

TOXICITY TO FISH (Freshwater Rainbow Trout)

TEST SUBSTANCE

Identity: Perfluorooctanesulfonate; may also be referred to as PFOS or FC-95. (1-Octanesulfonic acid, 1,1,2,2,3,3,4,4,5,5,6,6,7,7,8,8,8-heptadecafluoro-, potassium salt, CAS # 2795-39-3)

Remarks: The test substance is a white powder of uncharacterized purity.

METHOD

Method: Standard procedures for Testing Acute Lethality of Liquid Effluents (Environment Canada, 1980)

Type: Acute, renewal after 48-hours

GLP: No

Year completed: 1985

Species: Rainbow Trout

Fish source: Rainbow Springs, Thamesford

Fish age at test initiation: not noted

Exposure period: 96-hours

Analytical monitoring: Dissolved oxygen, pH, conductivity

Statistical methods: Not noted. Element values were calculated for each replicate series, but not combined for the whole study. A cumulative mortality-concentration plot was used to estimate the LC₅₀.

Test conditions:

Dilution water: Mississauga dechlorinated tap water

Dilution water chemistry (initial):

pH: 7.5 - 8.5

D.O.: 9.0 – 10.4 mg/L

Stock solution preparation: 1000 mg/L; noted as cloudy

Exposure vessels: Not noted; solution volume 35 L

Number of replicates: 2 tests – run one week apart, not replicated

Number of organisms/vessel: 6

Loading: 0.72 g/L

Number of concentrations: 5 plus a blank control, 4 plus a blank control

Water chemistry during the studies:

Dissolved oxygen ranges

8.2 – 10.4 (control)

8.0 – 9.5 (30 mg/L)

pH ranges

7.4 – 8.3 (control)

7.5 – 8.7 (30 mg/L)

Conductivity range: 270 – 380 µmhos/cm

Test temperature (0 – 48 hours): 15°C

Element basis: mortality

RESULTS

Element values (95% confidence interval) calculated per replicate:

96-hour EC₅₀ = 7.8 (6.2 – 9.8) mg/L

96-hour EC₅₀ = 9.9 (7.5 – 13.4) mg/L

Mortality of controls: None

DATA QUALITY

Reliability: Klimisch ranking = 2. This study satisfied all criteria for quality testing at the time performed, but actual concentrations were not measured. Results were based on nominal concentrations. Additionally, sample purity was not adequately characterized.

REFERENCES

This study was conducted by Beak Consultants Limited, Mississauga, Ontario, Canada for Panarctic Oils Ltd, Calgary, Alberta, Canada.

OTHER

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