



INTERNATIONAL INSTITUTE OF SYNTHETIC RUBBER PRODUCERS, INC.

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Office of Pollution Prevention and Toxics  
Environmental Protection Agency  
401 M Street, S.W.  
Room G-99  
East Tower Basement  
Washington, D.C. 20460

**Attention: Section 8(e) Coordinator**

Dear Sir/Madam:

The International Institute of Synthetic Rubber Producers, Inc. (IISRP) has been sponsoring a cohort mortality study of nearly 18,000 workers employed between 1943 and 1991 at eight styrene butadiene rubber (SBR) plants in the United States and Canada. IISRP reported to EPA on this study and its findings concerning leukemia and exposure to butadiene on a number of occasions including May 19, 1995, and June 26, 1995; the final report was submitted to this office on October 24, 1995.

Over the past three years, additional collection and refinement of exposure information and reanalysis of the mortality data on the SBR worker cohort has been conducted by the investigators at the University of Alabama at Birmingham. The initial preliminary results of this work were presented to IISRP on April 19, 1999.

IISRP sets forth below, on behalf of its member companies and pursuant to TSCA 8 (e) guidelines, the initial preliminary results. These results provide both additional information concerning butadiene and new information concerning dimethyldithiocarbamate (DMDTC):

(a) The initial preliminary results from this study include an association between cumulative exposure to DMDTC and leukemia. The leukemia rate ratios for DMDTC (adjusted for age, calendar period, years since hire, race, and exposures to butadiene and styrene) were 1.0, 1.8, 3.5, 3.5, and 2.1 for 0, 0 to 7.1, 7.1 to 17.3, 17.3 to 38.1, and more than 38.1, mg-years/ 60 cm, respectively.

(b) The initial preliminary results indicate that butadiene exposures within the cohort were substantially under-estimated in the original study report. The revised best estimates of 8-hour time-



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weighted exposures in the cohort for each year during the period from 1943 to 1991 are from two to eight times higher than the estimates in the original report.

(c) The initial preliminary results indicate that this study includes an association between peak butadiene exposures and leukemia. The leukemia rate ratios for exposure to butadiene peak exposures greater than 100 ppm (adjusted for age, calendar period, years since hire, race, styrene peak exposures, and exposure to DMDTC) were 1.0, 0.8, 1.1, 1.4 and 1.8 for the exposure categories 0, 0 to 27.0, 27.0 to 82.9, 82.9 to 275.1, and greater than 275.1, exposure unit years, respectively.

At the same time, the association between cumulative butadiene exposure and leukemia was attenuated as compared to the original report of this study. Leukemia rate ratios (adjusted for age, calendar period, years since hire, race, and exposures to styrene and DMDTC) were 1.0, 1.5, 0.8, 1.5 and 3.2 (with the confidence intervals for each RR extending below 1.0) for cumulative butadiene exposures of 0, 0 to 43.9, 43.9 to 213.7, 213.7 to 633.3, and more than 613.3, ppm-years, respectively.

These initial preliminary results also indicate a high correlation between worker exposure to butadiene and DMDTC. As a result, causal assessment is difficult, and additional analyses are underway to further clarify the findings to the extent possible.

IISRP expects to receive a report of this study within several months and will submit a copy to the Agency.

Sincerely,



Richard Killian  
Managing Director

cc: (via U.S. mail):

Dr. Kenneth Olden  
National Toxicology Program

Dr. Aparna M. Koppikar  
National Center for Environmental Assessment

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