

**Final Report**

**Toxicity Testing of  
Diniobium Pentaoxide  
on Micro-Organisms with the  
Sludge Respiration Inhibition Test**

**Guidelines**

Directive 88/302/EEC - Method C.11 (1988)

OECD Guideline 209 (1984)

**Study director**

Dr. Detlef Dengler

**Date**

02/02/2010

**Testing Facility**

eurofins-GAB GmbH  
Eutinger Str. 24  
D-75223 Niefern-Öschelbronn  
Germany

**Sponsor**

CBMM Europe BV  
WTC H-tower, Zuidplein 96  
1077 XV Amsterdam  
The Netherlands

**Study Identification Code**

Test item:	Diniobium Pentaoxide
Study code:	S09-02690
Trial/Lab Phase code:	S09-02690-L1_AAHT

### Statement of Confidentiality

This report contains confidential and proprietary information of the sponsor which must not be disclosed to anyone except the employees of this company or to persons authorised by law or judicial judgement without the expressed and written approval of the sponsor.

### Statement of Compliance with the Principles of Good Laboratory Practice

The study described in this report was conducted in compliance with the most recent edition of:

- The Principles of Good Laboratory Practice (GLP), (Chemical Act, attachment 1, Federal Republic of Germany)
- The OECD Principles of Good Laboratory Practice

The German requirements are based on the OECD Principles of Good Laboratory Practice which are accepted by regulatory authorities throughout the European Community, the United States of America (FDA and EPA) and Japan (MHW, MAFF and METI) on the basis of intergovernmental agreements.

Head of testing facility  
 (Dr. Susanne Timmermann/Björn Blessing)

*06.02.10 Blessing*  
 \_\_\_\_\_  
 Date / Signature

Study director  
 (Dr. Detlef Dengler)

*02. Feb. 2010 Dengler*  
 \_\_\_\_\_  
 Date / Signature

### Statement of Quality Assurance Unit

**Study code:** S09-02690

**Study title:** Toxicity Testing of Diniobium Pentaoxide on Micro-Organisms with the Sludge Respiration Inhibition Test

This study has been audited by the relevant Quality Assurance Unit(s) in accordance with the OECD principles of Good Laboratory Practice and respective national regulations. Dates of inspection and reporting are listed in this section, or in the phase reports supplied by the test site(s). Facilities and/or processes and systems are monitored as part of a regular program.

	Date of audit	Date of report to PI	Date of report to Study Director*	Date of report to Management <sup>+</sup>
<b>Study plan:</b>	07 OCT 2009	-	07 OCT 2009	07 OCT 2009
<b>Experimental phase:</b>	20 OCT 2009	-	20 OCT 2009	20 OCT 2009
<b>Final report:</b>	21 DEC 2009	-	21 DEC 2009	21 DEC 2009

\* including Lead QA and test facility management if audit reported to PI

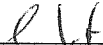
<sup>+</sup> test site management if audit reported to PI, otherwise test facility management

- not applicable

According to the inspections detailed above, and the QA Statements provided by the test sites it can be confirmed that the methods, procedures, and observations described in this final report are a full and accurate account of the raw data.

Quality assurance

(Dr. Uwe Veit)

04 FEB 2010 

Date / Signature

## Contents

Statement of Confidentiality .....	2
Statement of Compliance with the Principles of Good Laboratory Practice .....	2
Statement of Quality Assurance Unit .....	3
Contents .....	4
List of Tables .....	4
List of Figures .....	5
1 Summary .....	6
2 Time Schedule .....	8
3 Study Objective .....	8
4 Materials and Methods .....	8
4.1 Test Item .....	8
4.2 Reference Item .....	9
4.3 Principle of the Test .....	9
4.4 Devices .....	9
4.5 Inoculum .....	10
4.6 Synthetic Wastewater .....	10
4.7 Performance of the Test .....	10
4.7.1 Test Conditions .....	11
4.7.2 Measurements .....	12
4.8 Evaluation and Calculation of the Inhibitory Effects .....	12
5 Deviations from the Study Plan .....	13
6 Results .....	14
7 Conclusions .....	15
8 Archiving .....	15
9 References .....	15
10 Distribution .....	16
10.1 Study Plan .....	16
10.2 Final Report .....	16
10.3 Raw Data .....	16
11 Appendix .....	17
A 1 Examples for O <sub>2</sub> Consumption Lines .....	17
A 2 Individual Values .....	18
A 3 Certificates .....	20

## List of Tables

Table 1: Preparation of stock solutions .....	11
Table 2: Preparation of the test .....	11

Table 3: Test Results .....	14
Table 4: EC <sub>50</sub> values for Dichlorophenol.....	15
Table 5: Oxygen content (mg O <sub>2</sub> /L) during the measuring period after an incubation period of 30 min.....	18
Table 6: Oxygen content (mg O <sub>2</sub> /L) during the measuring period after an incubation period of 3 hours.....	19

## List of Figures

Figure 1: Test Results .....	14
Figure 2: Oxygen consumption lines, 30 min.....	17
Figure 3: Oxygen consumption lines, 3 h.....	17
Figure 4: Certificate of analysis for the test item .....	20
Figure 5: GLP certificate of the testing facility.....	21

## 1 Summary

**Report:** DENGLER, D. (2010): Toxicity Testing of Diniobium Pentaoxide on Micro-Organisms with the Sludge Respiration Inhibition Test

**Source:** eurofins-GAB GmbH, Eutinger Str. 24, 75223 Niefern-Öschelbronn, Germany; unpublished report no.: S09-02690

**Date:** 02/02/2010

**Guidelines:** EC method C.11 (88/302/EEC), OECD guideline 209

**Deviations:** none

**GLP:** yes

**Objective:** The respiration rate of an activated sludge, fed with a standard amount of synthetic sewage feed, was measured after 30 minutes and 3 hours of contact in presence of Diniobium Pentaoxide. The inhibitory effect of Diniobium Pentaoxide at a particular concentration was expressed as a percentage of the mean respiration rate of two controls.

**Materials and methods:** Test item: Diniobium Pentaoxide ( $\text{Nb}_2\text{O}_5$ ), Batch No: AD/4199 purity: 99.2 %.

Inoculum: Activated sludge from the municipal wastewater treatment plant of Pforzheim, Germany, was used as microbial inoculum for the test. This plant predominantly is treating domestic sewage.

The sludge was adjusted to a content of 1.6 g/L of mixed liquid suspended solids (MLSS) and was exposed to the test item under continuous aeration. After stopping the aeration, the  $\text{O}_2$  consumption was measured for approx. 10 minutes. The slope of the  $\text{O}_2$  consumption straight line is an indication for toxic effects on respiration activity of microorganisms.

The test was performed with two controls, 1, 10 and 100 mg/L test item and three concentration of 3,5-Dichlorophenol as a toxic reference item to demonstrate the sensitivity of the test system.

**Dates of work:** 19/10/2009 – 20/10/2009

**Findings:**

The results of the test are presented below:

Study group	percent inhibition**	
	30 min	3 h
Nb <sub>2</sub> O <sub>5</sub> [mg/L]		
0 (Control 1)	9.20*	12.38*
1	9.42	13.10
10	11.10	9.07
100	4.22	6.84
DCP 5 mg/L	13.15	23.77
DCP 15 mg/L	27.72	37.70
DCP 30 mg/L	62.74	72.23
0 (Control 2)	-9.20*	-12.38*

\* Percent deviation from the mean value

\*\*negative values mean stimulating effects

**Conclusions:**

An EC<sub>50</sub> may safely be expected above 100 mg/L, i.e. EC<sub>50</sub> > 100 mg/L.

The respiration rates of the two tap water controls were within 15 % of each other.

The EC<sub>50</sub> value for DCP was in the range between 5 and 30 mg/L after 3 hours. (23.6 mg/L after 30 min, and 16.6 mg/L after 3 h). Therefore, the test fulfils the criteria for validity.

## 2 Time Schedule

Study initiation date:	09/10/2009
Start of the experimental phase:	19/10/2009
End of the experimental phase:	20/10/2009
Draft report:	02/11/2009
Study completion date:	02/02/2010

## 3 Study Objective

The effect of the test item Diniobium Pentaoxide on micro-Organisms from an aerobic microbial treatment plant was tested with the respiration inhibition test. During the test, the respiration rate of activated sludge from a sewage plant was measured under defined conditions in the presence of the test item.

## 4 Materials and Methods

### 4.1 Test Item

Name:	Diniobium Pentaoxide
GAB code:	20091474
Batch No.:	AD/4199
Molecular formula:	Nb <sub>2</sub> O <sub>5</sub>
Molecular weight:	265.82
Water solubility:	< 30 µg/L
Certificate of analysis:	22/06/2009
Content:	99.2 %
Appearance/colour:	solid/pale-yellow
Storage conditions:	Handle with adequate ventilation to avoid nuisance dust

#### Purity and composition

All specifications of purity and composition of the test item were provided by the sponsor.



## 4.2 Reference Item

Name:	3,5-Dichlorophenol (DCP)
GAB Code:	20091296
Batch No.:	04621CJ
CAS-No.:	591-35-5
Content:	99.6 %
Producer:	Sigma-Aldrich
Storage conditions:	ambient, dark, dry
Expiry Date:	12/05/2014

## 4.3 Principle of the Test

The test was performed according to OECD Guideline 209: "Activated Sludge, Respiration Inhibition Test" and EC method C.11 (88/302/EEC).

The respiration rate of an activated sludge, fed with a standard amount of synthetic wastewater was measured for up to 3 hours. The respiration rate of the same activated sludge in the presence of Diniobium Pentaoxide under otherwise identical conditions was also measured. The effect of Diniobium Pentaoxide at a particular concentration was expressed as a percentage of the mean respiration rate of two controls.

A reference item (3,5-Dichlorophenol) was tested at the same time as a means of checking that the sensitivity of the sludge is not abnormal.

## 4.4 Devices

- Dissolved Oxygen Hand-Held Meter
- Interface cable for data transmission
- Evaluation program "Multi/Achat II", version 1.04
- pH meter with pH electrode
- laboratory centrifuge
- air pumps
- magnetic stirrers
- BOD flasks
- all chemicals used are of analytical grade
- Glass material: pipettes, volumetric flasks, volumetric cylinders, beakers
- laboratory material

#### 4.5 Inoculum

Activated sludge from the municipal wastewater treatment plant of Pforzheim, Germany, was used as microbial inoculum for the test. This plant predominantly is treating domestic sewage.

2 L of sludge with an initial content of MLSS (mixed liquid suspended solids) of 8 g/L was collected on the day of the test. It was washed with tap water by centrifugation, was resuspended in 4 L of tap water and aerated with an air pump. The MLSS were adjusted to a final concentration of 1.6 g/L in the test medium.

#### 4.6 Synthetic Wastewater

The test was performed using a synthetic wastewater, which was prepared with the following amounts of substances in 1 litre of deionised water:

Peptone	16.0 g
Meat extract	11.0 g
Urea	3.0 g
NaCl	0.7 g
CaCl <sub>2</sub> · 2 H <sub>2</sub> O	0.4 g
MgSO <sub>4</sub> · 7 H <sub>2</sub> O	0.2 g
K <sub>2</sub> HPO <sub>4</sub>	2.8 g

The solution was sterilized for 30 min at 121 °C.

#### 4.7 Performance of the Test

In order to obtain a saturated stock solution, one day prior to the test, 88 mg of the test item were stirred overnight in 500 mL tap water. This corresponds to a final nominal concentration of 100 mg/L, when 284 mL are used for the test (test volume 200 mL). Undissolved particles were separated afterwards by filtration. Two further dilution steps with tap water were prepared, differing by a factor of 10 (10 and 1 mg/L). The test was performed with one replicate of the saturated stock solution, the two dilutions, two controls and three concentrations of the reference item. The preparation of the test solutions is presented in Table 1.

Table 1: Preparation of stock solutions

Dilution No.	Nominal weight [mg]	Actual weight [mg]	Dilution		Final volume [mL]	Applied volume for 500 mL	Final nominal conc. [mg/L]
			from solution	volume [mL]			
S1	88.0	88.0	-	-	500	284	100
D1	-	-	S1	50	500	284	10
D2	-	-	D1	50	500	284	1

Table 2: Preparation of the test

Test assay	Synthetic waste water [mL]	Tap water [mL]	Stock solution [mL]	DCP stock solution, 500 mg/L [mL]	Activated sludge [mL]
Control 1	16	284	0	0	200
1 mg/L Nb <sub>2</sub> O <sub>5</sub>	16	0	284 (S1)	0	200
10 mg/L Nb <sub>2</sub> O <sub>5</sub>	16	0	284 (D1)	0	200
100 mg/L Nb <sub>2</sub> O <sub>5</sub>	16	0	284 (D2)	0	200
DCP 5 mg/L	16	279	0	5	200
DCP 15 mg/L	16	269	0	15	200
DCP 30 mg/L	16	254	0	30	200
Control 2	16	284	0	0	200

The water phase was mixed with artificial wastewater and was aerated. The respiration was started by addition of the activated sludge.

Measurements of the oxygen uptake of the activated sludge were performed 30 minutes and 3 hours after starting.

#### 4.7.1 Test Conditions

- Duration: 3 hours, during which the test vessels were aerated
- Test vessels: 1 litre glass beakers
- Reaction volume: 500 mL
- Water: tap water
- Air supply: JEBO air pump
- Measuring vessels: BOD-flasks
- Nutrient solution: synthetic waste water
- Inoculum: 1.6 g/L dry mass
- Controls: inoculated samples without test item
- Temperature: 16 - 18 °C

#### 4.7.2 Measurements

After 30 minutes and 3 hours of aeration, a BOD-flask was filled with control 1, and the respiration rate was measured and recorded over a period of approx. 10 minutes. The other test assays were measured in the same way in 9 - 14 minute intervals, in such a way that the total contact time in each vessel was 30 minutes and 3 hours, respectively.

#### 4.8 Evaluation and Calculation of the Inhibitory Effects

The respiration rates were calculated from the linear part of the recorder trace as mg O<sub>2</sub>/L/h between approx. 10 mg O<sub>2</sub>/L and 3 mg O<sub>2</sub>/L over a period of about 10 minutes.

They were determined as follows:

$$R = \frac{O_0 - O_t}{t} \cdot 60$$

Where

- R = respiration rate
- O<sub>0</sub> = oxygen content at the start of measurement [mg/L]
- O<sub>t</sub> = oxygen content at the end of measurement [mg/L]
- t = duration of measurement [min]

For the calculation of inhibitory effects at a particular concentration, the respiration rate was expressed as a percentage of the mean of the two control respiration rates:

$$\% \text{ inhibition} = \left( 1 - \frac{2R_s}{R_{C1} + R_{C2}} \right) \cdot 100$$

where

- R<sub>s</sub> = O<sub>2</sub> consumption rate at tested concentrations of test item
- R<sub>C1</sub> = O<sub>2</sub> consumption rate, control 1
- R<sub>C2</sub> = O<sub>2</sub> consumption rate, control 2

The percent inhibition was calculated for each test concentration as shown above.

## 5 Deviations from the Study Plan

The study was performed according to the study plan dated 09/10/2009 and the amendment N01, dated 01/02/2010 with the following deviation:

- Study Plan Section 3.1, Test conditions: Temperature was 16 - 18 °C instead of  $20 \pm 2$  °C, pH was not adjusted and not measured

Reason: technical reasons

Impact on study: none

- Study Plan Section 3, Performance of the Test: one day prior to the test, 88 mg of the test item were stirred overnight in 500 mL tap water.

Reason: this corresponds to a final nominal concentration of 100 mg/L, when 284 mL tap water are used for the test (test volume 500 mL).

Impact on study: none

This report reflects the conduct of this study.

## 6 Results

The results of the test are summarised in Table 3 and Figure 1.

Table 3: Test Results

Nb <sub>2</sub> O <sub>5</sub> [mg/L]	% inhibition **	
	30 min	3 h
0 (Control 1)	9.20*	12.38*
1	9.42	13.10
10	11.10	9.07
100	4.22	6.84
DCP 5 mg/L	13.15	23.77
DCP 15 mg/L	27.72	37.70
DCP 30 mg/L	62.74	72.23
0 (Control 2)	-9.20*	-12.38*

\* Percent deviation from the mean value

\*\* negative values mean stimulating effects

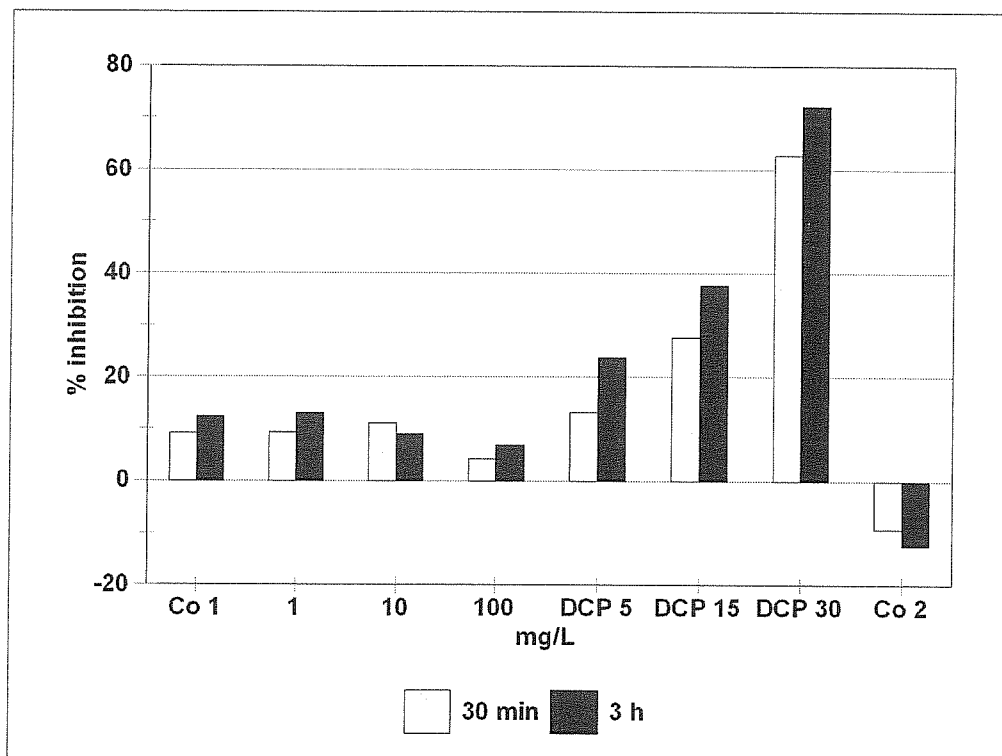


Figure 1: Test Results

Table 4: EC<sub>50</sub> values for Dichlorophenol

EC <sub>50</sub> (30 min)	EC <sub>50</sub> (3 h)
23.6 mg/L	16.6 mg/L

## 7 Conclusions

The effect of Diniobium Pentaoxide on sewage treatment was tested with the activated sludge respiration inhibition test.

Diniobium Pentaoxide can be regarded as **non-toxic** to activated sludge organisms (EC<sub>50</sub> > 100 mg/L) under the conditions of the main test.

The test fulfils the criteria of validity, since

- in the main test, the two tap water control respiration rates are within 15 % of each other
- the EC<sub>50</sub> of 3,5-dichlorophenol was in the expected range from 5 to 30 mg/L (23.6 mg/L after 30 min and 16.6 mg/L after 3 h).

## 8 Archiving

For the periods demanded by the principles of GLP, the following documents and materials will be archived:

- Study plan, raw data, comments of the sponsor on the draft report and the final report.
- All documentation generated by the Quality Assurance Unit.
- A sample of the test item.

All documents and materials will be stored in the archives of eurofins-GAB GmbH. The premises for storing the documents and materials are settled according to the principles of Good Laboratory Practice in the organization of the testing facility.

## 9 References

OECD GUIDELINE FOR TESTING OF CHEMICALS No. 209: Activated Sludge, Respiration Inhibition Test, adopted: 4 April 1984.

EC COMMISSION DIRECTIVE 88/302, PART C.11: Biodegradation- Activated sludge respiration inhibition test (1988).

## **10 Distribution**

### **10.1 Study Plan**

Original: Testing facility (1 x)

Pdf-Version: Sponsor (1 x)

### **10.2 Final Report**

Original: Sponsor (1 x)

Testing facility (1 x)

### **10.3 Raw Data**

Original: Testing facility



## 11 Appendix

### A 1 Examples for O<sub>2</sub> Consumption Lines

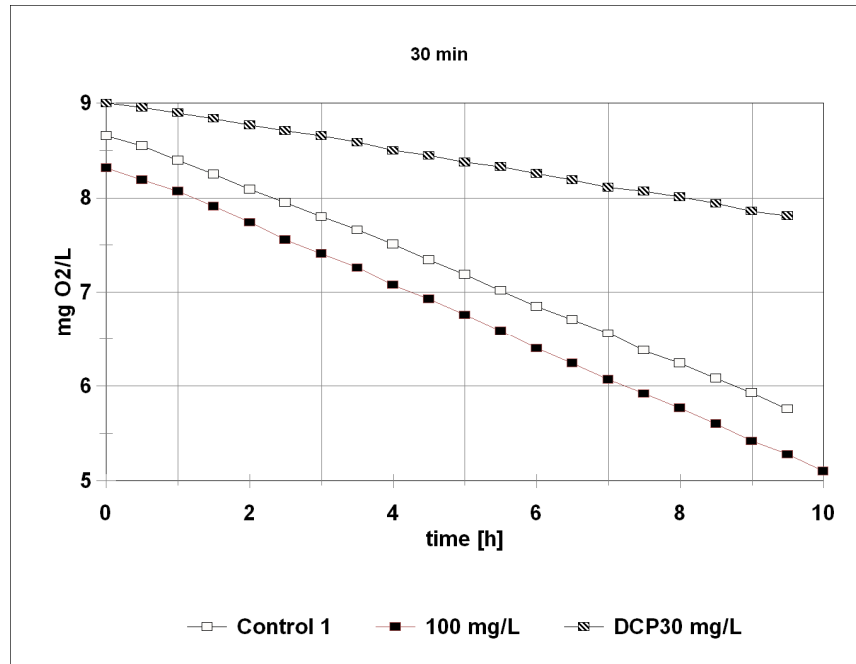


Figure 2: Oxygen consumption lines, 30 min

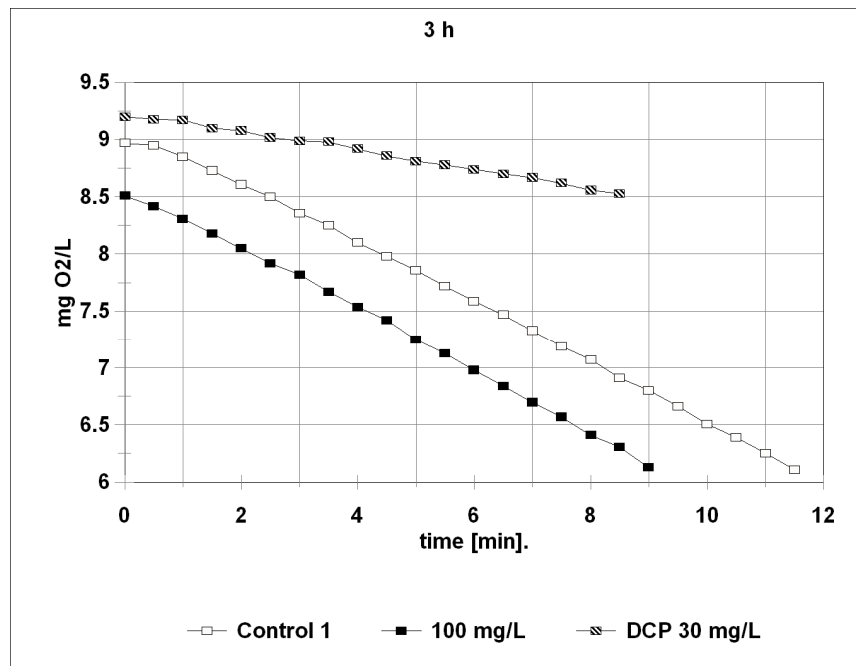


Figure 3: Oxygen consumption lines, 3 h

## A 2 Individual Values

Table 5: Oxygen content (mg O<sub>2</sub>/L) during the measuring period after an incubation period of 30 min.

Time [min]	Control 1	Diniobium Pentaoxide [mg/L]			DCP [mg/L]			Control 2
		1	10	100	5	15	30	
0.0	8.66	8.44	8.51	8.32	8.44	8.64	9.00	8.18
0.5	8.55	8.30	8.40	8.19	8.35	8.57	8.96	8.06
1.0	8.40	8.16	8.27	8.07	8.22	8.46	8.90	7.91
1.5	8.25	8.01	8.10	7.91	8.06	8.35	8.84	7.73
2.0	8.09	7.87	7.97	7.74	7.92	8.21	8.77	7.52
2.5	7.95	7.68	7.81	7.56	7.76	8.10	8.71	7.34
3.0	7.80	7.54	7.63	7.41	7.61	7.97	8.66	7.15
3.5	7.66	7.37	7.53	7.26	7.48	7.85	8.59	6.92
4.0	7.51	7.21	7.36	7.08	7.33	7.70	8.50	6.81
4.5	7.34	7.07	7.21	6.93	7.18	7.58	8.45	6.60
5.0	7.19	6.92	7.07	6.76	7.03	7.46	8.38	6.42
5.5	7.02	6.74	6.92	6.59	6.87	7.33	8.33	6.24
6.0	6.85	6.58	6.76	6.40	6.71	7.19	8.26	6.05
6.5	6.71	6.46	6.59	6.24	6.57	7.06	8.19	5.84
7.0	6.56	6.29	6.45	6.07	6.43	6.95	8.11	5.67
7.5	6.38	6.16	6.32	5.92	6.29	6.83	8.07	5.46
8.0	6.24	5.99	6.15	5.77	6.13	6.70	8.01	5.27
8.5	6.08	5.82	6.00	5.60	5.98	6.58	7.94	5.09
9.0	5.93	5.66	5.82	5.42	5.82	6.46	7.86	4.91
9.5	5.76	5.52	-	5.28	5.67	6.33	7.81	4.73
10.0	-	5.35	-	5.10	5.52	6.21	-	4.53
10.5	-	5.20	-	-	-	-	-	4.33
11.0	-	5.09	-	-	-	-	-	4.15
11.5	-	-	-	-	-	-	-	3.97
12.0	-	-	-	-	-	-	-	3.78
12.5	-	-	-	-	-	-	-	3.59
13.0	-	-	-	-	-	-	-	3.41
13.5	-	-	-	-	-	-	-	3.23
14.0	-	-	-	-	-	-	-	3.04

-: no value

Table 6: Oxygen content (mg O<sub>2</sub>/L) during the measuring period after an incubation period of 3 hours.

Time [min]	Control 1	Diniobium Pentaoxide [mg/L]			DCP [mg/L]			Control 2
					5	15	30	
		1	10	100				
0.0	8.97	8.76	8.66	8.51	8.82	8.84	9.20	8.44
0.5	8.95	8.70	8.56	8.42	8.73	8.76	9.18	8.30
1.0	8.85	8.60	8.45	8.31	8.63	8.70	9.17	8.15
1.5	8.73	8.50	8.32	8.18	8.54	8.61	9.10	7.99
2.0	8.61	8.39	8.17	8.05	8.42	8.50	9.08	7.83
2.5	8.50	8.24	8.04	7.92	8.31	8.41	9.02	7.68
3.0	8.36	8.11	7.90	7.82	8.23	8.33	8.99	7.49
3.5	8.25	8.00	7.79	7.67	8.06	8.23	8.98	7.33
4.0	8.10	7.88	7.67	7.54	7.96	8.16	8.92	7.17
4.5	7.98	7.74	7.59	7.42	7.85	8.06	8.86	7.01
5.0	7.86	7.59	7.45	7.25	7.76	7.97	8.81	6.88
5.5	7.72	7.48	7.30	7.13	7.63	7.87	8.78	6.70
6.0	7.59	7.34	7.19	6.98	7.53	7.79	8.74	6.55
6.5	7.47	7.21	7.05	6.84	7.41	7.70	8.70	6.39
7.0	7.33	7.11	6.88	6.70	7.31	7.60	8.67	6.20
7.5	7.19	6.96	6.76	6.57	7.20	7.52	8.62	6.06
8.0	7.07	6.82	6.62	6.41	7.10	7.43	8.56	5.90
8.5	6.91	6.69	6.50	6.31	6.97	7.36	8.53	5.74
9.0	6.80	6.54	6.34	6.13	6.85	7.25	-	5.57
9.5	6.66	-	6.22	-	6.75	7.16	-	5.41
10.0	6.51	-	6.08	-	6.67	-	-	5.25
10.5	6.39	-	5.95	-	6.55	-	-	-
11.0	6.25	-	-	-	6.44	-	-	-
11.5	6.11	-	-	-	-	-	-	-

-: no value

A 3

Certificates




 <p style="text-align: center;"><b>COMPANHIA BRASILEIRA DE METALURGIA E MINERAÇÃO</b>          Córrego da Mata S/N - C.P. 08 - Araxá - Minas Gerais - Cep: 38.183-970 - Brasil          Phone: (55-34) 3669-3000 - Facsimile: (55-34) 3669-3300</p>			
<b>CERTIFICATE OF ANALYSIS</b>		NUM.	DATE 06/22/2009
PRODUCT NIOBIUM PENTOXIDE HIGH PURITY	LOT AD/4199	SIZING	QUANTITY 9.0
MARK	CUSTOMER REACH	PACKAGING 1/1	
<b>Element</b>		<b>Analysis</b>	
% Nb2O5 % LOI ppm Ta ppm Ti ppm Fe ppm Si ppm P ppm S ppm C ppm Na ppm K ppm Sn ppm Pb		99.2 0.1 707 1305 201 91 85 <20 <30 <10 76 <3 <1	
<b>Size Distribution</b>			
<b>Screen (mm)</b>		<b>(%) Analysis</b>	
<b>Observation</b>			
Emitted by  / / Leandro Oliveira Lima Chemist		Approved by  / / Andreia Duarte Menezes Teixeira Lab. Manager	

Figure 4: Certificate of analysis for the test item



**Baden-Württemberg**  
UMWELTMINISTERIUM

Gute Laborpraxis / Good Laboratory Practice

**GLP-Bescheinigung / Statement of GLP Compliance**

(gemäß /according to § 19b Chemikaliengesetz)

Eine GLP-Inspektion zur Überwachung der Einhaltung der GLP-Grundsätze gemäß Chemikaliengesetz bzw. Richtlinie 2004/9/EG wurde durchgeführt in: Assessment of conformity with GLP according to Chemikaliengesetz and Directive 2004/9/EC at:

Prüfeinrichtung/Test facility  Prüfstandort/Test site

eurofins - GAB GmbH  
Eutingstraße 24  
75223 Niefern-Öschelbronn

(Unverwechselbare Bezeichnung und Adresse/Unequivocal name and address)

Prüfungen nach Kategorien/Areas of Expertise  
(gemäß/according ChemVwW-GLP Nr.5.3/OECD guidance)

- |   |  |   |  |
|---|--|---|--|
| 1 | Prüfungen zur Bestimmung der physikalisch-chemischen Eigenschaften und Gehaltsbestimmungen                         | 6 | Prüfungen zur Bestimmung von Rückständen   |
| 4 | Ökotoxikologische Prüfungen zur Bestimmung der Auswirkungen auf aquatische und terrestrische Organismen            | 7 | Prüfungen zur Bestimmung der Auswirkungen auf Mesokosmen und natürliche Ökosysteme |
| 5 | Prüfungen zum Verhalten im Boden, im Wasser und in der Luft; Prüfungen zur Bioakkumulation und zur Metabolisierung | 8 | Analytische Prüfungen an biologischen Materialien                                  |

Datum der Inspektion/Date of Inspection  
(Tag, Monat, Jahr/day, month, year)

02.11./23.11.2006

Die/Der genannte Prüfeinrichtung/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 aforementioned studies in compliance with the Principles of GLP.

Unterschrift, Datum/Signature, Date

*Horstmann*  
Horstmann (Referatsleiter)

Stuttgart, 23.05.2007

(Name und Funktion der verantwortlichen Person/Name and function of responsible person)



Umweltministerium Baden-Württemberg  
Kernerplatz 9, 70182 Stuttgart

(Name und Adresse der GLP-Überwachungsbehörde/Name and address of GLP Monitoring Authority)

Kernerplatz 9 · 70182 Stuttgart (VVS: Staatsgalerie) · Hauptstätter Str. 67 · 70178 Stuttgart (VVS: Österreichischer Platz)  
Behindertengerechte Parkplätze vorhanden  
Telefon 0711 126-0 · Telefax 0711 126-2881 · poststelle@um.bwl.de  
www.um.baden-wuerttemberg.de · www.service-bw.de



Figure 5: GLP certificate of the testing facility