

Telomer Research Program



Report Title: 1-Decanol, 3,3,4,4,5,5,6,6,7,7,8,8,9,9,10,10,10-heptadecafluoro-
Effects on the Development of *Caenorhabditis elegans* in a
Water-Sediment System

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Study Objective: Determination of the potential effects of 1-Decanol, 3,3,4,4,5,5,6,6,7,7,8,8,9,9,10,10,10-heptadecafluoro-, on the free living soil nematode *Caenorhabditis elegans* using the test method Traunspurger et al. (1997): “ Ecotoxicological assessment of aquatic sediments with *Caenorhabditis elegans* (nematoda) – A method for testing in liquid medium and whole sediment samples.”

Materials and Methods: The test substance was heated to 50 °C, weighed out, dissolved in *tert.*-methyl-butyl-ether and mixed with 70 g quartz sand. After the solvent volatilized from the sand, the sand was incorporated into the artificial sediment (modified artificial soil: 5 % peat, 0.5 % dolomite, 70 % quartz, 4.5 % iron (III) oxide, 1.5 % kaolin, 18.5 % aluminum (III) oxide) to produce a test substance limit concentration of 1000 mg/kg. The amount of sand added was the same for the limit test concentration and the untreated sediment control. After 24 hours of equilibration under test conditions, 0.5 g of the treated sediment was added to the test vessels (5 replicates per test concentration, 3 replicates per untreated sediment control, and 2 replicates per liquid and solvent control). Ten first stage nematodes were randomly transferred to each test vessel. Food was provided at test start in M9-Medium. The test vessels were kept on shaking discs and incubated for 72 hours at 20 ± 1 °C in the dark. At test end the worms were examined for survival (liquid control), body length and egg production. Body length was measured to an accuracy of at least 0.001 mm. The number of eggs inside the nematodes was counted. The sediment and solvent control were pooled for statistical analysis. The following evaluations were made: body length, number of eggs inside the body and % gravid worms with ≥ 1 egg.

Findings: After 72 hours the NOEC for 1-Decanol, 3,3,4,4,5,5,6,6,7,7,8,8,9,9,10,10,10-heptadecafluoro-, was determined to be greater than 1000 mg/kg based on nominal test substance concentrations. The effects of 1-Decanol, 3,3,4,4,5,5,6,6,7,7,8,8,9,9,10,10,10-heptadecafluoro-, are summarized in Table 1.

Table 1: Growth and reproduction of *Caenorhabditis elegans* (72 hours)

Test Substance	The effects of 1-Decanol, 3,3,4,4,5,5,6,6,7,7,8,8,9,9,10,10,10-heptadecafluoro-			
Test Object	<i>Caenorhabditis elegans</i>			
Exposure	Artificial sediment			
	Survival of nematodes [%]	Body length [µm] ± SD	Number of eggs per nematode ± SD	Gravid worms* [%]
Liquid Control	100	-	-	-
Sediment Control	-	985.7±84.5	3.43±3.67	90.0±0.0
Solvent Control	-	911.5±23.2	6.00±8.13	90.0±0.0
[mg product/kg]				
1000	-	901.4±59.0**	2.98±3.05**	92.0±9.10

SD = Standard deviation

* = Percentage of nematodes with ≥ 1 egg

** = No significant difference compared with the pooled control

- = Not determined

Conclusion: After 72 hours the NOEC of 1-Decanol, 3,3,4,4,5,5,6,6,7,7,8,8,9,9,10,10,10-heptadecafluoro-, was determined to be greater than 1000 mg/kg based on nominal test substance concentrations.