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DATA EVALUATION REPORT

STUDY TYPE: Acute oral LD_{50} - rats TOX CHEM NO: 454E

MRID NUMBER: 406126-06

TEST MATERIAL: N-Ethyl Perfluorooctanesulfonamide

SYNONYMS: GX-071

STUDY NUMBER: Project No.: 86G-0031

SPONSOR: Griffin Corporation Valdosta, GA

TESTING FACILITY: Toxikon Corporation Norwood, MA

TITLE OF REPORT: Acute Oral LD_{50} Toxicity Study GX-071

AUTHORS: Joseph V. Rutkowski, Ph. D.

REPORT ISSUED: October 23, 1986; amended April 20, 1988

CONCLUSION: No LD_{50} was determined.

CLASSIFICATION: Core supplementary.

A. MATERIALS:

1. Test Compound: GX-071
   Description: white needle crystals
   Batch #: not specified
   Purity: 99+%

2. Test Animals:
   Species: rats, both sexes
   Strain: Sprague-Dawley
   Age: 8-12 weeks old
   Weight: 200-400 grams
   Source: Charles River Breeding Laboratories, Wilmington, Del.

Study Design: Five (fasted) rats per sex per group were administered a triple-divided dose of the test material by intragastric intubation (suspension in soybean oil). There were two phases to this study - animals were dosed with 6, 2, and 0.5 g/kg on one day and the remainder were dosed at 0.06, 0.2, and 0.5 g/kg a month later. No information was given as to when the control group was dosed. The animals were observed daily for 14 days after dosing. Individual body weights were recorded on days 0, 7, and 14, and a gross necropsy was performed on each animal at

termination.

Results: According to the study text, the determination of the LD_{50}, probit slope, and 95% confidence interval for the LD_{50} was not possible because the data are significantly heterogeneous. It was also stated that the results suggest a need for further study. It was suggested also that the limited solubility of the test material interferes with an LD_{50} determination by limiting the absorption of the test material from the gastrointestinal tract. An assessment of the bioavailability of the test material following oral administration was suggested as appropriate, although no such data were submitted.

	MORTALITY	
DOSE (g/kg)	MALES (%)	FEMALES (%)
6.0	4/5 (80)	1/5 (20)
2.0	2/5 (40)	3/5 (60)
0.5	4/5 (80)	2/5 (40)
0.5	1/5 (20)	2/5 (40)
0.2	0/5 (0)	0/5 (0)
0.06	1/5 (20)	0/5 (0)

No signs of toxicity were reported for the 0.06 g/kg animals. At all other dose levels, emaciated appearance, nasal discharge, rough hair coat, alopecia near the genito-urinary area, diarrhea, and staining of the hair with feces/urine were reported. A viscous fluid in the digestive tract and a pink color of the lungs was noted at necropsy to various degrees among the groups.

Conclusion: An LD_{50} was not determined. The results at the 0.5 g/kg dose level, which was used in both parts of this study, were not reproducible in the male animals. This study is classified as core supplementary.

Discussion: In another study (MRID # 406126-20) in which 6 g/kg GX-071 was tested, only one female (out of 5; o/5 males) died. The differences between these two studies are the number of portions the dose was divided into (Study-20 had one portion; Study-06 had three) and the vehicle used (gelatin and soybean suspensions, respectively).

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DATA EVALUATION REPORT

STUDY TYPE: Acute oral LD_{50} - rats TOX CHEM NO: 454E

MRID NUMBER: 406126-05

TEST MATERIAL: N-Ethyl Perfluorooctanesulfonamide

SYNONYMS: GX-071

STUDY NUMBER: Project No.: 85G-0034

SPONSOR: Griffin Corporation Valdosta, GA

TESTING FACILITY: Toxikon Corporation Norwood, MA

TITLE OF REPORT: Acute Oral LD_{50} Toxicity Study GX-071

AUTHORS: Richard A. Adams, Ph.D., D.A.B.T.

REPORT ISSUED: September 30, 1985; amended April 20, 1988

CONCLUSIONS: LD_{50} for male and female (fasted) rats exceeds 817 mg/kg. No deaths or clinical signs of toxicity were observed. Gross pathological examination revealed no specific organ toxicity.

CLASSIFICATION: Core minimum.

A. MATERIALS:

1. Test Compound: GX-071
   Description: white needle crystals
   Batch #: not specified
   Purity: 99+%

2. Test Animals:
   Species: rats, both sexes
   Strain: Sprague-Dawley
   Age: 8-12 weeks old
   Weight: approximately 200 grams
   Source: Charles River Breeding Laboratories, Wilmington, Del.

Study Design: Five (fasted) rats per sex per group were given a single dose of test material by intragastric intubation (suspension in corn oil) at dose levels of 0, 300, 495, or 817 mg/kg. Controls received corn oil at a dose of 5 g/kg. The animals were observed daily for 14 days. Individual body weights were recorded on days 0, 7, and 14. A gross necropsy was performed on each animal at termination.

Results: According to the study text, no mortalities or clinical signs of toxicity were observed. It is stated that all controls and all males showed significant weight gain during the observation period and females "did not experience a normal weight gain." There were no data provided to evaluate this effect. Gross pathological examination revealed no evidence of effect. Note: The total volume administered did not exceed 1.54 ml.

Conclusion: It was concluded by the author that the LD_{50} exceeds 817 mg/kg for both sexes of fasted rat. In another acute oral study at lower dose levels, an LD_{50} was calculated to be 607.14 mg/kg for males and 507.09 mg/kg for females. These two studies differed in the the latter study used soybean oil as the vehicle in contrast to corn oil in the current study. Additionally, the latter study dose was divided into three portions (2 ml each).

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DATA EVALUATION REPORT

STUDY TYPE: Acute oral LD_{50} - rats TOX CHEM NO: 454E

MRID NUMBER: 406126-04

TEST MATERIAL: N-Ethyl Perfluorooctanesulfonamide

SYNONYMS: GX-071

STUDY NUMBER: Project No.: 85G-0037

SPONSOR: Griffin Corporation Valdosta, GA

TESTING FACILITY: Toxikon Corporation Norwood, MA

TITLE OF REPORT: Acute Single Dose Oral Toxicity Limit Test In Rats - GX-071

AUTHORS: Richard A. Adams, Ph.D., D.A.B.T.

REPORT ISSUED: October 31, 1985; amended April 20, 1988

CONCLUSIONS: More than half of the animals died within 14 days of treatment (dose level - 5000 mg/kg). It was concluded (by the author) that an additional study in the lethal range was needed.

CLASSIFICATION: Core minimum.

A. MATERIALS:

1. Test Compound: GX-071
   Description: white needle crystals
   Batch #: not specified
   Purity: 99+%

2. Test Animals:
   Species: rats, both sexes
   Strain: Sprague-Dawley
   Age: 8-12 weeks old
   Weight: 177.5-203.3/205.3 grams (listed in deviation statement/text)
   Source: Charles River Breeding Laboratories, Wilmington,.MA

Study Design: Five (fasted) rats per sex were given doses (5000 mg/kg) of test material by intragastric intubation (suspended in 0.2 g/ml corn oil) in two portions 4 hours apart (no controls). The observation period was 14 days. Body weight was recorded on days 7 and 14 after dosing, and a gross necropsy was performed on all animals dying on test and at termination.

Results: Deaths occurred within 48 hours of dose administration. Two males and four females died. Both males and three of the females died within 24 hours. Death was accompanied by signs of extreme lethargy and indifferent temperament prior to death. Bloody exudate around the eyes was noted in both males and one female. No gross pathological changes were reported for any of the animals. Note: Although the dose was divided into two portions administered 4 hours apart, the volume was 4.5-5.0 ml, and one would have liked to see a control administered a comparable volume.

Conclusion: Since more than half of the animals died, the author concluded that the test article is toxic and further study at the lethal range was suggested. A comparable study (MRID # 406126-07) at 5000 mg/kg resulted in 100% mortality within 10 days following dosing in soybean oil (compared to corn oil in the current study). The total volume administered in the comparable study was 4 ml.

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DATA EVALUATION REPORT

STUDY TYPE: Acute oral LD_{50} - rats TOX CHEM NO: 454E

MRID NUMBER: 406126-03

TEST MATERIAL: N-Ethyl Perfluorooctanesulfonamide

SYNONYMS: GX-071

STUDY NUMBER: Project No.: 86-1169

SPONSOR: Griffin Corporation Valdosta, GA

TESTING FACILITY: Toxikon Corporation Norwood, MA

TITLE OF REPORT: Acute Oral Toxicity Limit Test Triple Divided Dose In Soybean Oil GX-071

AUTHORS: Laxman S. Desai, D.Sc.

REPORT ISSUED: June 6, 1986; amended April 20, 1988

CONCLUSIONS: The dose of 5000 mg/kg is above the LD_{50}. The liver and kidneys are the apparent target organs.

CLASSIFICATION: Core minimum

A. MATERIALS:

1. Test Compound: GX-071
   Description: white needle crystals
   Batch #: 5090720096
   Purity: 99%

2. Test Animals:
   Species: rats, both sexes
   Strain: Sprague-Dawley
   Age: 8-12 weeks old
   Weight: 200-400 grams
   Source: Charles River Breeding Laboratories, Wilmington, MA

Study Design: Five (fasted) rats per sex were given a dose (5000 mg/kg) of test material (or vehicle) by intragastric intubation (soybean oil-vehicle), which was divided into three portions (2 ml each). These were administered at 1.5-hour intervals. Clinical examinations were made once daily, more frequently in the early part of the observation period to determine onset and severity of toxic signs. Individual body weights were determined on the fasted animals prior to dosing, on days 7 and 14 of the observation period, and at death. All survivors were weighed

before sacrifice. A gross necropsy was performed on all animals dying on test, and all gross pathology changes were recorded.

Results: Three males and four females of the treated groups died. Death in the males was said to be accompanied by signs of anorexia, dehydration, edema, internal hemorrhaging, and an abnormal appearance of the liver and kidneys. In females, death was accompanied by all of these signs except edema.

Conclusion: The author concluded that the dose of 5 mg/kg is above the LD_{50}, and that the female is more sensitive than the male. Although the summary stated that the liver and kidney of some of the treated animals was abnormal in appearance, no specific data were presented. It is assumed that these two organs are the target organs.