



FOR DU PONT USE ONLY

HASKELL LABORATORY

COMMON NAME: Ammonium Perfluorooctanoate (APFO)
 CHEMICAL NAME: Octanoic acid, pentadecafluoro-, ammonium salt (8&9 CI)
 SYNONYMS: Ammonium Perfluorocaprylate
 Ammonium Pentadecafluorooctanoate
 FC 143
 MPD-3444
 Perfluoroammonium octanoate

CAS REGISTRY NO.: 3825-26-1

CHEMICAL STRUCTURE: $\ominus \oplus$
 $\text{CF}_3(\text{CF}_2)_6\text{COO}^- \text{NH}_4^+$

Chemical and Physical Properties (1):

Description:	white solid
Molecular Weight:	431
Boiling Point:	sublimes (760 mm Hg) at 110°
Solubility:	soluble in water

Threshold Limit Value:

None

DOT Classification:

Not regulated

TOXICITY

A. Acute

1. Oral

- ALD(rats) = 670 mg/kg (2,3)
- APFO was administered to rats by stomach tube in single doses ranging from 1.5 mg/kg - 2250 mg/kg. Clinical signs of toxicity were inactivity, red discharge around nose, perineal discoloration and weight loss. Animals receiving doses down to and including 200 mg/kg showed enlarged livers (2).
- In another study rats receiving doses as low as 60-90 mg/kg had liver enlargement (3). Gastrointestinal irritation was also observed in the rats ingesting APFO (3,4).
- Two male beagles receiving a single dose of 450 mg APFO/kg expired within 48 hours. Plasma enzymes were markedly elevated 24-48 hours after ingestion. Dogs administered 200 mg/kg showed elevated GPT and GOT in 24 hours which normalized after 1 week. This increase in plasma enzyme levels is "indicative of cellular damage" (5).
- APFO, given in single 12 mg/kg doses to 3 rats, produced no clinical signs of toxicity (6).

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2. Eye

- Rats exposed to APFO during a four-hour inhalation period exhibited corneal opacity and ulceration which were still microscopically evident after 42 days (4).

3. Inhalation

- ALC(rats, 4-hour exposure) = 0.8 mg/L (4).
- Groups of 6 rats were exposed for 4 hours to concentrations of APFO ranging from 0.38 mg/L to 5.7 mg/L. At 2.2 mg/L and higher concentrations all rats died within 48 hours after exposure. Liver enlargement reached a maximum 7-14 days after exposure; liver weights returned to normal within 42 days. APFO was highly toxic when inhaled but no changes in liver cell morphology were observed (4).

4. Injection

- LD₅₀(mice, intraperitoneal) = 192 mg/kg (9).

B. Extended Studies

1. Oral

- Administration of 10 successive doses of 6.7 mg/kg to 6 rats caused moderate enlargement of the liver and slight enlargement of kidneys and testes. Simultaneously there was a slight depression of pancreatic weight and the lungs of rats showed slightly enhanced pneumonitis (6).
- In a two-week feeding study 25% Teflon with APFO dispersing agent was administered in the diet of a group of 6 rats. After a two-week recovery period. The treated animals had slightly heavier livers than the controls or animals receiving Teflon without the APFO (6).

2. Inhalation

- Groups of 20 rats were exposed to APFO at exposure levels of 0.08 mg/l and 0.008 mg/l for 4 hours/day 5 days/wk for 2 weeks. Higher than normal activity was found for plasma enzymes, AP, GPT and GOT, in some rats after the last exposure and 14 and 28 days later. Only the GOT activity of rats exposed at the high level was significantly elevated. Pathology is in progress (7). *— will obtain this*

C. Carcinogenic, Mutagenic and Teratogenic Potential

No information found.

D. Aquatic Toxicity (8)

sunfish (Lepomis gibbosus)	:	TLm(24 and 48-hour) = 1500 ppm Safe level (48 hours) = 465 ppm
snails (Physa heterostropha)	:	TLm(24 and 48 hour) = 820 ppm Safe level (48 hours) = 246 ppm

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D. Aquatic Toxicity (Cont'd)

diatoms : 50% growth reduction = 2400 ppm
 (Navicula seminulum) Safe level (7 days) = 720 ppm

REFERENCES

1. Olson, A. H. Sample Evaluation Form (MR-2753-001)
2. Unpublished Haskell Laboratory Data: MR-604-007; HL-55-61.
3. Unpublished Haskell Laboratory Data: MR-1070-001; HL-128-68.
4. Unpublished Haskell Laboratory Data: MR-1198-001; HL-160-69.
5. Unpublished Haskell Laboratory Data: MR-639-001; HL-123-65.
6. Unpublished Haskell Laboratory Data: MR-604-007. .
7. Unpublished Haskell Laboratory Data: MR-2753-001.
8. Acad. of Nat. Sci. of Phila., "Bioassay Studies" (9/66) (C-1783).
9. Data from 3M Company per telecon with [REDACTED] 1/8/79. (C-4124)

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Updated by:

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 1/8/79 [REDACTED]

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