



REFERENCES

Order AX08-07584
Offer :
Received Rouen : October 6th, 2008
Requested by : Mrs Stéphanie PASCAL
ClientID : AX08-07584.001
Description : CYBERCLEAN GREEN
Nature : Cleaner
Comments :

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95610 ERAGNY SUR OISE
France
To Mrs Stéphanie PASCAL

Rouen, November 14th, 2008

REPORT
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Parameter :

Inherent aerobic biodegradability :
Zahn-Wellens Test
- OECD 302 B -

Principle : A mixture containing the test substance, mineral nutrients and a relatively large amount of activated sludge in aqueous medium is agitated and ventilated at 20-25°C in the dark or under diffuse light for up to 28 days. The biodegradation process is monitored by determination of DOC (or COD) in filtered samples taken at daily or other time intervals.

Inoculum : Activated sludge from Rouen wastewater treatment plant. Recovery of microbial material after centrifugation and re-suspension in the test media. The relationship between the inoculum (suspended materials) and the test substance (DOC) lies between 2,5:1 and 4,0:1 in the test vessel.

Sample :

- CYBERCLEAN GREEN - AX08-07584.001
- Conservation: Room temperature
- Preparation for test solutions: dissolution by shaking and ultrasonic.

The testing report only concerns materials or products submitted for assay. The duplication of this document is only authorized in its entirety without the written permission of the laboratory. The present report is issued by the company in accordance with its general conditions of services. (copy available on request)

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Dates of DOC analysis :

D=0 : 10/07/2008	D=6 : 10/13/2008	D=17: 10/24/2008
D=1 : 10/08/2008	D=8 : 10/15/2008	D=23: 10/30/2008
D=2 : 10/09/2008	D=10: 10/17/2008	D=28: 11/04/2008
D=3 : 10/10/2008	D=14: 10/21/2008	

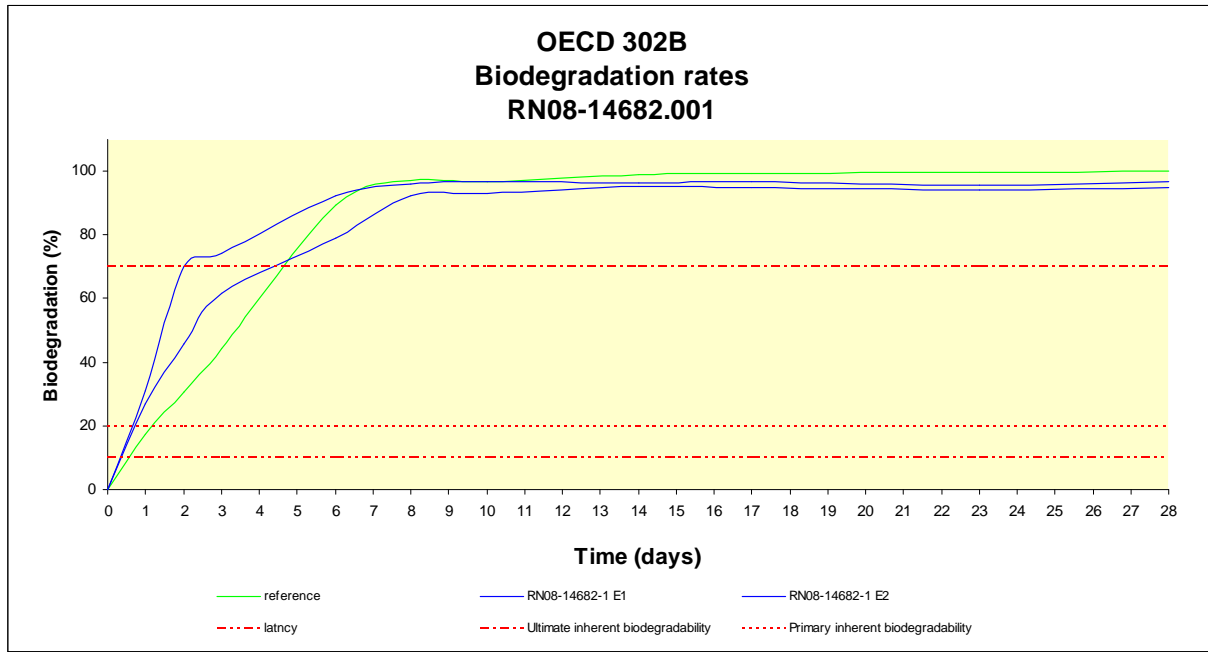
Results :

Biodegradation rate in percent according to time:

	D = 0	D = 1	D = 2	D = 3	D = 6	D = 8	D = 10	D = 14	D = 17	D = 23	D = 28
reference	0	17,4	30,7	44,3	89,4	97,0	96,8	99,0	99,0	100	100
RN08-14682.001 E1	0	31,2	70,3	74,1	92,1	96,0	96,0	96,5	96,6	95,6	96,6
RN08-14682.001 E2	0	26,8	45,8	61,6	79,0	92,4	92,8	95,1	94,9	94,1	95,0

E1 and E2 are two different concentrations at D=0.

Tests are realized in two replicates with difference between results lesser than 20% according to validity criteria of OECD guidelines.



Remark: Not adsorption on activated sludge

Latency time (a) is less than 1 day
 Biodegradation time (b) is 6 to 8 days
 Maximum biodegradation level (c) is about 95 %

- a) Duration from the beginning of inoculation to the moment when the rate of degradation has reached 10%
- b) Interval between the end of latency time and the moment when approximately 90% of the maximum rate of biodegradation is reached.
- c) Approximate value from which there are more biodegradation during the test

Comments :

The reference is a substance known for its ability to be biodegraded and it will validate the whole experience (it gets 97% of degradation in 8 days, the experience was realised within favourable conditions).

The OECD guidelines have set a threshold of 20% biodegradation beyond which the substance demonstrates a primary inherent biodegradability and a 70% threshold beyond which the substance demonstrates an ultimate inherent biodegradability. For this analysis, there is a biodegradation of the test substance over 70% in 3 to 6 days and more than 95% in 14 days.

The cleaner sample CYBERCLEAN GREEN - AX08-07584.001 is « **inherent biodegradable without pre-adaptation** » and further evidence of an « **ultimate inherent biodegradability** » according to OECD criteria.

OECD guidelines extract (March, 23rd 2006) (pure chemicals):

When the results indicate that inherent, ultimate biodegradability does occur, it indicates that the substance has a potential for degradation under favourable conditions, e.g. in well-operated STPs.

Inherent biodegradability tests are used to assess whether a chemical has any potential for biodegradation. The European Commission Technical Guidance Document (5) proposes that results of the Zahn-Wellens/EMPA Test (TG 302 B) and the Modified MITI Test (II) (TG 302 C) may be used for extrapolation to a rate constant in models for estimation of the elimination of chemicals in STPs (5). However, this extrapolation is only allowed, if the inherent biodegradability tests fulfil specific criteria.

- The pass level of 70% degradation in the Zahn-Wellens/EMPA Test must be reached within 7 days, including the lag-phase and the log-phase.
- The lag-phase should be no longer than 3 days.
- The percentage removal in the test before biodegradation occurs should be below 15%.

When a negative result is obtained in a test of inherent biodegradability, it may lead to a preliminary conclusion of environmental persistence and to an evaluation of potential adverse effects of transformation products.

Results validated electronically by

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This validation is an electronical signature realised in conformity with requirements of ISO 17025.