

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-
Respiration Inhibition Test with Activated Sludge

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Study Objective: Determination of respiration rates and inhibitory effects of 1-Decanol, 3,3,4,4,5,5,6,6,7,7,8,8,9,9,10,10,10-heptadecafluoro-, to activated sludge according to OECD Guideline No.209.

Materials and Methods: Activated sludge taken from a municipal sewage treatment plant was washed with autoclaved water and diluted. Prior to the initiation of the test, 1-Decanol, 3,3,4,4,5,5,6,6,7,7,8,8,9,9,10,10,10-heptadecafluoro was heated to 50 °C, weighted directly into Erlenmeyer flasks filled with 250 mL autoclaved water and stirred for 24 hours. For the test, 200 mL inoculum, 16 mL synthetic wastewater and 34 mL autoclaved water were added. Five concentrations were tested within a range of 100-1000 mg/L in a series with a dilution factor of 1.8 Along with two controls. Copper (II) sulphate pentahydrate was used as a reference compound. The test temperature was 20.5 °C and the pH was 7.05. The oxygen depletion of the control, reference and test substance was measured after 3 h incubation and recorded for at least 3 minutes on a flat bed recorder. Data from these 3 minute measurements for each test vessel were used to estimate respiration rate.

Findings: The respiration rates of 1-Decanol, 3,3,4,4,5,5,6,6,7,7,8,8,9,9,10,10,10-heptadecafluoro-, reference substance, and control were measured after a contact time of three hours. Inhibitory effects of the test and reference substance concentrations were determined in comparison to the control respiration rates. The inhibition ranged from 2 to 9 % (Table 1). The EC₂₀, EC₅₀, and EC₈₀ values could not be calculated in the tested concentration range (EC values >1000 mg/L).

Table 1: Respiration rates and inhibition of 1-Decanol,3,3,4,4,5,5,6,6,7,7,8,8,9,9,10,10,10-heptadecafluoro-and reference concentrations.

	concentration [mg/L]	respiration rate [mgO ₂ /L.h]	inhibition [%]
1-Decanol,3,3,4,4,5,5,6,6,7,7,8,8,9,9,10,10,10-heptadecafluoro	1000 (1 st)	23.6	9
	1000 (2 nd)	25.6	2
	580	24.0	8
	320	25.6	2
	180	24.4	6
	100	25.2	3
Control 1	-	27.2	-
Control 2	-	24.8	-
Reference	180	7.6	71
	100	12.4	52
	58	19.6	25

Conclusion: 1-Decanol, 3,3,4,4,5,5,6,6,7,7,8,8,9,9,10,10,10-heptadecafluoro-, is not toxic in concentrations ≤ 1000 mg/L to activated sludge of a municipal sewage treatment plant.