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Arkema Inc.
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March 24, 2008

TSCA Document Control Officer (7407M)
EPA East – Room 6428 Attn: Section 8(e)
Office of Pollution Prevention and Toxics
U.S. Environmental Protection Agency
1201 Constitution Ave., NW
Washington, DC 20004-3302



Subject: TSCA 8(e) Submission

Dear Sir/Madam:

Arkema Inc. is making this submission to the U.S. Environmental Protection Agency (EPA) pursuant to Toxic Substances Control Act (TSCA) Section 8(e). A recently received unaudited summary report provides preliminary data from a short-term inhalation test in rats with multi-walled carbon nanotubes (CAS Registry Number 7782-42-5) and does not involve effects in humans.

Nothing in this letter is considered confidential business information of Arkema Inc.

This study was designed to determine the potential pulmonary toxicity of multiwalled carbon nanotubes (MWCNTs) in rats. It included bronchoalveolar lavage with clinico-chemical and cytological evaluation of bronchoalveolar lavage fluid (BALF) and histopathological examination of the lung.

Because carbon nanotubes naturally form large, non-respirable agglomerates (typically 300-400 μm), the material could not be used as supplied. It was ground to produce respirable size particles, which were characterized only with regard to particle size distribution. The mechanical grinding may have generated chemically reactive radical sites which are not characteristic of the commercial product, and which may have contributed to the effects seen.

Groups of 28 male Wistar rats were head-nose exposed to respirable dusts for 6 hours per day, on 5 consecutive days to target concentrations of 0.1, 0.5 and 2.5 mg/m^3 . A concurrent control group was exposed to conditioned air. Animals were sacrificed on study days 7 and 28. At each sacrifice, five animals per group underwent lung lavage, additionally, three were designated for electron microscopy (results not available) and six for histopathology.

Effects considered compound related in the BALF included: increased protein concentration, enzyme activity, total cell count, neutrophils and lymphocytes, concentrations of various cytokine and chemokines. These parameters had not returned to control values by the end of the recovery period. In the lung, increased concentrations of various cytokine and chemokines, increased absolute and relative organ weight immediately after the last exposure (normal after the recovery period), multifocal minimal granulomatous inflammation (one animal immediately after the last exposure, five out of six animals after recovery period), increased number of alveolar macrophages were reported. No adverse treatment related findings were noted at 0.1 mg/m^3 (NOAEC).

Questions regarding this submission may be directed to me at 215-419-5890 or via e-mail at debra.randall@arkema.com.

Sincerely,

Debra Randall, DABT
Manager, Product Safety

