



Rødekro 2015. Vurdering af udviklingen i den naturlige nedbrydning i nedstrømsforureningsfane efter kildeoprensning

Broholm, Mette Martina; Badin, Alice; Jacobsen, Carsten S.; Hunkeler, Daniel

Publication date:
2015

Document Version
Publisher's PDF, also known as Version of record

[Link back to DTU Orbit](#)

Citation (APA):

Broholm, M. M., Badin, A., Jacobsen, C. S., & Hunkeler, D. (2015). *Rødekro 2015. Vurdering af udviklingen i den naturlige nedbrydning i nedstrømsforureningsfane efter kildeoprensning*. DTU Miljø.

General rights

Copyright and moral rights for the publications made accessible in the public portal are retained by the authors and/or other copyright owners and it is a condition of accessing publications that users recognise and abide by the legal requirements associated with these rights.

- Users may download and print one copy of any publication from the public portal for the purpose of private study or research.
- You may not further distribute the material or use it for any profit-making activity or commercial gain
- You may freely distribute the URL identifying the publication in the public portal

If you believe that this document breaches copyright please contact us providing details, and we will remove access to the work immediately and investigate your claim.

Certificate of Analysis: Gene-Trac® *Dehalococcoides* Assay

Customer: Alice Badin, University of Neuchatel

SiREM Reference: S-3220

Project: Rodekro

Report Date: 11-Jun-14

Customer Reference: 2188-032414

Data Files: MyiQ-DHC-QPCR-1120
MyiQ-DB-DHC-QPCR-0477
iQ5-TBA-QPCR-0050

Table 1a: Test Results

Customer Sample ID	SiREM Sample ID	Sample Collection Date	Sample Matrix	Percent Dhc *	<i>Dehalococcoides</i> Enumeration/Liter **
B58-6	DHC-10491	20-May-14	Field Filter	NA	2 x 10 ³ U
B61-3	DHC-10492	19-May-14	Field Filter	NA	9 x 10 ² U
B61-1	DHC-10493	19-May-14	Field Filter	NA	9 x 10 ² U
B71-3	DHC-10494	19-May-14	Field Filter	NA	9 x 10 ² U
B23-3	DHC-10495	19-May-14	Field Filter	0.00002 - 0.00006 %	1 x 10 ³ J
B23-2	DHC-10496	19-May-14	Field Filter	0.00002 - 0.00007 %	2 x 10 ³
B74-3	DHC-10497	19-May-14	Field Filter	0.00002 - 0.00006 %	1 x 10 ³ J
B58-2	DHC-10498	20-May-14	Field Filter	NA	2 x 10 ³ U
B34-4	DHC-10499	20-May-14	Field Filter	0.00002 - 0.00005 %	1 x 10 ³ J
B34-3	DHC-10500	20-May-14	Field Filter	0.00002 - 0.00006 %	3 x 10 ³
B34-2	DHC-10501	20-May-14	Field Filter	0.00002 - 0.00006 %	2 x 10 ³ J
B34-6	DHC-10502	20-May-14	Field Filter	NA	3 x 10 ³ U
Blank	DHC-10503	20-May-14	Field Filter	NA	2 x 10 ³ U

Notes:

* Percent *Dehalococcoides* (Dhc) in microbial population. This value is calculated by dividing the number of Dhc 16S ribosomal ribonucleic acid (rRNA) gene copies by the total number of bacteria as estimated by the mass of DNA extracted from the sample. Range represents normal variation in Dhc enumeration.

** Based on quantification of Dhc 16S rRNA gene copies. Dhc are generally reported to contain one 16S rRNA gene copy per cell; therefore, this number is often interpreted to represent the number of Dhc cells present in the sample.

J The associated value is an estimated quantity between the method detection limit and quantitation limit.

U Not detected, associated value is the quantification limit.

B Analyte was detected in the method blank within an order of magnitude of the test sample

NA Not applicable as *Dehalococcoides* not detected and/or quantifiable DNA not extracted from the sample.

I Sample inhibited the test reaction based on inability to PCR amplify extracted DNA with universal primers.

E Extracted genomic DNA was not detected in sample.

Analyst: 

Jennifer Wilkinson
Senior Laboratory Technician

Approved: 

Ximena Druar, B.Sc.
Genetic Testing Coordinator

Certificate of Analysis: Gene-Trac® VC, Vinyl Chloride Reductase (*vcrA*) Assay

Customer: Alice Badin, University of Neuchatel

SiREM Reference: S-3220

Project: Rodekro

Report Date: 11-Jun-14

Customer Reference: 2188-032414

Data Files: iQ5-VC-QPCR-0662
iQ5-VC-QPCR-0663
VC-QPCR-check-gel-0664/0665
iQ5-DB-VC-QPCR-0382

Table 1b: Test Results

Customer Sample ID	SiREM Sample ID	Sample Collection Date	Sample Matrix	Percent <i>vcrA</i> *	Vinyl Chloride Reductase (<i>vcrA</i>) Gene Copies/Liter
B23-3	VCR-4812	19-May-14	Field Filter	0.0001 - 0.0004 %	2 x 10 ³
B23-2	VCR-4807	19-May-14	Field Filter	0.00009 - 0.0003 %	2 x 10 ³
B74-3	VCR-4808	19-May-14	Field Filter	NA	2 x 10 ³ U
B34-4	VCR-4809	20-May-14	Field Filter	NA	2 x 10 ³ U
B34-3	VCR-4810	20-May-14	Field Filter	0.00003 - 0.00008 %	1 x 10 ³ J
B34-2	VCR-4811	20-May-14	Field Filter	NA	3 x 10 ³ U

Notes:

* Percent *vcrA* in microbial population. This value is calculated by dividing the number of vinyl chloride reductase A (*vcrA*) gene copies quantified by the total number of bacteria estimated to be in the sample based on the mass of DNA extracted from the sample. Range represents normal variation in enumeration of *vcrA*.

J The associated value is an estimated quantity between the method detection limit and quantitation limit.

U Not detected, associated value is the quantification limit.

B Analyte was detected in the method blank within an order of magnitude of the test sample.

NA Not applicable as *vcrA* not detected and/or quantifiable DNA not extracted from the sample.

I Sample inhibited the test reaction based on inability to PCR amplify extracted DNA with universal primers.

C Correction factor applied to correct for non-specific PCR amplification products, value is an estimated quantity.

E Extracted genomic DNA was not detected in sample.

Analyst: 

Jennifer Wilkinson
Senior Laboratory Technician

Approved: 

Ximena Druar, B.Sc.
Genetic Testing Coordinator

Table 2.1: Detailed Test Parameters, Gene-Trac Test Reference S-3220

Customer Sample ID	B58-6	B61-3	B61-1	B71-3
SiREM Dhc Sample ID	DHC-10491	DHC-10492	DHC-10493	DHC-10494
SiREM <i>vcrA</i> Sample ID	NA	NA	NA	NA
Date Received	26-May-14	26-May-14	26-May-14	26-May-14
Sample Temperature	15 °C	15 °C	15 °C	15 °C
Filtration Date	20-May-14	19-May-14	19-May-14	19-May-14
Volume Used for DNA Extraction	860	2000	2000	2000
DNA Extraction Date	29-May-14	29-May-14	29-May-14	29-May-14
DNA Concentration in Sample (extractable)	3298 ng/L	1290 ng/L	1277 ng/L	1515 ng/L
PCR Amplifiable DNA	Detected	Detected	Detected	Detected
Dhc qPCR Date Analyzed	6-Jun-14	6-Jun-14	6-Jun-14	6-Jun-14
<i>vcrA</i> qPCR Date Analyzed	NA	NA	NA	NA
Laboratory Controls (see Tables 3 & 4)	Passed	Passed	Passed	Passed
Comments	--	--	--	--

Notes:

Refer to Tables 3 & 4 for detailed results of controls.

°C = degrees Celsius

Dhc = *Dehalococcoides*

NA = not applicable

PCR = polymerase chain reaction

qPCR = quantitative PCR

vcrA = vinyl chloride reductase

ng/L = nanograms per liter

mL = milliliters

DNA = Deoxyribonucleic acid

Table 2.2: Detailed Test Parameters, Gene-Trac Test Reference S-3220

Customer Sample ID	B23-3	B23-2	B74-3
SiREM Dhc Sample ID	DHC-10495	DHC-10496	DHC-10497
SiREM <i>vcrA</i> Sample ID	VCR-4812	VCR-4807	VCR-4808
Date Received	26-May-14	26-May-14	26-May-14
Sample Temperature	15 °C	15 °C	15 °C
Filtration Date	19-May-14	19-May-14	19-May-14
Volume Used for DNA Extraction	760	760	760
DNA Extraction Date	29-May-14	29-May-14	29-May-14
DNA Concentration in Sample (extractable)	3727 ng/L	3363 ng/L	3701 ng/L
PCR Amplifiable DNA	Detected	Detected	Detected
Dhc qPCR Date Analyzed	6-Jun-14	6-Jun-14	6-Jun-14
<i>vcrA</i> qPCR Date Analyzed	10-Jun-14	9-Jun-14	9-Jun-14
Laboratory Controls (see Tables 3 & 4)	Passed	Passed	Passed
Comments	--	--	--

Notes:

Refer to Tables 3 & 4 for detailed results of controls.

°C = degrees Celsius

Dhc = *Dehalococcoides*

PCR = polymerase chain reaction

qPCR = quantitative PCR

vcrA = vinyl chloride reductase

ng/L = nanograms per liter

mL = milliliters

DNA = Deoxyribonucleic acid

Table 2.3: Detailed Test Parameters, Gene-Trac Test Reference S-3220

Customer Sample ID	B58-2	B34-4	B34-3
SiREM Dhc Sample ID	DHC-10498	DHC-10499	DHC-10500
SiREM <i>vcrA</i> Sample ID	NA	VCR-4809	VCR-4810
Date Received	26-May-14	26-May-14	26-May-14
Sample Temperature	15 °C	15 °C	15 °C
Filtration Date	20-May-14	20-May-14	20-May-14
Volume Used for DNA Extraction	760	760	760
DNA Extraction Date	29-May-14	29-May-14	29-May-14
DNA Concentration in Sample (extractable)	3879 ng/L	4097 ng/L	4089 ng/L
PCR Amplifiable DNA	Detected	Detected	Detected
Dhc qPCR Date Analyzed	6-Jun-14	6-Jun-14	6-Jun-14
<i>vcrA</i> qPCR Date Analyzed	NA	9-Jun-14	9-Jun-14
Laboratory Controls (see Tables 3 & 4)	Passed	Passed	Passed
Comments	--	--	--

Notes:

Refer to Tables 3 & 4 for detailed results of controls.

°C = degrees Celsius

Dhc = *Dehalococcoides*

NA = not applicable

PCR = polymerase chain reaction

qPCR = quantitative PCR

vcrA = vinyl chloride reductase

ng/L = nanograms per liter

mL = milliliters

DNA = Deoxyribonucleic acid

Table 2.4: Detailed Test Parameters, Gene-Trac Test Reference S-3220

Customer Sample ID	B34-2	B34-6	Blank
SiREM Dhc Sample ID	DHC-10501	DHC-10502	DHC-10503
SiREM <i>vcrA</i> Sample ID	VCR-4811	NA	NA
Date Received	26-May-14	26-May-14	26-May-14
Sample Temperature	15 °C	15 °C	15 °C
Filtration Date	20-May-14	20-May-14	20-May-14
Volume Used for DNA Extraction	660	660	660
DNA Extraction Date	2-Jun-14	2-Jun-14	2-Jun-14
DNA Concentration in Sample (extractable)	3589 ng/L	3549 ng/L	3636 ng/L
PCR Amplifiable DNA	Detected	Detected	Detected
Dhc qPCR Date Analyzed	6-Jun-14	6-Jun-14	6-Jun-14
<i>vcrA</i> qPCR Date Analyzed	9-Jun-14	NA	NA
Laboratory Controls (see Tables 3 & 4)	Passed	Passed	Passed
Comments	--	--	--

Notes:

Refer to Tables 3 & 4 for detailed results of controls.

°C = degrees Celsius

Dhc = *Dehalococcoides*

NA = not applicable

PCR = polymerase chain reaction

qPCR = quantitative PCR

vcrA = vinyl chloride reductase

ng/L = nanograms per liter

mL = milliliters

DNA = Deoxyribonucleic acid

Table 3: Gene-Trac Dhc Control Results, Test Reference S-3220

Laboratory Control	Analysis Date	Control Description	Spiked Dhc 16S rRNA Gene Copies per Liter	Recovered Dhc 16S rRNA Gene Copies per Liter	Comments
DNA Extraction Blank	4-Jun-14	DNA extraction sterile water (FB-2200)	0	2.6×10^3 U	--
Positive Control Low Concentration	6-Jun-14	qPCR with KB1 genomic DNA (CSLD-0758)	1.4×10^5	1.0×10^5	--
Positive Control High Concentration	6-Jun-14	qPCR with KB1 genomic DNA (CSDH-0758)	1.5×10^7	1.1×10^7	--
DNA Extraction Blank	6-Jun-14	DNA extraction sterile water (FB-2196)	0	2.6×10^3 U	--
DNA Extraction Blank	6-Jun-14	DNA extraction sterile water (FB-2197)	0	2.6×10^3 U	--
Negative Control	6-Jun-14	Tris Reagent Blank (TBD-0717)	0	2.6×10^3 U	--

Notes:

Dhc = *Dehalococcoides*

DNA = Deoxyribonucleic acid

qPCR = quantitative PCR

16S rRNA = 16S ribosomal ribonucleic acid

U Not detected, associated value is the quantification limit.

Table 4: Gene-Trac VC Control Results, Test Reference S-3220

Laboratory Control	Analysis Date	Control Description	Spiked <i>vcrA</i> reductase Gene Copies per Liter	Recovered <i>vcrA</i> reductase Gene Copies per Liter	Comments
Positive Control Low Concentration	9-Jun-14	qPCR with KB1 genomic DNA (CSLV-0530)	1.0×10^5	6.9×10^4	--
Positive Control High Concentration	9-Jun-14	qPCR with KB1 genomic DNA (CSHV-0530)	1.3×10^7	6.5×10^6	--
DNA Extraction Blank	9-Jun-14	DNA extraction sterile water (FB-2196)	0	2.6×10^3 U	--
DNA Extraction Blank	9-Jun-14	DNA extraction sterile water (FB-2197)	0	2.6×10^3 U	--
DNA Extraction Blank	9-Jun-14	DNA extraction sterile water (FB-2200)	0	2.6×10^3 U	--
Negative Control	9-Jun-14	Tris Reagent Blank (TBV-0501)	0	2.6×10^3 U	--
Positive Control Low Concentration	10-Jun-14	qPCR with KB1 genomic DNA (CSLV-0531)	9.8×10^4	9.2×10^4	--
Positive Control High Concentration	10-Jun-14	qPCR with KB1 genomic DNA (CSHV-0531)	9.6×10^6	1.1×10^7	--
Negative Control	10-Jun-14	Tris Reagent Blank (TBV-0502)	0	2.6×10^3 U	--

Notes:

DNA = Deoxyribonucleic acid

qPCR = quantitative PCR

16S rRNA = 16S ribosomal ribonucleic acid

U Not detected, associated value is the quantification limit.

vcrA = vinyl chloride reductase

Project Name <u>Røddekrø</u>		Project # <u>2188-0324114</u>		Analysis																	
Project Manager <u>Alice BADIN / Mette BROHOLT</u>				Preservative <u>0</u>		<u>0</u>		<u>0</u>		<u>0</u>											
Email Address <u>alice.badin@unine.ch / mubr@env.dtu.dk</u>				Gene-Trac Dhc		Gene-Trac VC		Gene-Trac Dhib		VerA		Pyrolog 454								Preservative Key 0. None 1. HCl 2. Other _____ 3. Other _____	
Company <u>University of Neuchâtel</u>																					
Address _____																					
Phone # <u>0041-79 87 38 884</u> Fax # _____																					
Sampler's Signature <u>[Signature]</u>		Sampler's Printed Name <u>ALICE BADIN</u>																			
Customer Sample ID		Sampling		Matrix		# of Containers		Other Information													
		Date	Time																		
B34-4																					
B34-4		20/5/14	12h30	4		4		~300-400 neel													
B34-3		20/5/14	13h20	4		4		~300-400 neel													
B34-2		20/5/14	14h15	4		4		~300-400 neel													
B34-6		20/5/14	15h00	4		4		~300-400 neel													
Bk (Blank)		20/5/14	18h00	2		2		300 neel													

Cooler Condition: <u>GOOD</u>		P.O. # _____		Turnaround Time Requested		For Lab Use Only <u>Filters</u> <u>F-01886-F-01935</u> Proposal #: _____	
Cooler Temperature: <u>15°C</u>		Billing Information		Normal <input type="checkbox"/>			
Custody Seals: Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>		Bill To: _____		Rush <input type="checkbox"/>			

Relinquished By: _____		Received By: _____		Relinquished By: _____		Received By: _____		Relinquished By: _____		Received By: _____	
Signature		Signature		Signature		Signature		Signature		Signature	
Printed Name		Printed Name <u>D. DiPasoli</u>		Printed Name		Printed Name		Printed Name		Printed Name	
Firm		Firm <u>SiREM</u>		Firm		Firm		Firm		Firm	
Date/Time		Date/Time <u>MAY 26 '14 12:00pm</u>		Date/Time		Date/Time		Date/Time		Date/Time	