

EXXON CHEMICAL AMERICAS

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P. O. Box 3272, Houston, Texas 77001

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EPA-OTS



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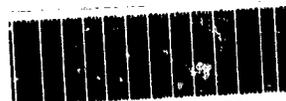
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3 - Pages

DAVID D. SIGG, IN
Counsel

90 SEP -7 AM 8:25

Document Control Officer
Chemical Information Division
Office of Toxic Substances (WH-557)
Environmental Protection Agency
401 M Street, S.W.
Washington, D.C. 20460



88900000003

Re: Notification of Substantial
Risk Under TSCA §8 (e)

88-900000003

Dear Sir:

Exxon Chemical Company herewith submits to the EPA the following report regarding 1,4-hexadiene (CAS 592-45-0) pursuant to §8 (e) of the Toxic Substances Control Act. This material is being used in the development of new products by our research and development laboratories.

1,4-hexadiene is a non-conjugated diolefin liquid with an empirical formula of C_6H_{10} , molecular weight of 82, specific gravity 0.710, boiling point of $65^{\circ}C$ and a vapor pressure of 170 mmHg at $21^{\circ}C$ and 320 mmHg at $38^{\circ}C$. 1,4-hexadiene exists in both cis and trans forms. The material used in the Exxon studies being reported was approximately 99% of the cis form and was inhibited with approximately 100 weight ppm tert-butyl catechol. The low molecular weight olefins and diolefins are generally of low acute toxicity in rats, and the very limited data on 1,4-hexadiene suggests that this material would be the same.

In rangefinding studies for a micronucleus assay by the inhalation route using mouse bone marrow, there was unexpected mortality at relatively low concentrations. Details are given in the attachment, although no formal report has yet issued. A second rangefinding study, involving oral gavage using mice, also produced significant mortality. These data are also summarized in the attachment.

We are making this report because, despite the suggestion from the literature and other sources that 1,4-hexadiene and other olefins and diolefins have low acute toxicity in rats, these new data in mice suggest a strong and unexpected species difference in short term toxicity.

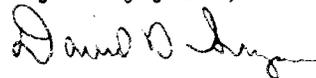
At this time, this material is being used only for developmental purposes in our organization. We have notified laboratory and other potentially exposed individuals of these findings. Appropriate procedures and personal protective equipment are being used by those who could be exposed in the workplace. When final reports on these new studies are available, copies will be provided to you.

Any questions regarding this submission or the technical data underlying the report should be referred to either of the following contacts:

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Very truly yours,



David D. Sigman

DDS/pjo
Attachment

c: H. L. Hunter
R. D. Phillips
J. A. Zboray

LWDSPG44

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ATTACHMENT I

Material: 1,4-Hexadiene (99% cis)
Laboratory: Exxon Biomedical Sciences, Inc.
East Millstone, New Jersey
Test Species: B603F1 mice and Cr1 CDBR rats (males only)
Routes: Inhalation (rats and mice)
Oral Gavage (mice only)

Dose Groups and Findings:

A. Inhalation Study - 6 hours/day for 2 days

<u>Concentration</u> (vol. ppm in air)	<u>Mortality</u>	
	Rats	Mice
10,000	0/4	4/4
3,260	0/4	4/4
1,000	0/4	0/4

B. Oral Gavage Study - Single dose in ethanol

<u>1,4-Hexadiene Dose</u> (ml/kg)	<u>Ethanol Carrier</u> (ml/kg)	<u>Mortality</u> Mice
1.5	0.5	4/4
0.75	1.25	1/4
0.15	1.85	2/4
0.0	2.0	0/4

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