

SGS INSTITUT FRESENIUS GmbH · Im Maisel 14 · D-65232 Taunusstein

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Taunusstein, October 15, 2020

1 General Information:

Titel:	Test for Ready Biodegradability of Products
Sponsor:	Purolex Betriebshygiene & Gastroservice GmbH
Study director:	Dr. Herbert Lebertz
Sample designation:	"Wunderrein Reinigungs Paste 300 g"
SGS Sample-No.:	200828244
Sample receipt:	August 19, 2020
Test method:	OECD-Guideline 301D, Closed-Bottle-Test, accredited method acc. DIN EN ISO 17025
Inoculum:	The effluent from a sewage plant in Taunusstein working without industrial wastes was taken on September 9, 2020 and a mixture of nearly 100 g soil of the SGS INSTITUT FRESENIUS was suspended in 1000 mL drinking-water and shaken at a laboratory shaker for approx. 30 minutes on the same day. Both inocula were filtered through filter paper. Same volumes of the two inocula were mixed together and used for the test. 5000 mL of the test solutions were inoculated with 2 mL of the mixed inoculum
Measuring parameters:	a) COD-Determination according to DIN 38409 Part 41-1 b) BOD-Determinations according DIN 38408 part 22
Testing period:	September 9, 2020 to October 7, 2020 (pure incubation)
Control:	Sodium benzoate, 3.237 mg/L
Pages:	4

2 Method description:

A predetermined amount of the test item is dissolved in an inorganic medium (mineral nutrient solution), providing a usual concentration of 2 - 5 mg/L or approximately 3-5 mg COD/L, respectively. The solution is inoculated with a small number of microorganisms from a mixed population and kept in closed bottles in the dark at a constant temperature of 20°C ± 1°C. The degradation is followed by oxygen measurement after 7, 14, 21, and 28 days of incubation. A control with inoculum, but without any test material is run in parallel for determination of oxygen blanks. For checking the inoculum (positive control) one control item (Sodium Benzoate) is run in parallel. In order to check a possible toxicity towards bacteria („tox-control"), one series is tested in parallel using both the test item and the control item at the same concentrations as used within the series where these items are tested alone. If there is no toxicity towards bacteria, the BOD of that test solution should be as equal as the sum of the single test solutions with the test- and the control item or at least that of the positive control.

3 Evaluation

The biological degradation was calculated according to the BOD, the COD of the test item and the TOD of the control item, respectively.

$$\% \text{ Degradation} = \frac{\text{Oxygen depletion as mg BOD}_x/\text{L}}{\text{Chemical oxygen demand as mg COD/L}} \times 100$$

4 Test report

The test solutions were prepared according to the OECD guideline 301 D.

Mean value of the COD-determination:	401 400 mg O ₂ /kg Test Item
Concentration of the test item in the test solution:	7.584 mg/L
Calculated COD in the test solution:	3.044 mg O ₂ /L

5 Results

The results are given below, and a plot of the degradation curve is included in the report.

Time (days)	Biochemical Oxygen Demand (BOD) at Time t	Calculated Degradation (mean Values [%])
7d	0.487 mg O ₂ /L	16
14d	1.093 mg O ₂ /L	36
21d	1.537 mg O ₂ /L	51
28d	1.693 mg O ₂ /L	56

6 Evaluation:

The degradation of the test item is scarcely lower than the minimum value of 60% to be obtained according the OECD test guideline 301 D. Thus the test item "**Wunderrein Reinigungs Paste 300 g**" must be termed "**not readily biodegradable**". As a degradation value scarcely below the threshold value 60% of ready biodegradability was shown (56%), the test item should be considered "inherently biodegradable" as outlined in the "*Revised Introduction to the OECD Guidelines for testing of Chemicals, section 3, Part 1*" dated 23 March 2006". According to the results of the toxicity control, a toxic effect towards microorganisms at the concentration tested can be excluded. Furthermore, the degradation curve indicates that a plateau phase wasn't yet reached und thus, a further degradation is likely.

The test is valid as the control item sodium benzoate was degraded 79% within 28 days, and the threshold of ready biodegradability of 60% degradation within the "14-days-window" was met yet at day 7 (69%).

SGS Institut Fresenius GmbH
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D-65232 Taunusstein, October 15, 2020

i.V.



Dr. Herbert Lebertz
Study director

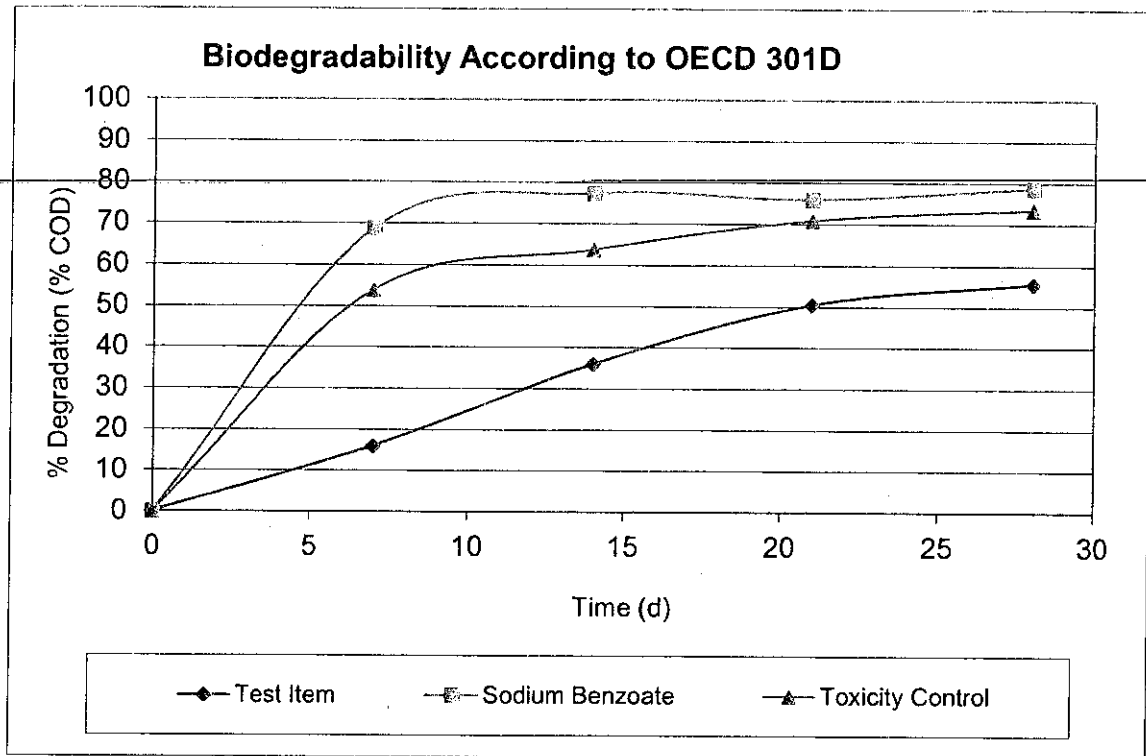
i.V.



for Sebastian Vogel
Group leader BioServices

"Wunderrein Reinigungs Paste 300 g"

Graphical Representation of the Results



TS 1 = 1st Test solution with the test item
 TS 2 = 2nd Test solution with the test item

The test results refer exclusively to the examined test items and the date of the test under the test specifications

-End of Report-

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