hematological data indicated slightly low Hct value for females at the end of treatment. There were no hematological changes during the recovery period in either sex. Blood biochemistry values showed both reduced cholesterol and triglyceride at the end of 28-day treatment in the males. The males had slightly decreased total protein and globulin values which resulted in an increased A/G ratio. The reduced cholesterol and triglyceride recovered after compound treatment stopped. Scattered other biochemical values, although statistically significant, were within historical control values and were not considered biological meaningful. The reduced cholesterol and triglyceride values were considered to be compound related; other biochemical changes were not.

At necropsy after 28 days of compound administration, male and female animals had increased absolute and relative (% body weight) liver weights indicating increased liver size. The females also had increased kidney weights. Reversal of the increased liver weights (♂ & ♀) and kidneys weights (♀) did not occur during the 28-day recovery period. Microscopic examination of liver sections revealed hepatocyte hypertrophy in both sexes at the end of treatment. Recovery of this microscopic change did not occur in the males and only partially resolution occurred in the females during the four weeks of recovery.

Histopathological examination was done on selected key organs – adrenals, kidneys, liver, lymph nodes, ovaries, pancreas, spleen, testis, and thymus.

After 28 day of dosing relatively high levels of PFOS were present in the liver – mean of 419ppm for males and 377ppm for females. During recovery PFOS liver levels did decline but at the end of 28 days of recovery the mean levels were still 237ppm for males and 191ppm for females.

Conclusions: This 28-day screen at 3 mg/kg/day was sufficient to demonstrate the toxic effects of PFOS, which served as the positive control in this oral toxicity screening study. The effects included ↓ body weight, ↓ blood cholesterol, ↑ liver size, and hepatocyte hypertrophy. These effects were somewhat more pronounced in the male rats than in the female rats. Persistence was indicated by lack of recovery of liver effects and lack of compound clearance from the liver.

The rat oral NOEL was < 3 mg/kg.

3M Proprietary Information  
October 1999

**Exhibit  
1617**

State of Minnesota v. 3M Co.,  
Court File No. 27-CV-10-28862