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From: Tony Manzara, SCD\PC\POP, 3M COTTAGE GROVE 70-2 (8-1392)
Subject: Visit to DuPont - 11/12/96 - Technical Impressions

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We visited the DuPont Washington Works in Parkersburg, WV, to introduce our new degradable emulsifier candidates. 3M attendees were Jerry Colbert, Wei Fan, Marylee Maendler, and Tony Manzara. DuPont personnel were:

Dave French (only for a few minutes - has a new assignment)
Jose Rodriguez - small-scale work and transfer to manufacturing
Greg Chapman - commercialization of new products
Carey Cole - incoming supplier relations person
Roger Zipfel - responsible for DuPont's activities with "C-8" (C7F15CO2NH4).

They presented their reasons for wanting to discontinue the use of C8 - "bioretention" in humans as an industrial hygiene concern, possibility of environmental problems due to persistence. They emphasized that FC-143/FC-118 was a good product, and they might not be able to replace it in all of its uses with a single material. They said that most of their customers were not very concerned at this point about C8 in the polymer products, but that a few were beginning to pay attention to the C8 level. The ambitious schedule mentioned in my field report from this location on a meeting May 9th, 1995 (to replace C8 by 2000) has been elongated to be more in line with realistic possibilities.

Dupont has been testing candidates as C8 replacements - I got the impression that these were internally synthesized or available compounds - if they were getting samples from another vendor, they did not allude to the fact. So far, all the compounds which have failed were fully fluorinated materials which were too toxic - apparently a PF ether fell into this category - or were too reactive due to labile hydrogens in the carbon backbone and therefore interfered with product quality. Their philosophical approach was to weaken the molecule to make it more susceptible to environmental degradative factors.

Their needs were listed as (first 3 are absolutely necessary):

Surface properties, surface tension, and CMC similar to C8.

Lower chronic toxicity (non-bioretenting) more important than lower acute toxicity

Non-participating in the polymerization reaction

Vapor pressure equal to or higher than C8. (nice to have, ensures removal)

Dispersion stability - six months of shelf life (customer preference)

CONFIDENTIAL - SUBJECT TO A PROTECTIVE ORDER ENTERED IN
HENNEPIN COUNTY DISTRICT COURT, NO. 27-CV-10-28862

**Exhibit
1461**

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

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1461.0001

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John Tomsyck - 3M Corporate Technical Planning