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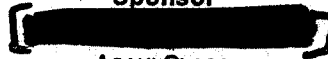
459



Effects on the Development of *Caenorhabditis elegans*
in a Water-Sediment System

acc. to TRAUNSPURGER et al. (1997)

Sponsor



ASAHI GLASS
CLARIANT
DAIKIN INDUSTRIES LTD
DUPONT

Author

Gunda Winkelmann

Test Facility

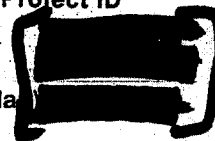
DR.U.NOACK-LABORATORIUM
FÜR ANGEWANDTE BIOLOGIE
Käthe-Paulus-Straße 1
D-31157 Sarstedt

Laboratory Project ID

Project-No.

Study-No.

Study-No.(Study plan)



Study Completed On

2003-04-14

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Effects on the Development of *Caenorhabditis elegans*
in a Water-Sediment System acc. to TRAUNSPURGER et al. (1997)

Project-No. [REDACTED]
Study-No. [REDACTED]

Statement of GLP Compliance

Title

Effects on the Development of *Caenorhabditis elegans* in a Water-Sediment System

Guideline

TRAUNSPURGER et al. (1997)

Test Item

(Batch number: P00/001)

Test Facility

DR.U.NOACK-LABORATORIUM FÜR ANGEWANDTE BIOLOGIE

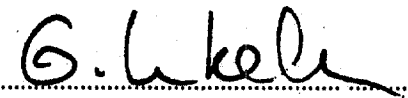
Phone: (+49) 50 66 / 706 70, Fax (+49) 50 66 / 706 789

Deviations from
GLP Principles

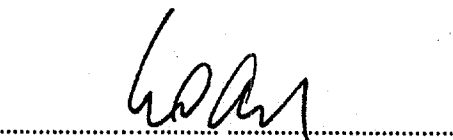
None

We declare that this study was conducted and reported in compliance with the actual OECD principles of Good Laboratory Practice and the national GLP regulations as specified in the law in force, except deviations mentioned above.

2003-04-14
(Date)


(Gunda Winkelmann, Study Director)

2003-04-14
(Date)


(Dr. Udo Noack, Head of Testing Facility)

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Effects on the Development of *Caenorhabditis elegans*
in a Water-Sediment System acc. to TRAUNSPURGER et al. (1997)

Project-No. [REDACTED]
Study-No. [REDACTED]

Statement of the Quality Assurance Unit

Title

Effects on the Development of *Caenorhabditis elegans* in a Water-Sediment System

Guideline

TRAUNSPURGER et al. (1997)

Test Item

(Batch number: P00/001)

Study Director

Gunda Winkelmann

The study was verified as follows:

inspection	dates	date of report
study plan	2002-11-18	2002-11-18
process based	2002-11-21 2002-11-26	2002-11-21 2002-11-26
report	2003-01-13 2003-01-14 2003-01-15 2003-03-06 2003-04-10	2003-01-14 2003-01-14 2003-01-15 2003-03-06 2003-04-10

The reported results accurately and completely reflect the raw data of the study. Also methods, procedures, and observations are accurately and completely described in the report.

The accordance of the study with its study plan and the principles of Good Laboratory Practice is guaranteed.

2003-04-14

...pp...
Gudrun Möhrmann-Kalabokidis

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[REDACTED]
Effects on the Development of *Caenorhabditis elegans*
in a Water-Sediment System acc. to TRAUNSPURGER et al. (1997)

Project-No. [REDACTED]
Study-No. [REDACTED]

Personnel Involved

Study Director: Gunda Winkelmann
(Engineer of Horticulture)

Deputy: Dirk Scheerbaum
(Biologist)

Technical Staff: Karin Ruthenberg

Quality Assurance Unit: Gudrun Möhrmann-Kalabokidis
(Biologist)

Deputy: Susanne Becker
(Biologist)

Director of the
Testing Facility: Dr. Udo Noack
(Biologist)

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Effects on the Development of *Caenorhabditis elegans*
in a Water-Sediment System acc. to TRAUNSPURGER et al. (1997)

Project-No. [REDACTED]
Study-No. [REDACTED]

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in a Water-Sediment System acc. to TRAUNSPURGER et al. (1997)

Project-N
Study-No

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Effects on the Development of *Caenorhabditis elegans*
in a Water-Sediment System acc. to TRAUNSPURGER et al. (1997)

Project-No. [REDACTED]
Study-No. [REDACTED]

1 Summary

The effects of the test item [REDACTED] (batch no. P00/001) on the development of the free living soil nematode *Caenorhabditis elegans* were determined in a water-sediment system. The study was carried out according to TRAUNSPURGER et al. (1997). Test duration was 72 hours. The study was conducted from 2002-11-22 to 2002-11-25 at DR.U.NOACK-LABORATORIUM FÜR ANGEWANDTE BIOLOGIE, Sarstedt, Germany.

A limit test was conducted with a limit concentration of 1000 mg/kg selected on the basis of a preliminary test. Fifty nematodes were exposed to the limit test concentration. Thirty nematodes were tested in an untreated sediment control. A solvent control (*tert.*-methyl-butyl-ether, MTBE) and a liquid control were also tested with 2 replicates (10 nematodes per replicate) for each control treatment.

The effects of the test item [REDACTED] are summarised in Table 1.

Table 1: Growth and Reproduction of *Caenorhabditis elegans* (72 h)

Test Item	[REDACTED]			
Test Object	<i>Caenorhabditis elegans</i>			
Exposure	Artificial sediment			
	Survival of nematodes [%]	Bodylength [µm] ± SD	Number of eggs per nematode ± SD	Gravid worms* [%]
Liquid Control	100	-	-	-
Sediment Control	-	985.7 ± 84.5	3.43 ± 3.67	90.0 ± 0.0
Solvent Control	-	911.5 ± 23.3	6.00 ± 8.13	90.0 ± 0.0
[mg product/kg]				
1000	-	901.4 ± 59.0**	2.98 ± 3.05**	92.0 ± 9.10

SD = Standard deviation

* = Percentage of nematodes with ≥ 1 egg

** = No significant difference compared to the pooled control

- = Not determined

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Effects on the Development of *Caenorhabditis elegans*
in a Water-Sediment System acc. to TRAUNSPURGER et al. (1997)

Project-No. [REDACTED]
Study-No. [REDACTED]

2 Characterisation Data of the Test Item

TEST ITEM

Batch Number

P00/001

CAS RN

Chemical characterization

(EINECS)

Purity

Appearance

Yellowish solid wax

Water solubility

134 µg/L at 12 degree C, Std 29 µg/L, n=8 (DuPont, 2002)
137 µg/L at 25 degree C, Std 53 µg/L, n=17 (DuPont, 2002)

Stability in water

Stable at test conditions

Density

Ca. 1.7 g/cm³

Expiry date

Unlimited if stored under the recommended conditions.

Recommended storage

Room temperature (20 °C), protected from moisture

Storage at testing facility

Room temperature, protected from moisture and light

Retention

At least 1 g has been retained.

Identification parameter
at testing facility

Name, batch number and colour

The test item and the information concerning the test item were provided by the sponsor.

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Effects on the Development of *Caenorhabditis elegans*
in a Water-Sediment System acc. to TRAUNSPURGER et al. (1997)

Project-No. [REDACTED]
Study-No. [REDACTED]

3 Method

TEST GUIDELINE

TRAUNSPURGER et al. (1997): "Ecotoxicological assessment of aquatic sediments with *Caenorhabditis elegans* (nematoda) – A method for testing in liquid medium and whole sediment samples."

TYPE AND PURPOSE OF THE STUDY

Determination of the potential impact of

the free living soil nematode *Caenorhabditis elegans*.

TEST SYSTEM

Caenorhabditis elegans (nematoda)
N2, var. Bristol, wild type lab strain

Reason for the selection

According to the literature (TRAUNSPURGER et al., 1997)
Caenorhabditis elegans is suitable for this kind of study.

Source

Breeding was performed in the test facility at 20 ± 2 °C in the dark.
Origin: CAENORHABDITIS GENETICS CENTER, University of Minnesota,
250 BioScience Center, 1445 Gortner Avenue, St. Paul, MN 55108-
1095, USA

All nematodes used in the test originated from the same delivery of the
supplier and the same stock. They were not used in another test.

Food medium

Medium M9, according to GRATZER & AHLF (2001)

Feeding

Feeding occurred parallel to test start in the test vessels.

Food

Liquid culture of *Escherichia coli* OP 50, cultured in the test facility in
LB-Medium and resuspended in M9 - Medium.
(Origin: CAENORHABDITIS GENETICS CENTER, address see above)

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Effects on the Development of *Caenorhabditis elegans*
in a Water-Sediment System acc. to TRAUNSPURGER et al. (1997)

Project-No. [REDACTED]
Study-No. [REDACTED]

TEST ITEM**Pretreatment**

The test item was heated to 50 °C, weighed out, dissolved in *tert.*-methyl-butyl-ether and mixed with 70 g quartz sand. The solvent was volatilized out of the quartz sand and the sand mixed with artificial sediment to produce the desired limit test concentration.

Test concentration

A limit concentration of 1000 mg /kg artificial sediment was used for the study.

Vehicle

70 g quartz sand

Solvent

tert.-methyl-butyl-ether

Application technique

2.4996 g of the test item were weighed out and dissolved in 100 mL *tert.*-methyl-butyl-ether. 4 mL of the test item stock solution has been mixed with 70 g quartz sand, necessary for an entire amount of 100 g artificial sediment. After volatilization of the solvent out of the quartz sand, the treated quartz sand was carefully mixed with the artificial sediment to insure a homogeneous distribution of the test item. The amount of quartz sand added was the same for the limit test concentration and the untreated artificial sediment control. After 24 h of equilibration under test conditions 0.5 g of the treated sediment was added to the test vessels.

CONTROL

Three replicates with 10 nematodes per replicate using M9-Medium and artificial sediment (without test item) were tested under the same test conditions as the test item replicates.

SOLVENT CONTROL

Two replicates with artificial sediment and quartz sand treated with *tert.*-methyl-butyl-ether without test item were used as solvent control medium.

LIQUID CONTROL

The liquid control solely served as the validity control. M9-Medium (0.5 mL) without sediment was tested using 2 replicates with 10 nematodes per replicate under the same test conditions as the test item replicates.

REFERENCE ITEM

No reference item is recommended according to the literature.

TEST METHOD

A static test was performed.

Test duration

72 h after transfer of the test organisms into the test vessels.

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Effects on the Development of *Caenorhabditis elegans*
in a Water-Sediment System acc. to TRAUNSPURGER et al. (1997)

Project-No. [REDACTED]
Study-No. [REDACTED]

Test vessel	NUNC Polystyrol Multiwells (12 wells microtiter plates)
Sediment	Artificial soil modified according to GRATZER & AHLF (2001): - 5 % peat, < 1 mm, air dried and finely ground - 0.5 % dolomite - 70 % quartz sand (with > 50 [%] particles sized between 50 and 200 µm) - 4.5 % iron(III) oxide - 1.5 % kaolin - 18.5 % aluminium(III) oxide The pH was determined to be 5.91.
Test sediment amount	0.5 g (dry weight, with and without test item) per test well, mixed with 0.5 mL of the food.
Food	M9-Medium (see above) inoculated with <i>Escherichia coli</i> OP50 (density of approx. 10^{10} cells/mL)
Number of test nematodes per replicate	10
Replicates	5 replicates per limit test concentration, 3 replicates per untreated sediment control, 2 replicates per liquid and solvent control.
Age of nematodes	First stage juveniles (body length ca. 270 µm) obtained by filtering a fresh culture of nematodes through 10 µm and 5 µm mesh size nylon nets.
Preparation of test vessels	Prior to test start, 0.5 g sediment mixed with the test item was added into each test vessel. The untreated sediment control vessels were filled with 0.5 g sediment without test item.
Introduction of the larvae	Prior to test start 0.5 mL of the food medium was added to the vessels with the test item treated and the control sediment. 0.5 mL of the food medium was added to the liquid control. Ten selected first stage juveniles were randomly transferred to each test vessel by a sterilized micropipette. After addition of the nematodes, the test vessels were kept on shaking desks and incubated for 72 h.
Temperature	20 ± 1 °C
Light intensity	Continuous dark
Feeding	Food was provided at test start in M9-Medium.

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Effects on the Development of *Caenorhabditis elegans*
in a Water-Sediment System acc. to TRAUNSPURGER et al. (1997)

Project-No. [REDACTED]
Study-No. [REDACTED]

KIND AND FREQUENCY OF MEASUREMENT AND OBSERVATIONS

Observations were made only at the end of the test (72 h).
The number of living nematodes in the liquid control was observed under a microscope at test end to ensure the vitality of the test organisms throughout the exposure.
The test vessels were heated (50 °C, 5 min) to kill the worms and afterwards the nematodes were stained using an aqueous solution of ROSE-BENGAL and stored at -20 °C until further extraction and measurements.

Extraction of the test organisms from sediment

The sediment was mixed with approx. 6 mL of diluted LUDOX and centrifuged using a swing-out centrifuge (10 min, 700-800 g). The resulting supernatant with the nematodes was decanted in a petri-dish.

Criteria of effects

The extracted nematodes were observed using a microscope. Body length was measured with a microscale to an accuracy of at least 0.001 mm. Number of eggs inside the nematodes was counted and recorded.

Equipment

Laboratory incubator, B 6060 (HERAEUS)
Microflow biological safety cabinet (MDH)
Water bath, W 350 T (MEMMERT)
Microscope, LAB 16, (CARL ZEISS)
Centrifuge, ZK 364 (HERMLE GMBH & Co)
Micropipette, Finnpiette Digital (LABSYSTEMS OY)
Shaking desk, Vortex Genie 2 (Scientific Industries)

COURSE OF THE STUDY

A preliminary range finding test (NON-GLP) was carried out to determine the concentration range for the main study.
Based on the results of this preliminary test, the definitive study was performed at the limit concentration of 1000 mg/kg.
A sediment control, a solvent control and a liquid control (each without test item) were tested under the same conditions as the test item treatment.

At test end (after 72 h) the worms were examined for survival (liquid control), body length and egg production.
Measurements and observations were carried out as described above.

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Effects on the Development of *Caenorhabditis elegans*
in a Water-Sediment System acc. to TRAUNSPURGER et al. (1997)

Project-No. [REDACTED]
Study-No. [REDACTED]

EVALUATION

Sediment and solvent control were pooled for statistical analysis since no statistically significant differences were found between these groups using ANOVA.

The following evaluations were made:

- Growth: Body length in μm
- Egg production: Number of eggs inside the body
- Fertility: [%] gravid worms (worms with ≥ 1 egg)

The number off eggs per worm was calculated for each replicate according to formula 1:

$$R = n_e / n_n \quad (1)$$

R = Reproduction

n_e = Number of eggs at test end

n_n = Number of nematodes at test end

Fertility [%] of worms was calculated according to formula 2:

$$F = n_e \times 100 / n_i \quad (2)$$

F = Fertility in %

n_e = Sum of worms with ≥ 1 egg

n_i = Sum of worms introduced per treatment

STATISTICAL ANALYSIS

ANOVA has been used for comparison of mean values of the replicates. Tests for a normality and homogeneity of variances were conducted prior to ANOVA. P-values for both normality and homogeneity of variances were 0.05. KRUSKAL-WALLIS ANOVA on Ranks was used in case a non-normal data distribution. The α -value for ANOVA and KRUSKAL-WALLIS ANOVA on Ranks was $\alpha=0.05$.

The data for the tables in the report were computer generated and have been rounded for presentation from the full derived data. Consequently if calculated manually based on the given data minor variations may occur from these figures.

SOFTWARE

Calculations were conducted using the following software:

- SigmaStat rel. 2.03 (1992-1997), SPSS INC.
- Microsoft Excel rel. 2000 (2000), MICROSOFT CORPORATION

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Effects on the Development of *Caenorhabditis elegans*
in a Water-Sediment System acc. to TRAUNSPURGER et al. (1997)

Project-No. [REDACTED]
Study-No. [REDACTED]

VALIDITY CRITERIA

Sediment control:

- percentage of gravid worms ≥ 80 %.

**DEVIATIONS FROM
THE GUIDELINE**

None

**DEVIATIONS FROM
THE STUDY PLAN**

None

REPORTING

The final report is issued as paper copy (5 originals) and an electronic record (1 original).

ARCHIVING

The following was retained in the archive of the test facility for the period as specified in the operative national GLP regulations:

- all raw data
- study plan (Original 1 of 2)
- final report paper copy (Original 1 of 5)
- all records performed by the quality assurance programme including master schedules
- sample of test and reference items.

Microfilms were retained in a safe-deposit by Volksbank, D-31157 Sarstedt.

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Effects on the Development of *Caenorhabditis elegans*
in a Water-Sediment System acc. to TRAUNSPURGER et al. (1997)

Project-No.
Study-No.

4 Results

4.1 Preliminary Test

Table 2: Growth and Reproduction of *Caenorhabditis elegans* (72 h)

Test Item				
Test Object	<i>Caenorhabditis elegans</i>			
Exposure	Artificial sediment			
	Survival of nematodes	Bodylength [μm] ± SD	Number of eggs per nematode ± SD	Gravid worms [%]
Liquid Control	100	-	-	-
Sediment Control	-	1001.4 ± 98.4	4.30 ± 3.61	100
[mg product/kg]				
10	-	968.4 ± 74.5	3.27 ± 1.64	100
100	-	984.8 ± 67.1	2.60 ± 1.57	100
1000	-	962.4 ± 67.8	3.60 ± 1.61	100

SD = Standard deviation

- = Not determined

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Effects on the Development of *Caenorhabditis elegans*
in a Water-Sediment System acc. to TRAUNSPURGER et al. (1997)

Project-No. [REDACTED]
Study-No. [REDACTED]

4.2 Definitive Test

Measurement of bodylength after 72 hours is given in Tab. 3. Data of egg production after 72 hours are presented in Tab. 4. Effect values are given in Tab. 5.

Table 3: Bodylength [μm] after 72 hours

Concentration [mg/kg]		Nematode									
		1	2	3	4	5	6	7	8	9	10
1000	Rep. 1	672	936	1152	720	1200	648	696	912	1104	696
	Rep. 2	1200	696	960	624	1032	672	864	768	1128	672
	Rep. 3	672	720	1224	1152	768	936	1080	1200	672	864
	Rep. 4	1080	1440	1152	1104	576	888	936	864	888	-
	Rep. 5	1032	696	552	1182	1248	936	696	888	579	696
Solvent Control	Rep. 1	528	1240	840	1152	1176	1008	840	648	960	888
	Rep. 2	1224	576	672	912	672	936	1032	912	840	1176
Control	Rep. 1	1176	984	1200	816	1512	912	984	1008	1152	1056
	Rep. 2	1296	768	1128	696	1080	504	1008	1200	984	936
	Rep. 3	936	1248	600	840	912	864	864	1008	960	936

Table 4: Number of eggs after 72 hours

Concentration [mg/kg]		Nematode									
		1	2	3	4	5	6	7	8	9	10
1000	Rep. 1	1	2	2	1	8	3	1	2	4	1
	Rep. 2	7	1	2	0	3	2	2	1	3	1
	Rep. 3	1	1	11	14	2	3	2	7	1	3
	Rep. 4	2	4	3	0	0	1	2	1	2	-
	Rep. 5	3	2	0	5	9	2	2	3	11	2
Solvent Control	Rep. 1	0	12	1	13	21	3	2	1	1	2
	Rep. 2	27	1	1	1	0	2	19	2	1	10
Control	Rep. 1	1	3	0	7	11	1	2	3	2	2
	Rep. 2	11	0	7	1	6	1	2	13	2	2
	Rep. 3	3	11	1	1	2	2	0	3	1	2

- : Nematode could not be found after 72 h

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Effects on the Development of *Caenorhabditis elegans*
in a Water-Sediment System acc. to TRAUNSPURGER et al. (1997)

Project-No. [REDACTED]
Study-No. [REDACTED]

Table 5: Growth, Number of eggs and Fertility after 72 hours
(SD = Standard Deviation)

Treatment	Control				Solvent Control		
Replicate	1	2	3	Mean value $\pm$ SD	1	2	Mean value $\pm$ SD
Bodylength [μm]	1080	960	917	985.7 $\pm$ 84.5	928	895	911.5 $\pm$ 23.3
Eggs per Nematode	3.2	4.5	2.6	3.43 $\pm$ 3.67	5.6	6.4	6.00 $\pm$ 8.13
Gravid Nematodes* [%]	90	90	90	90.0 $\pm$ 0.0	90	90	90.0 $\pm$ 0.0

Treatment	1000 mg/kg						
Replicate	1	2	3	4	5	Mean value ± SD	Sig. Dif.**
Bodylength [μm]	874	862	929	992	850	901.4 ± 59.0	No
Eggs per Nematode	2.5	2.2	4.5	1.7	3.9	2.98 ± 3.05	No
Gravid Nematodes* [%]	100	90	100	78	90	92.0 ± 9.10	-

* Percentage of Nematodes with ≥ 1 egg

** significantly different from the pooled control (ANOVA, $\alpha < 0.05$)

- not tested

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Effects on the Development of *Caenorhabditis elegans*
in a Water-Sediment System acc. to TRAUNSPURGER et al. (1997)

Project-No. [REDACTED]
Study-No. [REDACTED]

5 Validity Criteria

The study was performed according to TRAUNSPURGER et al. (1997) and the principles of GLP.

The results met the validity criteria:

Percentage of gravid worms in the sediment control $\geq 80\%$ (in this study 90 %).

6 Conclusions

After 72 hours the NOEC of [REDACTED] was determined to be greater than 1000 mg/kg based on nominal test item concentrations.

7 Literature / References

- GRATZER, H. & W. AHLF (2001): Adjustment of a formulated sediment for sediment testing with *Caenorhabditis elegans* (Nematoda) Acta hydrochim. Hydrobiol. 29:41-46.
- HÖSS, S., HAITZER, M., TRAUNSPURGER, W. & C.E.W. STEINBERG (1999): Growth and Fertility of *Caenorhabditis elegans* (Nematoda) in unpolluted freshwater sediments: Response to particle size distribution and organic content. Environ. Tox. and Chem. 18:2921-2925.
- TRAUNSPURGER, W., HAITZER, M., HÖSS, S., BEIER, S., AHLF, W. & C. STEINBERG (1997): Ecotoxicological assessment of aquatic sediments with *Caenorhabditis elegans* (Nematoda) – A method for testing liquid medium and whole-sediment samples. Environ. Tox. and Chem. 16:245-250.

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Report [REDACTED]

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Effects on the Development of *Caenorhabditis elegans*
in a Water-Sediment System acc. to TRAUNSPURGER et al. (1997)

Project-No. [REDACTED]
Study-No. [REDACTED]

8 Certificate of Test Item Analysis

Clariant GmbH, Werk Gendorf
COG / Qualitätsmanagement
D-84504 Burgkirchen
Fax: ++49 8679 / 3676



Inspection certificate
according to EN10204-3.1B

Date: 13.11.2001
Page: 1 / 1

Our consignment
Material [REDACTED]

Material-no. 104705
Batch No. PCO/001

On the batch, of which the consignment is a part, the following values
were determined. They conform to the agreed product specification.

Inspection characteristic/methodSpecification

Result

[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]

The above particulars do not release the customer from the obligation to
carry out an inspection of goods received.

Ms. Baumgartner - Worksinspector

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Effects on the Development of *Caenorhabditis elegans*
in a Water-Sediment System acc. to TRAUNSPURGER et al. (1997)

Project-No. [REDACTED]
Study-No. [REDACTED]

9 Certificate of DR.U.NOACK-LABORATORIUM



Niedersächsisches
Umweltministerium

Gute Laborpraxis/Good Laboratory Practice

GLP-Bescheinigung/Statement of GLP Compliance

(gemäß/according to § 19 b Abs.1 Chemikaliengesetz)

Eine GLP-Inspektion zur Überwachung der
Einhaltung der GLP-Grundsätze gemäß
Chemikaliengesetz bzw. Richtlinie 88/320/EG
wurde durchgeführt in:

Assessment of conformity with GLP according to
Chemikaliengesetz and Directive 88/320/EEC at:

☒ Prüfeinrichtung / Test facility

☐ Prüfstandort / Test site

Dr. U. NOACK LABORATORIUM
für angewandte Biologie
Käthe-Paulus-Str. 1
D-31157 Sarstedt

Dr. U. NOACK LABORATORY
of applied biology
Käthe-Paulus-Str. 1
D-31157 Sarstedt

(Unverwechselbare Bezeichnung und Adresse/Unequivocal name and address)

Prüfungen nach Kategorien/Areas of Expertise

(gemäß/according ChemVwV-GLP Nr. 5.3/OECD guidance)

- 1 - Prüfungen zur Bestimmung der physikalisch-chemischen Eigenschaften und Gehaltsbestimmungen
- 3 - Prüfungen zur Bestimmung der erbgutverändernden Eigenschaften (in vitro und in vivo)
- 4 - Umwelttoxikologische Prüfungen zu Auswirkungen auf aquatische und terrestrische Organismen
- 5 - Prüfungen zum Verhalten im Boden, im Wasser und in der Luft, Prüfungen zur Bioakkumulation und zur Metabolisierung
- 6 - Prüfungen zur Bestimmung von Rückständen
- 7 - Prüfungen zur Bestimmung der Auswirkungen auf Mesokosmen und natürliche Ökosysteme

Datum der Inspektion / Date of inspection

(Tag, Monat, Jahr / day, month, year)

25. - 27. Juni 2001 / June 25th - 27th, 2001

29. August und 21. September 2001 / August 29th and September 21st, 2001

Die genannte Prüfeinrichtung/der genannte Prüfstandort
befindet sich im nationalen GLP-
Überwachungsverfahren und wird regelmäßig auf
Einhaltung der GLP-Grundsätze überwacht.

The above mentioned test facility / test-site is included in
the national GLP Compliance Programme and is
inspected on a regular basis.

Auf der Grundlage des Inspektionsberichtes wird hiermit
bestätigt, dass in dieser Prüfeinrichtung/diesem
Prüfstandort die oben genannten Prüfungen unter
Einhaltung der GLP-Grundsätze durchgeführt werden
können.

Based on the inspection report it can be confirmed, that
this test facility / test-site is able to conduct the
forementioned studies in compliance with the Principles
of GLP.

Niedersächsisches Umweltministerium
Referat 33
Archivstraße 2
30169 Hannover



11. März 2002

Im Auftrage

Dr. Braedt

Company Sanitized. Does not contain TSCA CBI