



HASKELL LABORATORY

C4, C6 PERFLUORODIIODOALKANE EMERGENCY EXPOSURE LIMIT

EEL: 50 ppb (1-60 minutes)

Time Limit: 60 minutes

Ceiling Concentration: 50 ppb

Emergency Exposure Limits (EELs) are to be used for emergency planning purposes only. They should not be confused with AEL or ACGIH TLV[®] values that are designed for repeated, safe exposures. If an EEL is exceeded at any time, evacuation, sheltering in place, or other mitigating steps should be taken.

The EEL for C4, C6-Perfluorodiiodoalkane [$I - (CF_2)_x - I$, where $x = 55\%$ C4, 32% C6, 11% C8, and 2% C10] is 50 ppb for the first 60 minutes. This EEL is based on the following data:

C4, C6-Perfluorodiiodoalkane did not produce mortality in rats administered oral doses up to as high as 3400 mg/kg. However, these rats had severe, persistent weight losses (13-42%). In the rats administered 450 mg/kg or more, testicular degeneration and hepatocellular hypertrophy was seen (DuPont, 1998). Similar findings were observed in rats exposed to 4 mg/L [192 ppm] or more of C4, C6-perfluorodiiodoalkane by inhalation (DuPont, 2001). In a subchronic inhalation study, groups of 10 rats were exposed 6 hours a day, on 9 days in a 2-week period to 0.1, 2.5, and 25 ppm of the C4,C6-perfluorodiiodoalkane mixture. Standard clinical and histopathology workups including determination of thyroid function and beta-oxidation were conducted. Exposure to 2.5 and 25 ppm produced numerous organ effects with a 100% incidence of red-blood cell and cholesterol changes, and thymus, adrenal gland, and testes effects at 2.5 ppm. Serum cholesterol was also lower than controls in the 0.1 ppm group, although the difference was not statistically significant (DuPont, 2002).

To provide guidance for occupational exposure during the batch-process manufacturing of the C4,C6-perfluorodiiodoalkane mixture, a 1-hour EEL was recommended. Because of the potential for developmental effects in women (low levels of cholesterol have been shown to affect development of the fetus), this EEL will only include men and women not of child-bearing capability. Based on the LOEL of 0.1 ppm in the 2-week subchronic inhalation study and applying a suitable uncertainty factor, a 1-hour EEL of 50 ppb (ceiling) was recommended.

The EEL concept has to include weather conditions, e.g. wind direction and velocity, humidity, etc., quantity of spill or release and specific evacuation procedures.

References

DuPont Co., Haskell Laboratory Data:

1998. MR-10890-1, DuPont-1202

2001. MR-13577-1, DuPont-5603

2002. MR-13941-1

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