

CODING FORMS FOR SRC INDEXING

Microfiche No.		OTS0509763-16	
New Doc ID	89-931000025	Old Doc ID	SEHQ-0493-0576
Date Produced	04/19/93	Date Received	04/27/93
		TSCA Section	
		8E	
Submitting Organization			
MOBIL OIL CORP			
Contractor			
Document Title			
SUPPORT: PRELIMINARY REPORT FROM SINGLE DOSE ORAL TOXICITY STUDIES OF EIGHT REFINERY STREAMS AND TWO CRUDE OILS IN RATS WITH COVER LETTER DATED 042193			
Chemical Category			
HEAVY COKER GAS OIL; COKER LIGHT GAS OIL; VACUUM TOWER OVER*			

SUPP

OFFICE OF TOXIC SUBSTANCES
CODING FORM FOR GLOBAL INDEXING

REV. 7/27/82

Microfiche No. (7) •		1 OTS 0509763-16		No. of Pages		2	
Doc I.D.		3 89931000025		Old Doc I.D.		4 REHQ-0493-0576	
Case No. (c) 5							
Date Produced (6)		6		Date Rec'd (6)		7	
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Check One: <input type="checkbox"/> Publication <input type="checkbox"/> Internally Generated <input type="checkbox"/> Externally Generated							
9 Pub./Journal Name							
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10 Author(s)							
11 Organ. Name							
12 Dept/Div							
13 P.O. Box		Street No./Name		14			
15 City		State		16 Zip		17 Country	
18							
MID No. (7)		19		D & B NO. (11)		20	
21 Contractor							
22 Doc Type							
23 Doc Title							
24							
25 Chemical Name (300 per name)						CAS No. (10)	

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8EHQ-0493-0576

Contains No CBI

Mobil Oil Corporation



REGISTERED MAIL
RETURN RECEIPT REQUESTED

000787098*
89731000025

April 21, 1993

ENVIRONMENTAL HEALTH AND SAFETY DEPARTMENT
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EPA Document Control No.: 8EHQ-1185-0576

Dear Sir:

In May, 1987, Mobil submitted a TSCA Section 8(e) notification on the toxicity of clarified slurry oil (CAS 64741-62-4) and the relationship between toxicity and chemical composition. Supplemental submissions to this 8(e) have been made for several other refinery streams, further describing the relationship between stream composition and toxicity. This submission consists of preliminary data from single dose oral developmental toxicity studies done on eight refinery streams and two crude oils. Final reports for similar studies on three other streams (Clarified Slurry Oil, Syntower Bottoms and Distillate Aromatic Extract) were submitted to the EPA on July 24, 1990, November 30, 1990 and February 5, 1991 respectively. We believe the effects seen in these studies are due largely to polycyclic aromatic compounds in agreement with conclusions reported in our previous submissions.

The preliminary data which constitute the present submission show evidence of teratogenicity for five of the eight refinery streams tested in the latest study. The most prominent findings include cleft palate, digit and tail defects and micrognathia. The streams for which one or more of these effects were observed are listed below. Final reports for these studies will be submitted when they become available.

Study #	CAS #	Test Article
65370	64741-81-7	Heavy Coker Gas Oil (Joliet)
65370	64741-81-7	Heavy Coker Gas Oil (Paulsboro)
65371	64741-82-8	Coker Light Gas Oil (Beaumont)
65371	64741-49-7	Vacuum Tower Overheads
65371	64741-59-5	Light Cycle Oil

No confidentiality claim is being made for this submission.

Sincerely,

C.R. Mackerer
C. R. Mackerer

MLB/kt
Enc.

22 pgs.

**INTEROFFICE CORRESPONDENCE
ENVIRONMENTAL HEALTH AND SAFETY DEPARTMENT
ENVIRONMENTAL AND HEALTH SCIENCE LABORATORY**

April 19, 1993

TO: C.R. Mackerer

CC: M.L. Barth
C.A. Schreiner
S.L. Kerstetter
Central Files

FROM:

M.H. Feuston *M.H. Feuston*

RE:

Developmental Toxicity of Refinery Streams Administered as a
Single Oral Dose to Rats: Potential 8(e) Submission

I have recently reviewed the data associated with two studies on refinery streams: Teratogenicity Study in Rats Exposed Orally to a Single Dose of a Refinery Stream or Crude Oil [#65370, S.L. Kerstetter - Study Director; Refinery Streams - Heavy Atmospheric Gas Oil (HAGO), Joliet Heavy Coker Gas Oil (JHCGO), Paulsboro Heavy Coker Gas Oil (PHCGO), Belridge Heavy Crude Oil, and Lost Hills Light Crude Oil], and Teratogenicity Study in Rats Exposed Orally to a Single Dose of Various Refinery Streams [#65371, S.L. Kerstetter - Study Director; Refinery Streams - Beaumont Coker Light Gas Oil (BCLGO), Heavy Vacuum Gas Oil (HVGO), Light Catalytically Cracked Naphtha (LCCN), Light Cycle Oil (LCO), and Vacuum Tower Overheads (VTO)]. Although the number of adverse findings observed during the biophase portion of these studies has been limited, some of the observed findings are believed to be reportable under TSCA Section 8(e). A brief summary of the results of these studies is presented below. Interim Reports are in progress; Final Reports, which are dependent on completion of fetal evaluations, are not anticipated until 1994.

HAGO, JHCGO, PHCGO, Belridge Heavy, Lost Hills Light, BCLGO, HVGO, LCCN, LCO, and VTO were administered as a single oral dose (2000 mg/kg) to pregnant rats on gestation day 13. Studies on Clarified Slurry Oil(#63122), Syntower Bottoms (#63123) and Distillate Aromatic Extract (#63124) have shown this dosing regimen to be an effective means of demonstrating teratogenicity of refinery streams, while at the same time minimizing maternal toxicity and fetal wastage. With the exception of LCCN and LCO, data were generated for at least 10 litters per test article. Since the first animals to receive LCCN and LCO demonstrated extreme discomfort and signs of severe toxicity, the other animals assigned to this group were not administered the test material and were removed from the study.

Relative to their respective control group, all of the refinery stream/crude oil-exposed groups gained less weight immediately following exposure to the test article (Tables 1a & 1b). However, body weight gain throughout gestation was significantly reduced only for the group exposed to PHCGO (Tables 1a & 1b). Net maternal body weight change was not affected by exposure to the test material (Tables 2a & 2b). Maternal liver weights were not affected by treatment. However, thymus weights were reduced in the JHCGO- and PHCGO-exposed groups (Tables 3a & 3b). Fetal wastage was not increased by treatment (Tables 4a & 4b). Except for male fetuses exposed *in utero* to JHCGO, no effect on fetal body weight was observed (Tables 5a & 5b); the effect on 'JHCGO-exposed' fetuses is not believed to be of any biological significance. Evidence of teratogenic potential was the only TSCA 8(e) reportable finding. The most prominent findings included: cleft palate (JHCGO, VTO), various digit defects (JHCGO, PHCGO, BCLGO, LCO, VTO), micrognathia (JHCGO, VTO), and tail defects (PHCGO) (Tables 6a & 6b).

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Table 1a

TERATOGENICITY STUDY IN RATS EXPOSED ORALLY TO A SINGLE DOSE OF A REFINERY STREAM OR CRUDE OIL
 MEAN MATERNAL BODY WEIGHT CHANGE DURING GESTATION - GRAMS

65370

DOSE	TAP WATER CONTROL					RELATIVE WEIGHT	LOST/ILL LIGHT
	1	2	3	4	5		
DAYS 0 TO 6	38	39	44	37	40	41	
S.D.	5	5	8	7	4	6	
N	10	11	10	10	10	12	
DAYS 6 TO 13	47	48	47	42	50	50	
S.D.	7	9	8	7	7	13	
N	10	11	10	10	10	12	
DAYS 13 TO 14	7	11	-13b	-7b	4	1	
S.D.	4	10	10	7	8	6	
N	10	11	10	10	10	12	
DAYS 14 TO 20	92	87	89	86	92	96	
S.D.	12	15	11	14	16	11	
N	10	11	10	10	10	12	
DAYS 0 TO 20	184	173	167	156a	185	187	
S.D.	19	20	23	21	14	23	
N	10	11	10	10	10	12	

SIGNIFICANTLY DIFFERENT FROM CONTROL: a = P<0.05; b = P<0.01.