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Shell Oil Company



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One Shell Plaza
P.O. Box 4320
Houston, Texas 77210



June 22, 1994

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Document Processing Center (TS-790)
Office of Toxic Substances
U.S. Environmental Protection Agency
401 M Street, S.W.
Washington, D.C. 20460
ATTN: 8(e) Coordinator



Dear Sir:

SUBJECT: NEUROSTRUCTURAL CHANGES IN THE BRAIN AND SPINAL CORD OF RATS DOSED ORALLY WITH VINYL NEONANOATE IN A 14-DAY TOXICITY STUDY

The following information is submitted under TSCA 8(e).

Neurostructural changes, which included vacuolation, myelinopathy and/or axonopathy of the brain and/or spinal cord, were observed in male and female rats that received two oral doses of 2000 mg/kg vinyl neonanoate (CAS Number 54423-67-5) in a 14-day toxicity study conducted by Bushy Run Research Center. The study is jointly sponsored by Shell Chemical Company and Union Carbide Chemical and Plastics Co.

Attached are copies of the unaudited data tables from the draft report, which are summaries of microscopic diagnoses of nervous systems from perfusion-fixed animals sacrificed at day 15 of the subject study. The complete final report will be sent to the Agency when available.

This report is filed to provide information EPA may find useful. In no way is it intended as a waiver of any rights or privileges belonging to Shell Oil Company as the reporting corporation, its agents or employees. The reporting corporation, its agents and employees, reserve the right to object to this report's use or admissibility in any subsequent judicial or administrative proceeding against the corporation, its agents or employees.

This report has been compiled based on information available as of the date of filing. The corporation, its agents and employees reserve the right to supplement the data contained in this report, and to revise and amend any conclusions drawn therefrom.

This report contains no confidential business information.

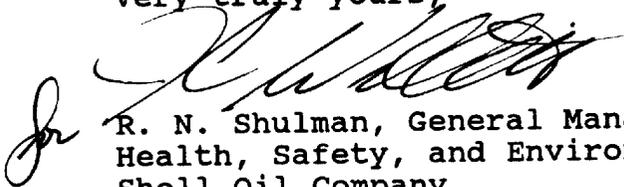
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7/21/94

The following person should be contacted if you have questions or a need for discussion.

J. C. Willett
Manager, Product Safety and Compliance
Shell Oil Company
P.O. Box 4320
Houston, TX 77210
Telephone No. 713-241-6958
Fax. 713-241-3325

Very truly yours,


R. N. Shulman, General Manager
Health, Safety, and Environment
Shell Oil Company

THG/krl

Attachments

DRAFT

TABLE 29
VINYL NEONONANOATE: FOURTEEN-DAY PERORAL (GAVAGE) RANGE-FINDING
STUDY IN FISCHER 344 RATS
SUMMARY OF MICROSCOPIC DIAGNOSES

ANIMALS SACRIFICED AT DAY 15
PERFUSED MALES

GROUP:	1	2	3	4	5
NUMBER OF ANIMALS IN DOSE GROUP	3	3	3	3	2
NUMBER OF ANIMALS SACRIFICED	3	3	3	3	2
MENINGES					
TOTAL NUMBER EXAMINED	3	0	0	3	2
EXAMINED, UNREMARKABLE	3	-	-	3	2
PIRIFORM CORTEX					
TOTAL NUMBER EXAMINED	3	0	0	3	2
EXAMINED, UNREMARKABLE	3	-	-	3	2
FRONTAL CORTEX					
TOTAL NUMBER EXAMINED	3	0	0	3	2
EXAMINED, UNREMARKABLE	3	-	-	3	2
PARIETAL CORTEX					
TOTAL NUMBER EXAMINED	3	0	0	3	2
EXAMINED, UNREMARKABLE	3	-	-	3	2
TEMPORAL CORTEX					
TOTAL NUMBER EXAMINED	3	0	0	3	2
EXAMINED, UNREMARKABLE	3	-	-	3	2
OCCIPITAL CORTEX					
TOTAL NUMBER EXAMINED	3	0	0	3	2
EXAMINED, UNREMARKABLE	3	-	-	3	2
SEPTAL NUCLEI					
TOTAL NUMBER EXAMINED	3	0	0	3	2
EXAMINED, UNREMARKABLE	3	-	-	3	2
CAUD NUC/PUTAMEN					
TOTAL NUMBER EXAMINED	3	0	0	3	2
EXAMINED, UNREMARKABLE	3	-	-	3	2
GLOBUS PALLIDUS					
TOTAL NUMBER EXAMINED	3	0	0	3	2
EXAMINED, UNREMARKABLE	3	-	-	3	2
AMYGDALA					
TOTAL NUMBER EXAMINED	3	0	0	3	2
EXAMINED, UNREMARKABLE	3	-	-	3	2
HIPPOCAMPUS					
TOTAL NUMBER EXAMINED	3	0	0	3	2
EXAMINED, UNREMARKABLE	3	-	-	3	2

GROUP LEGEND: 1 is 0 MG/KG/DAY, 2 is 50 MG/KG/DAY, 3 is 200 MG/KG/DAY, 4 is 1000 MG/KG/DAY,
5 is 2000 MG/KG/DAY

None significantly different from control group

DRAFT

TABLE 29 (Continued)
 VINYL NEONANOATE: FOURTEEN-DAY PERORAL (GAVAGE) RANGE-FINDING
 STUDY IN FISCHER 344 RATS
 SUMMARY OF MICROSCOPIC DIAGNOSES

ANIMALS SACRIFICED AT DAY 15
 PERFUSED MALES

GROUP:	1	2	3	4	5
NUMBER OF ANIMALS IN DOSE GROUP	3	3	3	3	2
NUMBER OF ANIMALS SACRIFICED	3	3	3	3	2
THALAMUS					
TOTAL NUMBER EXAMINED	3	0	0	3	2
EXAMINED, UNREMARKABLE	3	-	-	3	2
HYPOTHALAMUS					
TOTAL NUMBER EXAMINED	3	0	0	3	2
EXAMINED, UNREMARKABLE	3	-	-	3	2
MIDBRAIN					
TOTAL NUMBER EXAMINED	3	0	0	3	2
EXAMINED, UNREMARKABLE	3	-	-	3	2
SUBSTANTIA NIGRA					
TOTAL NUMBER EXAMINED	3	0	0	3	2
EXAMINED, UNREMARKABLE	3	-	-	3	2
CEREBELLAR W.M.					
TOTAL NUMBER EXAMINED	3	0	0	3	2
EXAMINED, UNREMARKABLE	3	-	-	3	2
ANT COMMISSURE					
TOTAL NUMBER EXAMINED	3	0	0	3	2
EXAMINED, UNREMARKABLE	3	-	-	3	2
EXTERNAL CAPSULE					
TOTAL NUMBER EXAMINED	3	0	0	3	2
EXAMINED, UNREMARKABLE	3	-	-	3	2
INTERNAL CAPSULE					
TOTAL NUMBER EXAMINED	3	0	0	3	2
EXAMINED, UNREMARKABLE	3	-	-	3	2
CORPUS CALLOSUM					
TOTAL NUMBER EXAMINED	3	0	0	3	2
EXAMINED, UNREMARKABLE	3	-	-	3	2
FORNIX					
TOTAL NUMBER EXAMINED	0	0	0	1	1
EXAMINED, UNREMARKABLE	-	-	-	1	1
MISSING	3	-	-	2	1
CEREBELLAR CTX					
TOTAL NUMBER EXAMINED	3	0	0	3	2
EXAMINED, UNREMARKABLE	3	-	-	3	2

GROUP LEGEND: 1 is 0 MG/KG/DAY, 2 is 50 MG/KG/DAY, 3 is 200 MG/KG/DAY, 4 is 1000 MG/KG/DAY,
 5 is 2000 MG/KG/DAY

None significantly different from control group

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TABLE 29 (Continued)
 VINYL NEONONANOATE: FOURTEEN-DAY PERORAL (GAVAGE) RANGE-FINDING
 STUDY IN FISCHER 344 RATS
 SUMMARY OF MICROSCOPIC DIAGNOSES

ANIMALS SACRIFICED AT DAY 15
 PERFUSED MALES

GROUP:	1	2	3	4	5
NUMBER OF ANIMALS IN DOSE GROUP	3	3	3	3	2
NUMBER OF ANIMALS SACRIFICED	3	3	3	3	2
CEREBELLAR NUC					
TOTAL NUMBER EXAMINED	3	0	0	3	2
EXAMINED, UNREMARKABLE	3	-	-	3	2
VESTIBULAR NUC					
TOTAL NUMBER EXAMINED	3	0	0	3	2
EXAMINED, UNREMARKABLE	3	-	-	3	1
MYELINOPATHY	0	-	-	0	1
PONS					
TOTAL NUMBER EXAMINED	3	0	0	3	2
EXAMINED, UNREMARKABLE	3	-	-	3	2
MEDULLA OBL					
TOTAL NUMBER EXAMINED	3	0	0	3	2
EXAMINED, UNREMARKABLE	3	-	-	3	2
OLFACTORY BULB					
TOTAL NUMBER EXAMINED	3	0	0	3	2
EXAMINED, UNREMARKABLE	3	-	-	3	2
OPTIC N/CHIASM					
TOTAL NUMBER EXAMINED	3	0	0	2	2
EXAMINED, UNREMARKABLE	3	-	-	2	2
MISSING	0	-	-	1	0
TRIGEMINAL TRACT					
TOTAL NUMBER EXAMINED	3	0	0	3	2
EXAMINED, UNREMARKABLE	3	-	-	3	2
SPINAL CORD, CRV					
TOTAL NUMBER EXAMINED	3	0	0	3	2
EXAMINED, UNREMARKABLE	3	-	-	3	0
MYELINOPATHY	0	-	-	0	2
AXONOPATHY	0	-	-	0	1
SPINAL CORD, THR					
TOTAL NUMBER EXAMINED	3	0	0	3	2
EXAMINED, UNREMARKABLE	3	-	-	3	0
MYELINOPATHY	0	-	-	0	2
AXONOPATHY	0	-	-	0	1
SPINAL CORD, LUM					
TOTAL NUMBER EXAMINED	3	0	0	3	2
EXAMINED, UNREMARKABLE	3	-	-	3	1

GROUP LEGEND: 1 is 0 MG/KG/DAY, 2 is 50 MG/KG/DAY, 3 is 200 MG/KG/DAY, 4 is 1000 MG/KG/DAY,
 5 is 2000 MG/KG/DAY

None significantly different from control group

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TABLE 29 (Continued)
 VINYL NEONONANOATE: FOURTEEN-DAY PERORAL (GAVAGE) RANGE-FINDING
 STUDY IN FISCHER 344 RATS
 SUMMARY OF MICROSCOPIC DIAGNOSES

ANIMALS SACRIFICED AT DAY 15
 PERFUSED MALES

GROUP:	1	2	3	4	5
NUMBER OF ANIMALS IN DOSE GROUP	3	3	3	3	2
NUMBER OF ANIMALS SACRIFICED	3	3	3	3	2
SPINAL CORD, LUM(CONTINUED) MYELINOPATHY	0	-	-	0	1
SPINAL NERVE RTS TOTAL NUMBER EXAMINED	3	0	0	3	2
EXAMINED, UNREMARKABLE	3	-	-	3	2
DORSAL ROOT GANG TOTAL NUMBER EXAMINED	3	0	0	3	2
EXAMINED, UNREMARKABLE	3	-	-	3	2
GASSERIAN GANG TOTAL NUMBER EXAMINED	3	0	0	3	2
EXAMINED, UNREMARKABLE	3	-	-	3	2
SCIATIC NERVE TOTAL NUMBER EXAMINED	3	0	0	3	2
EXAMINED, UNREMARKABLE	3	-	-	3	2
TIBIAL NERVE TOTAL NUMBER EXAMINED	3	0	0	3	2
EXAMINED, UNREMARKABLE	3	-	-	3	2
PERONEAL/SURAL N TOTAL NUMBER EXAMINED	3	0	0	3	2
EXAMINED, UNREMARKABLE	3	-	-	3	2

GROUP LEGEND: 1 is 0 MG/KG/DAY, 2 is 50 MG/KG/DAY, 3 is 200 MG/KG/DAY, 4 is 1000 MG/KG/DAY,
 5 is 2000 MG/KG/DAY

None significantly different from control group

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TABLE 30
 VINYL NEONONANOATE: FOURTEEN-DAY PERORAL (GAVAGE) RANGE-FINDING
 STUDY IN FISCHER 344 RATS
 SUMMARY OF MICROSCOPIC DIAGNOSES

ANIMALS SACRIFICED AT DAY 15
 PERFUSED FEMALES

GROUP:	1	2	3	4	5
NUMBER OF ANIMALS IN DOSE GROUP	3	3	3	3	3
NUMBER OF ANIMALS SACRIFICED	3	3	3	3	3
MENINGES					
TOTAL NUMBER EXAMINED	3	0	0	3	3
EXAMINED, UNREMARKABLE	3	-	-	3	3
PIRIFORM CORTEX					
TOTAL NUMBER EXAMINED	3	0	0	3	3
EXAMINED, UNREMARKABLE	3	-	-	3	3
FRONTAL CORTEX					
TOTAL NUMBER EXAMINED	3	0	0	3	3
EXAMINED, UNREMARKABLE	3	-	-	3	3
PARIETAL CORTEX					
TOTAL NUMBER EXAMINED	3	0	0	3	3
EXAMINED, UNREMARKABLE	3	-	-	3	3
TEMPORAL CORTEX					
TOTAL NUMBER EXAMINED	3	0	0	3	3
EXAMINED, UNREMARKABLE	3	-	-	3	3
OCCIPITAL CORTEX					
TOTAL NUMBER EXAMINED	3	0	0	3	3
EXAMINED, UNREMARKABLE	3	-	-	3	3
SEPTAL NUCLEI					
TOTAL NUMBER EXAMINED	3	0	0	3	3
EXAMINED, UNREMARKABLE	3	-	-	3	3
CAUD NUC/PUTAMEN					
TOTAL NUMBER EXAMINED	3	0	0	3	3
EXAMINED, UNREMARKABLE	3	-	-	3	3
GLOBUS PALLIDUS					
TOTAL NUMBER EXAMINED	3	0	0	3	3
EXAMINED, UNREMARKABLE	3	-	-	3	3
AMYGDALA					
TOTAL NUMBER EXAMINED	3	0	0	3	3
EXAMINED, UNREMARKABLE	3	-	-	3	3
HIPPOCAMPUS					
TOTAL NUMBER EXAMINED	3	0	0	3	3
EXAMINED, UNREMARKABLE	3	-	-	3	3

GROUP LEGEND: 1 is 0 MG/KG/DAY, 2 is 50 MG/KG/DAY, 3 is 200 MG/KG/DAY, 4 is 1000 MG/KG/DAY,
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None significantly different from control group

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TABLE 30 (Continued)
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TOTAL NUMBER EXAMINED		3	0	0	3	3
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TOTAL NUMBER EXAMINED		3	0	0	3	3
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TOTAL NUMBER EXAMINED		3	0	0	3	3
EXAMINED, UNREMARKABLE		3	-	-	3	3
EXTERNAL CAPSULE						
TOTAL NUMBER EXAMINED		3	0	0	3	3
EXAMINED, UNREMARKABLE		3	-	-	3	3
INTERNAL CAPSULE						
TOTAL NUMBER EXAMINED		3	0	0	3	3
EXAMINED, UNREMARKABLE		3	-	-	3	3
CORPUS CALLOSUM						
TOTAL NUMBER EXAMINED		3	0	0	3	3
EXAMINED, UNREMARKABLE		3	-	-	3	3
FORNIX						
TOTAL NUMBER EXAMINED		1	0	0	2	2
EXAMINED, UNREMARKABLE		1	-	-	2	2
MISSING		2	-	-	1	1
CEREBELLAR CTX						
TOTAL NUMBER EXAMINED		3	0	0	3	3
EXAMINED, UNREMARKABLE		3	-	-	3	3

GROUP LEGEND: 1 is 0 MG/KG/DAY, 2 is 50 MG/KG/DAY, 3 is 200 MG/KG/DAY, 4 is 1000 MG/KG/DAY,
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None significantly different from control group

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TABLE 30 (Continued)
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EXAMINED, UNREMARKABLE	3	-	-	3	2
MYELINOPATHY	0	-	-	0	1
VESTIBULAR NUC					
TOTAL NUMBER EXAMINED	3	0	0	3	3
EXAMINED, UNREMARKABLE	3	-	-	3	2
MYELINOPATHY	0	-	-	0	1
PONS					
TOTAL NUMBER EXAMINED	3	0	0	3	3
EXAMINED, UNREMARKABLE	3	-	-	3	3
MEDULLA OBL					
TOTAL NUMBER EXAMINED	3	0	0	3	3
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TOTAL NUMBER EXAMINED	3	0	0	3	3
EXAMINED, UNREMARKABLE	3	-	-	3	3
OPTIC N/CHIASM					
TOTAL NUMBER EXAMINED	3	0	0	3	3
EXAMINED, UNREMARKABLE	3	-	-	3	3
TRIGEMINAL TRACT					
TOTAL NUMBER EXAMINED	3	0	0	3	3
EXAMINED, UNREMARKABLE	3	-	-	3	2
MYELINOPATHY	0	-	-	0	1
SPINAL CORD, CRV					
TOTAL NUMBER EXAMINED	3	0	0	3	3
EXAMINED, UNREMARKABLE	1	-	-	2	0
VACUOLATION	2	-	-	1	1
MYELINOPATHY	0	-	-	0	2
AXONOPATHY	0	-	-	0	1
SPINAL CORD, THR					
TOTAL NUMBER EXAMINED	3	0	0	3	3
EXAMINED, UNREMARKABLE	3	-	-	3	1
MYELINOPATHY	0	-	-	0	2

GROUP LEGEND: 1 is 0 MG/KG/DAY, 2 is 50 MG/KG/DAY, 3 is 200 MG/KG/DAY, 4 is 1000 MG/KG/DAY,
 5 is 2000 MG/KG/DAY

None significantly different from control group

DRAFT

TABLE 30 (Continued)
 VINYL NEONANOATE: FOURTEEN-DAY PERORAL (GAVAGE) RANGE-FINDING
 STUDY IN FISCHER 344 RATS
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 PERFUSED FEMALES

GROUP:	1	2	3	4	5
NUMBER OF ANIMALS IN DOSE GROUP	3	3	3	3	3
NUMBER OF ANIMALS SACRIFICED	3	3	3	3	3
SPINAL CORD, THR (CONTINUED) AXONOPATHY	0	-	-	0	1
SPINAL CORD, LUM TOTAL NUMBER EXAMINED	3	0	0	3	3
EXAMINED, UNREMARKABLE	3	-	-	3	2
MYELINOPATHY	0	-	-	0	1
SPINAL NERVE RTS TOTAL NUMBER EXAMINED	3	0	0	3	3
EXAMINED, UNREMARKABLE	3	-	-	3	3
DORSAL ROOT GANG TOTAL NUMBER EXAMINED	3	0	0	3	3
EXAMINED, UNREMARKABLE	3	-	-	3	3
GASSERIAN GANG TOTAL NUMBER EXAMINED	3	0	0	3	3
EXAMINED, UNREMARKABLE	3	-	-	3	3
SCIATIC NERVE TOTAL NUMBER EXAMINED	3	0	0	3	3
EXAMINED, UNREMARKABLE	3	-	-	3	3
TIBIAL NERVE TOTAL NUMBER EXAMINED	3	0	0	3	3
EXAMINED, UNREMARKABLE	3	-	-	3	3
PERONEAL/SURAL N TOTAL NUMBER EXAMINED	3	0	0	3	3
EXAMINED, UNREMARKABLE	3	-	-	3	3

GROUP LEGEND: 1 is 0 MG/KG/DAY, 2 is 50 MG/KG/DAY, 3 is 200 MG/KG/DAY, 4 is 1000 MG/KG/DAY,
 5 is 2000 MG/KG/DAY

None significantly different from control group