



**SINTEF Applied Chemistry
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Laboratory inspected according to the OECDs principles for good laboratory practice (GLP) and registered in Norwegian Accreditation's GLP-register with registration number G005.

TEST REPORT

TITLE

Biodegradability in seawater of "SuperAll #38"

CLIENT

CONFIDENTIAL

CLIENT'S REFERENCE

CLIENT'S CONTACT PERSON

CONFIDENTIAL

GLP STUDY

625.3

DATE

1998-08-12

NO. OF PAGES

12

CLASSIFICATION

Confidential

SIGNATURE: STUDY DIRECTOR

[Handwritten Signature]

RESULT SUMMARY

According to OECD criteria a "well biodegradable substance" should have a measured BOD (Biological Oxygen Demand) of > 60% of its ThOD (Theoretical Oxygen Demand) or COD (Chemical Oxygen Demand). The biodegradability of the test substance "SuperAll #38" was 87.87 % of its COD-value at a test concentration of 2 mg/l indicating that the test substance is well biodegradable in non-polluted seawater.

QUALITY ASSURANCE STATEMENT

The performance of the test method used in the present study has been inspected by the SINTEF Applied Chemistry Quality Assurance Unit. The dates of the two latest inspections are given below.

The present report has been audited by the Quality Assurance Unit. The report accurately describes the methods and procedures used in the study and accurately reflects the raw data obtained during the study.

DATES OF LATEST INSPECTIONS

22.4.97

11.10.97

INSPECTOR

D. Fremstad

D. Fremstad

Trondheim, 14.8.98

SIGNATURE QA MANAGER

Marit Aursand

The test results reported in this document were produced by tests of samples received at SINTEF Ecotoxicological Test Laboratory. The results cannot, on the strength of this document alone, be assumed to be valid for other parts of the sampled material. SINTEF accepts no responsibility for any use that is made of the test results.

A copy of this report together with relevant raw data and other supporting documents will be kept in the GLP-files of the Laboratory for a period of at least ten years. Samples of test substances will be kept in safe storage for the same period.

TABLE 1. Dissolved oxygen in solutions of test substance and reference substances (2 mg/l) during a test period of 28 days, in mixtures of test and reference solutions (inhibition test) and in solutions for abiotic test.

Test solutions	Bottle no.	mg oxygen/liter after n days			
		0	5	15	28
Blank:	a1	6,93	7,18	7,19	6,40
Nutrient-fortified water	a2		7,24	7,17	6,37
	Mean	6,93	7,21	7,18	6,39
Reference substance:	b1	7,02	6,50	4,53	2,88
Aniline	b2		6,73	4,25	2,96
	Mean	7,02	6,62	4,39	2,92
Test substance	c1	6,98	7,27	6,61	6,25
"SuperAll #38"	c2		7,27	6,51	6,41
	Mean	6,98	7,27	6,56	6,33
Inhibition test	d1				3,30
(Test substance +	d2				2,82
reference substance)	Mean				3,06
Abiotic test	e1				6,82
(Test substance +	e2				6,98
formaldehyde)	Mean				6,90

TABLE 2. Dissolved oxygen depletion (mg BOD/l) for test- and reference substances.

Test solution	mg BOD/L after n days			
	0 days	5 days	15 days	28 days
"SuperAll #38"	-0,05	-0,06	0,62	0,05
Aniline	-0,09	0,60	2,79	3,47

TABLE 3. Dissolved oxygen depletion (mg BOD/mg substance) for test- and reference substances.

Test solution	mg BOD/mg test substance			
	0 days	5 days	15 days	28 days
"SuperAll #38"	-0,02	-0,03	0,31	0,03
Aniline	-0,04	0,29	1,35	1,68

TABLE 4. Percentage degradation relative to ThOD or COD for test and reference substances.

Test solution	% biodegradability			
	0 days	5 days	15 days	28 days
"SuperAll #38"	-7,09	-8,50	87,87	7,79
Aniline	-1,81	11,98	56,20	69,79

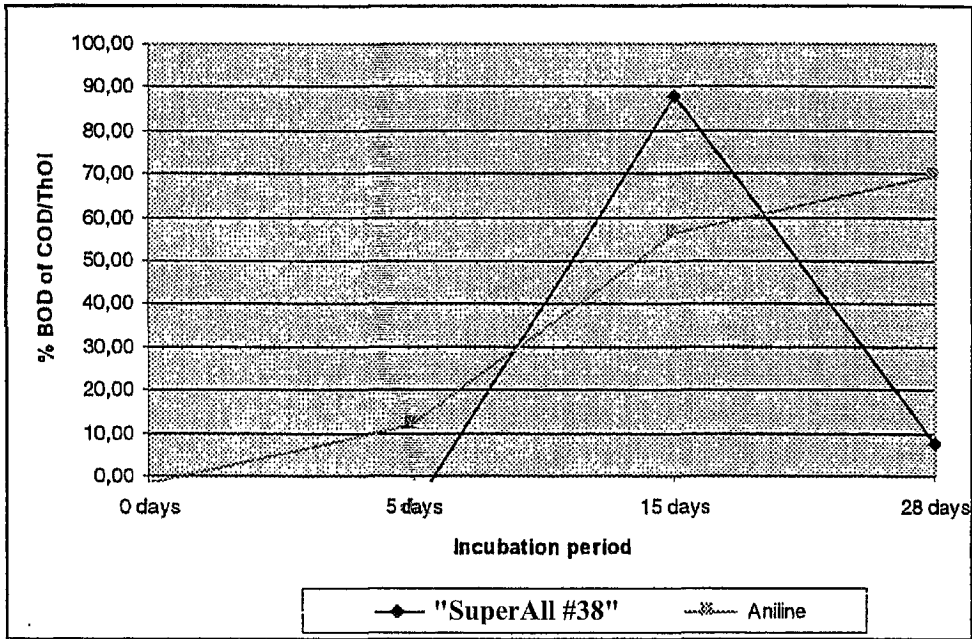


FIGURE 1. Percentage biodegradation as compared to ThOD or COD values for test and reference substances during the test period.

Lag time (t_{10}): 5-7 days

Time required for 50 % of total biodegradation (t_{50}): 8-10 days

Oxygen consumption during test period in blank:	7,86 %
Inhibition of BOD by test substance:	5,54 %
Abiotic degradation:	0 %