

Test Report

Aerobic Ready Biodegradability

Manometric Respirometry according to OECD 301 F

Report number : 15/033/0169A Customer : Guard KG
Date received : 2015-02-09 Address : Geisbergweg 10b
Test report : 3 pages 65205 Wiesbaden
Appendices : Test report no. 1802 - 15 (subcontractor)
Sampling : customer Study director : Dipl. Biol. R. Kruspe
Subcontractor : Analysen Service GmbH Umwelt- und Öllabor Leipzig
Remarks : Abiotic elimination was not considered.

Test item : Shadow G
Characteristics : orange liquid, pH-value = 14,6 (20,0°C)
theor. BOD-value (theor. biological oxygen demand) = 1,84 g/g

Test conditions : test conduction at 21°C, pH-value had been controlled

Conc. of test substance

batch A	: 47,5 mg/l	- equivalent to	91,8 mg/l oxygen demand
batch B	: 69,2 mg/l	- equivalent to	131,7 mg/l oxygen demand
batch C	: 55,6 mg/l	- equivalent to	106,7 mg/l oxygen demand

Addition of an emulsifier : none

Reference substance : sodium acetate theor. BOD (derived from structure formula) = 0,47 g/g O₂

Inoculum - origin : sewage effluent of treatment plant "Ottendorf-Okrilla"

- concentr. : 10 ml/l conditioning: washed, homogenised

analysed values	Start	End	Change	Oxygen equivalent
Nitrate-N	: 0,28 mg/l	2,25 mg/l	1,98 mg/l	9,03 mg/l
Nitrite-N	: 0,011 mg/l	0,006 mg/l	-0,01 mg/l	-0,02 mg/l
The oxygen demand by nitrification in the blank has to be subtracted:				4,57 mg/l
The remaining oxygen demand by nitrification:				4,44 mg/l

The oxygen demand by nitrification has to be added to the theor. BOD-value to get the 100% level.

Results

The total elimination of the test substance in the batches amounted to 95 % after 28 days.

The examined test substance was biological degradable in accordance with the requirements of the Detergents Regulation EG/648/2004 (degradation > 60% within 28 d).

The examined test substance was biological degradable in accordance to OECD 301F (degradation > 60% at the end of the 10-day-window). The degradation at the end of the 10-day-window amounted to 82 %.

Validity of the test:

The differences between the batches at the end of the test didn't exceed 20 %.

The degree of degradation of the reference substance amounted to 97 % after 14 days (criterium of validity).

Therefore the test is valid.

The test had been carried out from 26-03-2015 to 23-04-2015

Examiner: Dipl. Biol. G. Pötschke

IDUS GmbH, Ottendorf-Okrilla, 27-04-2015


Dipl. Biol. R. Kruspe, principal investigator



All statements made here are related exclusively to the test item.

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The error limits given in the method are in the accepted range.

Test methods signed with a star (*) are not accredited.

Test Report - Continuation

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Results : degree of degradation [%] at a theor. BOD of: 1,84 g/g O₂

date	d	batch A	batch B	batch C	reference
26.03.2015	0	0%	0%	0%	0%
27.03.2015	1	3%	2%	2%	56%
28.03.2015	2	5%	5%	4%	62%
29.03.2015	3	21%	12%	13%	77%
30.03.2015	4	45%	37%	31%	82%
31.03.2015	5	63%	59%	56%	91%
01.04.2015	6	70%	65%	62%	97%
02.04.2015	7	76%	70%	66%	97%
03.04.2015	8	82%	72%	68%	100%
04.04.2015	9	85%	75%	72%	99%
05.04.2015	10	88%	76%	74%	99%
06.04.2015	11	91%	79%	75%	97%
07.04.2015	12	91%	79%	77%	97%
08.04.2015	13	93%	81%	78%	94%
09.04.2015	14	94%	82%	79%	97%
10.04.2015	15	96%	84%	81%	97%
11.04.2015	16	96%	87%	83%	97%
12.04.2015	17	98%	88%	84%	97%
13.04.2015	18	98%	90%	86%	97%
14.04.2015	19	99%	90%	87%	100%
15.04.2015	20	98%	91%	88%	97%
16.04.2015	21	98%	93%	88%	97%
17.04.2015	22	100%	94%	90%	97%
18.04.2015	23	100%	94%	90%	96%
19.04.2015	24	100%	94%	90%	96%
20.04.2015	25	100%	94%	91%	96%
21.04.2015	26	99%	95%	92%	99%
22.04.2015	27	101%	95%	92%	99%
23.04.2015	28	100%	94%	92%	97%

Oxygen demand in test batches [mg/l]

date	blank	batch A	batch B	batch C	reference
26.03.15	0	0	0	0	0
27.03.15	2	4	4	4	20
28.03.15	2	6	8	6	22
29.03.15	3	22	18	16	28
30.03.15	3	44	52	36	30
31.03.15	4	62	82	64	34
01.04.15	4	68	90	70	36
02.04.15	4	74	96	74	36
03.04.15	5	80	100	78	38
04.04.15	6	84	104	82	38
05.04.15	6	86	106	84	38
06.04.15	6	90	110	86	38
07.04.15	6	90	110	88	38
08.04.15	7	92	114	90	38
09.04.15	8	94	116	92	40
10.04.15	8	96	118	94	40
11.04.15	8	96	122	96	40
12.04.15	8	98	124	98	40
13.04.15	8	98	126	100	40
14.04.15	9	100	128	102	42
15.04.15	9	100	130	104	42
16.04.15	9	100	132	104	42
17.04.15	9	102	134	106	42
18.04.15	10	102	134	106	42
19.04.15	10	102	134	106	42
20.04.15	10	102	134	108	42
21.04.15	11	102	136	110	44
22.04.15	11	104	136	110	44
23.04.15	12	104	136	110	44

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Diagram

