IFA-Proficiency Testing Scheme for Water Analysis

Round C65
Volatile Halogenated Hydrocarbons

Sample Dispatch: 7 June 2021

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This report summarises the results of round “Volatile Halogenated Hydrocarbons” within the IFA-Test Proficiency Testing Scheme for Water Analysis. The samples were distributed to 21 participants on Monday, 7 June 2021. Each participant received two samples of 600 mL filled into aluminium bottles.

Closing date for reporting results to the IFA-Tulln was Friday, 2 July 2021. All laboratories submitted results. To make the participants anonymous, each laboratory obtained a letter code by random.

Samples

For sample preparation, ultrapure water was spiked with concentrated solutions of inorganic salts in order to simulate the ionic composition of natural ground water. The following salts were added to the samples: $Mg(NO_3)_2$, $MgSO_4$, Na_2SO_4, $NaHCO_3$, $KHCO_3$, $CaCl_2$ and $Ca(NO_3)_2$. Prior to sample preparation, samples of ultrapure water and artificial water matrix were analysed by Purge&Trap-GC-MS to exclude contamination.

The samples C65A and C65B were spiked with traces of trichloroethene, trichloromethane, 1,1,1-trichloroethane, tetrachloromethane, tribromomethane, tetrachloroethene, bromodichloromethane, 1,2-dichloroethane, dibromochloromethane, 1,1-dichloroethene, dichloromethane, cis-1,2-dichloroethene and trans-1,2-dichloroethene.

The calculation of the target concentrations of the compounds was based on the mass of standard added to the samples.

Homogeneity, accuracy and stability tests at the IFA-Tulln

For verification of homogeneity samples were analysed for the compounds of interest by Purge&Trap-GC-MS measurements prior to shipment to the participants. The results of the measurements are listed in the result tables and the parameter oriented part of the report (”IFA result”).

Usually we perform an additional check of PT-samples’ stability five weeks after sample preparation. The results of the measurements are listed in the result tables and the parameter oriented part of the report (”Stability test”).

Results

Data evaluation was based on target concentrations that were calculated from the weights of the standards used to prepare the samples. Their uncertainty intervals correspond to the expanded uncertainty (coverage factor k = 2) as described in the EURACHEM/CITAC Guide “Quantifying Uncertainty in Analytical Measurement, 3rd Edition (2012)”.

Recoveries for individual laboratory results and overall mean values are related to the assigned target concentrations. The results were tested for outliers using the Hampel outlier test (level of significance 99 %). A minimum number of four results was required for the outlier test.

Trans-1,2-dichloroethene was not added to sample C65A and 1,1,1-trichloroethane was not added to sample C65B in order to check the analytical blank values. The target concentrations were set to <0.1 µg/L trans-1,2-dichloroethene and <0.1 µg/L 1,1,1-trichloroethane, which meets the minimum quantifiable values defined by the Austrian ground and river water monitoring program and the quantification limits of the analytical methods applied in the IFA.

Standard deviations and coefficients of variation (CVs) were only calculated, when at least three results were available. The recoveries of the target concentrations, calculated from outlier-corrected data mean values ranged between 88.8 % (trichloroethene in sample C65B) and 112.3 % (1,2-dichloroethane in sample C65A) The between-laboratory coefficients of variation ranged from 6.8 % (1,1,1-trichloroethane in sample C65A) to 24.7 % (trans-1,2-dichloroethene in sample C65B).

The confidence intervals of the outlier-corrected laboratory mean values encompass the corresponding target values with their uncertainties.

z-Scores

The most common approach is to form the z-score given by

$$z = \frac{x_i - X}{\sigma_{pt}}$$

z	z-score
x_i	result of laboratory
X	target value or mean value („consensus value“)
σ_{pt}	standard deviation for proficiency assessment

Thus, the z-score is the ratio of the estimated bias (difference between result and target value) and a standard deviation. The z-score criteria were determined from relative standard deviations from all interlaboratory comparisons that have been organised by the IFA-Tulln from 2010 to 2020. They represent average performance data of all former participating laboratories.

This approach was chosen, because standard deviations of the outlier-corrected measurements substantially vary between individual proficiency test rounds. Averaging standard deviations from proficiency testing rounds of several years can provide standard deviations for proficiency assessment on a broad data basis. It is therefore more suitable than a standard deviation taken directly from the interlaboratory comparison (EN ISO/IEC 17043:2010, B.3.1.3). Another advantage of previously determined standard deviations is that the participants can foresee which z-scores can be expected by their routine analysis methods before participation.

<u>Calculation example:</u>

A laboratory found 7.20 µg/L for the parameter Dichloromethane (recovery of 120 %). The target value for Dichloromethane was 6.02 µg/L (100 %). The relative standard deviation for proficiency assessment is given in the table below (as well as in the annual program www.ifatest.eu) by 14 %, which is 0.84 µg/L Dichloromethane, when based on the target value.

$$z = \frac{x_i - X}{\sigma_{PT}} = \frac{7.20\ \mu g/L - 6.02\ \mu g/L}{0.84\ \mu g/L} \approx 1.4 \quad \textbf{or} \quad \frac{120\% - 100\%}{14\ \%} \approx 1.4$$

z	z-score
x_i	7.20 µg/L equivalent to 120 % (value of the laboratory)
X	6.02 µg/L equivalent to 100 % (target value)
σ_{pt}	0.84 µg/L equivalent to 14 % (standard deviation for proficiency assessment, see table below)

In the case of recalculation, deviations in the last digits may occur due to the fact that rounded values are given in the report for clarity.

The following table lists the standard deviations for proficiency assessment and their limits of applicability. Z-scores were only calculated, if the target values were higher than these limits.

Parameter	z-Score-criteria (%)	Lower limit [µg/L]
1,1,1-Trichloroethane	15	0.15
1,1-Dichloroethene	18	0.35
1,2-Dichloroethane	13	0.5
cis-1,2-Dichloroethene	14	0.15
trans-1,2-Dichloroethene	13	0.15
Bromodichloromethane	13	0.15
Dibromochloromethane	14	0.2
Dichloromethane	14	1
Tetrachloroethene	16	0.15
Tetrachloromethane	18	0.15
Tribromomethane	15	0.2
Trichloroethene	15	0.15
Trichloromethane	14	0.25

Normally, a classification based on z-scores is made this way:

|z-Score|	Classification
≤2	satisfactory
2<|z|<3	questionable
≥3	unsatisfactory

The z-scores are listed in the parameter-oriented evaluation in the tables next to the recoveries. Additionally, each laboratory receives a sheet on which the obtained z-scores are summarized and graphically represented. The standard deviations for proficiency assessment are given in concentration units there.

Illustration of results

An explanation to the illustration of the results is given on the following page.

The **laboratory oriented part** contains the measurement results and reported uncertainties of each individual laboratory for all parameters together with the achieved recoveries in graphical and tabular form. This part of the report also lists tables with the results originally reported by the laboratories.

In the **parameter oriented part** the reported results and corresponding uncertainties are illustrated together with recoveries of the target values and the z-scores for each parameter and all laboratories. This information is presented in graphical and tabular form. Results, which were identified as outliers by the Hampel test are marked with an asterisk (*) in the column “out”. These values were not considered for the calculation of statistical parameters (mean values, standard deviations and confidence intervals). Moreover, the parameter oriented part contains the uncertainties of the target value. The uncertainty intervals correspond to the expanded uncertainty (coverage factor $k = 2$) as described in the EURACHEM / CITAC Guide “Quantifying Uncertainty in Analytical Measurement, 3rd Edition (2012)”. The uncertainty interval of the reference concentration is illustrated in the graphs as a grey band around the 100 % recovery line.

Results, for which no recoveries could be calculated, are illustrated by one of the following symbols: **FN** (false negative), **FP** (false positive) or • - symbol.

- “FN”: a result is considered false negative when the “< result” reported is lower than the corresponding target value
- “FP”: False positive results can only be obtained for compounds that were evaluated on the basis of a “< target value”. A result is termed FP if it does not include (strike) the “< target” with its measurement uncertainty.
- “•”: All other results for which no recovery can be calculated are illustrated by this symbol

Tulln, 09 July 2021

Sample M106A

Parameter Copper

Target value ± U (k=2)	4,79 µg/l	±	0,13 µg/l	*Obtained from sample preperation, U=uncertainty*
IFA result ± U (k=2)	4,79 µg/l	±	0,38 µg/l	*Determined at IFA prior to shipment of samples*
Stability test ± U (k=2)	4,69 µg/l	±	0,38 µg/l	*Determined at IFA 3 weeks after sample dispatch*

Lab Code	Result	±	Unit	Recovery	z-Score
A	5,16	0,4128	µg/l	108%	0,90
B	4,22	0,42	µg/l	88%	-1,38
C	4,45	0,13	µg/l	93%	-0,83
D			µg/l		
E			µg/l		
F	4,10	0,08	µg/l	86%	-1,68
G			µg/l		
H			µg/l		
I	4,75	0,74	µg/l	99%	-0,10
J	<5		µg/l	•	
K	4,76		µg/l	99%	-0,07
L	<10		µg/l	•	
M	4,8	0,5	µg/l	100%	0,02
N	3,7	0,4	µg/l	77%	-2,65
O	4,47	0,447	µg/l	93%	-0,78
P	6,0		µg/l	125%	2,94
Q	4,17	0,2	µg/l	87%	-1,51
R	4,6	0,8	µg/l	96%	-0,46
S	4,44	0,67	µg/l	93%	-0,85
T			µg/l		
U	4,675	0,935	µg/l	98%	-0,28
V	5,0	0,50	µg/l	104%	0,51
W	3,54	0,3	µg/l	74%	-3,03
X	7,108 *	0,749	µg/l	148%	5,63
Y	<10		µg/l	•	
Z			µg/l		
AA	<3,0		µg/l	FN	
AB	3,775	0,107	µg/l	79%	-2,46
AC	<10,0		µg/l	•	

Recovery of target value in percent

z-Score of the laboratory

An asterik indicates a result detected as outlier by Hampel test

Interval expected to encompass target value as stated by participant

	All results	Outliers excl.	Unit
Mean ± CI(99%)	4,65 ± 0,57	4,51 ± 0,42	µg/l
Recov. ± CI(99%)	97,1 ± 12,0	94,1 ± 8,8	%
SD between labs	0,84	0,59	µg/l
RSD between labs	18,1	13,2	%
n for calculation	18	17	

Between laboratory standard deviation

Laboratory mean and recovery of target value with corresponding confidence intervals (p=99%)

Number of results used for calculation of statistic parameters

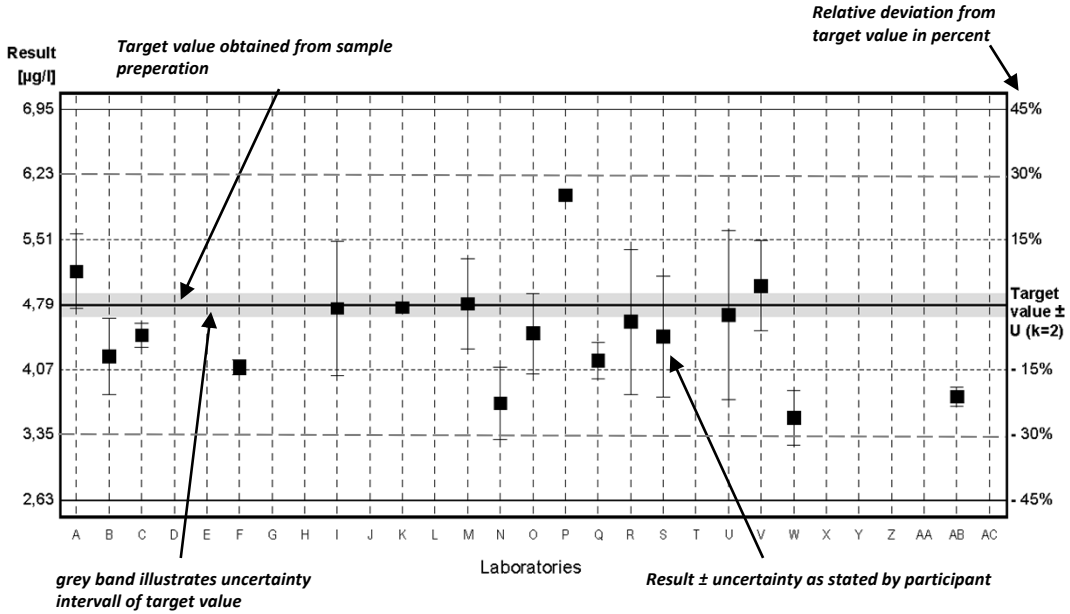


Diagram 1: Measurement results and their uncertainties

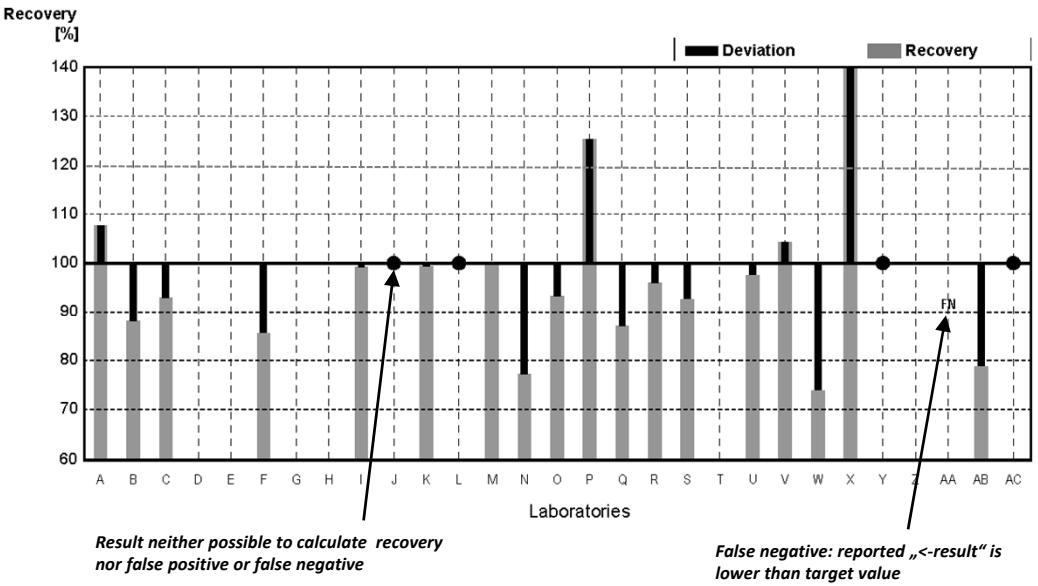


Diagram 2: Recoveries and deviations from target values

EXPLANATION

Illustration of Results
Tables and Parameter Oriented Part

Round C65
Volatile Halogenated Hydrocarbons

Sample Dispatch: 7 June 2021

Results Sample C65A

	Trichloro-ethene	Tetrachloro-ethene	1,1,1-Tri-chloroethane	Trichloro-methane	Tetrachloro-methane	1,1-Dichloro-ethene	Tribromo-methane
Target value	1.88	1.79	0.274	0.323	0.370	3.43	0.375
IFA Result	1.84	1.69	0.274	0.336	0.381	3.40	0.421
Stability test	1.85	1.71	0.264	0.319	0.362	3.38	0.406
A	1.95	1.85	0.295	0.316	0.410	3.67	0.412
B	1.820	1.529	0.316	0.363	0.385	4.755	0.363
C	2.57	2.96	0.463	0.492	0.61	5.78	0.65
D							
E	1.85	1.80	0.285	0.322	0.369	3.95	0.424
F	1.07	1.58	0.280	0.330	0.380	3.61	0.360
G	2.01	2.39	.380	.260	0.680		0.290
H	2.219	2.149	0.242	0.311	0.352	4.502	0.146
I	1.97	1.76	0.280	0.410	0.470	3.61	0.338
J	1.96	2.01	0.240	0.290	0.365	4.13	0.278
K	1.84	1.83	0.270	0.310	0.350	3.470	0.410
L	1.79	1.18	0.278	0.408	0.308		0.521
M	1.65	1.53	0.288	0.316	0.365	3.37	0.340
N	1.877	1.728	0.268	0.335	0.360	3.639	0.422
O	1.60	2.71	0.351	0.460	0.481	5.7	0.443
P	1.50	1.70	0.285	0.350	0.400	3.90	0.400
Q	1.76	1.66	0.280	0.330	0.370	3.14	0.400
R	1.364	1.400	0.222	0.366	0.243	3.210	0.353
S	1.88	1.75	0.271	0.278	0.404	3.45	0.364
T	1.65	1.29	0.160	<0.05	0.276	3.02	0.350
U	1.75	1.56	0.270	0.323	0.377		0.352

All data in µg/L

Measurement Uncertainties Sample C65A

	Trichloro-ethene ±	Tetrachloro-ethene ±	1,1,1-Tri-chloroethane ±	Trichloro-methane ±	Tetrachloro-methane ±	1,1-Dichloro-ethene ±	Tribromo-methane ±
Target value	0.10	0.09	0.016	0.037	0.024	0.13	0.028
IFA Result	0.28	0.25	0.041	0.050	0.057	0.51	0.063
Stability test	0.28	0.26	0.040	0.048	0.054	0.51	0.061
A	0.39	0.37	0.059	0.063	0.082	0.73	0.082
B	0.2366	0.2385	0.0379	0.0402	0.0458	0.5754	0.0486
C	0.67	0.77	0.12	0.13	0.16	1.50	0.17
D							
E	0.13	0.15	0.054	0.064	0.093	0.77	0.11
F	0.21	0.32	0.056	0.066	0.076	0.72	0.072
G							
H	0.333	0.322	0.036	0.047	0.053	0.675	0.022
I	0.39	0.35	0.06	0.08	0.09	0.72	0.07
J	0.5	0.5	0.1	0.1	0.1	1.0	0.1
K	0.368	0.366	0.054	0.062	0.070	0.694	0.082
L	0.06	0.07	0.02	0.02	0.02		0.02
M	0.058	0.048	0.008	0.013	0.012	0.096	0.010
N	0.503	0.385	0.037	0.045	0.056	0.459	0.057
O	0.326	0.59	0.088	0.079	0.122	1.1	0.073
P	0.45	0.51	0.09	0.11	0.12	1.2	0.12
Q	0.26	0.25	0.04	0.05	0.06	0.47	0.06
R	0.136	0.140	0.022	0.037	0.024	0.321	0.035
S	0.104	0.105	0.009	0.014	0.016	0.131	0.014
T	0.33	0.32	0.03	0	0.07	0.75	0.11
U	0.17	0.16	0.027	0.032	0.038		0.035

All data in µg/L

Results Sample C65A

	Bromodichloro-methane	Dibromochloro-methane	Dichloro-methane	1,2-Dichloro-ethane	cis-1,2-Dichloroethene	trans-1,2-Dichloroethene
Target value	0.271	1.40	2.87	0.596	0.259	<0.1
IFA Result	0.300	1.31	2.86	0.598	0.282	<0.1
Stability test	0.280	1.30	2.82	0.574	0.258	<0.1
A	0.303	1.57	3.19	0.725	<0.5	<0.5
B	0.291	1.642	4.530	0.679	0.255	<0.05
C	0.424	1.54	4.45	0.83	<0.2	<0.1
D			5.17	0.928		
E	0.282	1.39	3.58	0.585	0.199	<0.1
F	0.290	1.33	2.99	0.600	0.250	<0.1
G	0.210	1.06				
H	0.202	1.407	3.148	0.171	0.257	<0.1
I	0.230	1.11	2.791	0.750	0.479	<BG
J	0.233	1.06	<0.8	<0.8		
K	0.260	1.31	2.750	0.590	0.210	<0.020
L	0.318	1.70				
M	0.261	1.27	2.69	0.560	0.230	<0.10
N	0.284	1.462	3.025	0.638	0.250	0.0173
O	0.323	1.61	4.29	0.774	0.328	<0.1
P	0.295	1.50	3.30	0.685	0.275	<0.1
Q	0.293	1.33	2.87	0.536	<0.5	<0.5
R	0.2619	1.262	2.688	0.607	0.211	0.168
S	0.268	1.36	2.81	0.596	0.237	<0.05
T	0.232	1.24	2.70	0.500	0.222	<0.05
U	0.261	1.23	2.96	0.80	0.344	

All data in µg/L

Measurement Uncertainties Sample C65A

	Bromodichloro-methane ±	Dibromochloro-methane ±	Dichloro-methane ±	1,2-Dichloro-ethane ±	cis-1,2-Dichloroethene ±	trans-1,2-Dichloroethene ±
Target value	0.022	0.07	0.26	0.069	0.023	
IFA Result	0.045	0.20	0.43	0.090	0.042	
Stability test	0.042	0.20	0.42	0.086	0.039	
A	0.061	0.31	0.64	0.145		
B	0.0308	0.1691	0.8426	0.0794	0.0281	
C	0.11	0.40	1.16	0.22		
D						
E	0.071	0.35	0.90	0.14	0.037	
F	0.058	0.27	0.60	0.120	0.050	
G						
H	0.030	0.211	0.472	0.026	0.039	
I	0.05	0.22	0.56	0.15	0.10	
J	0.1	0.3				
K	0.052	0.262	0.550	0.118	0.042	
L	0.01	0.12				
M	0.010	0.057	0.109	0.021	0.007	
N	0.062	0.935	0.847	0.102	0.113	0.0056
O	0.080	0.39	1.41	0.177	0.071	
P	0.09	0.45	0.99	0.21	0.083	
Q	0.04	0.20	0.43	0.08		
R	0.026	0.126	0.269	0.061	0.021	0.017
S	0.013	0.095	0.092	0.104	0.012	
T	0.06	0.31	0.54	0.13	0.04	0
U	0.026	0.12	0.30	0.08	0.034	

All data in µg/L

Results Sample C65B

	Trichloro-ethene	Tetrachloro-ethene	1,1,1-Tri-chloroethane	Trichloro-methane	Tetrachloro-methane	1,1-Dichloro-ethene	Tribromo-methane
Target value	0.375	0.928	<0.1	0.846	0.819	1.29	0.869
IFA Result	0.374	0.898	<0.1	0.817	0.749	1.27	0.815
Stability test	0.354	0.895	<0.1	0.820	0.739	1.23	0.812
A	0.381	0.884	<0.1	0.809	0.910	1.37	0.904
B	0.271	0.910	<0.05	1.302	1.060	2.246	1.039
C	0.422	1.72	<0.1	1.32	1.26	2.40	1.33
D							
E	0.373	0.876	<0.1	0.820	0.808	1.39	0.862
F	0.220	0.78	<0.1	0.84	0.79	1.29	0.77
G	0.390	1.33	<0.100	.650	1.38		0.680
H	0.339	1.003	<0.1	0.971	0.938	1.841	0.757
I	0.273	0.767	<BG	1.06	0.644	1.30	0.442
J	0.363	1.01	<0.1	0.800	0.710	1.38	0.613
K	0.370	0.870	<0.020	0.840	0.750	1.270	0.880
L	0.356	0.548	<0.1	1.09	0.68		1.22
M	0.307	0.736	<0.10	0.734	0.716	1.12	0.749
N	0.372	0.911	<0.05	0.872	0.801	1.348	0.950
O	0.129	0.60	<0.1	0.50	0.446	0.89	0.426
P	0.295	0.860	<0.1	0.910	0.825	1.40	0.880
Q	0.355	0.849	<0.1	0.835	0.746	1.16	0.837
R	0.286	0.722	<0.01	0.795	0.569	1.122	0.688
S	0.355	0.899	<0.05	0.764	0.760	1.26	0.836
T	0.274	0.53	<0.05	<0.05	0.58	1.01	0.71
U	0.328	0.76	<0.1	0.83	0.80		0.74

All data in µg/L

Measurement Uncertainties Sample C65B

	Trichloro-ethene ±	Tetrachloro-ethene ±	1,1,1-Tri-chloroethane ±	Trichloro-methane ±	Tetrachloro-methane ±	1,1-Dichloro-ethene ±	Tribromo-methane ±
Target value	0.022	0.048		0.058	0.044	0.07	0.049
IFA Result	0.056	0.135		0.123	0.112	0.19	0.122
Stability test	0.053	0.134		0.123	0.111	0.18	0.122
A	0.076	0.177		0.162	0.182	0.27	0.181
B	0.0352	0.1419		0.1445	0.1261	0.2718	0.1392
C	0.11	0.45		0.34	0.33	0.62	0.35
D							
E	0.027	0.073		0.16	0.20	0.27	0.22
F	0.044	0.16		0.17	0.16	0.26	0.15
G							
H	0.051	0.150		0.146	0.141	0.276	0.113
I	0.05	0.15		0.21	0.13	0.26	0.09
J	0.1	0.3		0.2	0.2	0.3	0.2
K	0.074	0.174		0.168	0.150	0.254	0.176
L	0.01	0.04		0.05	0.03		0.03
M	0.005	0.005		0.002	0.002	0.006	0.007
N	0.100	0.203		0.118	0.124	0.170	0.129
O	0.016	0.13		0.08	0.101	0.18	0.138
P	0.09	0.26		0.27	0.25	0.42	0.26
Q	0.05	0.13		0.13	0.11	0.17	0.13
R	0.029	0.072	0.005	0.080	0.057	0.112	0.069
S	0.007	0.111		0.119	0.248	0.109	0.116
T	0.06	0.13	0	0	0.15	0.25	0.21
U	0.033	0.08		0.08	0.08		0.07

All data in µg/L

Results Sample C65B

	Bromodichloro-methane	Dibromochloro-methane	Dichloro-methane	1,2-Dichloro-ethane	cis-1,2-Dichloroethene	trans-1,2-Dichloroethene
Target value	1.35	0.435	2.16	1.38	0.909	2.55
IFA Result	1.28	0.446	2.12	1.36	0.872	2.42
Stability test	1.29	0.431	2.11	1.35	0.878	2.43
A	1.41	0.493	2.32	1.58	0.780	2.71
B	1.712	0.496	3.575	1.783	1.173	3.861
C	2.00	0.92	3.48	1.88	1.09	4.21
D			3.85	2.32		
E	1.32	0.413	2.83	1.35	0.657	3.11
F	1.31	0.430	2.26	1.41	0.80	2.45
G	1.04	0.330				
H	1.378	0.364	2.640	<0.1	1.069	3.187
I	0.700	0.187	2.033	1.62	0.940	2.200
J	1.10	0.298	<0.8	1.14		
K	1.320	0.430	2.120	1.370	0.960	2.660
L	1.60	0.535				
M	1.19	0.387	1.86	1.26	0.749	2.15
N	1.413	0.454	2.258	1.507	0.914	2.661
O	0.72	0.227	1.50	0.79	0.487	1.58
P	0.470	0.470	2.40	1.55	0.945	<0.1
Q	1.34	0.474	2.07	1.38	0.779	2.34
R	1.275	0.373	2.128	1.296	0.831	2.433
S	1.34	0.427	2.17	1.39	1.00	2.83
T	1.11	0.347	1.91	1.10	0.77	2.29
U	1.27	0.394	2.18	1.49	0.93	

All data in µg/L

Measurement Uncertainties Sample C65B

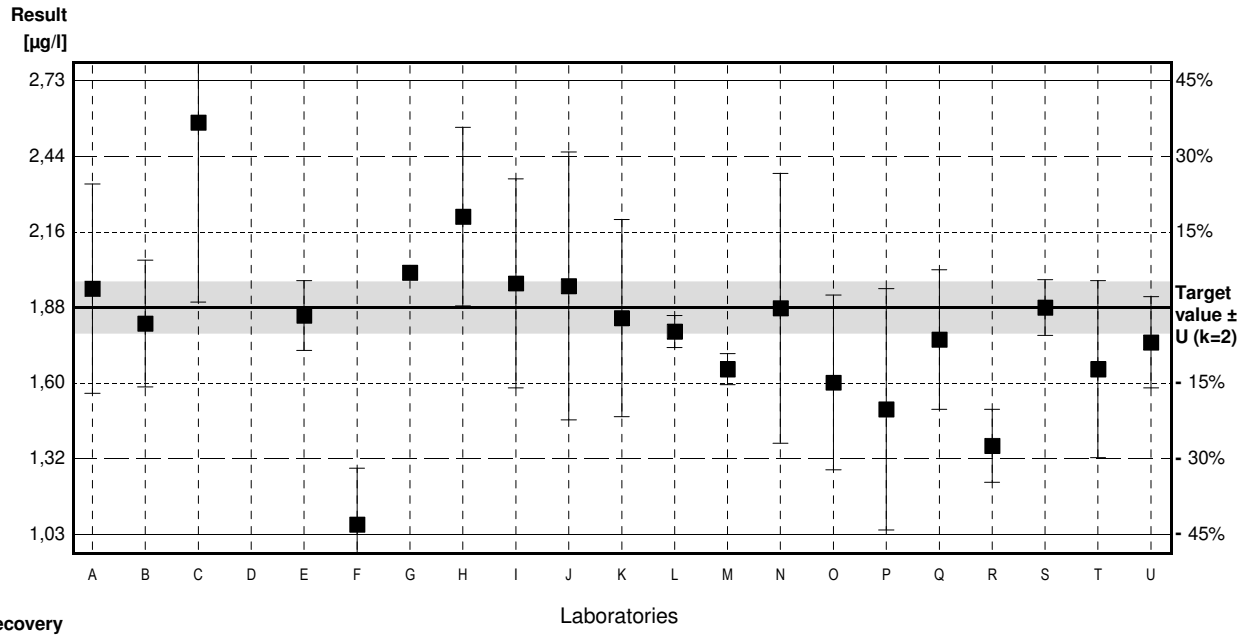
	Bromodichloro-methane ±	Dibromochloro-methane ±	Dichloro-methane ±	1,2-Dichloro-ethane ±	cis-1,2-Dichloroethene ±	trans-1,2-Dichloroethene ±
Target value	0.07	0.025	0.21	0.09	0.049	0.13
IFA Result	0.19	0.067	0.32	0.20	0.131	0.36
Stability test	0.19	0.065	0.32	0.20	0.132	0.36
A	0.28	0.099	0.46	0.32	0.156	0.54
B	0.1815	0.0511	0.6650	0.2086	0.1290	0.5174
C	0.52	0.24	0.90	0.49	0.28	1.09
D						
E	0.33	0.10	0.71	0.33	0.12	0.62
F	0.26	0.086	0.45	0.28	0.16	0.49
G						
H	0.207	0.055	0.396		0.160	0.478
I	0.14	0.04	0.41	0.32	0.19	0.44
J	0.3	0.1		0.3		
K	0.264	0.086	0.424	0.274	0.192	0.532
L	0.07	0.02				
M	0.002	0.003	0.018	0.010	0.002	0.011
N	0.310	0.123	0.632	0.241	0.413	0.862
O	0.13	0.065	0.28	0.15	0.088	0.22
P	0.14	0.14	0.72	0.465	0.284	
Q	0.20	0.07	0.31	0.21	0.12	0.35
R	0.128	0.037	0.213	0.130	0.083	0.243
S	0.120	0.102	0.087	0.110	0.107	0.157
T	0.28	0.09	0.38	0.28	0.15	0.46
U	0.13	0.039	0.22	0.15	0.09	

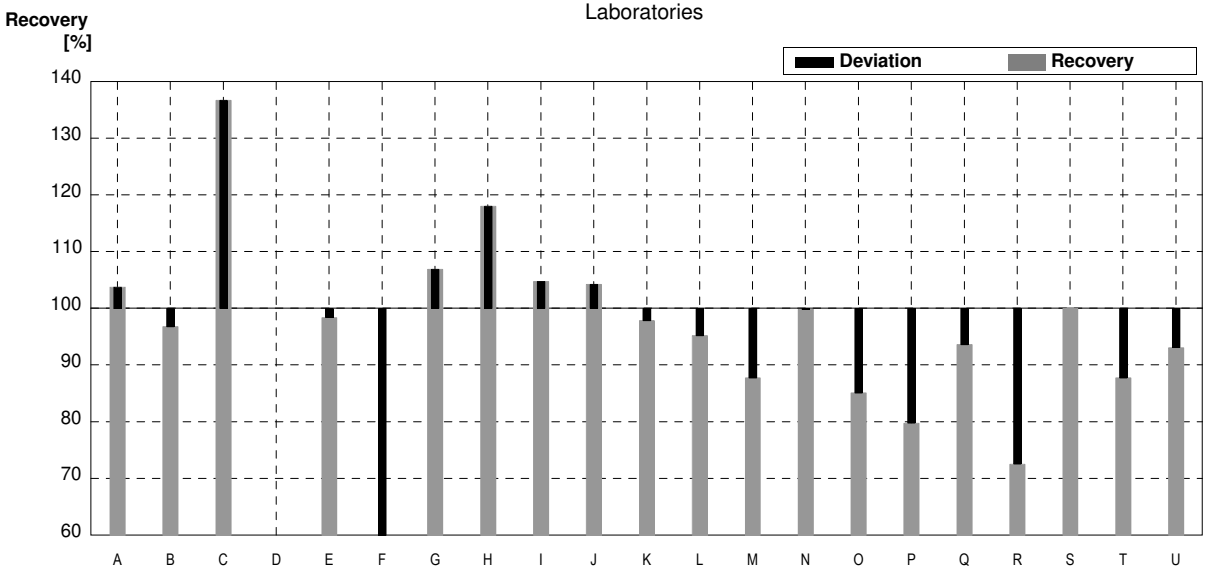
All data in µg/L

Sample C65A
Parameter Trichloroethene

Target value	± U (k=2)	1,88 µg/l	±	0,10 µg/l
IFA result	± U (k=2)	1,84 µg/l	±	0,28 µg/l
Stability test	± U (k=2)	1,85 µg/l	±	0,28 µg/l

Lab Code	Result	±	Unit	Recovery	z-Score
A	1,95	0,39	µg/l	104%	0,25
B	1,820	0,2366	µg/l	97%	-0,21
C	2,57 *	0,67	µg/l	137%	2,45
D			µg/l		
E	1,85	0,13	µg/l	98%	-0,11
F	1,07 *	0,21	µg/l	57%	-2,87
G	2,01		µg/l	107%	0,46
H	2,219	0,333	µg/l	118%	1,20
I	1,97	0,39	µg/l	105%	0,32
J	1,96	0,5	µg/l	104%	0,28
K	1,84	0,368	µg/l	98%	-0,14
L	1,79	0,06	µg/l	95%	-0,32
M	1,65	0,058	µg/l	88%	-0,82
N	1,877	0,503	µg/l	100%	-0,01
O	1,60	0,326	µg/l	85%	-0,99
P	1,50	0,45	µg/l	80%	-1,35
Q	1,76	0,26	µg/l	94%	-0,43
R	1,364	0,136	µg/l	73%	-1,83
S	1,88	0,104	µg/l	100%	0,00
T	1,65	0,33	µg/l	88%	-0,82
U	1,75	0,17	µg/l	93%	-0,46



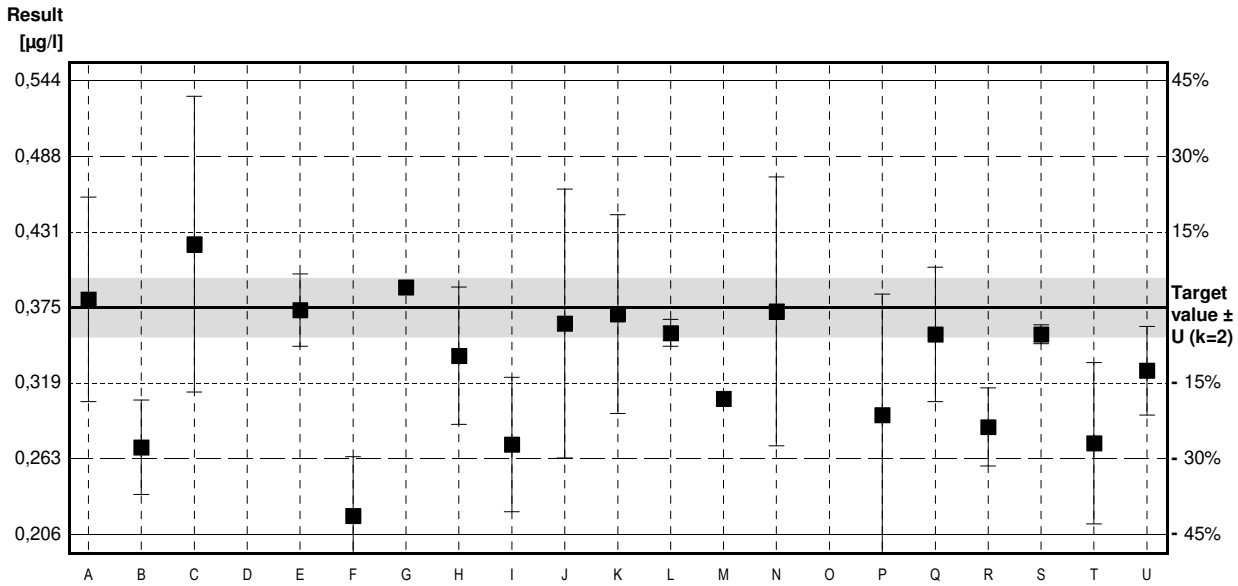


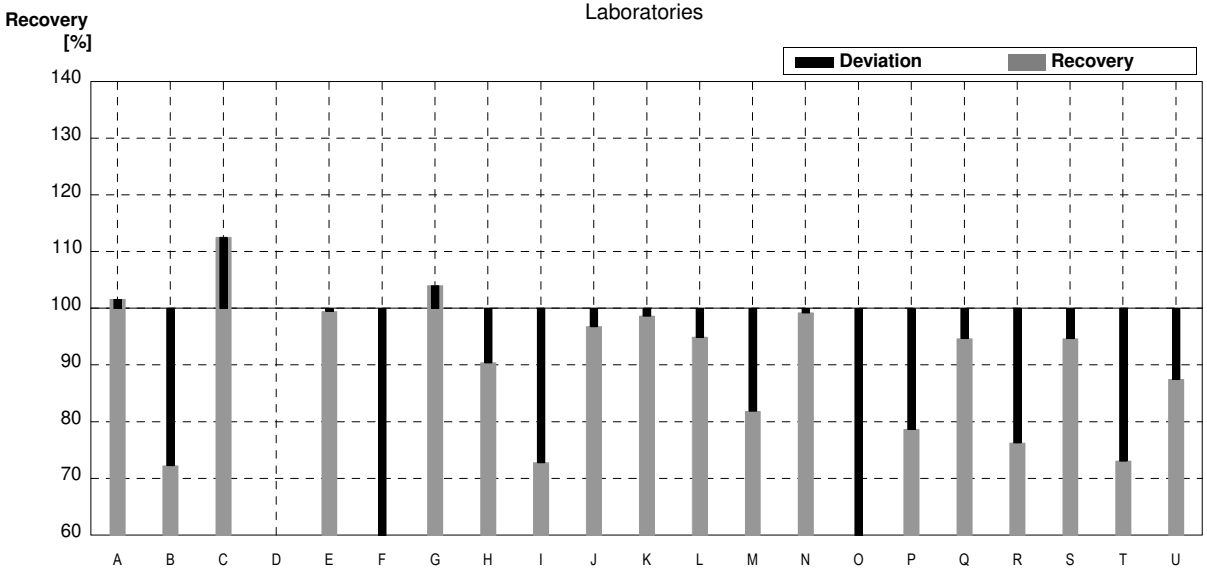
	All results	Outliers excl.	Unit
Mean ± CI(99%)	1,80 ± 0,20	1,80 ± 0,14	µg/l
Recov. ± CI(99%)	96,0 ± 10,5	95,9 ± 7,3	%
SD between labs	0,31	0,20	µg/l
RSD between labs	17,1	11,1	%
n for calculation	20	18	

Sample C65B
Parameter Trichloroethene

Target value	± U (k=2)	0,375 µg/l	±	0,022 µg/l
IFA result	± U (k=2)	0,374 µg/l	±	0,056 µg/l
Stability test	± U (k=2)	0,354 µg/l	±	0,053 µg/l

Lab Code	Result	±	Unit	Recovery	z-Score
A	0,381	0,076	µg/l	102%	0,11
B	0,271	0,0352	µg/l	72%	-1,85
C	0,422	0,11	µg/l	113%	0,84
D			µg/l		
E	0,373	0,027	µg/l	99%	-0,04
F	0,220	0,044	µg/l	59%	-2,76
G	0,390		µg/l	104%	0,27
H	0,339	0,051	µg/l	90%	-0,64
I	0,273	0,05	µg/l	73%	-1,81
J	0,363	0,1	µg/l	97%	-0,21
K	0,370	0,074	µg/l	99%	-0,09
L	0,356	0,01	µg/l	95%	-0,34
M	0,307	0,005	µg/l	82%	-1,21
N	0,372	0,100	µg/l	99%	-0,05
O	0,129 *	0,016	µg/l	34%	-4,37
P	0,295	0,09	µg/l	79%	-1,42
Q	0,355	0,05	µg/l	95%	-0,36
R	0,286	0,029	µg/l	76%	-1,58
S	0,355	0,007	µg/l	95%	-0,36
T	0,274	0,06	µg/l	73%	-1,80
U	0,328	0,033	µg/l	87%	-0,84



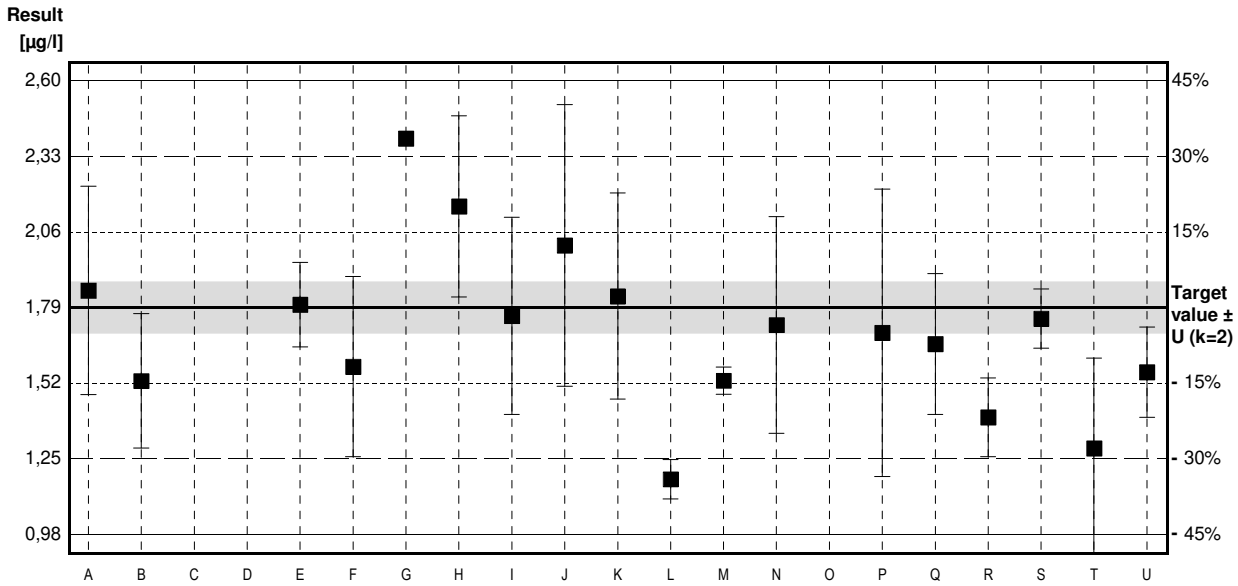


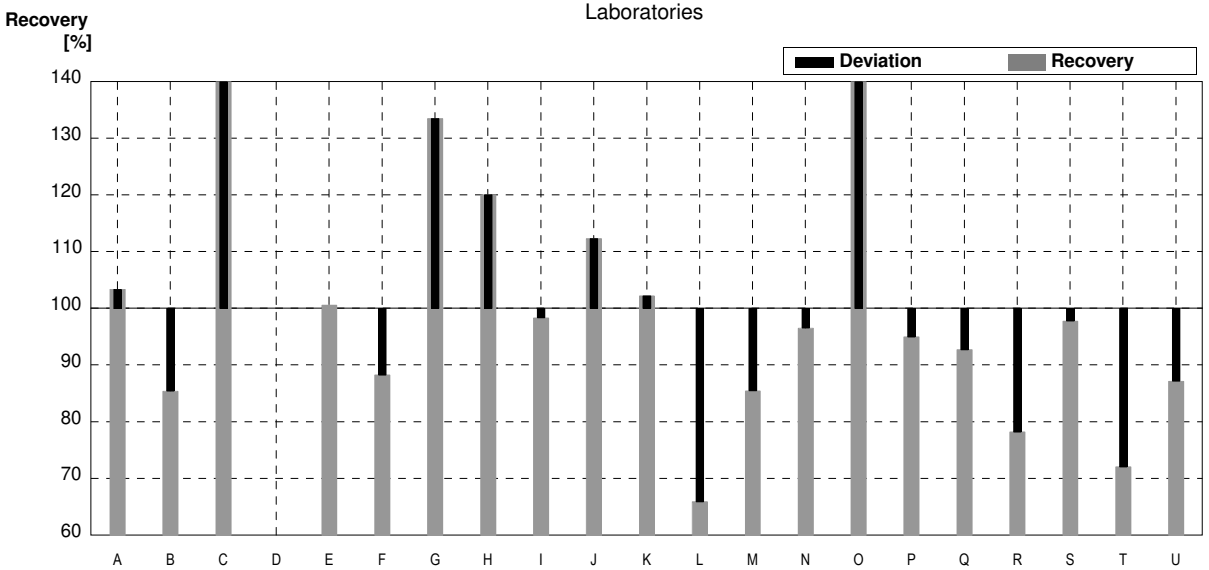
	All results	Outliers excl.	Unit
Mean ± CI(99%)	0,323 ± 0,044	0,333 ± 0,034	µg/l
Recov. ± CI(99%)	86,1 ± 11,6	88,8 ± 9,1	%
SD between labs	0,068	0,052	µg/l
RSD between labs	21,1	15,6	%
n for calculation	20	19	

Sample C65A
Parameter Tetrachloroethene

Target value	± U (k=2)	1,79 µg/l	±	0,09 µg/l
IFA result	± U (k=2)	1,69 µg/l	±	0,25 µg/l
Stability test	± U (k=2)	1,71 µg/l	±	0,26 µg/l

Lab Code	Result	±	Unit	Recovery	z-Score
A	1,85	0,37	µg/l	103%	0,21
B	1,529	0,2385	µg/l	85%	-0,91
C	2,96 *	0,77	µg/l	165%	4,09
D			µg/l		
E	1,80	0,15	µg/l	101%	0,03
F	1,58	0,32	µg/l	88%	-0,73
G	2,39		µg/l	134%	2,09
H	2,149	0,322	µg/l	120%	1,25
I	1,76	0,35	µg/l	98%	-0,10
J	2,01	0,5	µg/l	112%	0,77
K	1,83	0,366	µg/l	102%	0,14
L	1,18	0,07	µg/l	66%	-2,13
M	1,53	0,048	µg/l	85%	-0,91
N	1,728	0,385	µg/l	97%	-0,22
O	2,71 *	0,59	µg/l	151%	3,21
P	1,70	0,51	µg/l	95%	-0,31
Q	1,66	0,25	µg/l	93%	-0,45
R	1,400	0,140	µg/l	78%	-1,36
S	1,75	0,105	µg/l	98%	-0,14
T	1,29	0,32	µg/l	72%	-1,75
U	1,56	0,16	µg/l	87%	-0,80



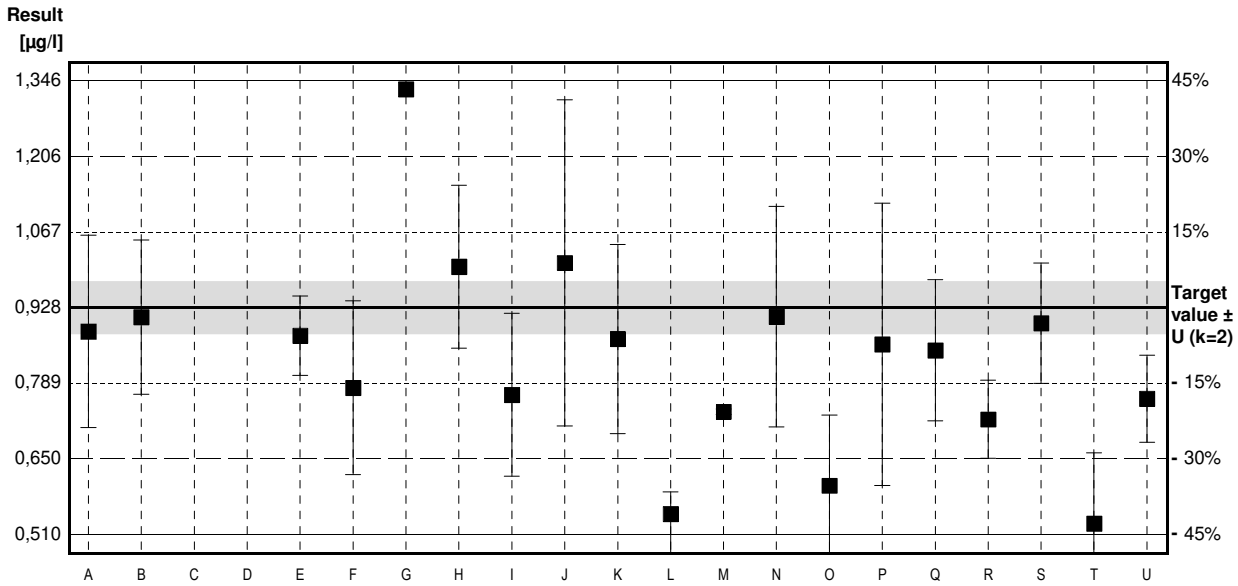


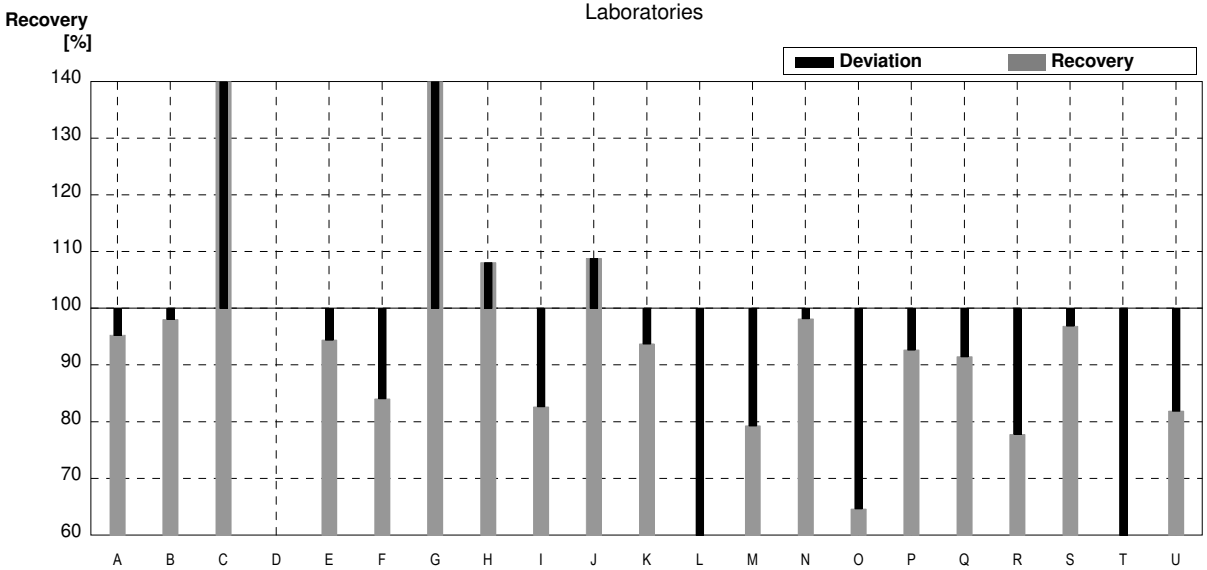
	All results	Outliers excl.	Unit
Mean ± CI(99%)	1,82 ± 0,29	1,71 ± 0,20	µg/l
Recov. ± CI(99%)	101,6 ± 15,9	95,3 ± 11,2	%
SD between labs	0,45	0,29	µg/l
RSD between labs	24,5	17,1	%
n for calculation	20	18	

Sample C65B
Parameter Tetrachloroethene

Target value	± U (k=2)	0,928 µg/l	±	0,048 µg/l
IFA result	± U (k=2)	0,898 µg/l	±	0,135 µg/l
Stability test	± U (k=2)	0,895 µg/l	±	0,134 µg/l

Lab Code	Result	±	Unit	Recovery	z-Score
A	0,884	0,177	µg/l	95%	-0,30
B	0,910	0,1419	µg/l	98%	-0,12
C	1,72 *	0,45	µg/l	185%	5,33
D			µg/l		
E	0,876	0,073	µg/l	94%	-0,35
F	0,78	0,16	µg/l	84%	-1,00
G	1,33		µg/l	143%	2,71
H	1,003	0,150	µg/l	108%	0,51
I	0,767	0,15	µg/l	83%	-1,08
J	1,01	0,3	µg/l	109%	0,55
K	0,870	0,174	µg/l	94%	-0,39
L	0,548	0,04	µg/l	59%	-2,56
M	0,736	0,005	µg/l	79%	-1,29
N	0,911	0,203	µg/l	98%	-0,11
O	0,60	0,13	µg/l	65%	-2,21
P	0,860	0,26	µg/l	93%	-0,46
Q	0,849	0,13	µg/l	91%	-0,53
R	0,722	0,072	µg/l	78%	-1,39
S	0,899	0,111	µg/l	97%	-0,20
T	0,53	0,13	µg/l	57%	-2,68
U	0,76	0,08	µg/l	82%	-1,13



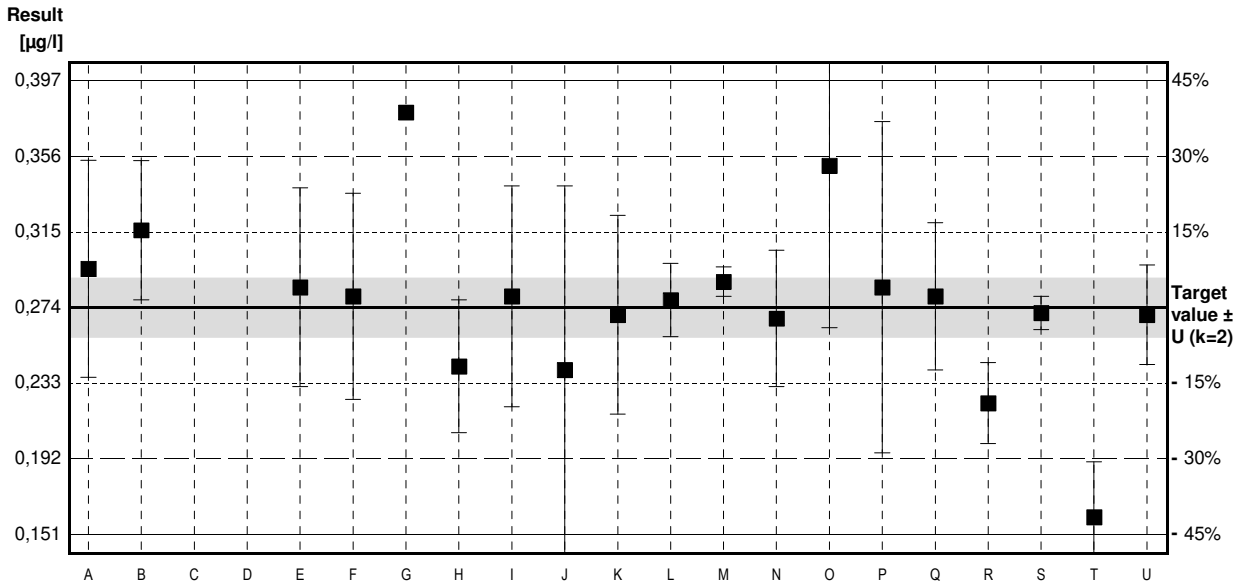


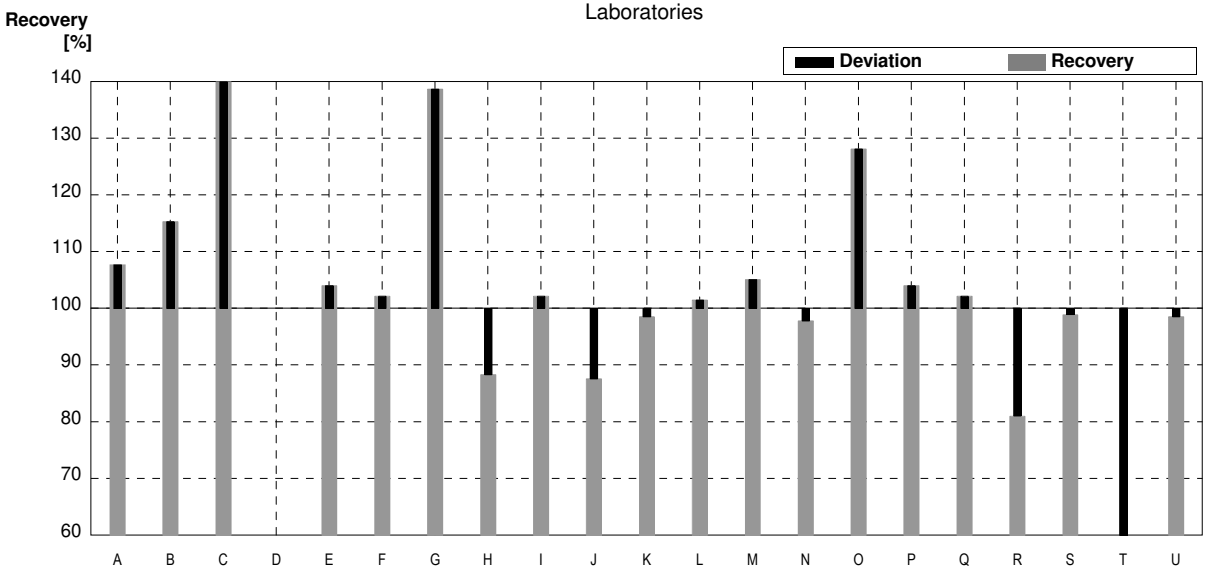
	All results	Outliers excl.	Unit
Mean ± CI(99%)	0,878 ± 0,170	0,834 ± 0,120	µg/l
Recov. ± CI(99%)	94,6 ± 18,3	89,9 ± 12,9	%
SD between labs	0,265	0,181	µg/l
RSD between labs	30,2	21,7	%
n for calculation	20	19	

Sample C65A
Parameter 1,1,1-Trichloroethane

Target value	± U (k=2)	0,274 µg/l	±	0,016 µg/l
IFA result	± U (k=2)	0,274 µg/l	±	0,041 µg/l
Stability test	± U (k=2)	0,264 µg/l	±	0,040 µg/l

Lab Code	Result	±	Unit	Recovery	z-Score
A	0,295	0,059	µg/l	108%	0,51
B	0,316	0,0379	µg/l	115%	1,02
C	0,463 *	0,12	µg/l	169%	4,60
D			µg/l		
E	0,285	0,054	µg/l	104%	0,27
F	0,280	0,056	µg/l	102%	0,15
G	,380 *		µg/l	139%	2,58
H	0,242	0,036	µg/l	88%	-0,78
I	0,280	0,06	µg/l	102%	0,15
J	0,240	0,1	µg/l	88%	-0,83
K	0,270	0,054	µg/l	99%	-0,10
L	0,278	0,02	µg/l	101%	0,10
M	0,288	0,008	µg/l	105%	0,34
N	0,268	0,037	µg/l	98%	-0,15
O	0,351 *	0,088	µg/l	128%	1,87
P	0,285	0,09	µg/l	104%	0,27
Q	0,280	0,04	µg/l	102%	0,15
R	0,222 *	0,022	µg/l	81%	-1,27
S	0,271	0,009	µg/l	99%	-0,07
T	0,160 *	0,03	µg/l	58%	-2,77
U	0,270	0,027	µg/l	99%	-0,10



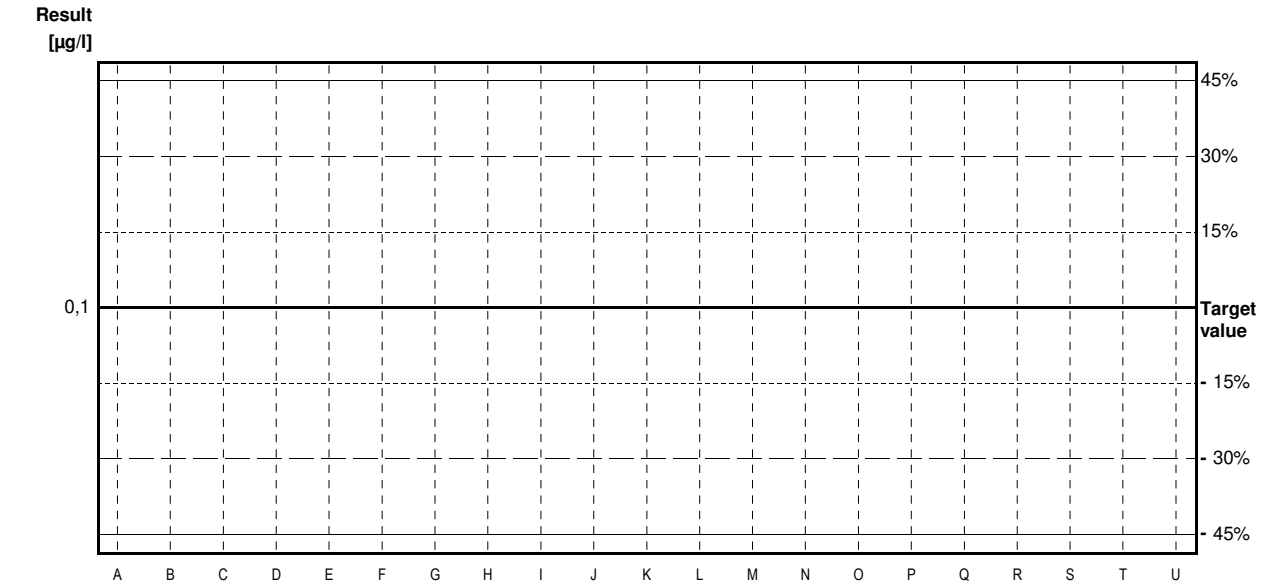


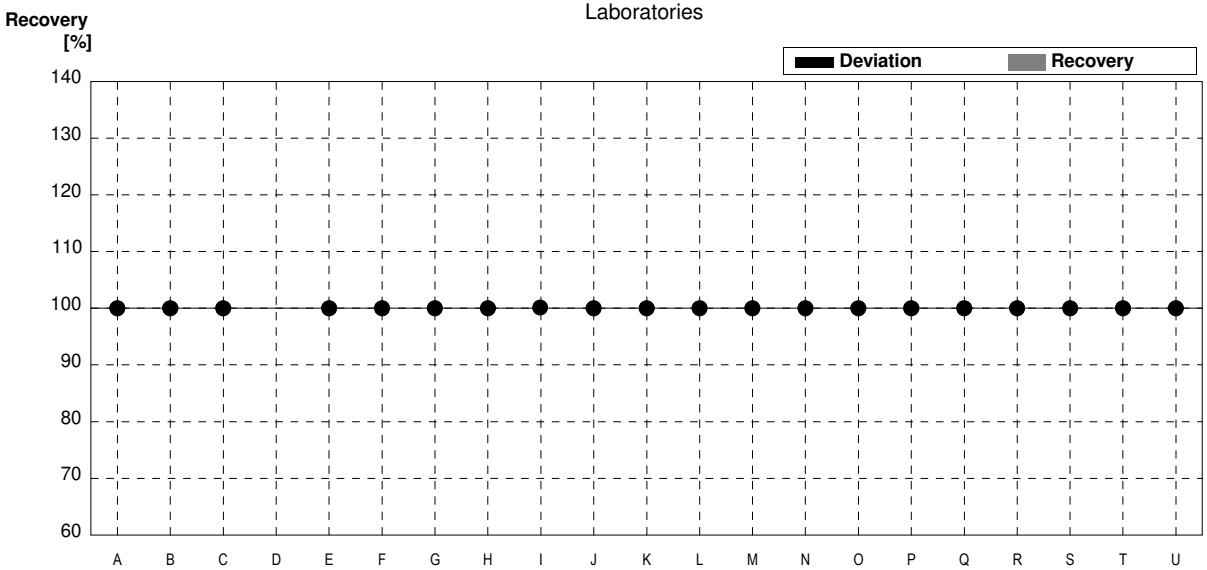
	All results	Outliers excl.	Unit
Mean ± CI(99%)	0,286 ± 0,039	0,277 ± 0,014	µg/l
Recov. ± CI(99%)	104,5 ± 14,2	100,9 ± 5,3	%
SD between labs	0,061	0,019	µg/l
RSD between labs	21,3	6,8	%
n for calculation	20	15	

Sample C65B
Parameter 1,1,1-Trichloroethane

Target value	<0,1	µg/l
IFA result	<0,1	µg/l
Stability test	<0,1	µg/l

Lab Code	Result	±	Unit	Recovery	z-Score
A	<0,1		µg/l	•	
B	<0,05		µg/l	•	
C	<0,1		µg/l	•	
D			µg/l		
E	<0,1		µg/l	•	
F	<0,1		µg/l	•	
G	<0,100		µg/l	•	
H	<0,1		µg/l	•	
I	<BG		µg/l	•	
J	<0,1		µg/l	•	
K	<0,020		µg/l	•	
L	<0,1		µg/l	•	
M	<0,10		µg/l	•	
N	<0,05		µg/l	•	
O	<0,1		µg/l	•	
P	<0,1		µg/l	•	
Q	<0,1		µg/l	•	
R	<0,01	0,005	µg/l	•	
S	<0,05		µg/l	•	
T	<0,05	0	µg/l	•	
U	<0,1		µg/l	•	



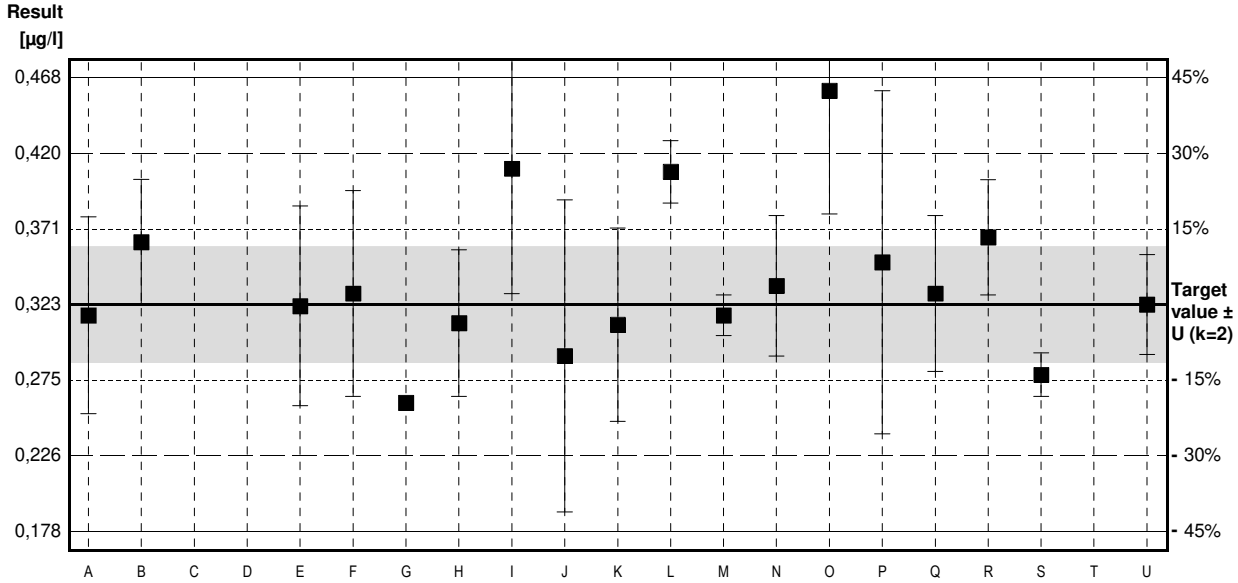


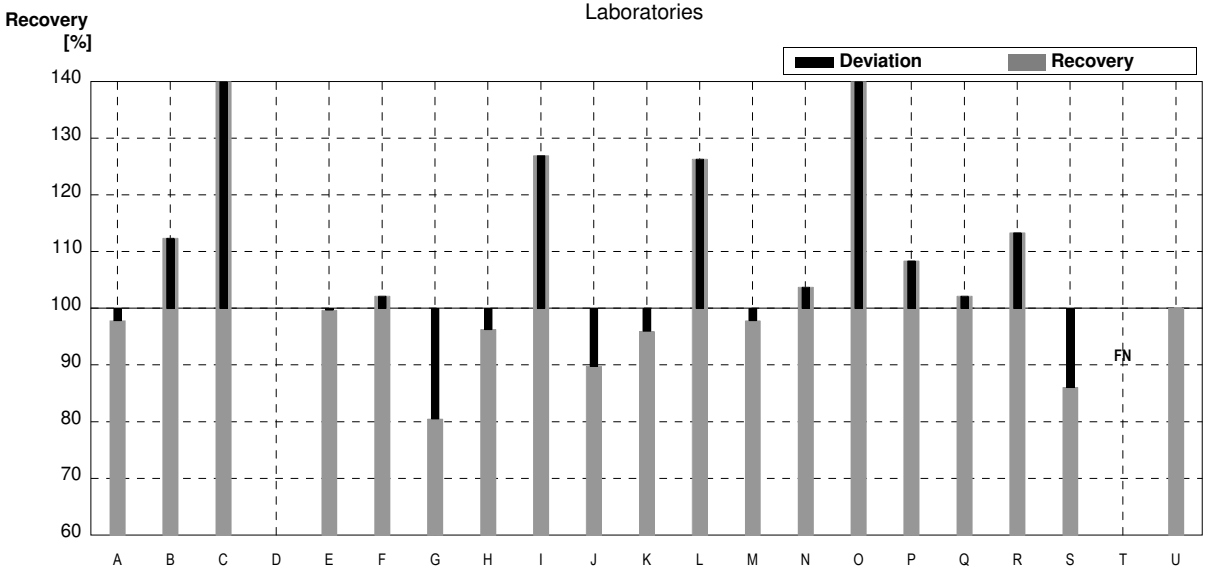
	All results	Outliers excl.	Unit
Mean ± CI(99%) Recov. ± CI(99%)			µg/l %
SD between labs RSD between labs			µg/l %
n for calculation			

Sample C65A
Parameter Trichloromethane

Target value	± U (k=2)	0,323 µg/l	±	0,037 µg/l
IFA result	± U (k=2)	0,336 µg/l	±	0,050 µg/l
Stability test	± U (k=2)	0,319 µg/l	±	0,048 µg/l

Lab Code	Result	±	Unit	Recovery	z-Score
A	0,316	0,063	µg/l	98%	-0,15
B	0,363	0,0402	µg/l	112%	0,88
C	0,492 *	0,13	µg/l	152%	3,74
D			µg/l		
E	0,322	0,064	µg/l	100%	-0,02
F	0,330	0,066	µg/l	102%	0,15
G	,260		µg/l	80%	-1,39
H	0,311	0,047	µg/l	96%	-0,27
I	0,410	0,08	µg/l	127%	1,92
J	0,290	0,1	µg/l	90%	-0,73
K	0,310	0,062	µg/l	96%	-0,29
L	0,408	0,02	µg/l	126%	1,88
M	0,316	0,013	µg/l	98%	-0,15
N	0,335	0,045	µg/l	104%	0,27
O	0,460 *	0,079	µg/l	142%	3,03
P	0,350	0,11	µg/l	108%	0,60
Q	0,330	0,05	µg/l	102%	0,15
R	0,366	0,037	µg/l	113%	0,95
S	0,278	0,014	µg/l	86%	-1,00
T	<0,05	0	µg/l	FN	
U	0,323	0,032	µg/l	100%	0,00



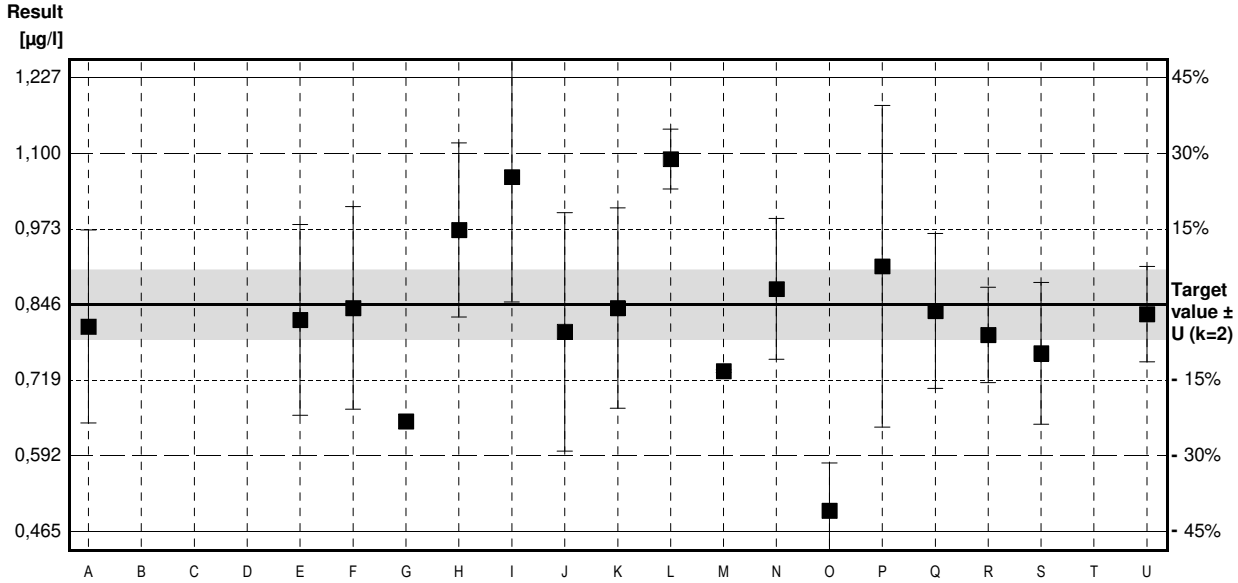


	All results	Outliers excl.	Unit
Mean ± CI(99%)	0,346 ± 0,039	0,330 ± 0,028	µg/l
Recov. ± CI(99%)	107,1 ± 12,2	102,3 ± 8,8	%
SD between labs	0,060	0,040	µg/l
RSD between labs	17,3	12,1	%
n for calculation	19	17	

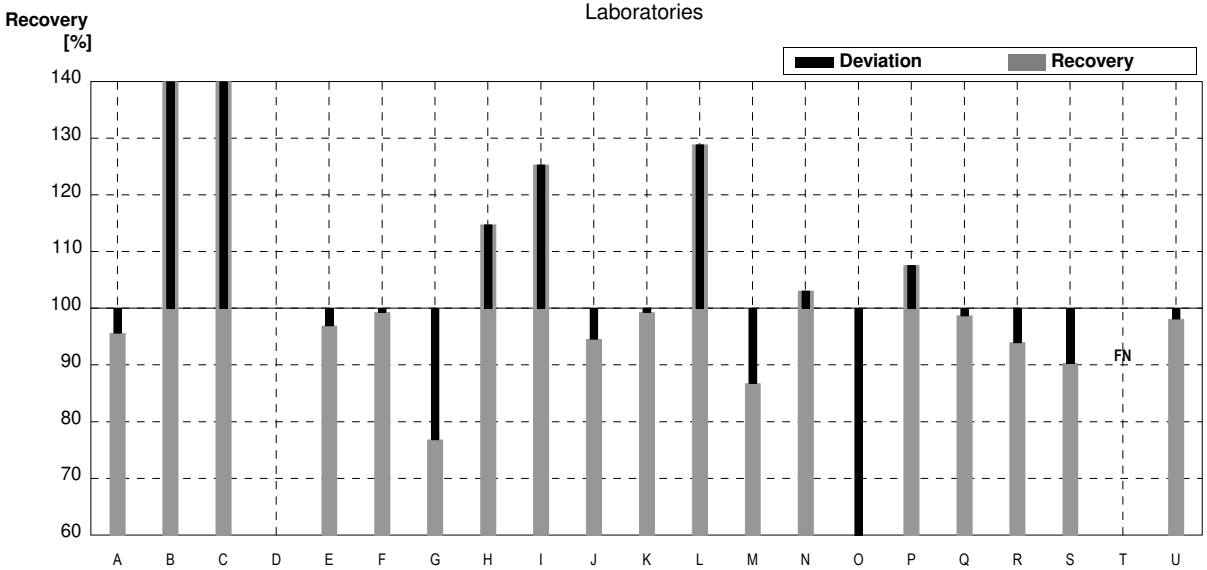
Sample C65B
Parameter Trichloromethane

Target value	± U (k=2)	0,846 µg/l	±	0,058 µg/l
IFA result	± U (k=2)	0,817 µg/l	±	0,123 µg/l
Stability test	± U (k=2)	0,820 µg/l	±	0,123 µg/l

Lab Code	Result	±	Unit	Recovery	z-Score
A	0,809	0,162	µg/l	96%	-0,31
B	1,302 *	0,1445	µg/l	154%	3,85
C	1,32 *	0,34	µg/l	156%	4,00
D			µg/l		
E	0,820	0,16	µg/l	97%	-0,22
F	0,84	0,17	µg/l	99%	-0,05
G	,650		µg/l	77%	-1,65
H	0,971	0,146	µg/l	115%	1,06
I	1,06	0,21	µg/l	125%	1,81
J	0,800	0,2	µg/l	95%	-0,39
K	0,840	0,168	µg/l	99%	-0,05
L	1,09	0,05	µg/l	129%	2,06
M	0,734	0,002	µg/l	87%	-0,95
N	0,872	0,118	µg/l	103%	0,22
O	0,50 *	0,08	µg/l	59%	-2,92
P	0,910	0,27	µg/l	108%	0,54
Q	0,835	0,13	µg/l	99%	-0,09
R	0,795	0,080	µg/l	94%	-0,43
S	0,764	0,119	µg/l	90%	-0,69
T	<0,05	0	µg/l	FN	
U	0,83	0,08	µg/l	98%	-0,14



Laboratories

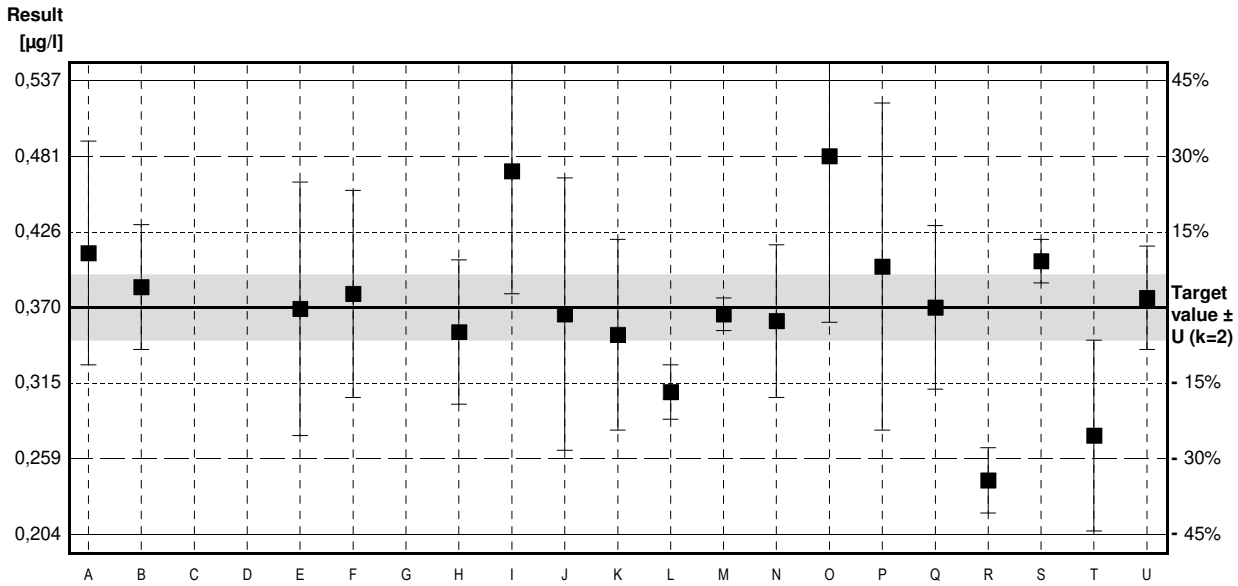


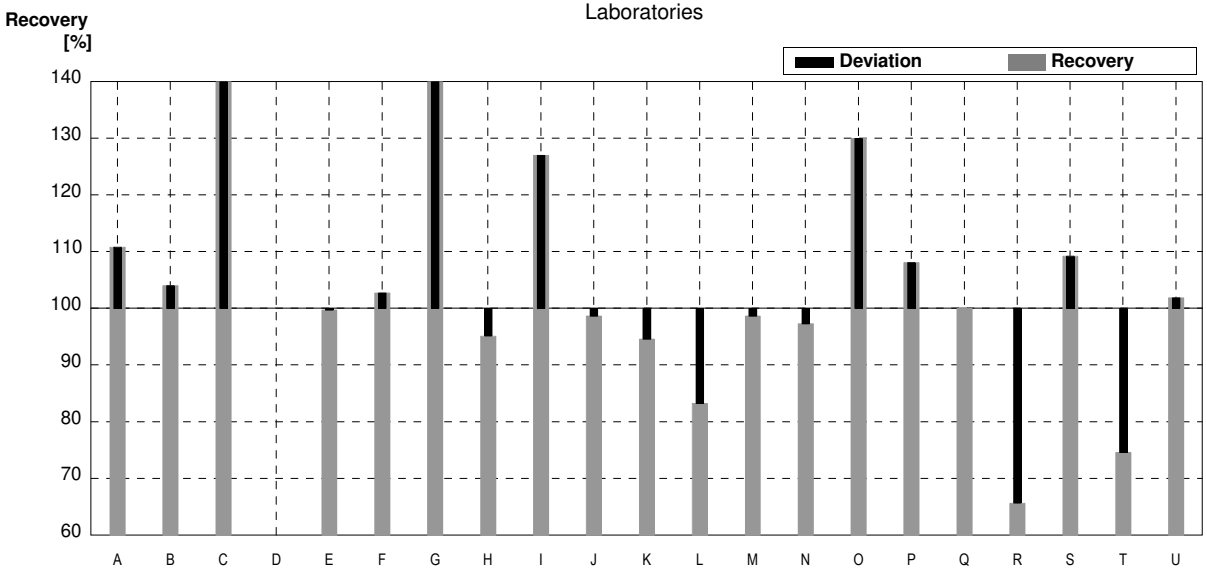
	All results	Outliers excl.	Unit
Mean ± CI(99%)	0,881 ± 0,132	0,851 ± 0,083	µg/l
Recov. ± CI(99%)	104,2 ± 15,6	100,6 ± 9,8	%
SD between labs	0,200	0,113	µg/l
RSD between labs	22,7	13,2	%
n for calculation	19	16	

Sample C65A
Parameter Tetrachloromethane

Target value	± U (k=2)	0,370 µg/l	±	0,024 µg/l
IFA result	± U (k=2)	0,381 µg/l	±	0,057 µg/l
Stability test	± U (k=2)	0,362 µg/l	±	0,054 µg/l

Lab Code	Result	±	Unit	Recovery	z-Score
A	0,410	0,082	µg/l	111%	0,60
B	0,385	0,0458	µg/l	104%	0,23
C	0,61 *	0,16	µg/l	165%	3,60
D			µg/l		
E	0,369	0,093	µg/l	100%	-0,02
F	0,380	0,076	µg/l	103%	0,15
G	0,680 *		µg/l	184%	4,65
H	0,352	0,053	µg/l	95%	-0,27
I	0,470	0,09	µg/l	127%	1,50
J	0,365	0,1	µg/l	99%	-0,08
K	0,350	0,070	µg/l	95%	-0,30
L	0,308	0,02	µg/l	83%	-0,93
M	0,365	0,012	µg/l	99%	-0,08
N	0,360	0,056	µg/l	97%	-0,15
O	0,481	0,122	µg/l	130%	1,67
P	0,400	0,12	µg/l	108%	0,45
Q	0,370	0,06	µg/l	100%	0,00
R	0,243 *	0,024	µg/l	66%	-1,91
S	0,404	0,016	µg/l	109%	0,51
T	0,276	0,07	µg/l	75%	-1,41
U	0,377	0,038	µg/l	102%	0,11



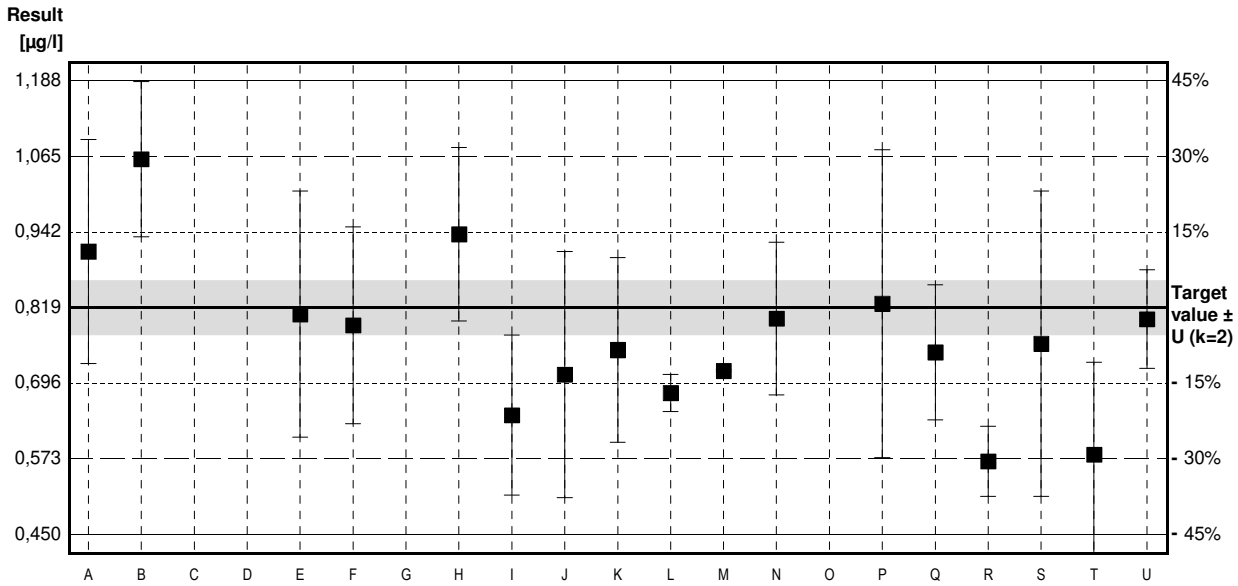


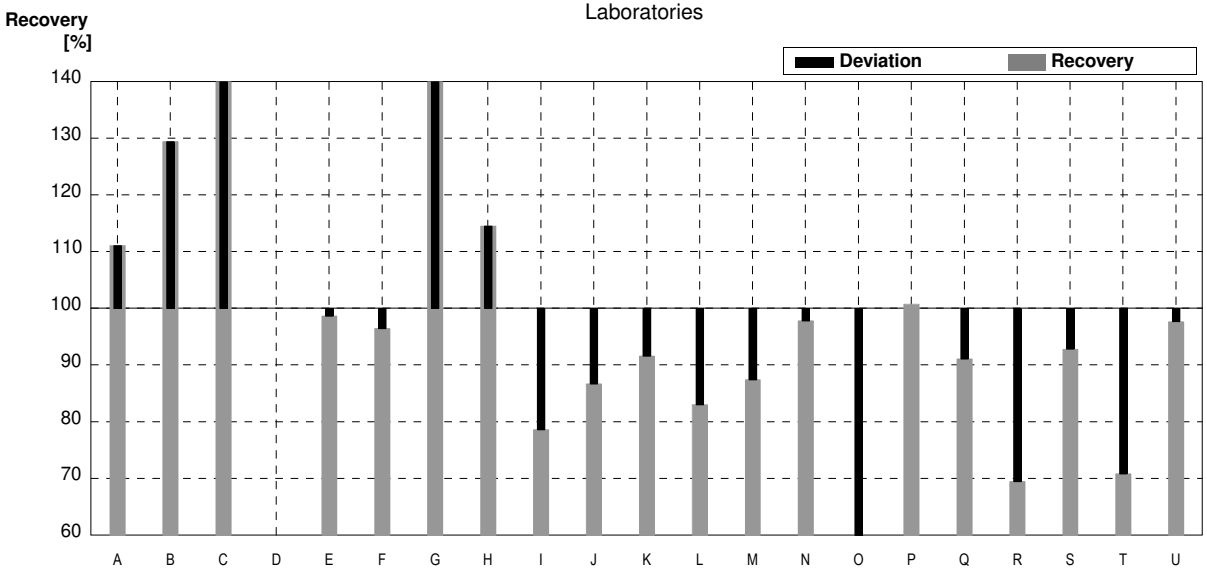
	All results	Outliers excl.	Unit
Mean ± CI(99%)	0,398 ± 0,065	0,378 ± 0,035	µg/l
Recov. ± CI(99%)	107,5 ± 17,5	102,1 ± 9,4	%
SD between labs	0,101	0,049	µg/l
RSD between labs	25,4	13,0	%
n for calculation	20	17	

Sample C65B
Parameter Tetrachloromethane

Target value	± U (k=2)	0,819 µg/l	±	0,044 µg/l
IFA result	± U (k=2)	0,749 µg/l	±	0,112 µg/l
Stability test	± U (k=2)	0,739 µg/l	±	0,111 µg/l

Lab Code	Result	±	Unit	Recovery	z-Score
A	0,910	0,182	µg/l	111%	0,62
B	1,060	0,1261	µg/l	129%	1,63
C	1,26 *	0,33	µg/l	154%	2,99
D			µg/l		
E	0,808	0,20	µg/l	99%	-0,07
F	0,79	0,16	µg/l	96%	-0,20
G	1,38 *		µg/l	168%	3,81
H	0,938	0,141	µg/l	115%	0,81
I	0,644	0,13	µg/l	79%	-1,19
J	0,710	0,2	µg/l	87%	-0,74
K	0,750	0,150	µg/l	92%	-0,47
L	0,68	0,03	µg/l	83%	-0,94
M	0,716	0,002	µg/l	87%	-0,70
N	0,801	0,124	µg/l	98%	-0,12
O	0,446	0,101	µg/l	54%	-2,53
P	0,825	0,25	µg/l	101%	0,04
Q	0,746	0,11	µg/l	91%	-0,50
R	0,569	0,057	µg/l	69%	-1,70
S	0,760	0,248	µg/l	93%	-0,40
T	0,58	0,15	µg/l	71%	-1,62
U	0,80	0,08	µg/l	98%	-0,13



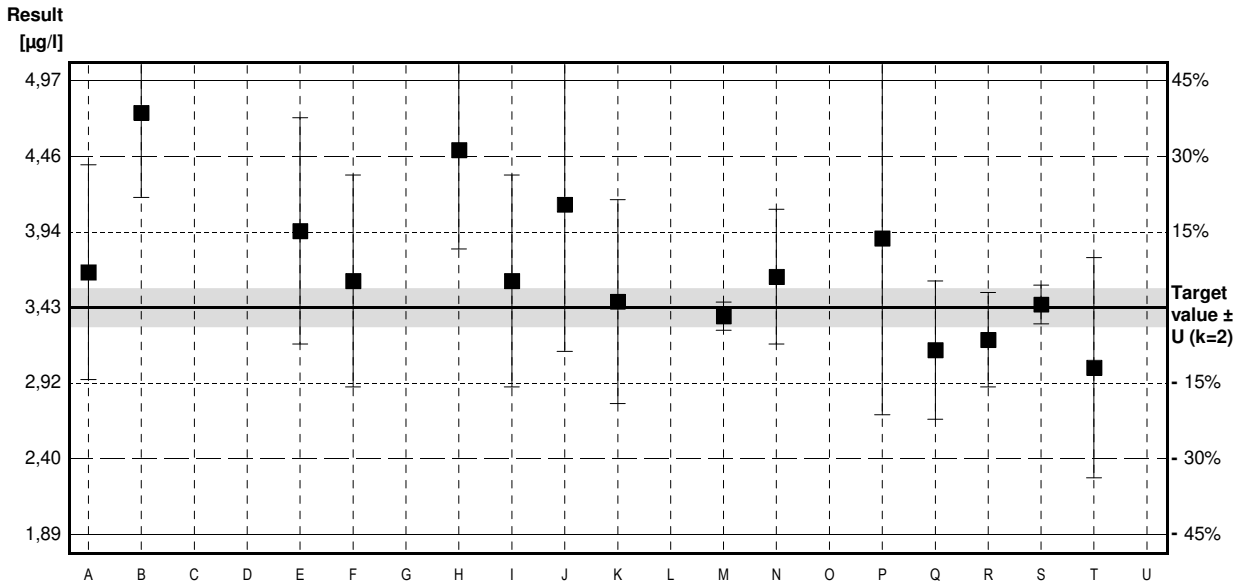


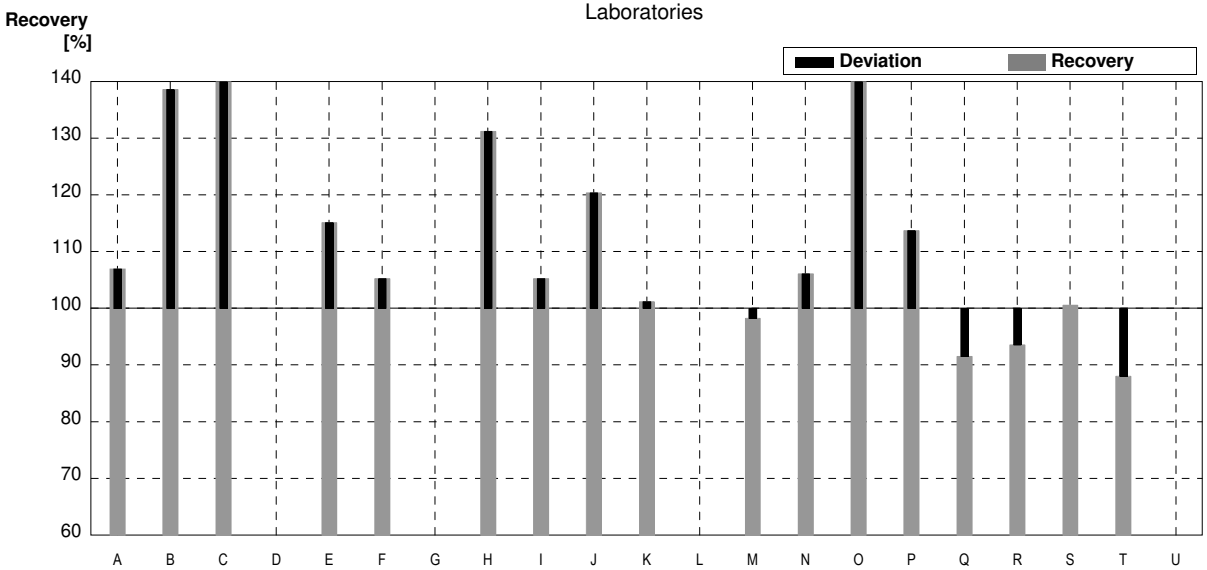
	All results	Outliers excl.	Unit
Mean ± CI(99%)	0,809 ± 0,142	0,752 ± 0,097	µg/l
Recov. ± CI(99%)	98,7 ± 17,3	91,8 ± 11,9	%
SD between labs	0,222	0,143	µg/l
RSD between labs	27,4	19,0	%
n for calculation	20	18	

Sample C65A
Parameter 1,1-Dichloroethene

Target value	± U (k=2)	3,43 µg/l	±	0,13 µg/l
IFA result	± U (k=2)	3,40 µg/l	±	0,51 µg/l
Stability test	± U (k=2)	3,38 µg/l	±	0,51 µg/l

Lab Code	Result	±	Unit	Recovery	z-Score
A	3,67	0,73	µg/l	107%	0,39
B	4,755	0,5754	µg/l	139%	2,15
C	5,78 *	1,50	µg/l	169%	3,81
D			µg/l		
E	3,95	0,77	µg/l	115%	0,84
F	3,61	0,72	µg/l	105%	0,29
G			µg/l		
H	4,502	0,675	µg/l	131%	1,74
I	3,61	0,72	µg/l	105%	0,29
J	4,13	1,0	µg/l	120%	1,13
K	3,470	0,694	µg/l	101%	0,06
L			µg/l		
M	3,37	0,096	µg/l	98%	-0,10
N	3,639	0,459	µg/l	106%	0,34
O	5,7 *	1,1	µg/l	166%	3,68
P	3,90	1,2	µg/l	114%	0,76
Q	3,14	0,47	µg/l	92%	-0,47
R	3,210	0,321	µg/l	94%	-0,36
S	3,45	0,131	µg/l	101%	0,03
T	3,02	0,75	µg/l	88%	-0,66
U			µg/l		



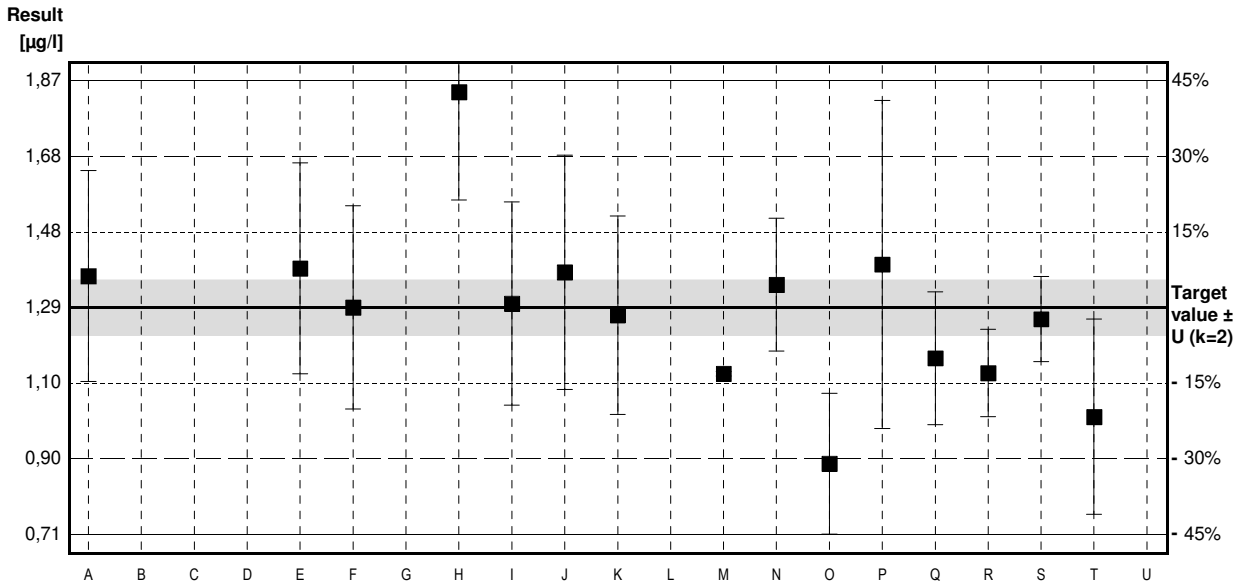


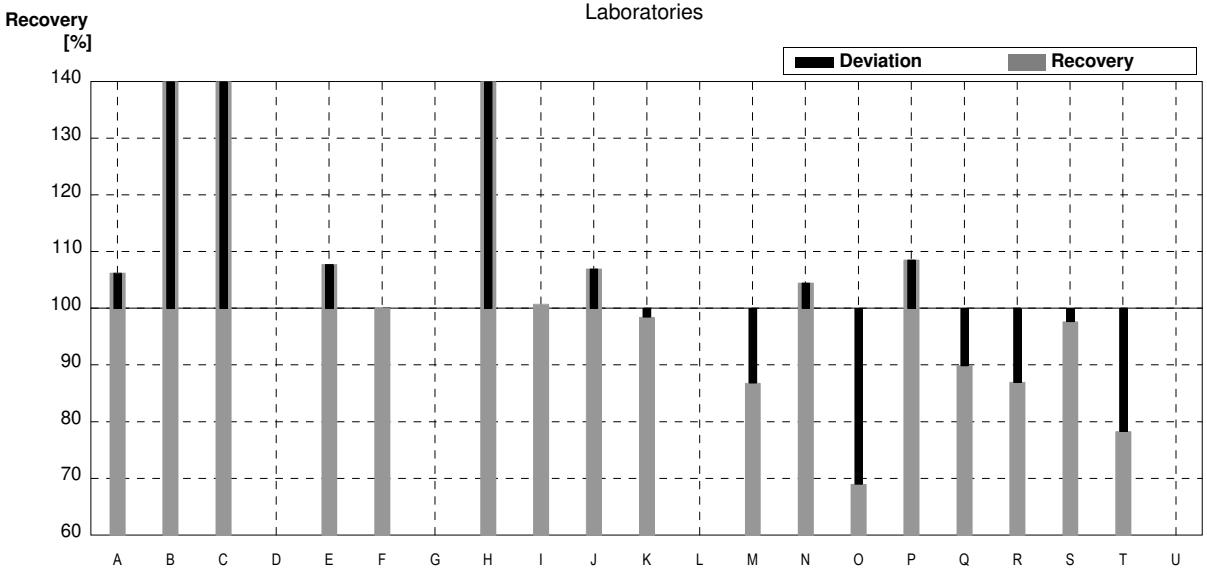
	All results	Outliers excl.	Unit
Mean ± CI(99%)	3,94 ± 0,58	3,70 ± 0,37	µg/l
Recov. ± CI(99%)	114,7 ± 16,9	107,7 ± 10,9	%
SD between labs	0,82	0,49	µg/l
RSD between labs	20,8	13,1	%
n for calculation	17	15	

Sample C65B
Parameter 1,1-Dichloroethene

Target value	± U (k=2)	1,29 µg/l	±	0,07 µg/l
IFA result	± U (k=2)	1,27 µg/l	±	0,19 µg/l
Stability test	± U (k=2)	1,23 µg/l	±	0,18 µg/l

Lab Code	Result		±	Unit	Recovery	z-Score
A	1,37		0,27	µg/l	106%	0,34
B	2,246	*	0,2718	µg/l	174%	4,12
C	2,40	*	0,62	µg/l	186%	4,78
D				µg/l		
E	1,39		0,27	µg/l	108%	0,43
F	1,29		0,26	µg/l	100%	0,00
G				µg/l		
H	1,841	*	0,276	µg/l	143%	2,37
I	1,30		0,26	µg/l	101%	0,04
J	1,38		0,3	µg/l	107%	0,39
K	1,270		0,254	µg/l	98%	-0,09
L				µg/l		
M	1,12		0,006	µg/l	87%	-0,73
N	1,348		0,170	µg/l	104%	0,25
O	0,89		0,18	µg/l	69%	-1,72
P	1,40		0,42	µg/l	109%	0,47
Q	1,16		0,17	µg/l	90%	-0,56
R	1,122		0,112	µg/l	87%	-0,72
S	1,26		0,109	µg/l	98%	-0,13
T	1,01		0,25	µg/l	78%	-1,21
U				µg/l		



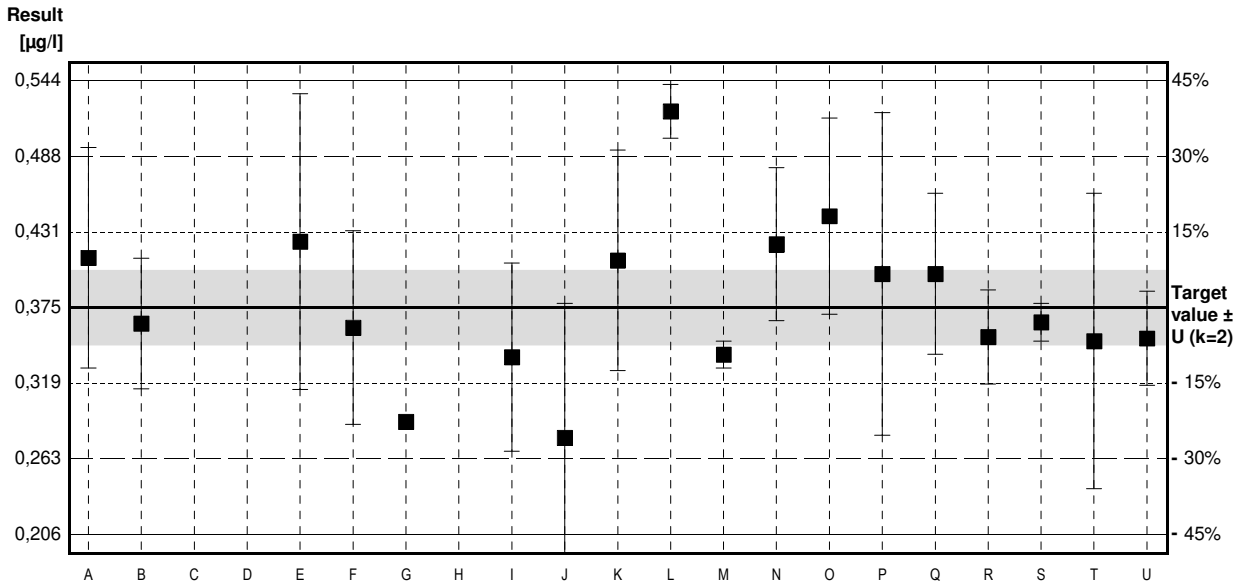


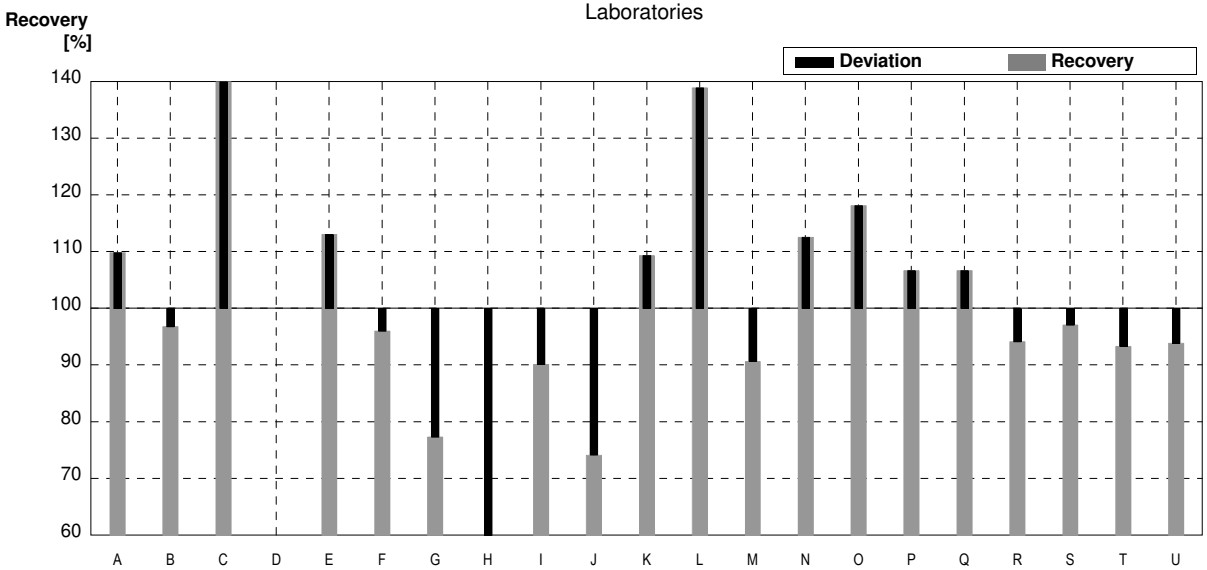
	All results	Outliers excl.	Unit
Mean ± CI(99%)	1,40 ± 0,29	1,24 ± 0,12	µg/l
Recov. ± CI(99%)	108,5 ± 22,1	95,8 ± 9,7	%
SD between labs	0,40	0,16	µg/l
RSD between labs	28,8	12,6	%
n for calculation	17	14	

Sample C65A
Parameter Tribromomethane

Target value	± U (k=2)	0,375 µg/l	±	0,028 µg/l
IFA result	± U (k=2)	0,421 µg/l	±	0,063 µg/l
Stability test	± U (k=2)	0,406 µg/l	±	0,061 µg/l

Lab Code	Result	±	Unit	Recovery	z-Score
A	0,412	0,082	µg/l	110%	0,66
B	0,363	0,0486	µg/l	97%	-0,21
C	0,65 *	0,17	µg/l	173%	4,89
D			µg/l		
E	0,424	0,11	µg/l	113%	0,87
F	0,360	0,072	µg/l	96%	-0,27
G	0,290		µg/l	77%	-1,51
H	0,146 *	0,022	µg/l	39%	-4,07
I	0,338	0,07	µg/l	90%	-0,66
J	0,278	0,1	µg/l	74%	-1,72
K	0,410	0,082	µg/l	109%	0,62
L	0,521	0,02	µg/l	139%	2,60
M	0,340	0,010	µg/l	91%	-0,62
N	0,422	0,057	µg/l	113%	0,84
O	0,443	0,073	µg/l	118%	1,21
P	0,400	0,12	µg/l	107%	0,44
Q	0,400	0,06	µg/l	107%	0,44
R	0,353	0,035	µg/l	94%	-0,39
S	0,364	0,014	µg/l	97%	-0,20
T	0,350	0,11	µg/l	93%	-0,44
U	0,352	0,035	µg/l	94%	-0,41



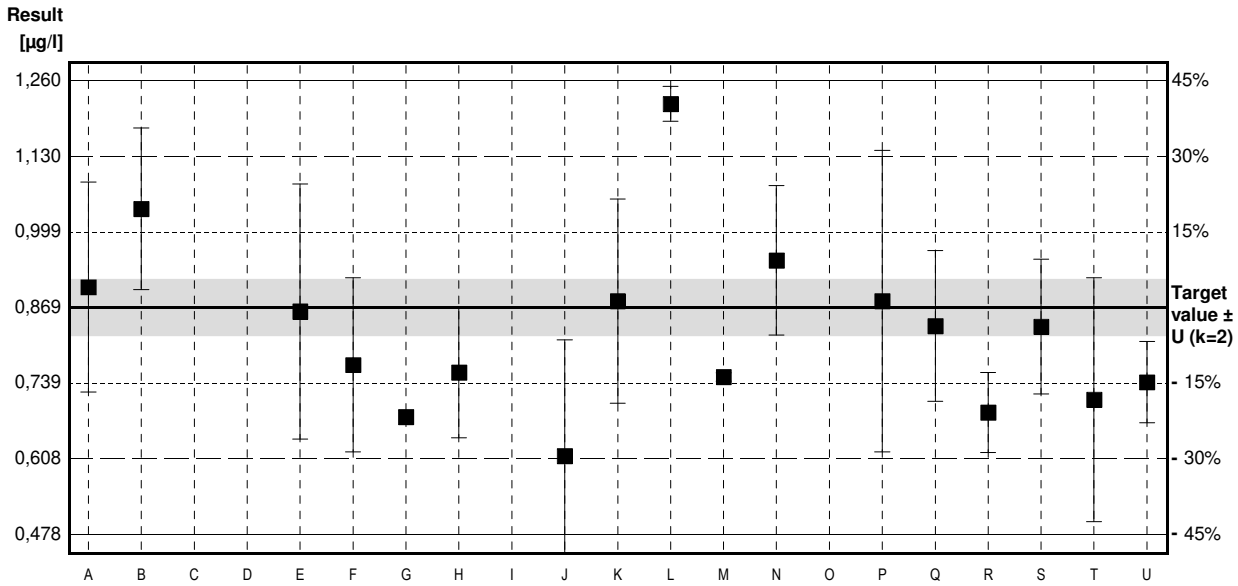


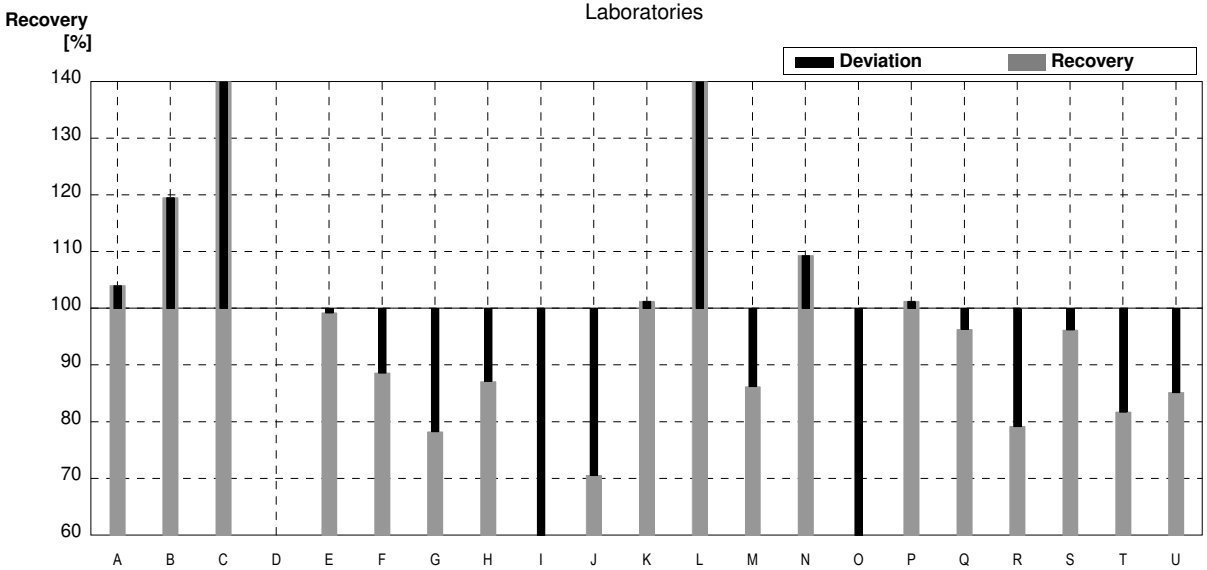
	All results	Outliers excl.	Unit
Mean ± CI(99%)	0,381 ± 0,063	0,379 ± 0,039	µg/l
Recov. ± CI(99%)	101,5 ± 16,7	101,0 ± 10,4	%
SD between labs	0,098	0,057	µg/l
RSD between labs	25,8	15,1	%
n for calculation	20	18	

Sample C65B
Parameter Tribromomethane

Target value	± U (k=2)	0,869 µg/l	±	0,049 µg/l
IFA result	± U (k=2)	0,815 µg/l	±	0,122 µg/l
Stability test	± U (k=2)	0,812 µg/l	±	0,122 µg/l

Lab Code	Result	±	Unit	Recovery	z-Score
A	0,904	0,181	µg/l	104%	0,27
B	1,039	0,1392	µg/l	120%	1,30
C	1,33 *	0,35	µg/l	153%	3,54
D			µg/l		
E	0,862	0,22	µg/l	99%	-0,05
F	0,77	0,15	µg/l	89%	-0,76
G	0,680		µg/l	78%	-1,45
H	0,757	0,113	µg/l	87%	-0,86
I	0,442	0,09	µg/l	51%	-3,28
J	0,613	0,2	µg/l	71%	-1,96
K	0,880	0,176	µg/l	101%	0,08
L	1,22	0,03	µg/l	140%	2,69
M	0,749	0,007	µg/l	86%	-0,92
N	0,950	0,129	µg/l	109%	0,62
O	0,426	0,138	µg/l	49%	-3,40
P	0,880	0,26	µg/l	101%	0,08
Q	0,837	0,13	µg/l	96%	-0,25
R	0,688	0,069	µg/l	79%	-1,39
S	0,836	0,116	µg/l	96%	-0,25
T	0,71	0,21	µg/l	82%	-1,22
U	0,74	0,07	µg/l	85%	-0,99



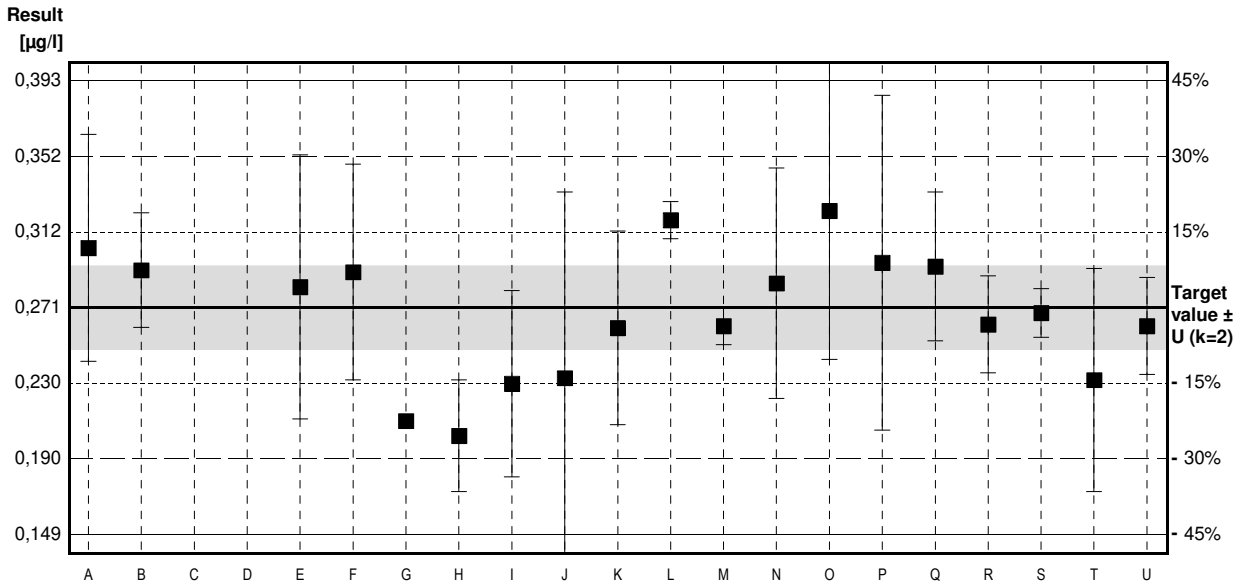


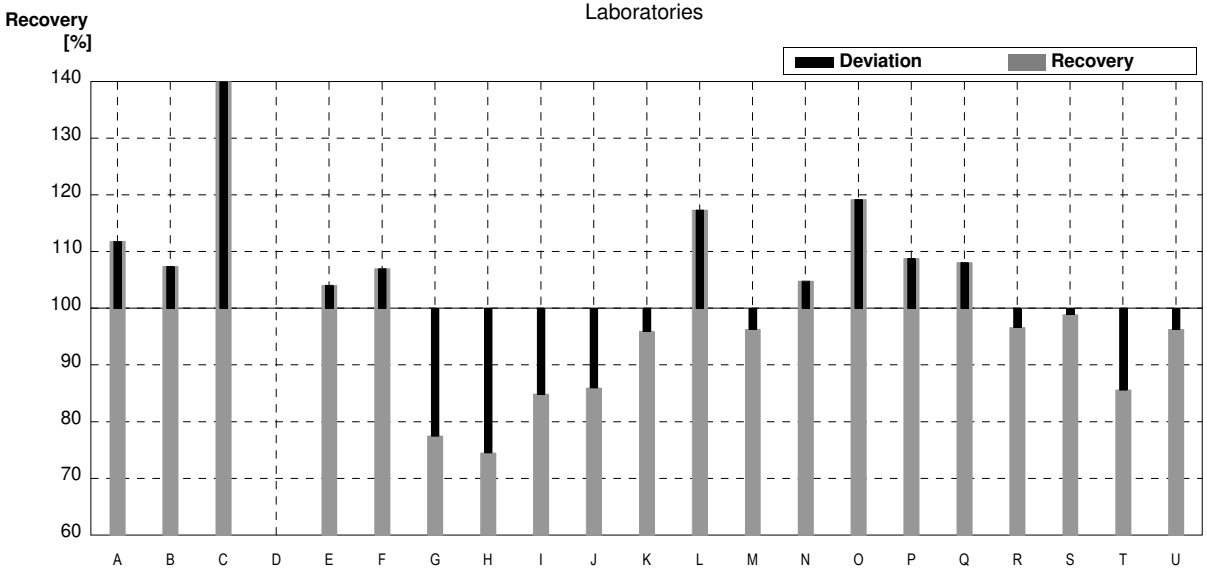
	All results	Outliers excl.	Unit
Mean ± CI(99%)	0,816 ± 0,140	0,789 ± 0,124	µg/l
Recov. ± CI(99%)	93,9 ± 16,1	90,7 ± 14,2	%
SD between labs	0,219	0,187	µg/l
RSD between labs	26,8	23,7	%
n for calculation	20	19	

Sample C65A
Parameter Bromodichloromethane

Target value ± U (k=2)	0,271 µg/l	±	0,022 µg/l
IFA result ± U (k=2)	0,300 µg/l	±	0,045 µg/l
Stability test ± U (k=2)	0,280 µg/l	±	0,042 µg/l

Lab Code	Result	±	Unit	Recovery	z-Score
A	0,303	0,061	µg/l	112%	0,91
B	0,291	0,0308	µg/l	107%	0,57
C	0,424 *	0,11	µg/l	156%	4,34
D			µg/l		
E	0,282	0,071	µg/l	104%	0,31
F	0,290	0,058	µg/l	107%	0,54
G	0,210		µg/l	77%	-1,73
H	0,202	0,030	µg/l	75%	-1,96
I	0,230	0,05	µg/l	85%	-1,16
J	0,233	0,1	µg/l	86%	-1,08
K	0,260	0,052	µg/l	96%	-0,31
L	0,318	0,01	µg/l	117%	1,33
M	0,261	0,010	µg/l	96%	-0,28
N	0,284	0,062	µg/l	105%	0,37
O	0,323	0,080	µg/l	119%	1,48
P	0,295	0,09	µg/l	109%	0,68
Q	0,293	0,04	µg/l	108%	0,62
R	0,2619	0,026	µg/l	97%	-0,26
S	0,268	0,013	µg/l	99%	-0,09
T	0,232	0,06	µg/l	86%	-1,11
U	0,261	0,026	µg/l	96%	-0,28



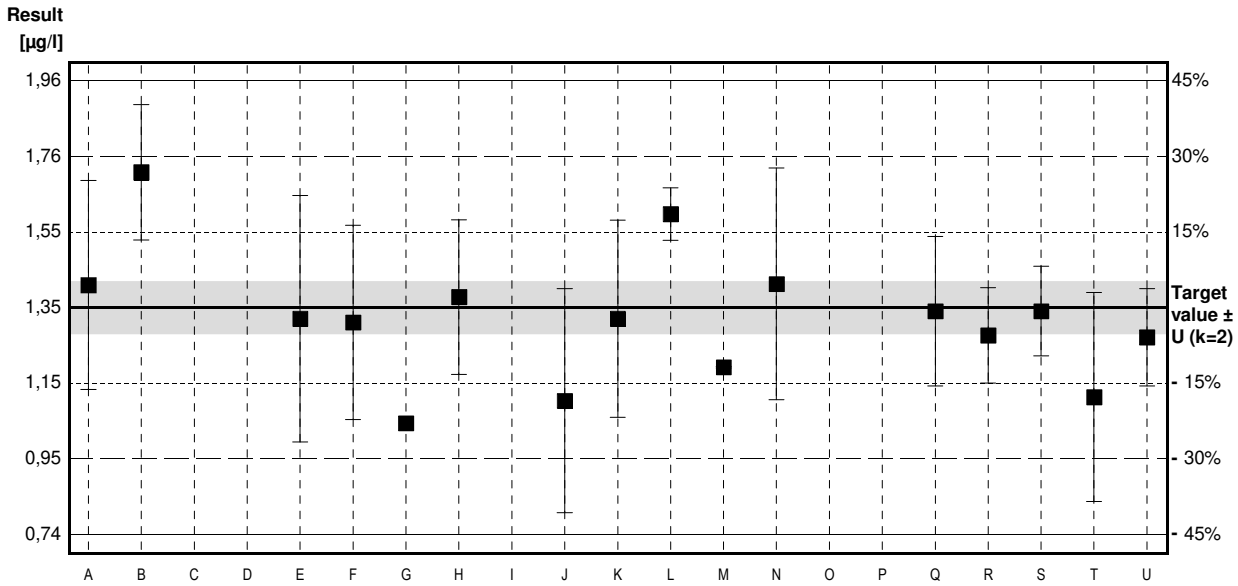


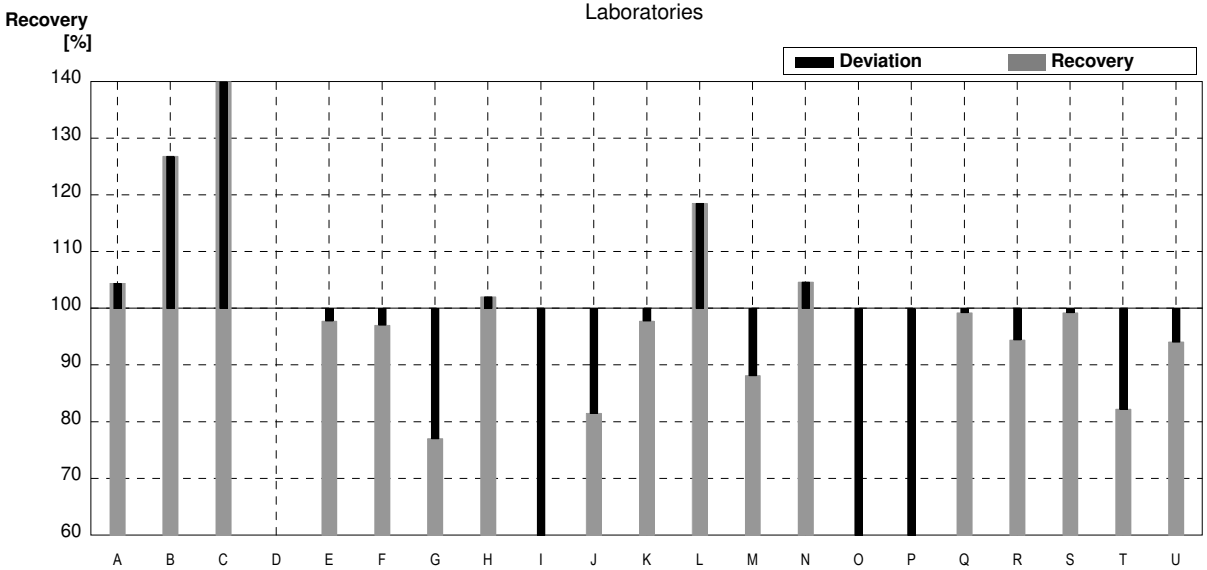
	All results	Outliers excl.	Unit
Mean ± CI(99%)	0,276 ± 0,031	0,268 ± 0,023	µg/l
Recov. ± CI(99%)	101,9 ± 11,4	99,0 ± 8,4	%
SD between labs	0,048	0,035	µg/l
RSD between labs	17,5	12,9	%
n for calculation	20	19	

Sample C65B
Parameter Bromodichloromethane

Target value ± U (k=2)	1,35 µg/l	±	0,07 µg/l
IFA result ± U (k=2)	1,28 µg/l	±	0,19 µg/l
Stability test ± U (k=2)	1,29 µg/l	±	0,19 µg/l

Lab Code	Result	±	Unit	Recovery	z-Score
A	1,41	0,28	µg/l	104%	0,34
B	1,712	0,1815	µg/l	127%	2,06
C	2,00 *	0,52	µg/l	148%	3,70
D			µg/l		
E	1,32	0,33	µg/l	98%	-0,17
F	1,31	0,26	µg/l	97%	-0,23
G	1,04		µg/l	77%	-1,77
H	1,378	0,207	µg/l	102%	0,16
I	0,700 *	0,14	µg/l	52%	-3,70
J	1,10	0,3	µg/l	81%	-1,42
K	1,320	0,264	µg/l	98%	-0,17
L	1,60	0,07	µg/l	119%	1,42
M	1,19	0,002	µg/l	88%	-0,91
N	1,413	0,310	µg/l	105%	0,36
O	0,72 *	0,13	µg/l	53%	-3,59
P	0,470 *	0,14	µg/l	35%	-5,01
Q	1,34	0,20	µg/l	99%	-0,06
R	1,275	0,128	µg/l	94%	-0,43
S	1,34	0,120	µg/l	99%	-0,06
T	1,11	0,28	µg/l	82%	-1,37
U	1,27	0,13	µg/l	94%	-0,46



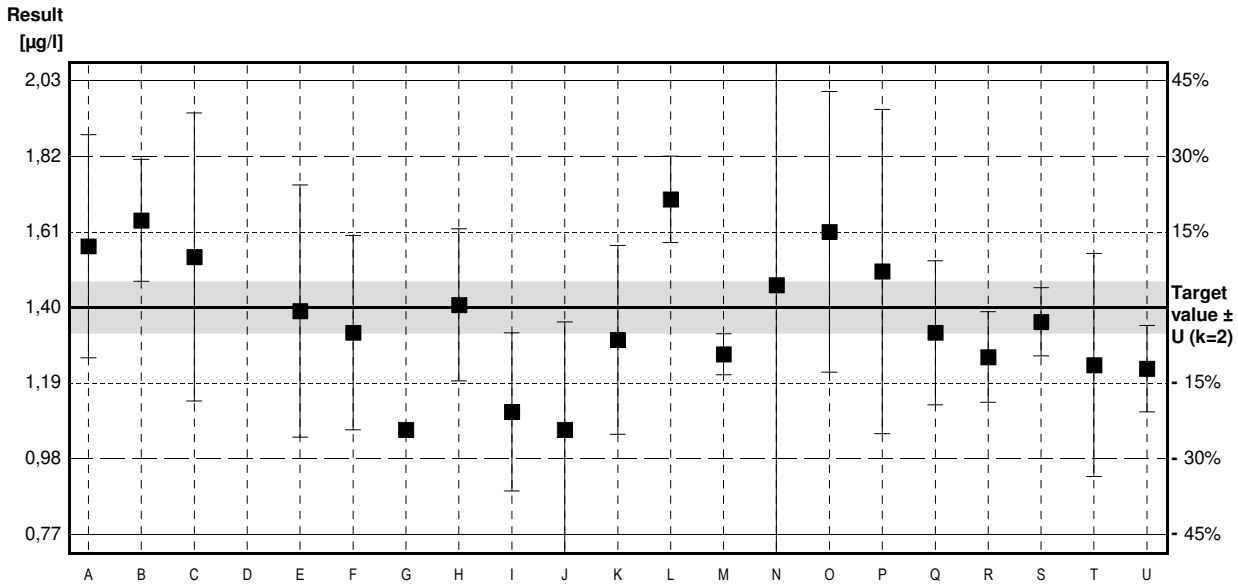


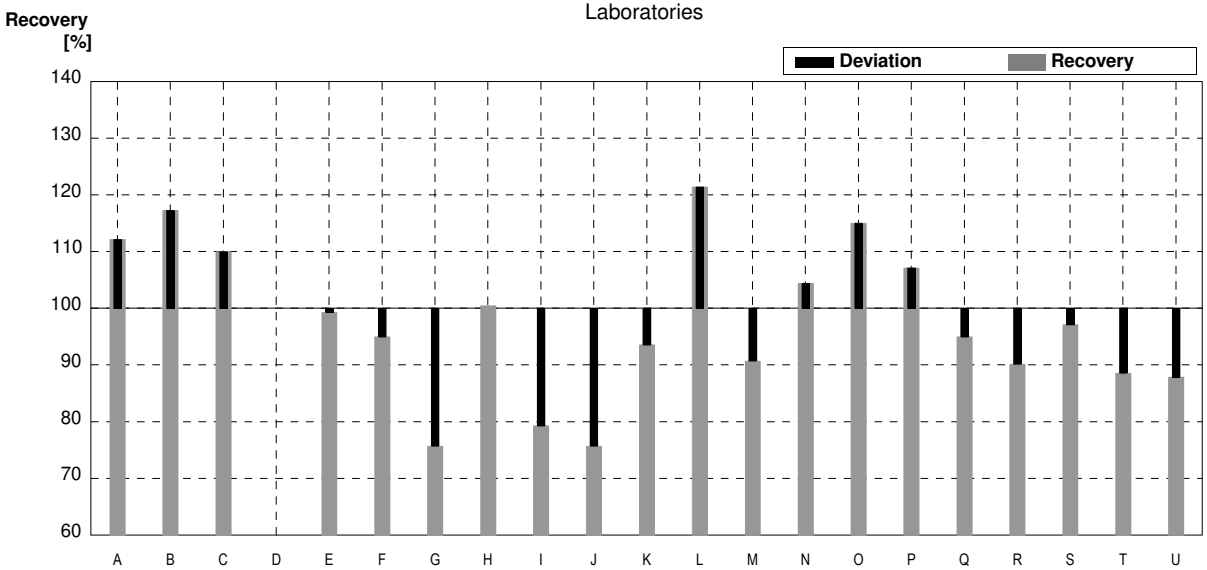
	All results	Outliers excl.	Unit
Mean ± CI(99%)	1,25 ± 0,22	1,32 ± 0,13	µg/l
Recov. ± CI(99%)	92,7 ± 16,4	97,8 ± 9,4	%
SD between labs	0,35	0,17	µg/l
RSD between labs	27,7	13,0	%
n for calculation	20	16	

Sample C65A
Parameter Dibromochloromethane

Target value	± U (k=2)	1,40 µg/l	±	0,07 µg/l
IFA result	± U (k=2)	1,31 µg/l	±	0,20 µg/l
Stability test	± U (k=2)	1,30 µg/l	±	0,20 µg/l

Lab Code	Result	±	Unit	Recovery	z-Score
A	1,57	0,31	µg/l	112%	0,87
B	1,642	0,1691	µg/l	117%	1,23
C	1,54	0,40	µg/l	110%	0,71
D			µg/l		
E	1,39	0,35	µg/l	99%	-0,05
F	1,33	0,27	µg/l	95%	-0,36
G	1,06		µg/l	76%	-1,73
H	1,407	0,211	µg/l	101%	0,04
I	1,11	0,22	µg/l	79%	-1,48
J	1,06	0,3	µg/l	76%	-1,73
K	1,31	0,262	µg/l	94%	-0,46
L	1,70	0,12	µg/l	121%	1,53
M	1,27	0,057	µg/l	91%	-0,66
N	1,462	0,935	µg/l	104%	0,32
O	1,61	0,39	µg/l	115%	1,07
P	1,50	0,45	µg/l	107%	0,51
Q	1,33	0,20	µg/l	95%	-0,36
R	1,262	0,126	µg/l	90%	-0,70
S	1,36	0,095	µg/l	97%	-0,20
T	1,24	0,31	µg/l	89%	-0,82
U	1,23	0,12	µg/l	88%	-0,87



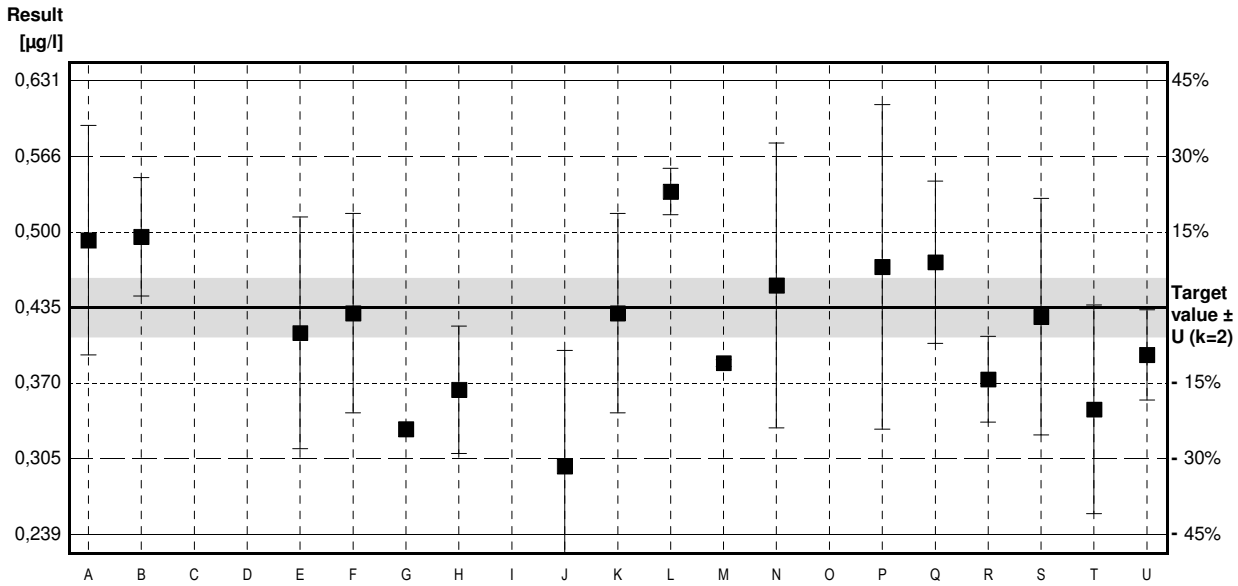


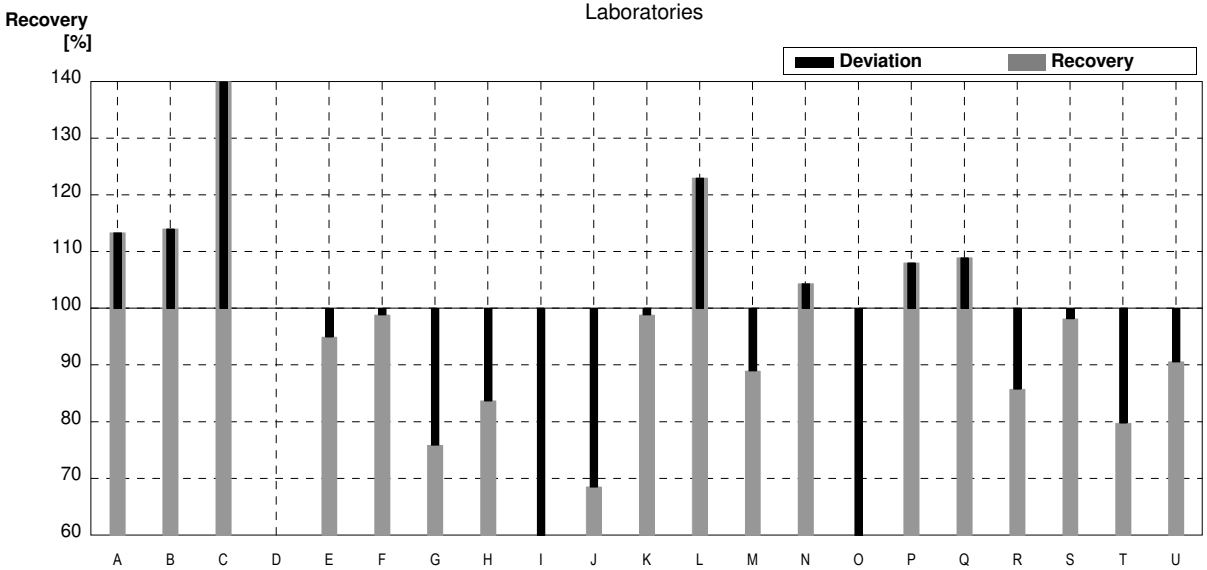
	All results	Outliers excl.	Unit
Mean ± CI(99%)	1,37 ± 0,12	1,37 ± 0,12	µg/l
Recov. ± CI(99%)	97,8 ± 8,5	97,8 ± 8,5	%
SD between labs	0,19	0,19	µg/l
RSD between labs	13,6	13,6	%
n for calculation	20	20	

Sample C65B
Parameter Dibromochloromethane

Target value	± U (k=2)	0,435 µg/l	±	0,025 µg/l
IFA result	± U (k=2)	0,446 µg/l	±	0,067 µg/l
Stability test	± U (k=2)	0,431 µg/l	±	0,065 µg/l

Lab Code	Result	±	Unit	Recovery	z-Score
A	0,493	0,099	µg/l	113%	0,95
B	0,496	0,0511	µg/l	114%	1,00
C	0,92 *	0,24	µg/l	211%	7,96
D			µg/l		
E	0,413	0,10	µg/l	95%	-0,36
F	0,430	0,086	µg/l	99%	-0,08
G	0,330		µg/l	76%	-1,72
H	0,364	0,055	µg/l	84%	-1,17
I	0,187	0,04	µg/l	43%	-4,07
J	0,298	0,1	µg/l	69%	-2,25
K	0,430	0,086	µg/l	99%	-0,08
L	0,535	0,02	µg/l	123%	1,64
M	0,387	0,003	µg/l	89%	-0,79
N	0,454	0,123	µg/l	104%	0,31
O	0,227	0,065	µg/l	52%	-3,42
P	0,470	0,14	µg/l	108%	0,57
Q	0,474	0,07	µg/l	109%	0,64
R	0,373	0,037	µg/l	86%	-1,02
S	0,427	0,102	µg/l	98%	-0,13
T	0,347	0,09	µg/l	80%	-1,44
U	0,394	0,039	µg/l	91%	-0,67



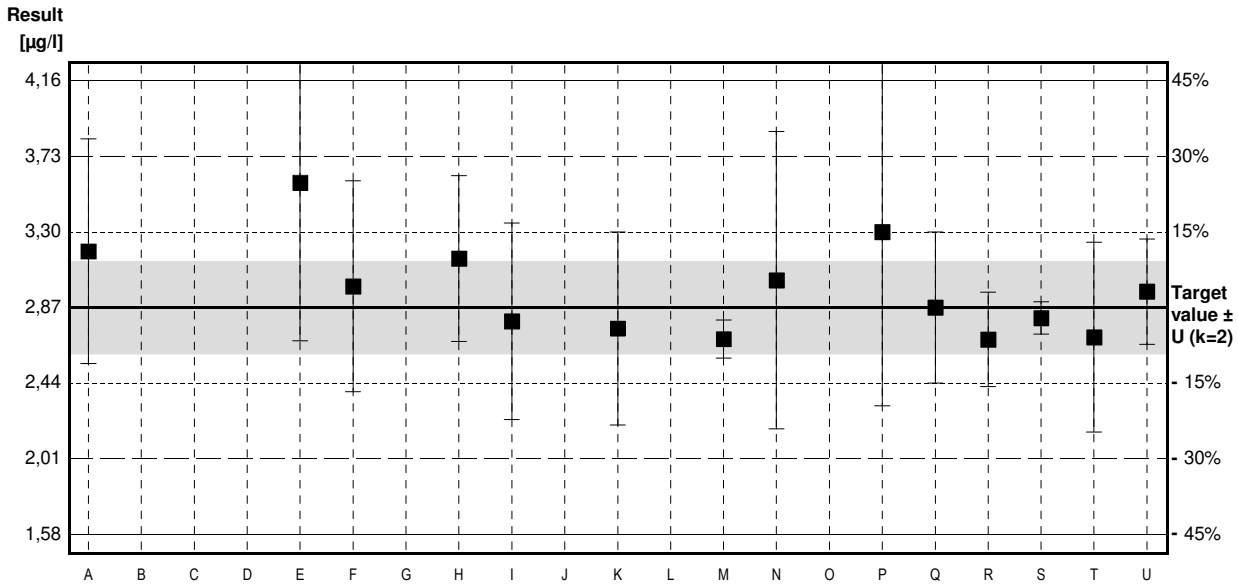


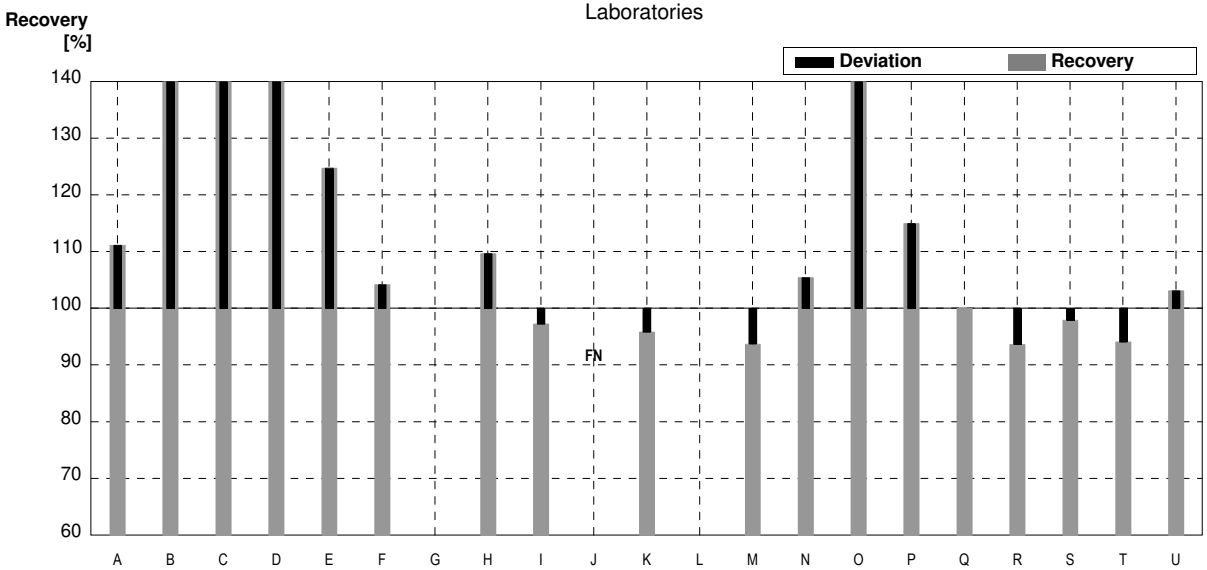
	All results	Outliers excl.	Unit
Mean ± CI(99%)	0,422 ± 0,094	0,396 ± 0,060	µg/l
Recov. ± CI(99%)	97,1 ± 21,5	91,1 ± 13,7	%
SD between labs	0,147	0,091	µg/l
RSD between labs	34,7	22,8	%
n for calculation	20	19	

Sample C65A
Parameter Dichloromethane

Target value	± U (k=2)	2,87 µg/l	±	0,26 µg/l
IFA result	± U (k=2)	2,86 µg/l	±	0,43 µg/l
Stability test	± U (k=2)	2,82 µg/l	±	0,42 µg/l

Lab Code	Result		±	Unit	Recovery	z-Score
A	3,19		0,64	µg/l	111%	0,80
B	4,530	*	0,8426	µg/l	158%	4,13
C	4,45	*	1,16	µg/l	155%	3,93
D	5,17	*		µg/l	180%	5,72
E	3,58		0,90	µg/l	125%	1,77
F	2,99		0,60	µg/l	104%	0,30
G				µg/l		
H	3,148		0,472	µg/l	110%	0,69
I	2,791		0,56	µg/l	97%	-0,20
J	<0,8			µg/l	FN	
K	2,750		0,550	µg/l	96%	-0,30
L				µg/l		
M	2,69		0,109	µg/l	94%	-0,45
N	3,025		0,847	µg/l	105%	0,39
O	4,29		1,41	µg/l	149%	3,53
P	3,30		0,99	µg/l	115%	1,07
Q	2,87		0,43	µg/l	100%	0,00
R	2,688		0,269	µg/l	94%	-0,45
S	2,81		0,092	µg/l	98%	-0,15
T	2,70		0,54	µg/l	94%	-0,42
U	2,96		0,30	µg/l	103%	0,22



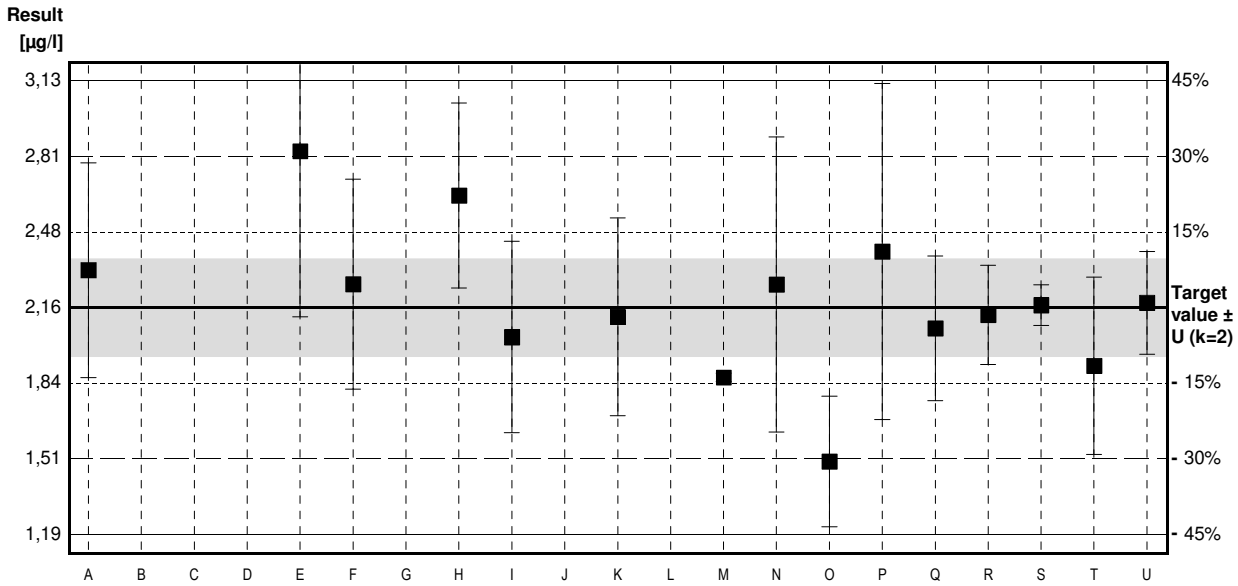


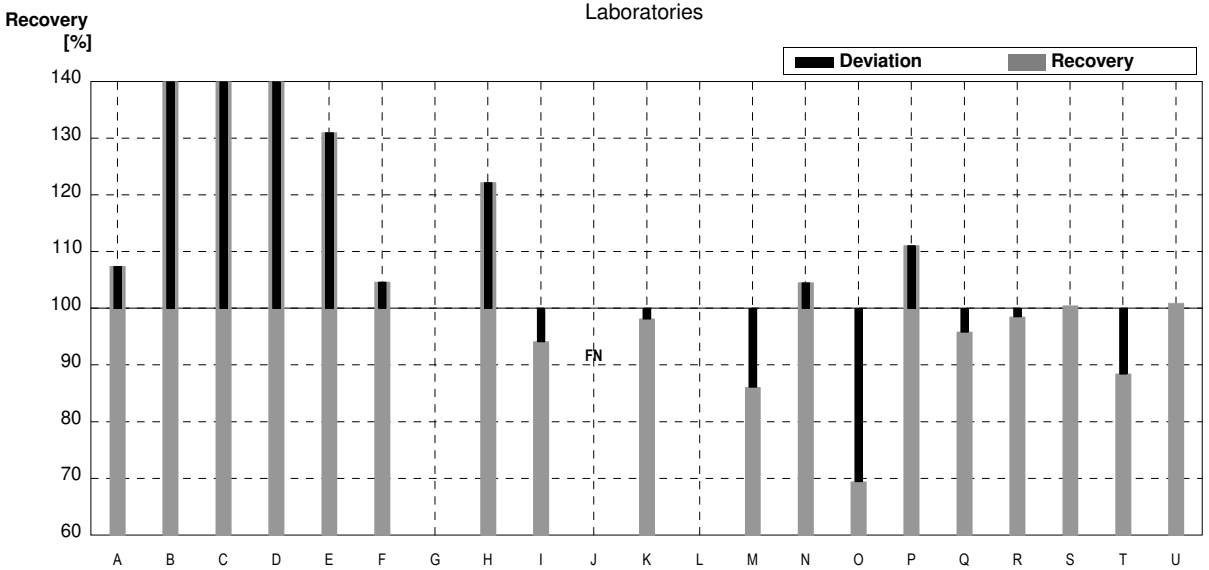
	All results	Outliers excl.	Unit
Mean ± CI(99%)	3,33 ± 0,52	3,05 ± 0,33	µg/l
Recov. ± CI(99%)	116,0 ± 18,1	106,3 ± 11,4	%
SD between labs	0,76	0,43	µg/l
RSD between labs	22,8	14,0	%
n for calculation	18	15	

Sample C65B
Parameter Dichloromethane

Target value	± U (k=2)	2,16 µg/l	±	0,21 µg/l
IFA result	± U (k=2)	2,12 µg/l	±	0,32 µg/l
Stability test	± U (k=2)	2,11 µg/l	±	0,32 µg/l

Lab Code	Result	±	Unit	Recovery	z-Score
A	2,32	0,46	µg/l	107%	0,53
B	3,575 *	0,6650	µg/l	166%	4,68
C	3,48 *	0,90	µg/l	161%	4,37
D	3,85 *		µg/l	178%	5,59
E	2,83	0,71	µg/l	131%	2,22
F	2,26	0,45	µg/l	105%	0,33
G			µg/l		
H	2,640	0,396	µg/l	122%	1,59
I	2,033	0,41	µg/l	94%	-0,42
J	<0,8		µg/l	FN	
K	2,120	0,424	µg/l	98%	-0,13
L			µg/l		
M	1,86	0,018	µg/l	86%	-0,99
N	2,258	0,632	µg/l	105%	0,32
O	1,50	0,28	µg/l	69%	-2,18
P	2,40	0,72	µg/l	111%	0,79
Q	2,07	0,31	µg/l	96%	-0,30
R	2,128	0,213	µg/l	99%	-0,11
S	2,17	0,087	µg/l	100%	0,03
T	1,91	0,38	µg/l	88%	-0,83
U	2,18	0,22	µg/l	101%	0,07



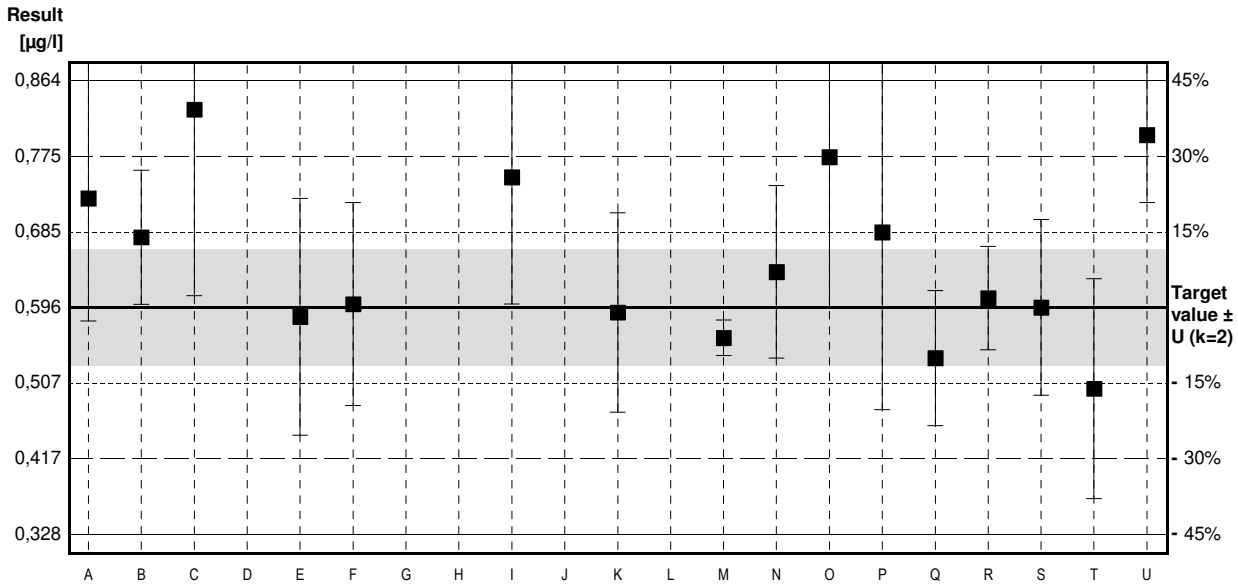


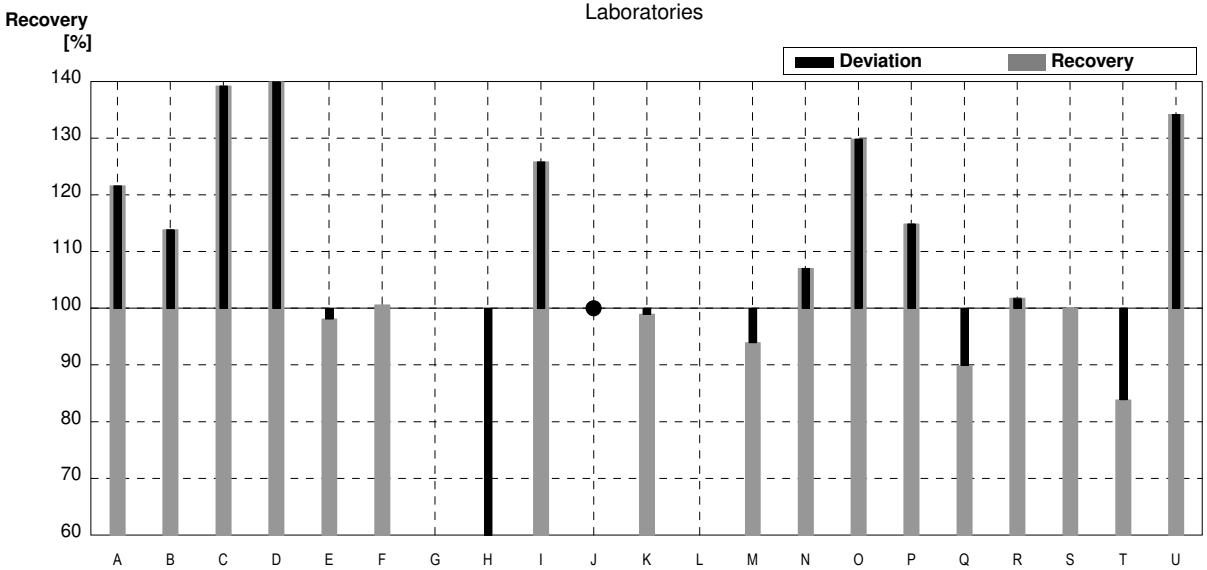
	All results	Outliers excl.	Unit
Mean ± CI(99%)	2,42 ± 0,43	2,18 ± 0,24	µg/l
Recov. ± CI(99%)	112,1 ± 20,0	100,9 ± 11,2	%
SD between labs	0,63	0,32	µg/l
RSD between labs	26,1	14,5	%
n for calculation	18	15	

Sample C65A
Parameter 1,2-Dichloroethane

Target value	± U (k=2)	0,596 µg/l	±	0,069 µg/l
IFA result	± U (k=2)	0,598 µg/l	±	0,090 µg/l
Stability test	± U (k=2)	0,574 µg/l	±	0,086 µg/l

Lab Code	Result	±	Unit	Recovery	z-Score
A	0,725	0,145	µg/l	122%	1,66
B	0,679	0,0794	µg/l	114%	1,07
C	0,83	0,22	µg/l	139%	3,02
D	0,928		µg/l	156%	4,28
E	0,585	0,14	µg/l	98%	-0,14
F	0,600	0,120	µg/l	101%	0,05
G			µg/l		
H	0,171 *	0,026	µg/l	29%	-5,49
I	0,750	0,15	µg/l	126%	1,99
J	<0,8		µg/l	•	
K	0,590	0,118	µg/l	99%	-0,08
L			µg/l		
M	0,560	0,021	µg/l	94%	-0,46
N	0,638	0,102	µg/l	107%	0,54
O	0,774	0,177	µg/l	130%	2,30
P	0,685	0,21	µg/l	115%	1,15
Q	0,536	0,08	µg/l	90%	-0,77
R	0,607	0,061	µg/l	102%	0,14
S	0,596	0,104	µg/l	100%	0,00
T	0,500	0,13	µg/l	84%	-1,24
U	0,80	0,08	µg/l	134%	2,63



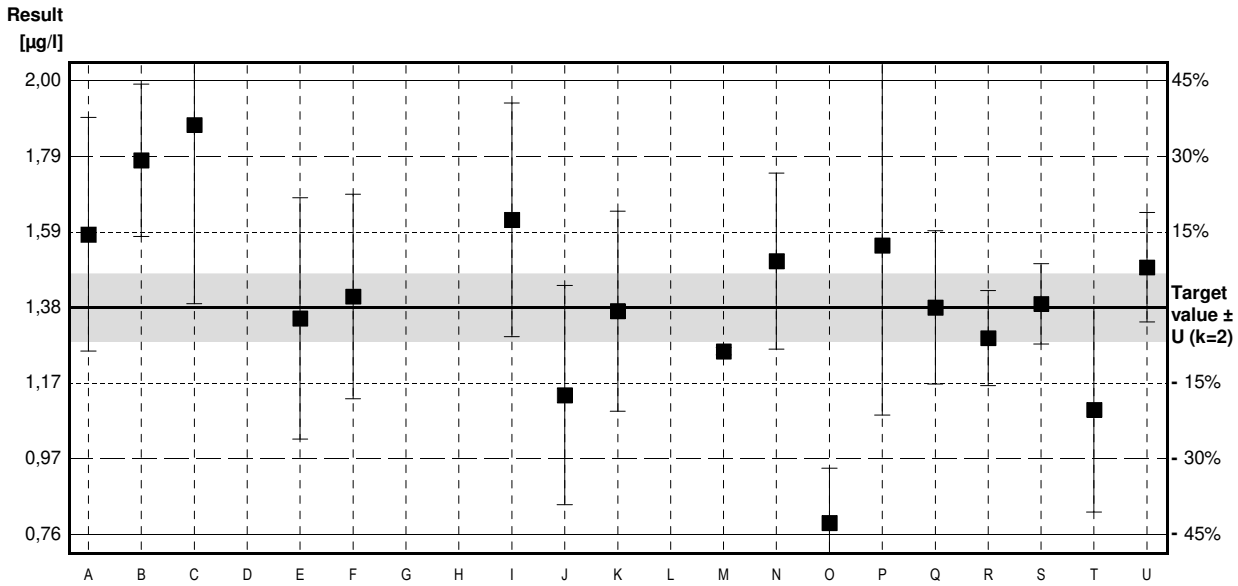


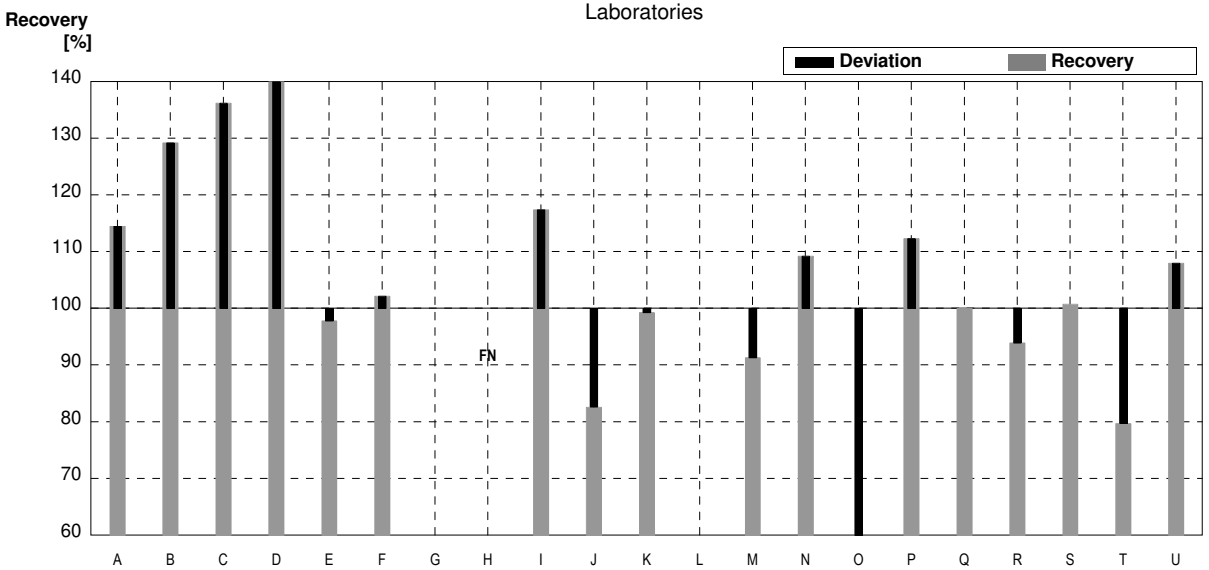
	All results	Outliers excl.	Unit
Mean ± CI(99%)	0,642 ± 0,111	0,670 ± 0,083	µg/l
Recov. ± CI(99%)	107,7 ± 18,7	112,3 ± 13,9	%
SD between labs	0,163	0,117	µg/l
RSD between labs	25,4	17,4	%
n for calculation	18	17	

Sample C65B
Parameter 1,2-Dichloroethane

Target value ± U (k=2)	1,38 µg/l	±	0,09 µg/l
IFA result ± U (k=2)	1,36 µg/l	±	0,20 µg/l
Stability test ± U (k=2)	1,35 µg/l	±	0,20 µg/l

Lab Code	Result	±	Unit	Recovery	z-Score
A	1,58	0,32	µg/l	114%	1,11
B	1,783	0,2086	µg/l	129%	2,25
C	1,88	0,49	µg/l	136%	2,79
D	2,32 *		µg/l	168%	5,24
E	1,35	0,33	µg/l	98%	-0,17
F	1,41	0,28	µg/l	102%	0,17
G			µg/l		
H	<0,1		µg/l	FN	
I	1,62	0,32	µg/l	117%	1,34
J	1,14	0,3	µg/l	83%	-1,34
K	1,370	0,274	µg/l	99%	-0,06
L			µg/l		
M	1,26	0,010	µg/l	91%	-0,67
N	1,507	0,241	µg/l	109%	0,71
O	0,79	0,15	µg/l	57%	-3,29
P	1,55	0,465	µg/l	112%	0,95
Q	1,38	0,21	µg/l	100%	0,00
R	1,296	0,130	µg/l	94%	-0,47
S	1,39	0,110	µg/l	101%	0,06
T	1,10	0,28	µg/l	80%	-1,56
U	1,49	0,15	µg/l	108%	0,61





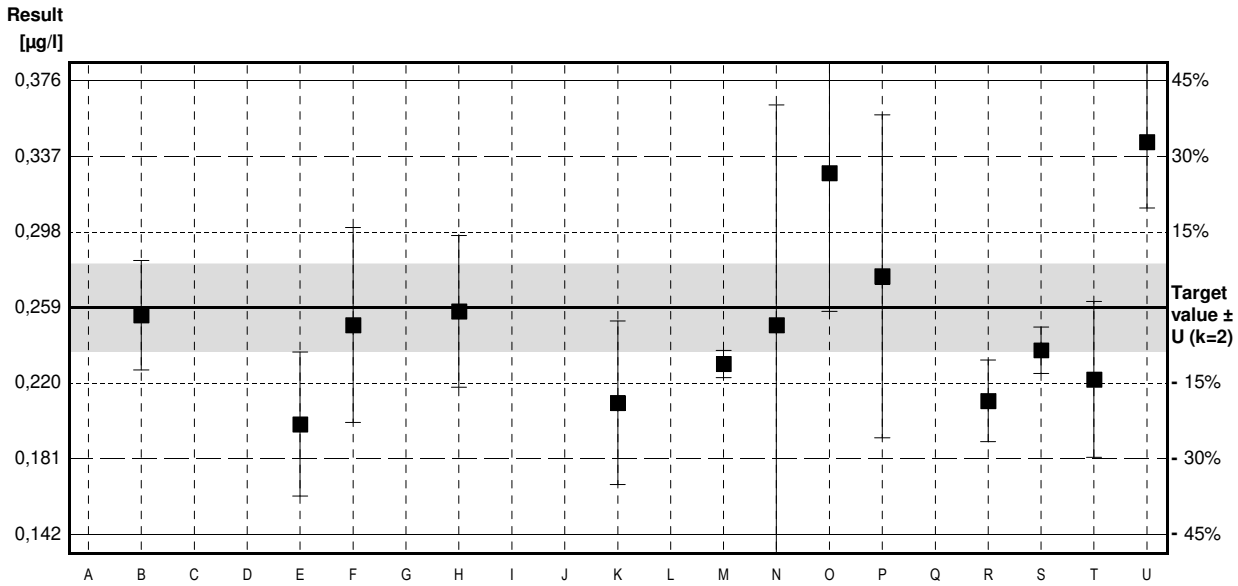
	All results	Outliers excl.	Unit
Mean ± CI(99%)	1,46 ± 0,23	1,41 ± 0,18	µg/l
Recov. ± CI(99%)	105,5 ± 16,4	101,9 ± 13,2	%
SD between labs	0,33	0,26	µg/l
RSD between labs	22,7	18,3	%
n for calculation	18	17	

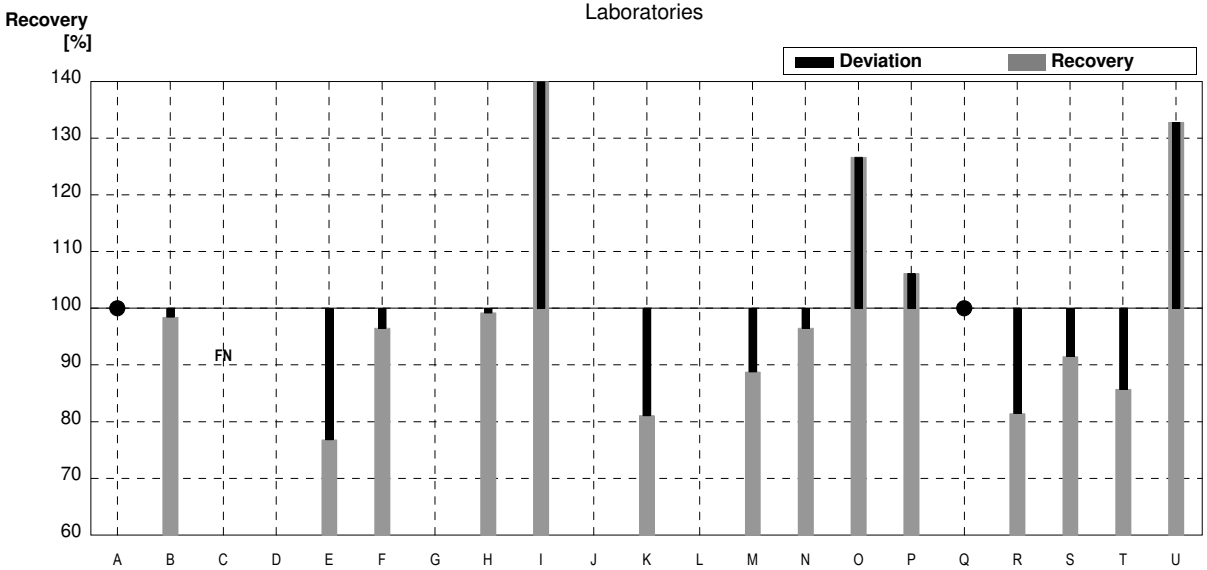
Sample C65A

Parameter cis-1,2-Dichloroethene

Target value	± U (k=2)	0,259 µg/l	±	0,023 µg/l
IFA result	± U (k=2)	0,282 µg/l	±	0,042 µg/l
Stability test	± U (k=2)	0,258 µg/l	±	0,039 µg/l

Lab Code	Result	±	Unit	Recovery	z-Score
A	<0,5		µg/l	•	
B	0,255	0,0281	µg/l	98%	-0,11
C	<0,2		µg/l	FN	
D			µg/l		
E	0,199	0,037	µg/l	77%	-1,65
F	0,250	0,050	µg/l	97%	-0,25
G			µg/l		
H	0,257	0,039	µg/l	99%	-0,06
I	0,479 *	0,10	µg/l	185%	6,07
J			µg/l		
K	0,210	0,042	µg/l	81%	-1,35
L			µg/l		
M	0,230	0,007	µg/l	89%	-0,80
N	0,250	0,113	µg/l	97%	-0,25
O	0,328	0,071	µg/l	127%	1,90
P	0,275	0,083	µg/l	106%	0,44
Q	<0,5		µg/l	•	
R	0,211	0,021	µg/l	81%	-1,32
S	0,237	0,012	µg/l	92%	-0,61
T	0,222	0,04	µg/l	86%	-1,02
U	0,344	0,034	µg/l	133%	2,34





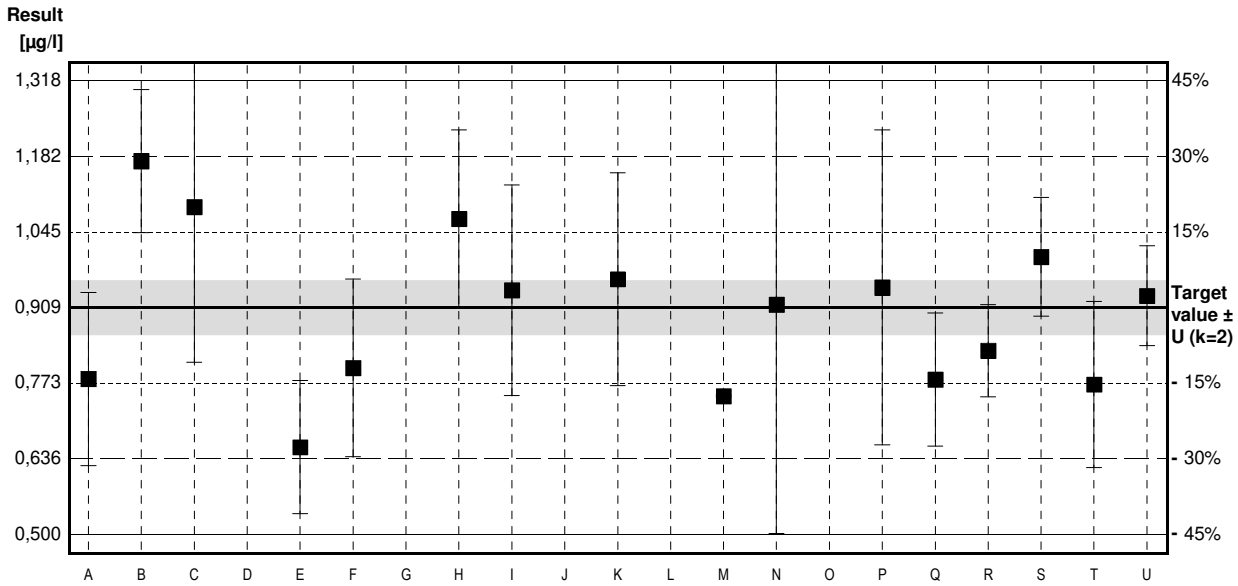
	All results	Outliers excl.	Unit
Mean ± CI(99%)	0,268 ± 0,059	0,251 ± 0,037	µg/l
Recov. ± CI(99%)	103,3 ± 22,9	97,1 ± 14,2	%
SD between labs	0,074	0,043	µg/l
RSD between labs	27,6	17,3	%
n for calculation	14	13	

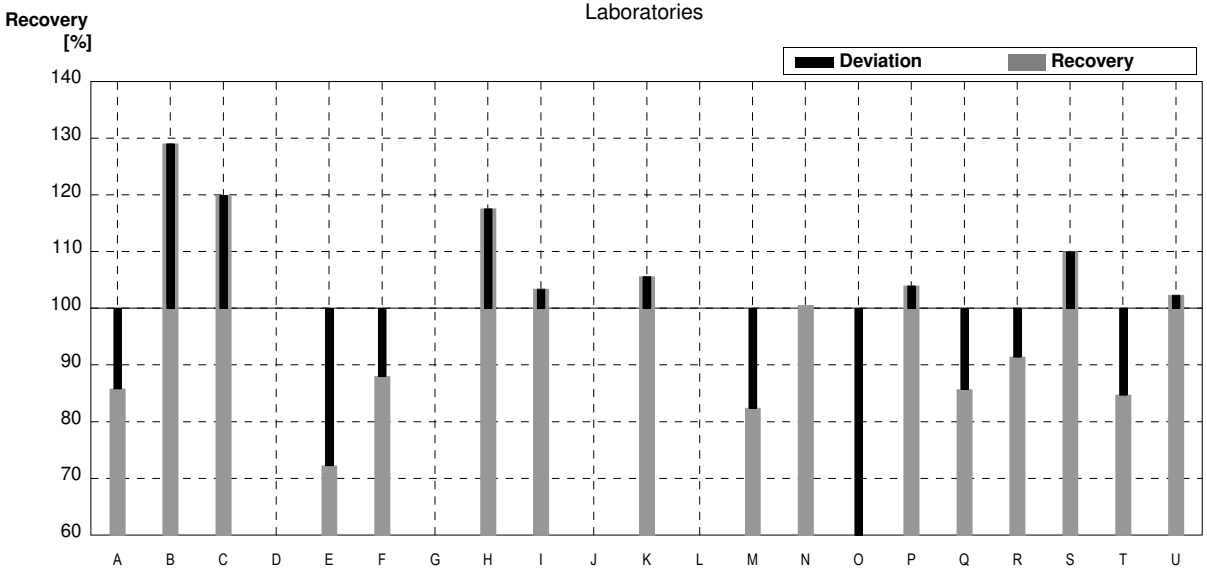
Sample C65B

Parameter cis-1,2-Dichloroethene

Target value	± U (k=2)	0,909 µg/l	±	0,049 µg/l
IFA result	± U (k=2)	0,872 µg/l	±	0,131 µg/l
Stability test	± U (k=2)	0,878 µg/l	±	0,132 µg/l

Lab Code	Result	±	Unit	Recovery	z-Score
A	0,780	0,156	µg/l	86%	-1,01
B	1,173	0,1290	µg/l	129%	2,07
C	1,09	0,28	µg/l	120%	1,42
D			µg/l		
E	0,657	0,12	µg/l	72%	-1,98
F	0,80	0,16	µg/l	88%	-0,86
G			µg/l		
H	1,069	0,160	µg/l	118%	1,26
I	0,940	0,19	µg/l	103%	0,24
J			µg/l		
K	0,960	0,192	µg/l	106%	0,40
L			µg/l		
M	0,749	0,002	µg/l	82%	-1,26
N	0,914	0,413	µg/l	101%	0,04
O	0,487	0,088	µg/l	54%	-3,32
P	0,945	0,284	µg/l	104%	0,28
Q	0,779	0,12	µg/l	86%	-1,02
R	0,831	0,083	µg/l	91%	-0,61
S	1,00	0,107	µg/l	110%	0,72
T	0,77	0,15	µg/l	85%	-1,09
U	0,93	0,09	µg/l	102%	0,17



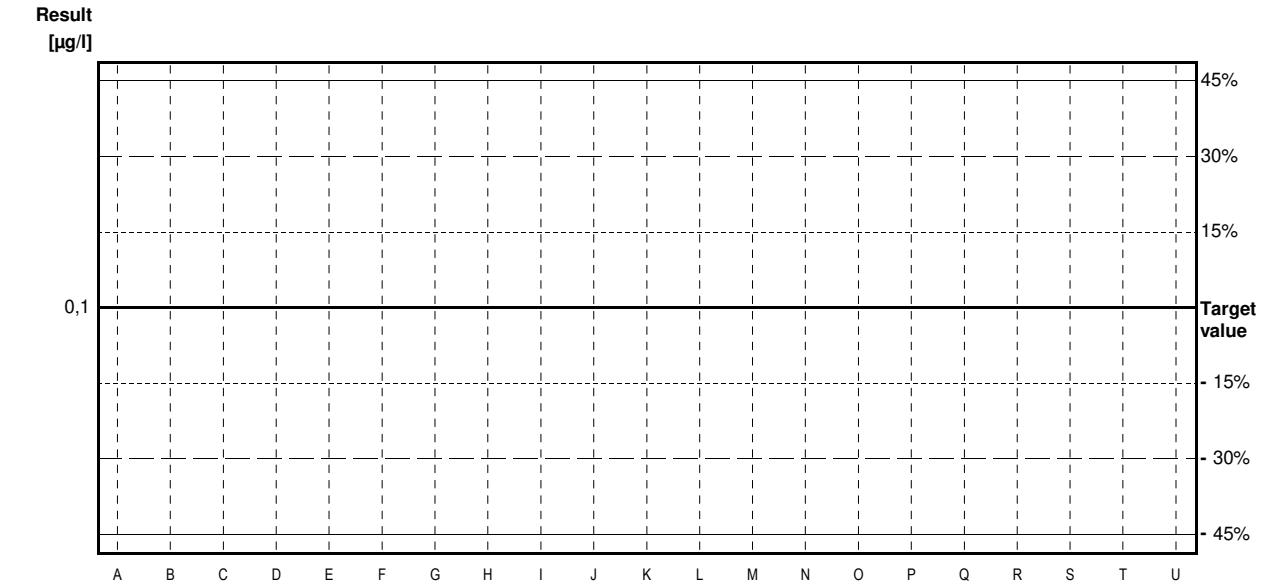


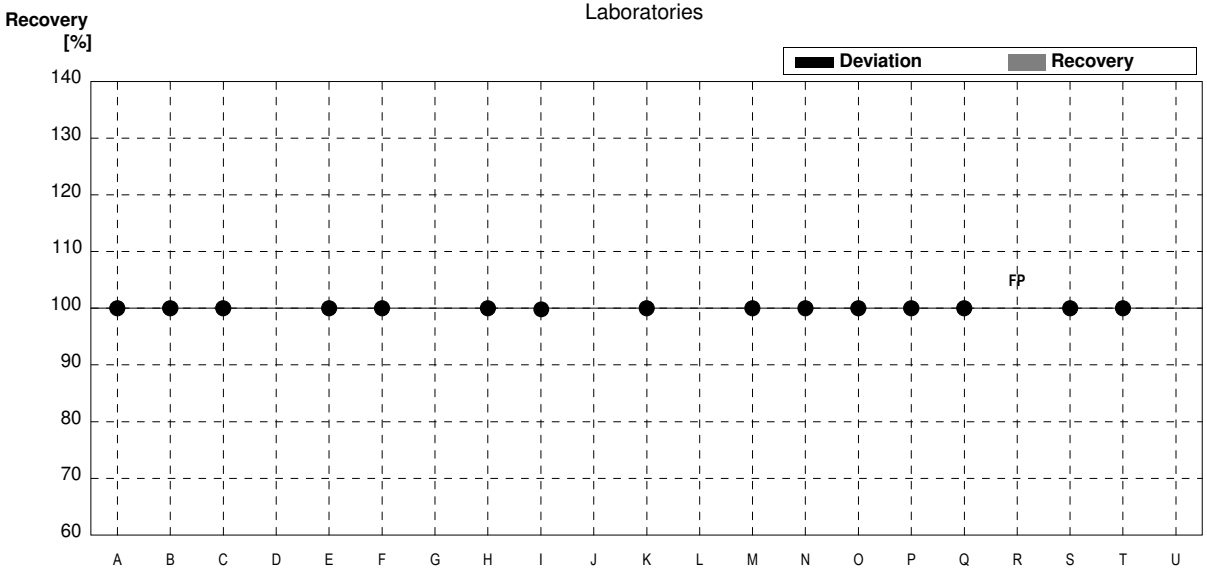
	All results	Outliers excl.	Unit
Mean ± CI(99%)	0,875 ± 0,120	0,875 ± 0,120	µg/l
Recov. ± CI(99%)	96,3 ± 13,2	96,3 ± 13,2	%
SD between labs	0,170	0,170	µg/l
RSD between labs	19,4	19,4	%
n for calculation	17	17	

Sample C65A
Parameter trans-1,2-Dichloroethene

Target value	<0,1	µg/l
IFA result	<0,1	µg/l
Stability test	<0,1	µg/l

Lab Code	Result	±	Unit	Recovery	z-Score
A	<0,5		µg/l	•	
B	<0,05		µg/l	•	
C	<0,1		µg/l	•	
D			µg/l		
E	<0,1		µg/l	•	
F	<0,1		µg/l	•	
G			µg/l		
H	<0,1		µg/l	•	
I	<BG		µg/l	•	
J			µg/l		
K	<0,020		µg/l	•	
L			µg/l		
M	<0,10		µg/l	•	
N	0,0173	0,0056	µg/l	•	
O	<0,1		µg/l	•	
P	<0,1		µg/l	•	
Q	<0,5		µg/l	•	
R	0,168	0,017	µg/l	FP	
S	<0,05		µg/l	•	
T	<0,05	0	µg/l	•	
U			µg/l		





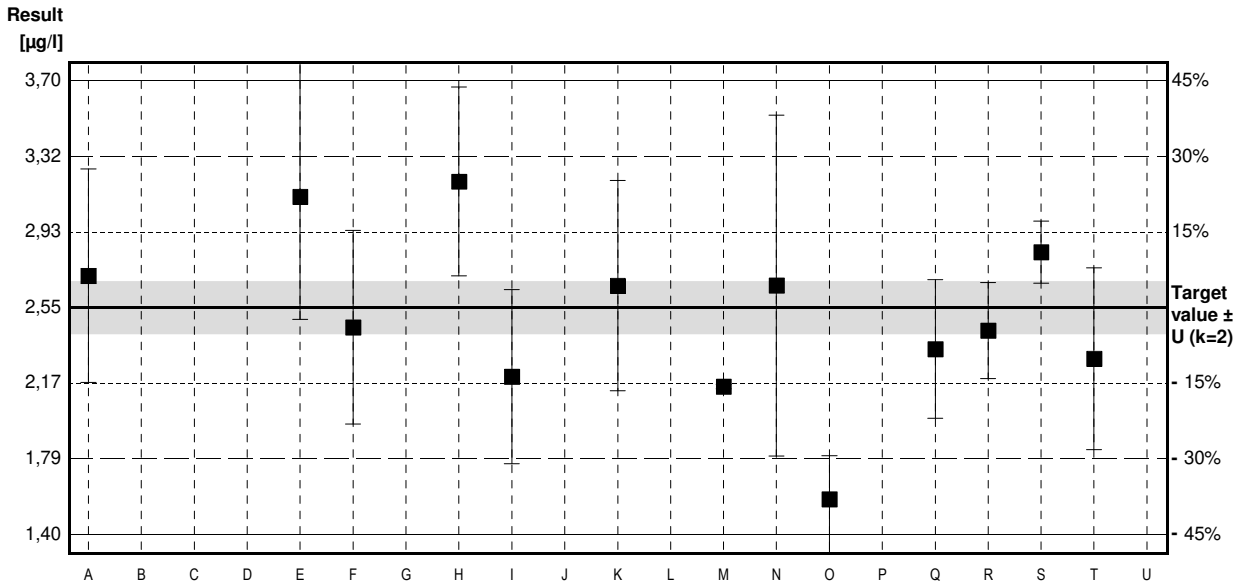
	All results	Outliers excl.	Unit
Mean ± CI(99%) Recov. ± CI(99%)			µg/l %
SD between labs RSD between labs			µg/l %
n for calculation			

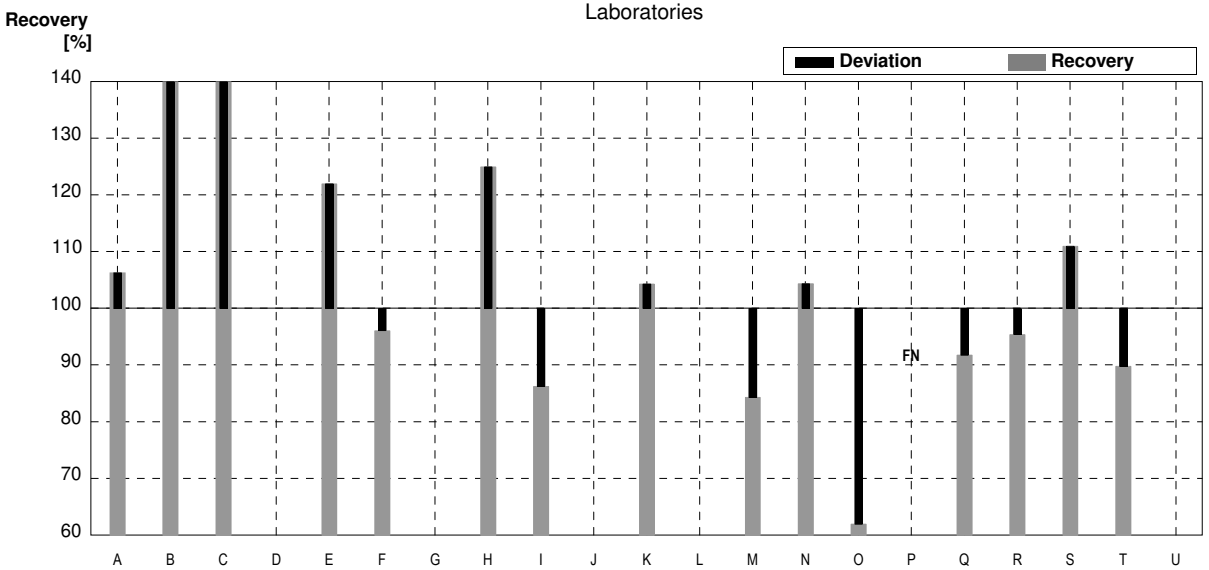
Sample C65B

Parameter trans-1,2-Dichloroethene

Target value	± U (k=2)	2,55 µg/l	±	0,13 µg/l
IFA result	± U (k=2)	2,42 µg/l	±	0,36 µg/l
Stability test	± U (k=2)	2,43 µg/l	±	0,36 µg/l

Lab Code	Result	±	Unit	Recovery	z-Score
A	2,71	0,54	µg/l	106%	0,48
B	3,861	0,5174	µg/l	151%	3,95
C	4,21	1,09	µg/l	165%	5,01
D			µg/l		
E	3,11	0,62	µg/l	122%	1,69
F	2,45	0,49	µg/l	96%	-0,30
G			µg/l		
H	3,187	0,478	µg/l	125%	1,92
I	2,200	0,44	µg/l	86%	-1,06
J			µg/l		
K	2,660	0,532	µg/l	104%	0,33
L			µg/l		
M	2,15	0,011	µg/l	84%	-1,21
N	2,661	0,862	µg/l	104%	0,33
O	1,58	0,22	µg/l	62%	-2,93
P	<0,1		µg/l	FN	
Q	2,34	0,35	µg/l	92%	-0,63
R	2,433	0,243	µg/l	95%	-0,35
S	2,83	0,157	µg/l	111%	0,84
T	2,29	0,46	µg/l	90%	-0,78
U			µg/l		





	All results	Outliers excl.	Unit
Mean ± CI(99%)	2,71 ± 0,52	2,71 ± 0,52	µg/l
Recov. ± CI(99%)	106,3 ± 20,2	106,3 ± 20,2	%
SD between labs	0,67	0,67	µg/l
RSD between labs	24,7	24,7	%
n for calculation	15	15	

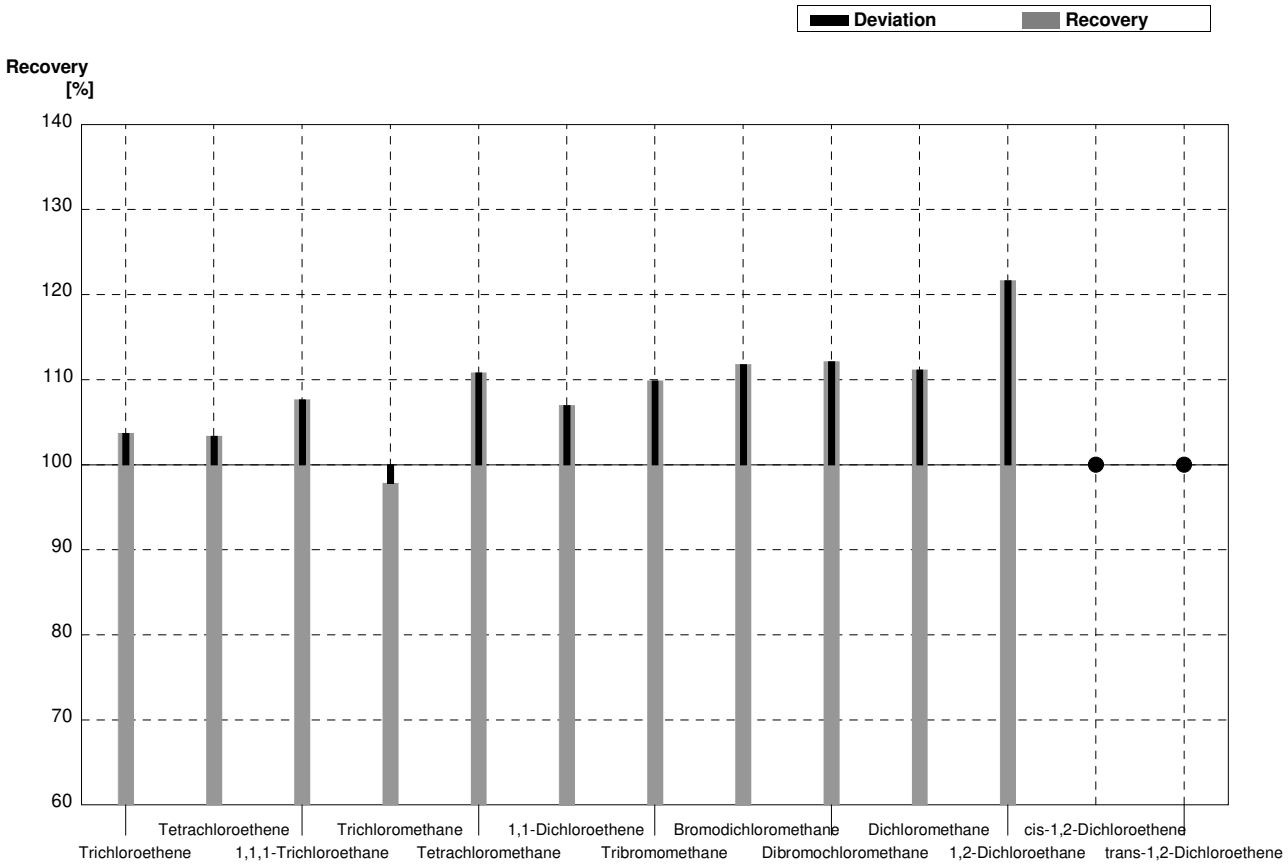
Illustration of Results
Laboratory Oriented Part

Round C65
Volatile Halogenated Hydrocarbons

Sample Dispatch: 7 June 2021

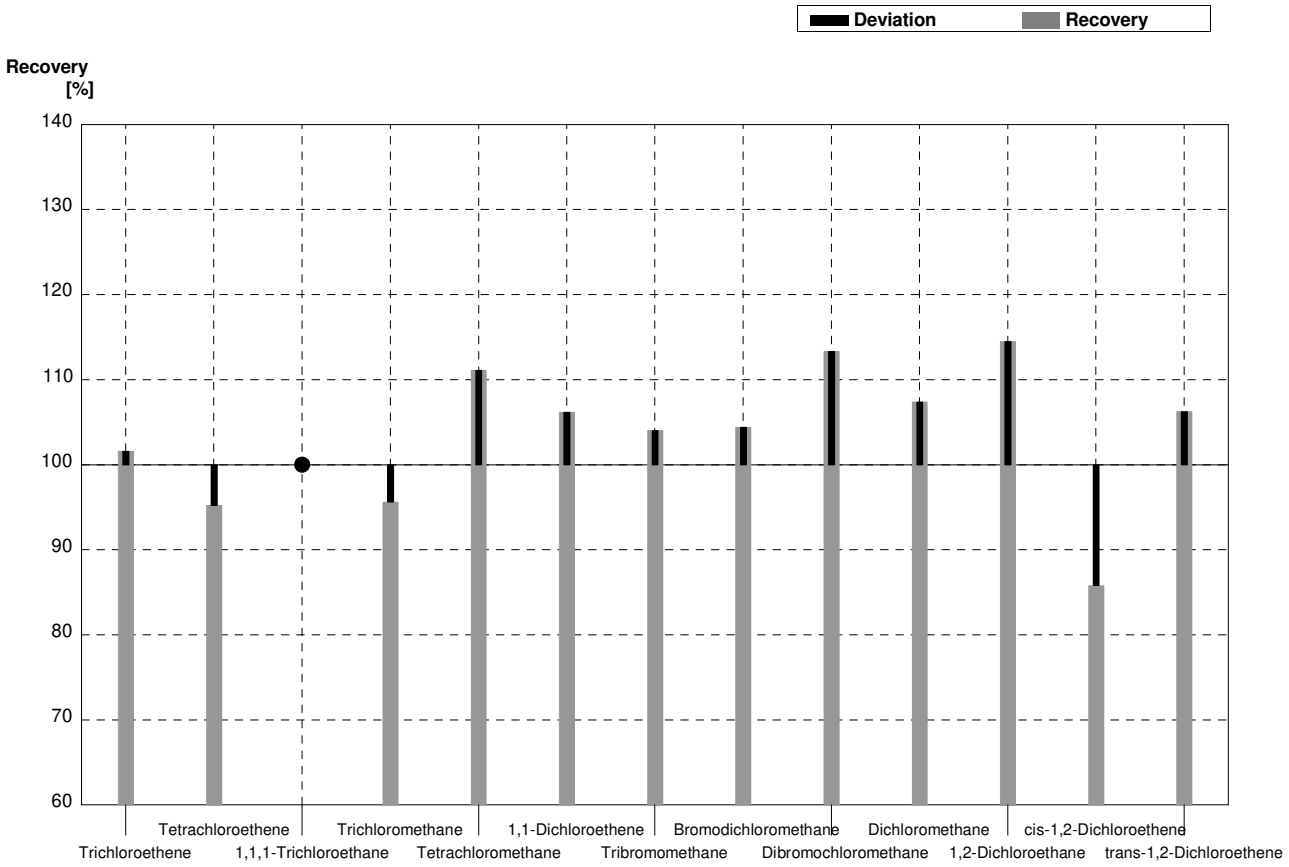
Sample **C65A**
Laboratory **A**

Parameter	Target value	± U (k=2)	Result	±	Unit	Recovery
Trichloroethene	1,88	0,10	1,95	0,39	µg/l	104%
Tetrachloroethene	1,79	0,09	1,85	0,37	µg/l	103%
1,1,1-Trichloroethane	0,274	0,016	0,295	0,059	µg/l	108%
Trichloromethane	0,323	0,037	0,316	0,063	µg/l	98%
Tetrachloromethane	0,370	0,024	0,410	0,082	µg/l	111%
1,1-Dichloroethene	3,43	0,13	3,67	0,73	µg/l	107%
Tribromomethane	0,375	0,028	0,412	0,082	µg/l	110%
Bromodichloromethane	0,271	0,022	0,303	0,061	µg/l	112%
Dibromochloromethane	1,40	0,07	1,57	0,31	µg/l	112%
Dichloromethane	2,87	0,26	3,19	0,64	µg/l	111%
1,2-Dichloroethane	0,596	0,069	0,725	0,145	µg/l	122%
cis-1,2-Dichloroethene	0,259	0,023	<0,5		µg/l	•
trans-1,2-Dichloroethene	<0,1		<0,5		µg/l	•



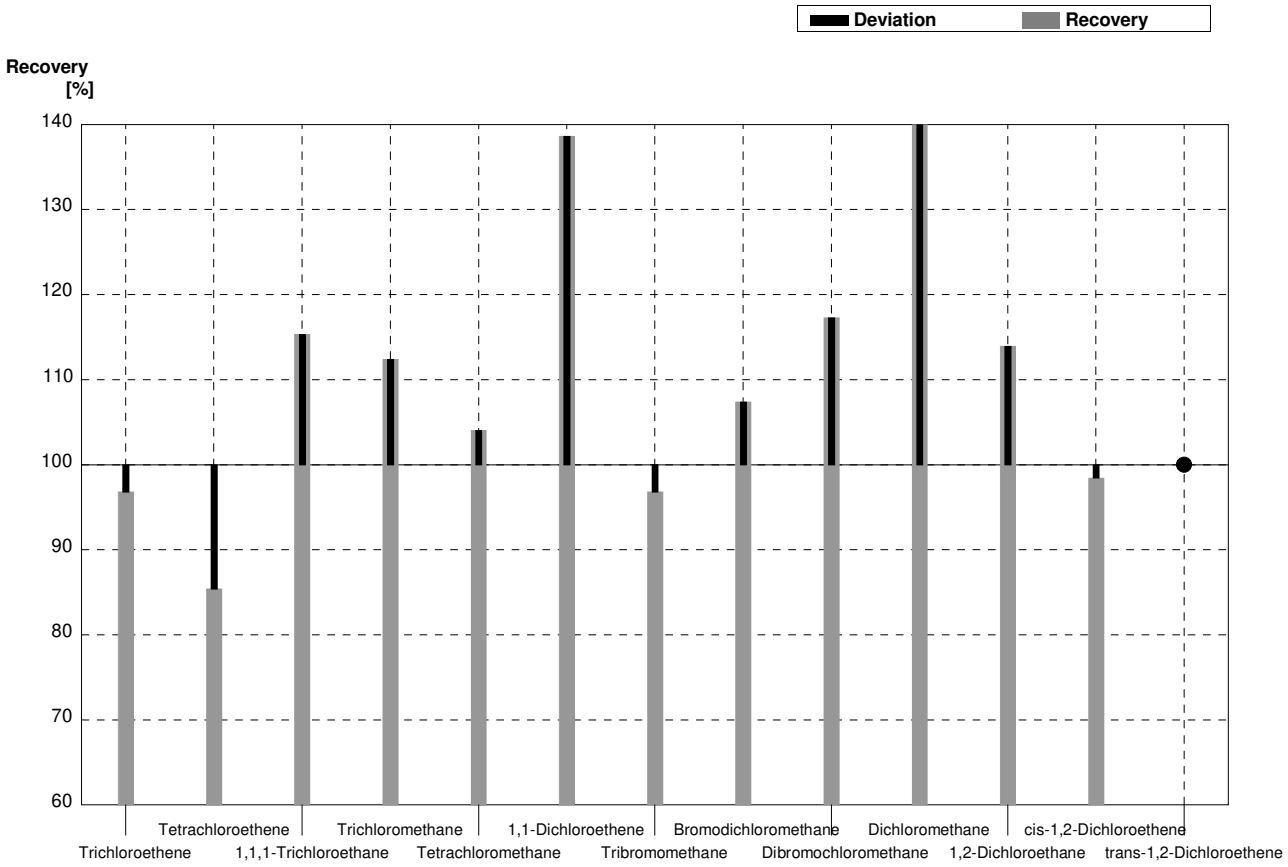
Sample **C65B**
Laboratory **A**

Parameter	Target value	± U (k=2)	Result	±	Unit	Recovery
Trichloroethene	0,375	0,022	0,381	0,076	µg/l	102%
Tetrachloroethene	0,928	0,048	0,884	0,177	µg/l	95%
1,1,1-Trichloroethane	<0,1		<0,1		µg/l	•
Trichloromethane	0,846	0,058	0,809	0,162	µg/l	96%
Tetrachloromethane	0,819	0,044	0,910	0,182	µg/l	111%
1,1-Dichloroethene	1,29	0,07	1,37	0,27	µg/l	106%
Tribromomethane	0,869	0,049	0,904	0,181	µg/l	104%
Bromodichloromethane	1,35	0,07	1,41	0,28	µg/l	104%
Dibromochloromethane	0,435	0,025	0,493	0,099	µg/l	113%
Dichloromethane	2,16	0,21	2,32	0,46	µg/l	107%
1,2-Dichloroethane	1,38	0,09	1,58	0,32	µg/l	114%
cis-1,2-Dichloroethene	0,909	0,049	0,780	0,156	µg/l	86%
trans-1,2-Dichloroethene	2,55	0,13	2,71	0,54	µg/l	106%



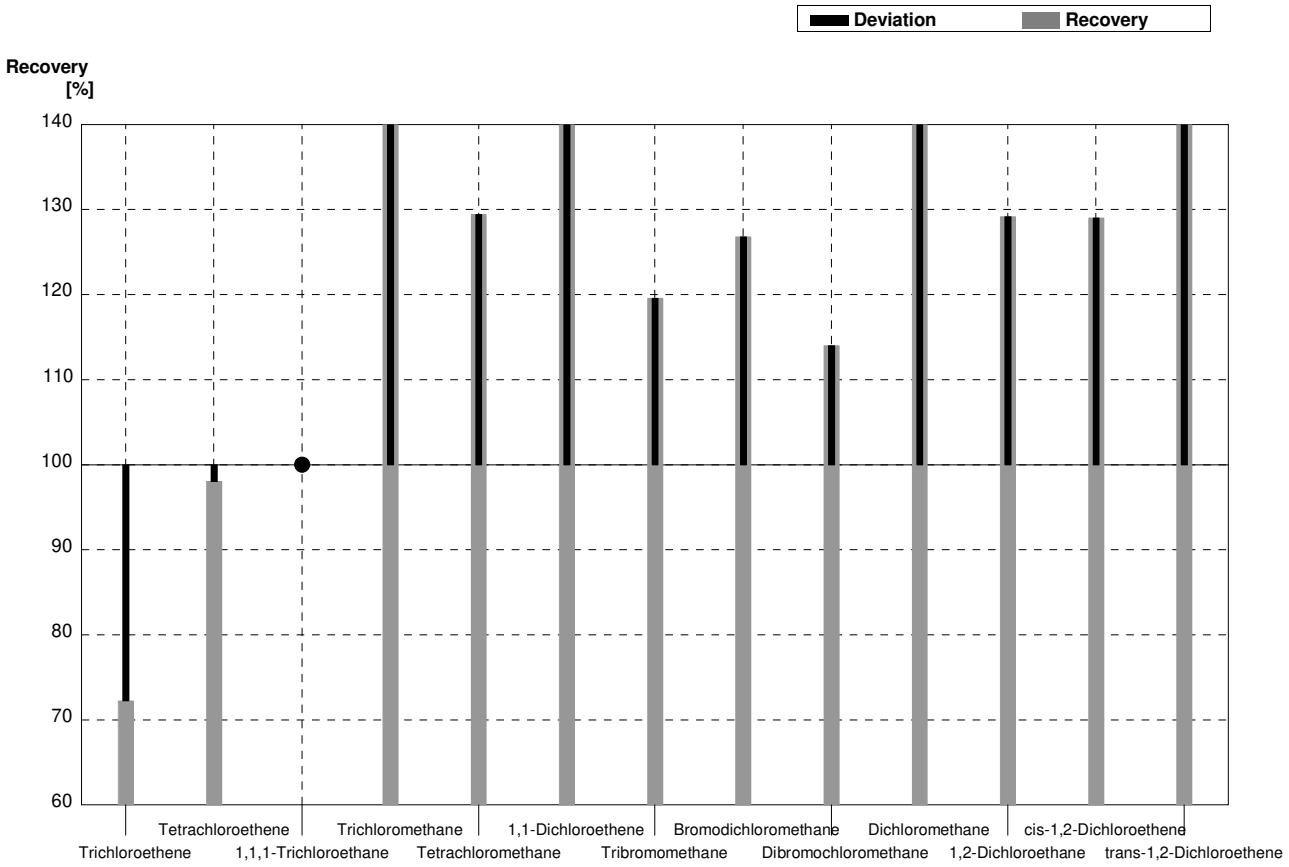
Sample **C65A**
Laboratory **B**

Parameter	Target value	± U (k=2)	Result	±	Unit	Recovery
Trichloroethene	1,88	0,10	1,820	0,2366	µg/l	97%
Tetrachloroethene	1,79	0,09	1,529	0,2385	µg/l	85%
1,1,1-Trichloroethane	0,274	0,016	0,316	0,0379	µg/l	115%
Trichloromethane	0,323	0,037	0,363	0,0402	µg/l	112%
Tetrachloromethane	0,370	0,024	0,385	0,0458	µg/l	104%
1,1-Dichloroethene	3,43	0,13	4,755	0,5754	µg/l	139%
Tribromomethane	0,375	0,028	0,363	0,0486	µg/l	97%
Bromodichloromethane	0,271	0,022	0,291	0,0308	µg/l	107%
Dibromochloromethane	1,40	0,07	1,642	0,1691	µg/l	117%
Dichloromethane	2,87	0,26	4,530	0,8426	µg/l	158%
1,2-Dichloroethane	0,596	0,069	0,679	0,0794	µg/l	114%
cis-1,2-Dichloroethene	0,259	0,023	0,255	0,0281	µg/l	98%
trans-1,2-Dichloroethene	<0,1		<0,05		µg/l	•



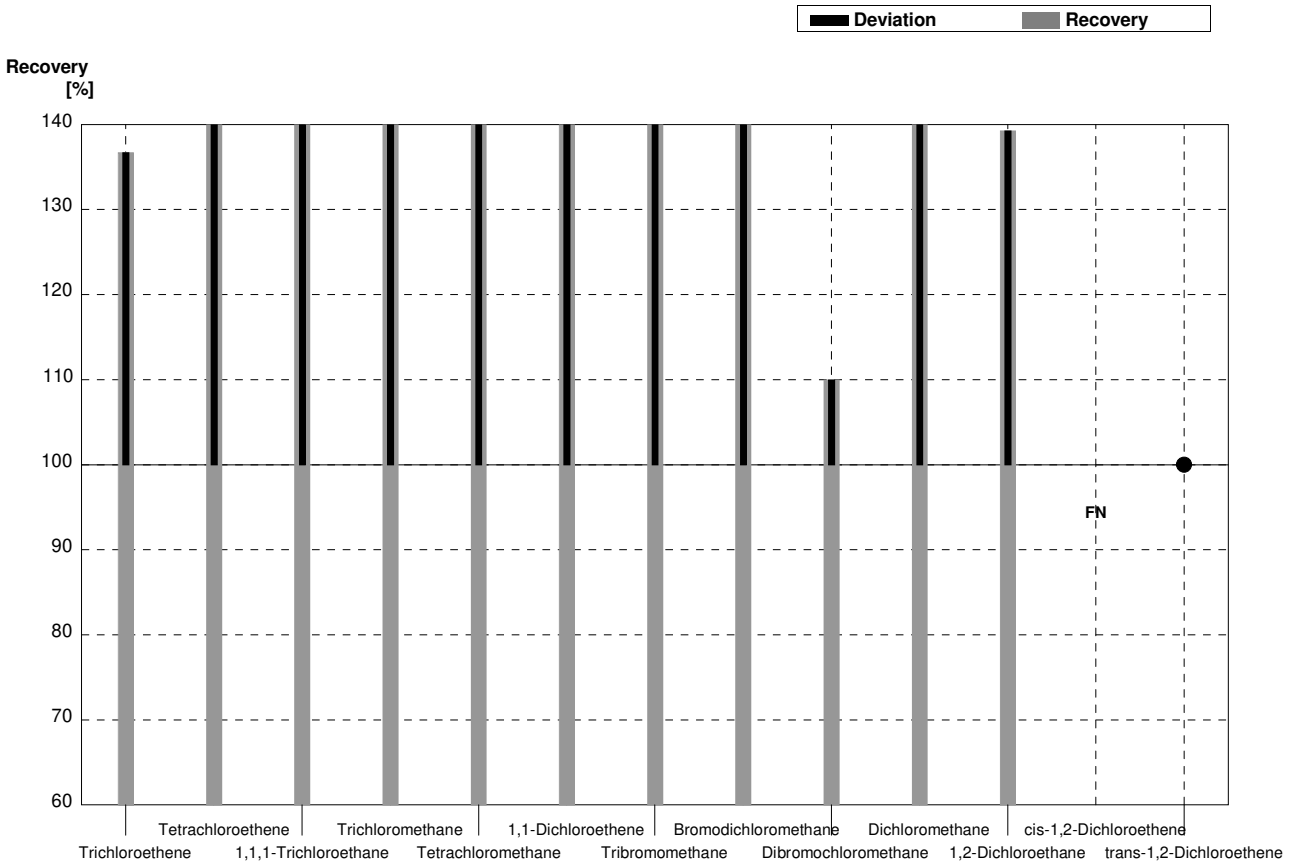
Sample **C65B**
Laboratory **B**

Parameter	Target value	± U (k=2)	Result	±	Unit	Recovery
Trichloroethene	0,375	0,022	0,271	0,0352	µg/l	72%
Tetrachloroethene	0,928	0,048	0,910	0,1419	µg/l	98%
1,1,1-Trichloroethane	<0,1		<0,05		µg/l	•
Trichloromethane	0,846	0,058	1,302	0,1445	µg/l	154%
Tetrachloromethane	0,819	0,044	1,060	0,1261	µg/l	129%
1,1-Dichloroethene	1,29	0,07	2,246	0,2718	µg/l	174%
Tribromomethane	0,869	0,049	1,039	0,1392	µg/l	120%
Bromodichloromethane	1,35	0,07	1,712	0,1815	µg/l	127%
Dibromochloromethane	0,435	0,025	0,496	0,0511	µg/l	114%
Dichloromethane	2,16	0,21	3,575	0,6650	µg/l	166%
1,2-Dichloroethane	1,38	0,09	1,783	0,2086	µg/l	129%
cis-1,2-Dichloroethene	0,909	0,049	1,173	0,1290	µg/l	129%
trans-1,2-Dichloroethene	2,55	0,13	3,861	0,5174	µg/l	151%



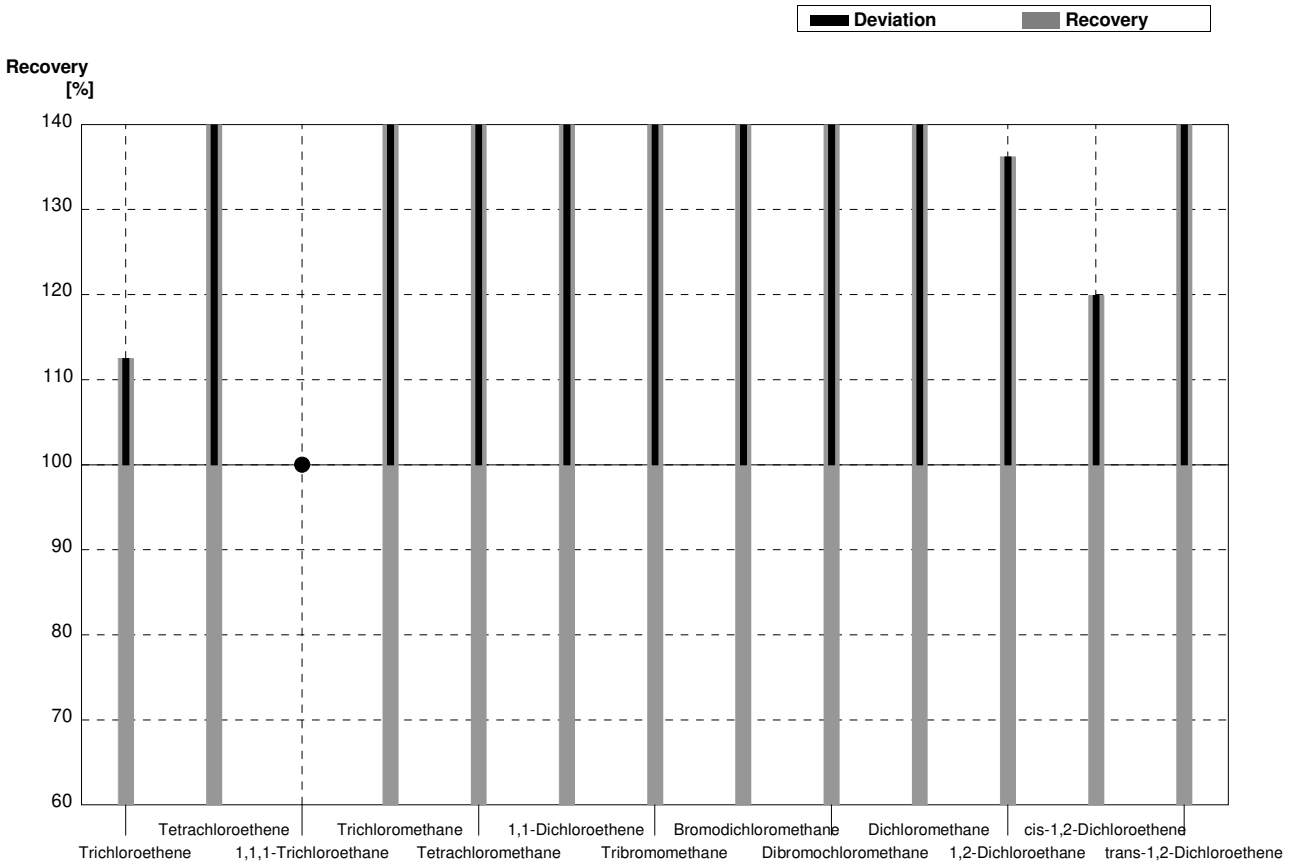
Sample **C65A**
Laboratory **C**

Parameter	Target value	± U (k=2)	Result	±	Unit	Recovery
Trichloroethene	1,88	0,10	2,57	0,67	µg/l	137%
Tetrachloroethene	1,79	0,09	2,96	0,77	µg/l	165%
1,1,1-Trichloroethane	0,274	0,016	0,463	0,12	µg/l	169%
Trichloromethane	0,323	0,037	0,492	0,13	µg/l	152%
Tetrachloromethane	0,370	0,024	0,61	0,16	µg/l	165%
1,1-Dichloroethene	3,43	0,13	5,78	1,50	µg/l	169%
Tribromomethane	0,375	0,028	0,65	0,17	µg/l	173%
Bromodichloromethane	0,271	0,022	0,424	0,11	µg/l	156%
Dibromochloromethane	1,40	0,07	1,54	0,40	µg/l	110%
Dichloromethane	2,87	0,26	4,45	1,16	µg/l	155%
1,2-Dichloroethane	0,596	0,069	0,83	0,22	µg/l	139%
cis-1,2-Dichloroethene	0,259	0,023	<0,2		µg/l	FN
trans-1,2-Dichloroethene	<0,1		<0,1		µg/l	•



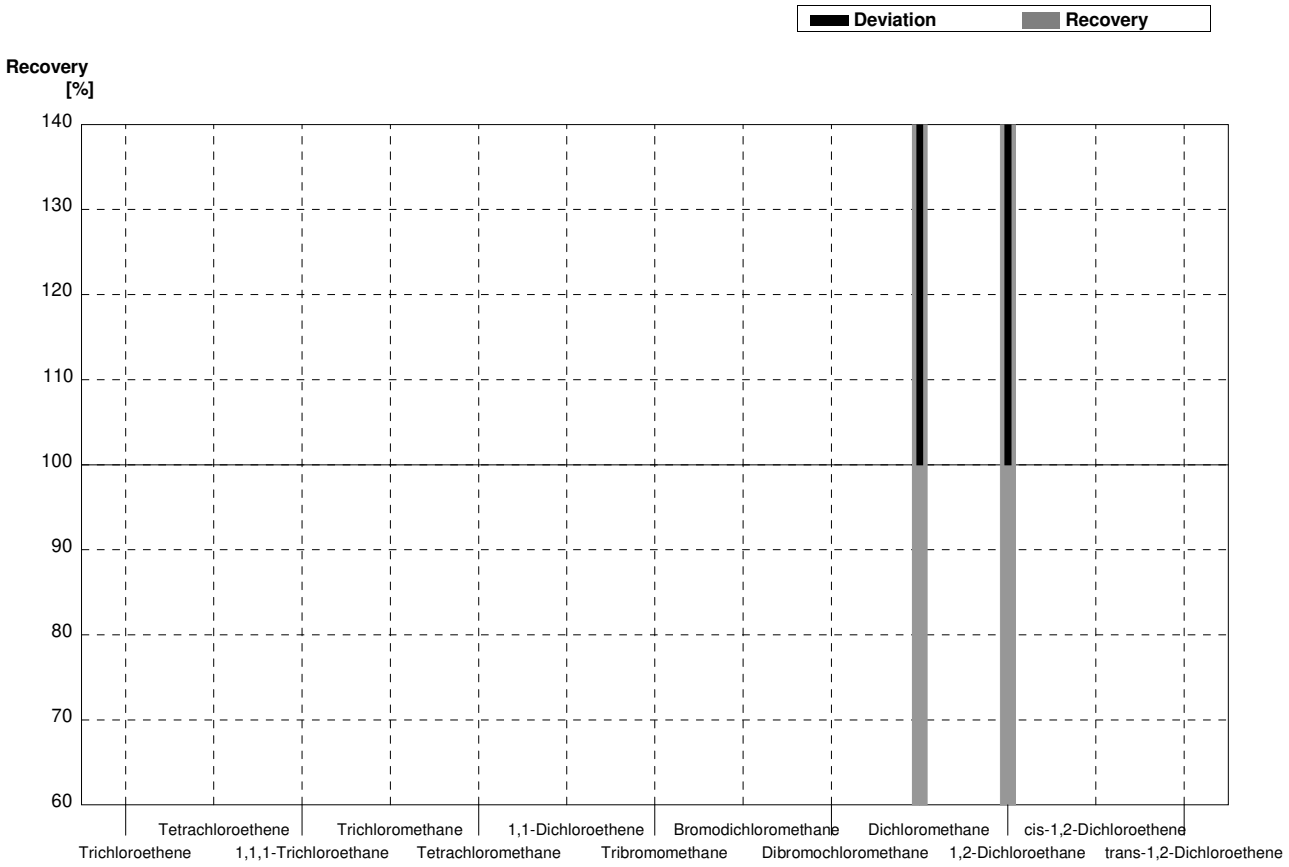
Sample **C65B**
Laboratory **C**

Parameter	Target value	± U (k=2)	Result	±	Unit	Recovery
Trichloroethene	0,375	0,022	0,422	0,11	µg/l	113%
Tetrachloroethene	0,928	0,048	1,72	0,45	µg/l	185%
1,1,1-Trichloroethane	<0,1		<0,1		µg/l	•
Trichloromethane	0,846	0,058	1,32	0,34	µg/l	156%
Tetrachloromethane	0,819	0,044	1,26	0,33	µg/l	154%
1,1-Dichloroethene	1,29	0,07	2,40	0,62	µg/l	186%
Tribromomethane	0,869	0,049	1,33	0,35	µg/l	153%
Bromodichloromethane	1,35	0,07	2,00	0,52	µg/l	148%
Dibromochloromethane	0,435	0,025	0,92	0,24	µg/l	211%
Dichloromethane	2,16	0,21	3,48	0,90	µg/l	161%
1,2-Dichloroethane	1,38	0,09	1,88	0,49	µg/l	136%
cis-1,2-Dichloroethene	0,909	0,049	1,09	0,28	µg/l	120%
trans-1,2-Dichloroethene	2,55	0,13	4,21	1,09	µg/l	165%



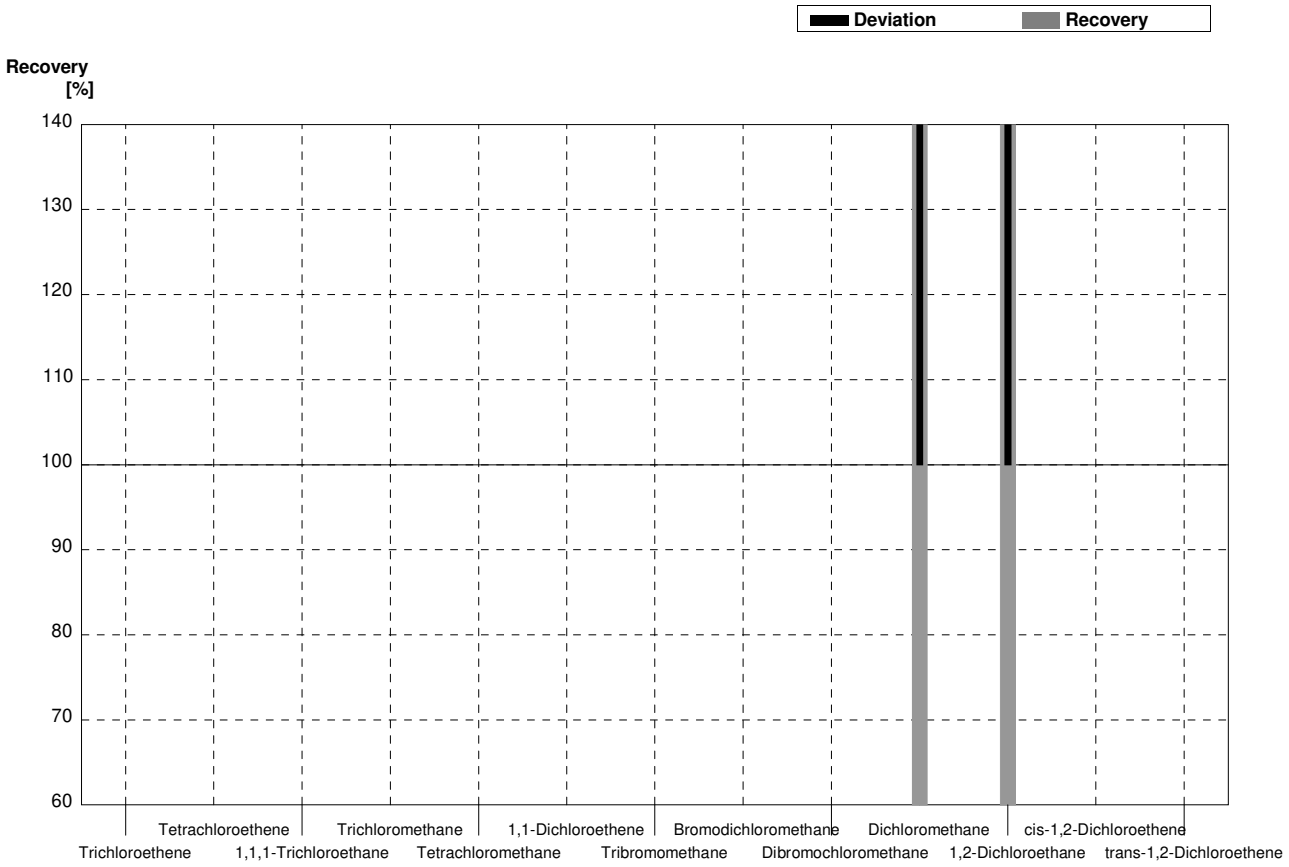
Sample **C65A**
Laboratory **D**

Parameter	Target value	± U (k=2)	Result	±	Unit	Recovery
Trichloroethene	1,88	0,10			µg/l	
Tetrachloroethene	1,79	0,09			µg/l	
1,1,1-Trichloroethane	0,274	0,016			µg/l	
Trichloromethane	0,323	0,037			µg/l	
Tetrachloromethane	0,370	0,024			µg/l	
1,1-Dichloroethene	3,43	0,13			µg/l	
Tribromomethane	0,375	0,028			µg/l	
Bromodichloromethane	0,271	0,022			µg/l	
Dibromochloromethane	1,40	0,07			µg/l	
Dichloromethane	2,87	0,26	5,17		µg/l	180%
1,2-Dichloroethane	0,596	0,069	0,928		µg/l	156%
cis-1,2-Dichloroethene	0,259	0,023			µg/l	
trans-1,2-Dichloroethene	<0,1				µg/l	



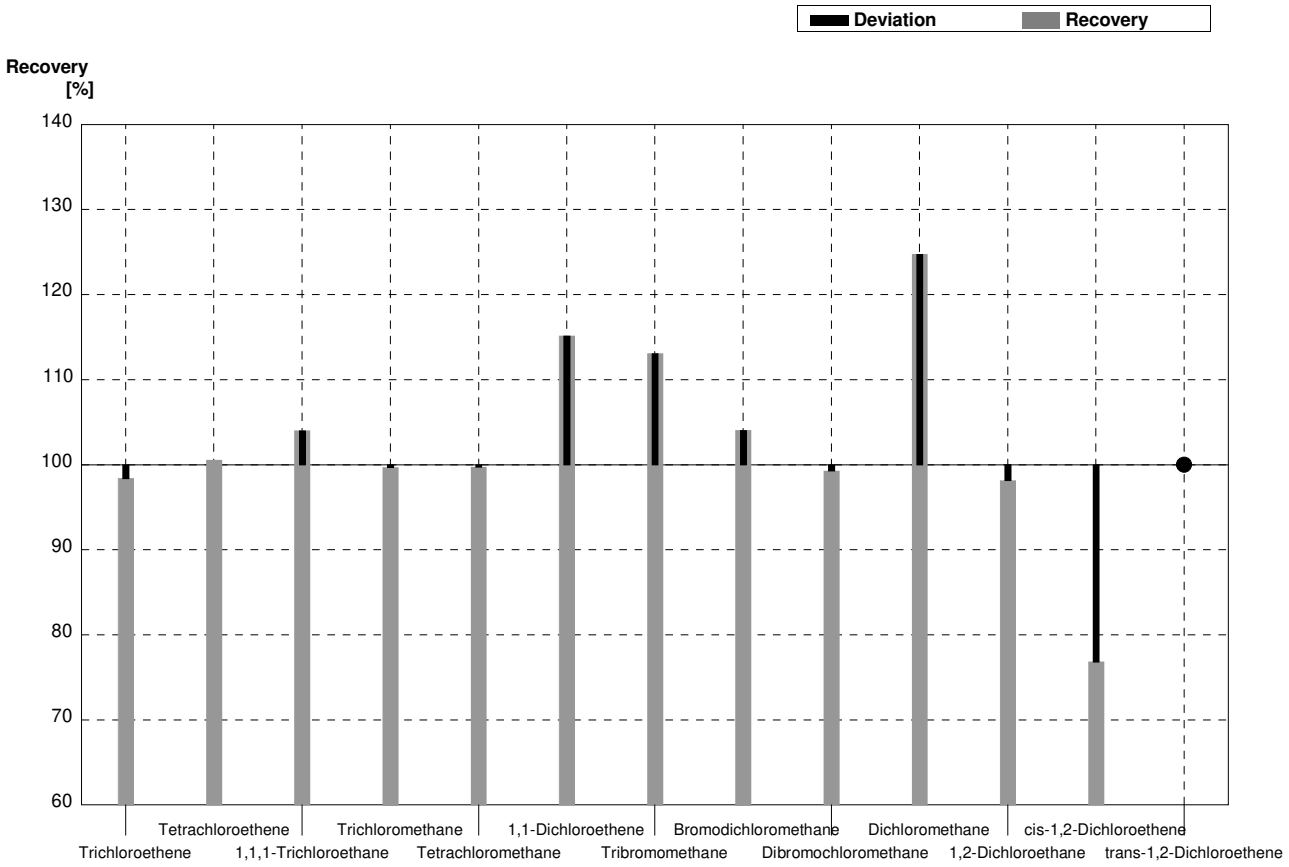
Sample **C65B**
Laboratory **D**

Parameter	Target value	± U (k=2)	Result	±	Unit	Recovery
Trichloroethene	0,375	0,022			µg/l	
Tetrachloroethene	0,928	0,048			µg/l	
1,1,1-Trichloroethane	<0,1				µg/l	
Trichloromethane	0,846	0,058			µg/l	
Tetrachloromethane	0,819	0,044			µg/l	
1,1-Dichloroethene	1,29	0,07			µg/l	
Tribromomethane	0,869	0,049			µg/l	
Bromodichloromethane	1,35	0,07			µg/l	
Dibromochloromethane	0,435	0,025			µg/l	
Dichloromethane	2,16	0,21	3,85		µg/l	178%
1,2-Dichloroethane	1,38	0,09	2,32		µg/l	168%
cis-1,2-Dichloroethene	0,909	0,049			µg/l	
trans-1,2-Dichloroethene	2,55	0,13			µg/l	



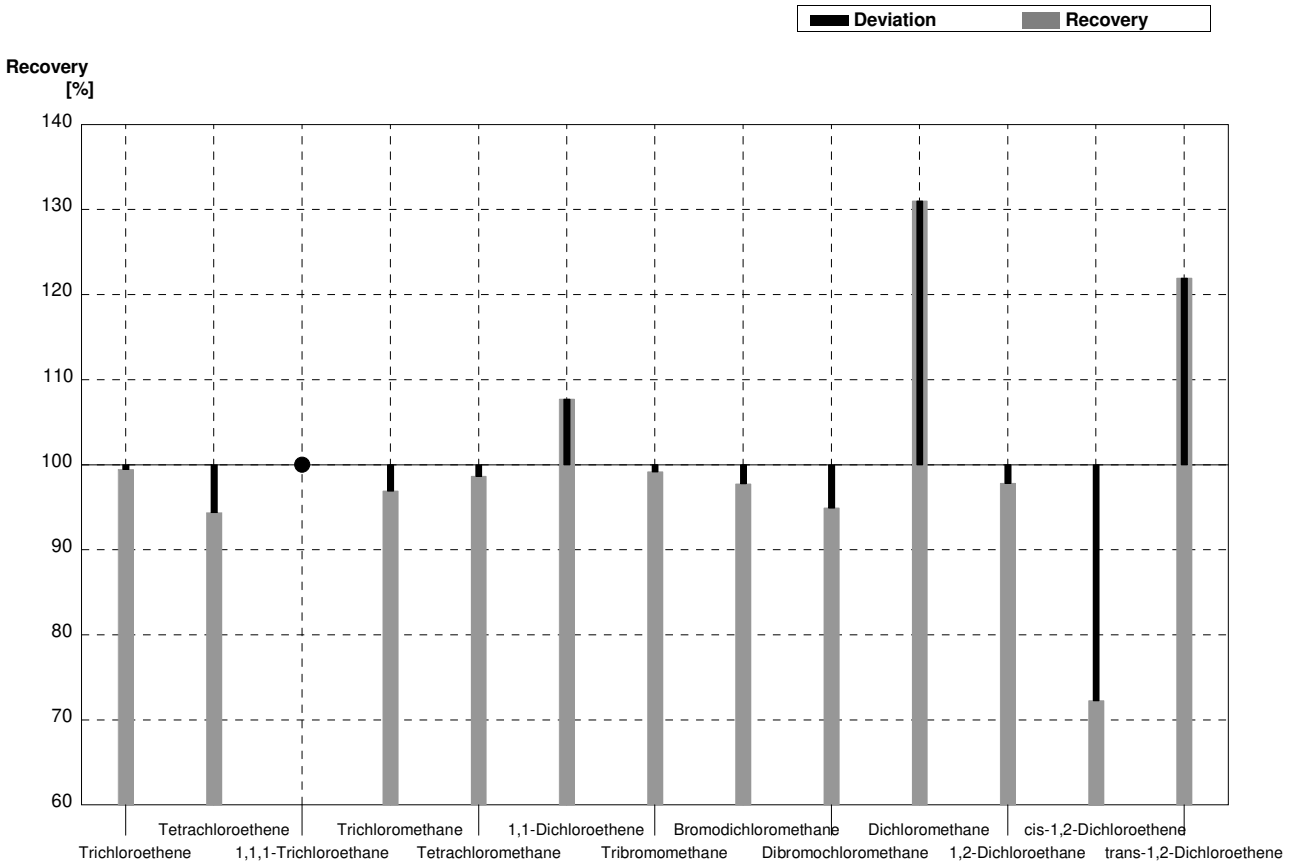
Sample C65A
Laboratory E

Parameter	Target value	± U (k=2)	Result	±	Unit	Recovery
Trichloroethene	1,88	0,10	1,85	0,13	µg/l	98%
Tetrachloroethene	1,79	0,09	1,80	0,15	µg/l	101%
1,1,1-Trichloroethane	0,274	0,016	0,285	0,054	µg/l	104%
Trichloromethane	0,323	0,037	0,322	0,064	µg/l	100%
Tetrachloromethane	0,370	0,024	0,369	0,093	µg/l	100%
1,1-Dichloroethene	3,43	0,13	3,95	0,77	µg/l	115%
Tribromomethane	0,375	0,028	0,424	0,11	µg/l	113%
Bromodichloromethane	0,271	0,022	0,282	0,071	µg/l	104%
Dibromochloromethane	1,40	0,07	1,39	0,35	µg/l	99%
Dichloromethane	2,87	0,26	3,58	0,90	µg/l	125%
1,2-Dichloroethane	0,596	0,069	0,585	0,14	µg/l	98%
cis-1,2-Dichloroethene	0,259	0,023	0,199	0,037	µg/l	77%
trans-1,2-Dichloroethene	<0,1		<0,1		µg/l	•



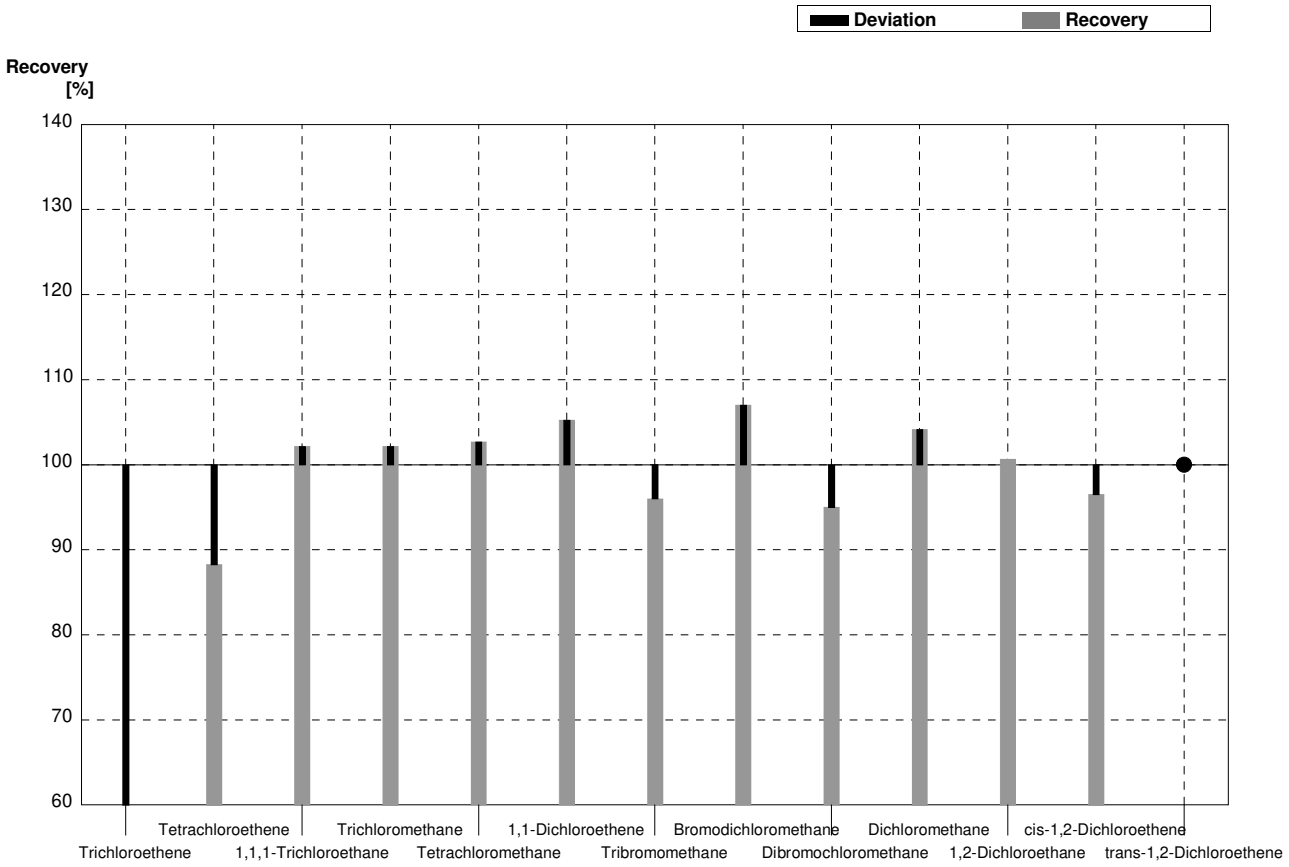
Sample **C65B**
Laboratory **E**

Parameter	Target value	± U (k=2)	Result	±	Unit	Recovery
Trichloroethene	0,375	0,022	0,373	0,027	µg/l	99%
Tetrachloroethene	0,928	0,048	0,876	0,073	µg/l	94%
1,1,1-Trichloroethane	<0,1		<0,1		µg/l	•
Trichloromethane	0,846	0,058	0,820	0,16	µg/l	97%
Tetrachloromethane	0,819	0,044	0,808	0,20	µg/l	99%
1,1-Dichloroethene	1,29	0,07	1,39	0,27	µg/l	108%
Tribromomethane	0,869	0,049	0,862	0,22	µg/l	99%
Bromodichloromethane	1,35	0,07	1,32	0,33	µg/l	98%
Dibromochloromethane	0,435	0,025	0,413	0,10	µg/l	95%
Dichloromethane	2,16	0,21	2,83	0,71	µg/l	131%
1,2-Dichloroethane	1,38	0,09	1,35	0,33	µg/l	98%
cis-1,2-Dichloroethene	0,909	0,049	0,657	0,12	µg/l	72%
trans-1,2-Dichloroethene	2,55	0,13	3,11	0,62	µg/l	122%



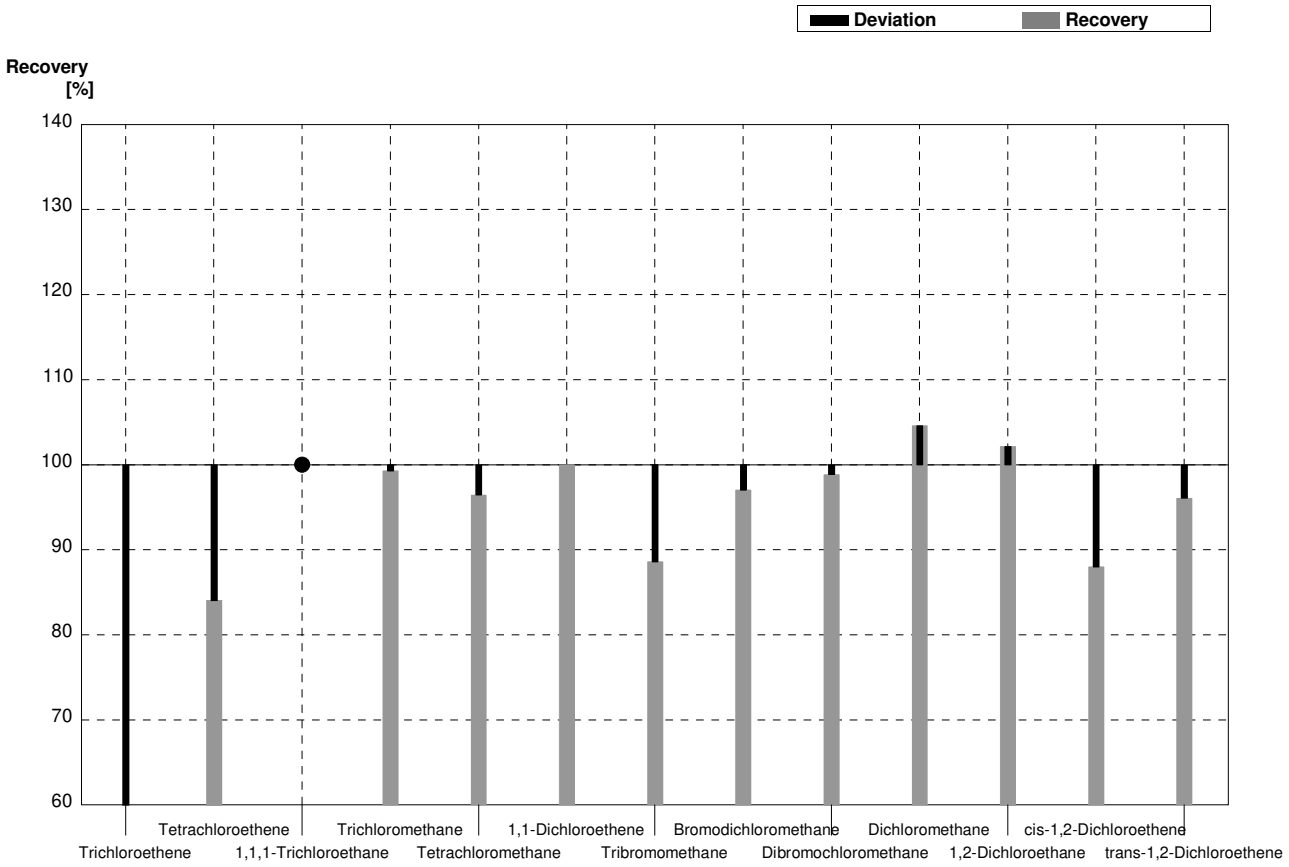
Sample **C65A**
Laboratory **F**

Parameter	Target value	± U (k=2)	Result	±	Unit	Recovery
Trichloroethene	1,88	0,10	1,07	0,21	µg/l	57%
Tetrachloroethene	1,79	0,09	1,58	0,32	µg/l	88%
1,1,1-Trichloroethane	0,274	0,016	0,280	0,056	µg/l	102%
Trichloromethane	0,323	0,037	0,330	0,066	µg/l	102%
Tetrachloromethane	0,370	0,024	0,380	0,076	µg/l	103%
1,1-Dichloroethene	3,43	0,13	3,61	0,72	µg/l	105%
Tribromomethane	0,375	0,028	0,360	0,072	µg/l	96%
Bromodichloromethane	0,271	0,022	0,290	0,058	µg/l	107%
Dibromochloromethane	1,40	0,07	1,33	0,27	µg/l	95%
Dichloromethane	2,87	0,26	2,99	0,60	µg/l	104%
1,2-Dichloroethane	0,596	0,069	0,600	0,120	µg/l	101%
cis-1,2-Dichloroethene	0,259	0,023	0,250	0,050	µg/l	97%
trans-1,2-Dichloroethene	<0,1		<0,1		µg/l	•



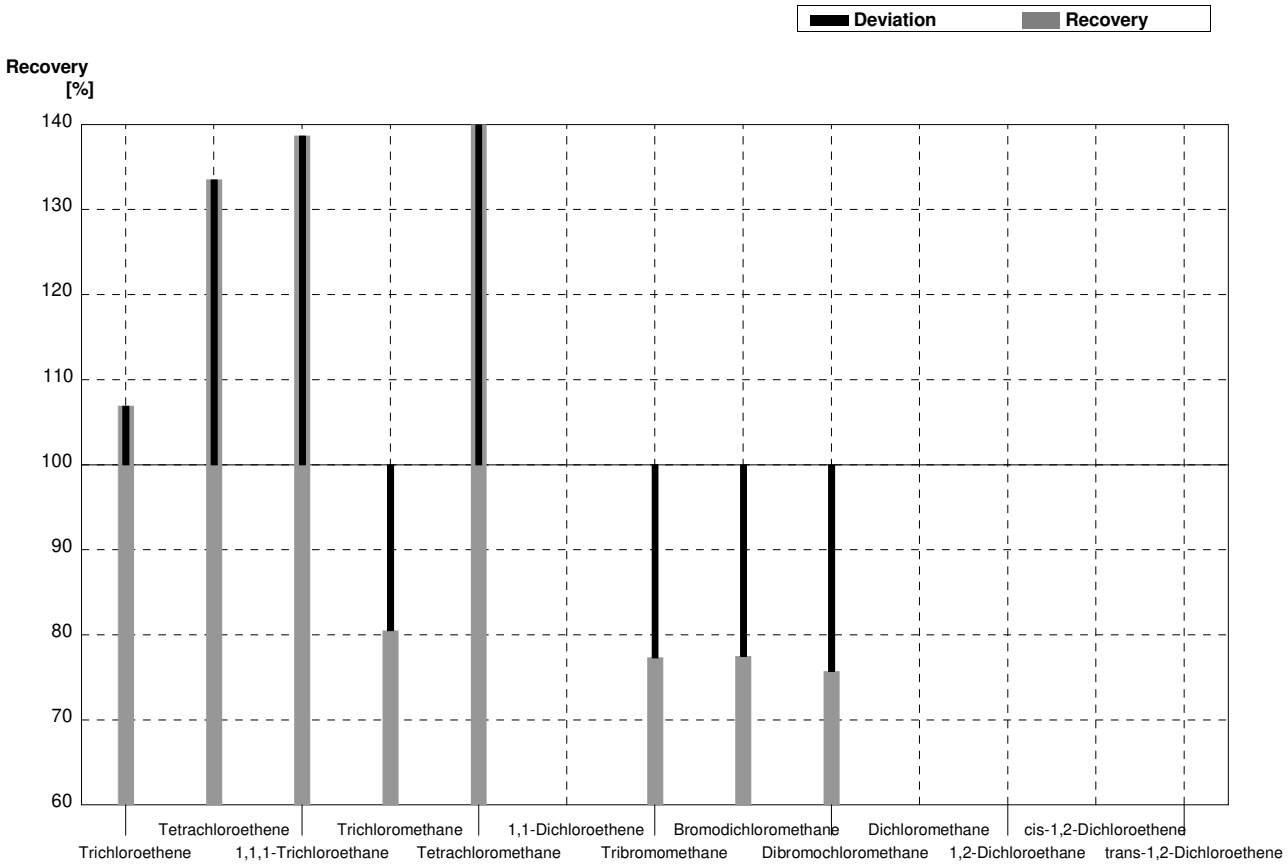
Sample **C65B**
Laboratory **F**

Parameter	Target value	± U (k=2)	Result	±	Unit	Recovery
Trichloroethene	0,375	0,022	0,220	0,044	µg/l	59%
Tetrachloroethene	0,928	0,048	0,78	0,16	µg/l	84%
1,1,1-Trichloroethane	<0,1		<0,1		µg/l	•
Trichloromethane	0,846	0,058	0,84	0,17	µg/l	99%
Tetrachloromethane	0,819	0,044	0,79	0,16	µg/l	96%
1,1-Dichloroethene	1,29	0,07	1,29	0,26	µg/l	100%
Tribromomethane	0,869	0,049	0,77	0,15	µg/l	89%
Bromodichloromethane	1,35	0,07	1,31	0,26	µg/l	97%
Dibromochloromethane	0,435	0,025	0,430	0,086	µg/l	99%
Dichloromethane	2,16	0,21	2,26	0,45	µg/l	105%
1,2-Dichloroethane	1,38	0,09	1,41	0,28	µg/l	102%
cis-1,2-Dichloroethene	0,909	0,049	0,80	0,16	µg/l	88%
trans-1,2-Dichloroethene	2,55	0,13	2,45	0,49	µg/l	96%



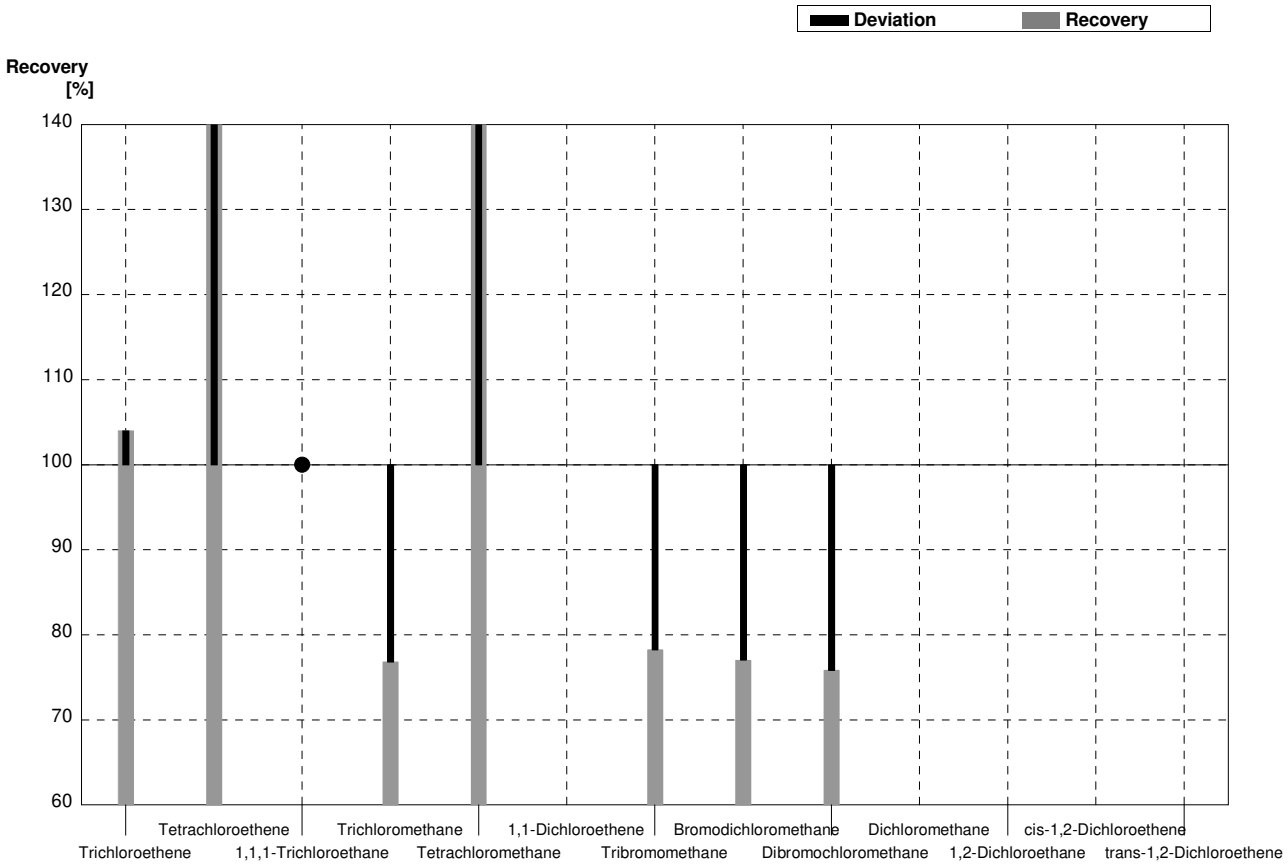
Sample **C65A**
Laboratory **G**

Parameter	Target value	± U (k=2)	Result	±	Unit	Recovery
Trichloroethene	1,88	0,10	2,01		µg/l	107%
Tetrachloroethene	1,79	0,09	2,39		µg/l	134%
1,1,1-Trichloroethane	0,274	0,016	,380		µg/l	139%
Trichloromethane	0,323	0,037	,260		µg/l	80%
Tetrachloromethane	0,370	0,024	0,680		µg/l	184%
1,1-Dichloroethene	3,43	0,13			µg/l	
Tribromomethane	0,375	0,028	0,290		µg/l	77%
Bromodichloromethane	0,271	0,022	0,210		µg/l	77%
Dibromochloromethane	1,40	0,07	1,06		µg/l	76%
Dichloromethane	2,87	0,26			µg/l	
1,2-Dichloroethane	0,596	0,069			µg/l	
cis-1,2-Dichloroethene	0,259	0,023			µg/l	
trans-1,2-Dichloroethene	<0,1				µg/l	



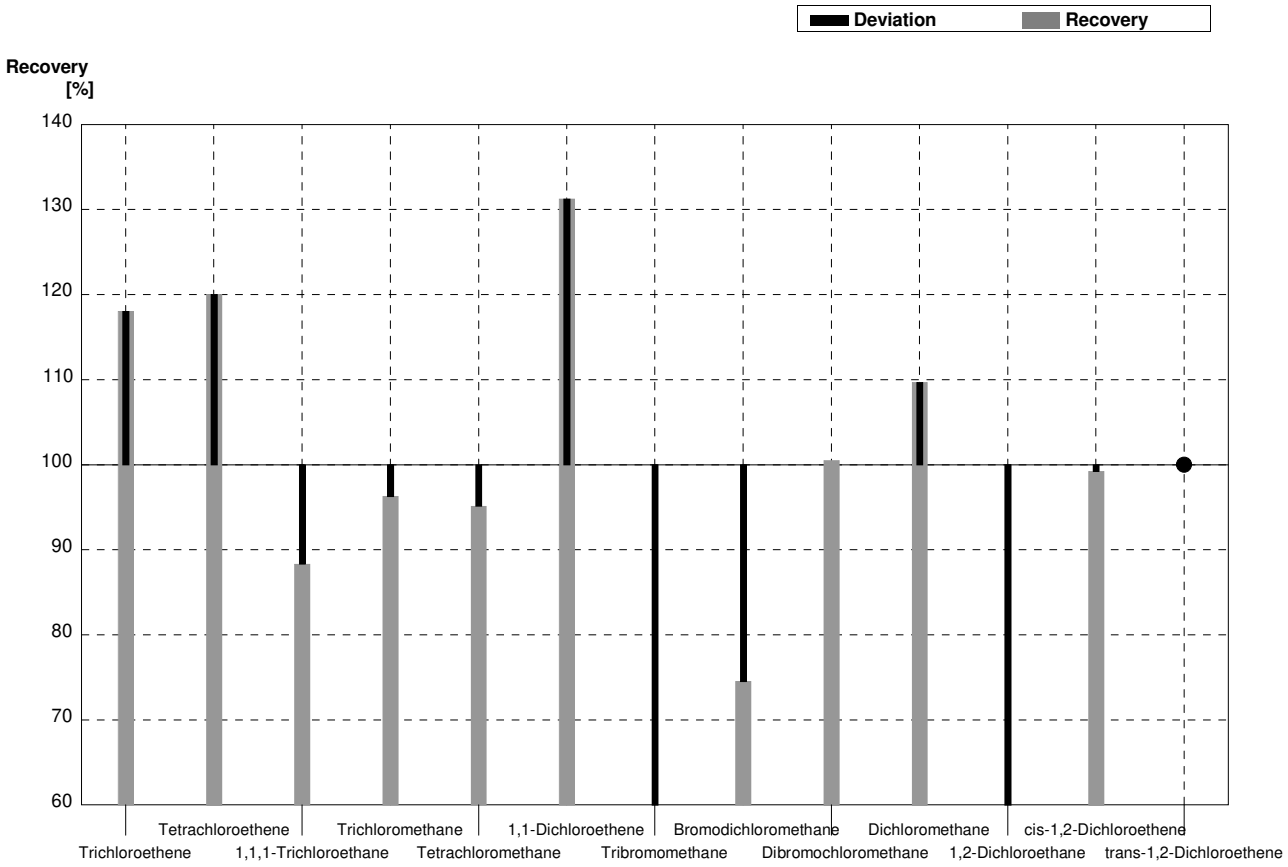
Sample **C65B**
Laboratory **G**

Parameter	Target value	± U (k=2)	Result	±	Unit	Recovery
Trichloroethene	0,375	0,022	0,390		µg/l	104%
Tetrachloroethene	0,928	0,048	1,33		µg/l	143%
1,1,1-Trichloroethane	<0,1		<0,100		µg/l	•
Trichloromethane	0,846	0,058	,650		µg/l	77%
Tetrachloromethane	0,819	0,044	1,38		µg/l	168%
1,1-Dichloroethene	1,29	0,07			µg/l	
Tribromomethane	0,869	0,049	0,680		µg/l	78%
Bromodichloromethane	1,35	0,07	1,04		µg/l	77%
Dibromochloromethane	0,435	0,025	0,330		µg/l	76%
Dichloromethane	2,16	0,21			µg/l	
1,2-Dichloroethane	1,38	0,09			µg/l	
cis-1,2-Dichloroethene	0,909	0,049			µg/l	
trans-1,2-Dichloroethene	2,55	0,13			µg/l	



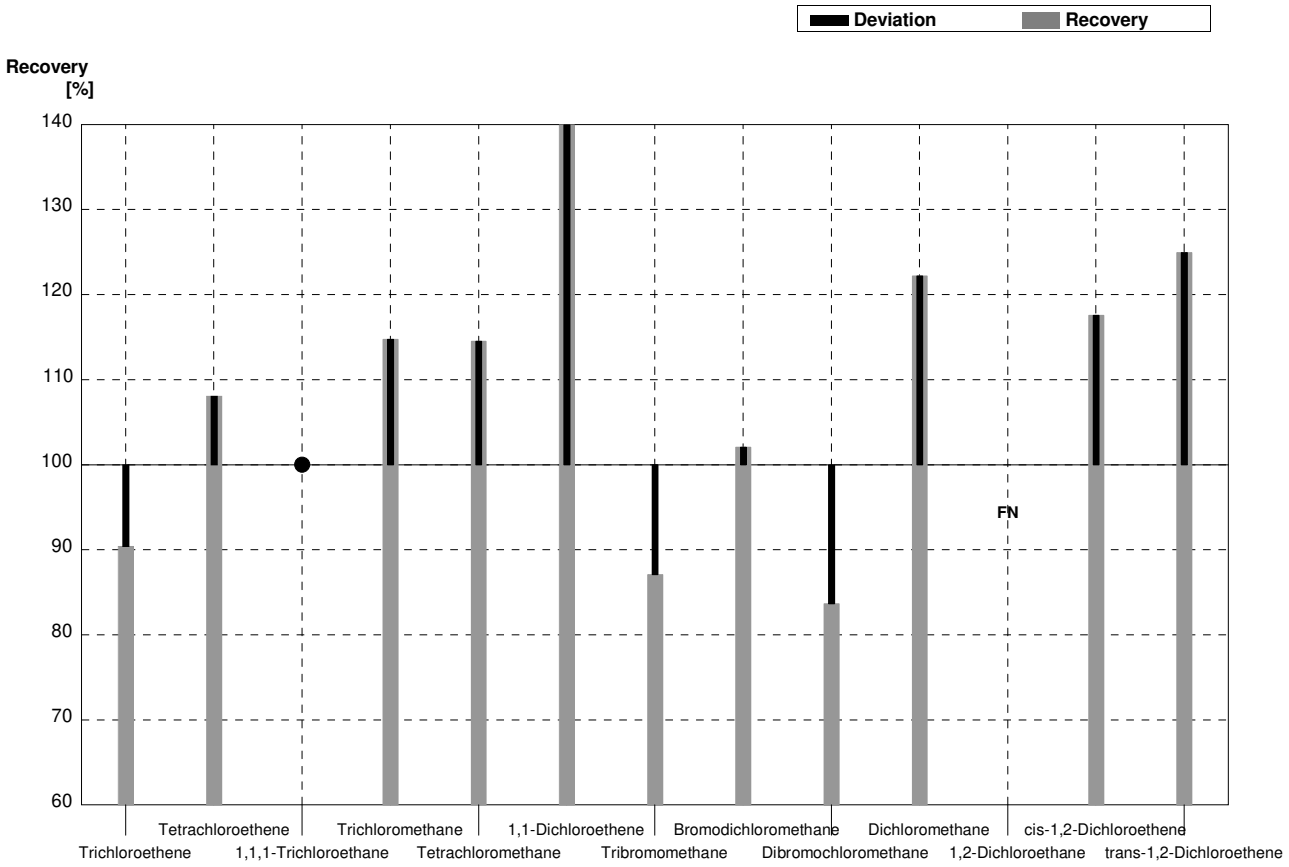
Sample C65A
Laboratory H

Parameter	Target value	± U (k=2)	Result	±	Unit	Recovery
Trichloroethene	1,88	0,10	2,219	0,333	µg/l	118%
Tetrachloroethene	1,79	0,09	2,149	0,322	µg/l	120%
1,1,1-Trichloroethane	0,274	0,016	0,242	0,036	µg/l	88%
Trichloromethane	0,323	0,037	0,311	0,047	µg/l	96%
Tetrachloromethane	0,370	0,024	0,352	0,053	µg/l	95%
1,1-Dichloroethene	3,43	0,13	4,502	0,675	µg/l	131%
Tribromomethane	0,375	0,028	0,146	0,022	µg/l	39%
Bromodichloromethane	0,271	0,022	0,202	0,030	µg/l	75%
Dibromochloromethane	1,40	0,07	1,407	0,211	µg/l	101%
Dichloromethane	2,87	0,26	3,148	0,472	µg/l	110%
1,2-Dichloroethane	0,596	0,069	0,171	0,026	µg/l	29%
cis-1,2-Dichloroethene	0,259	0,023	0,257	0,039	µg/l	99%
trans-1,2-Dichloroethene	<0,1		<0,1		µg/l	•



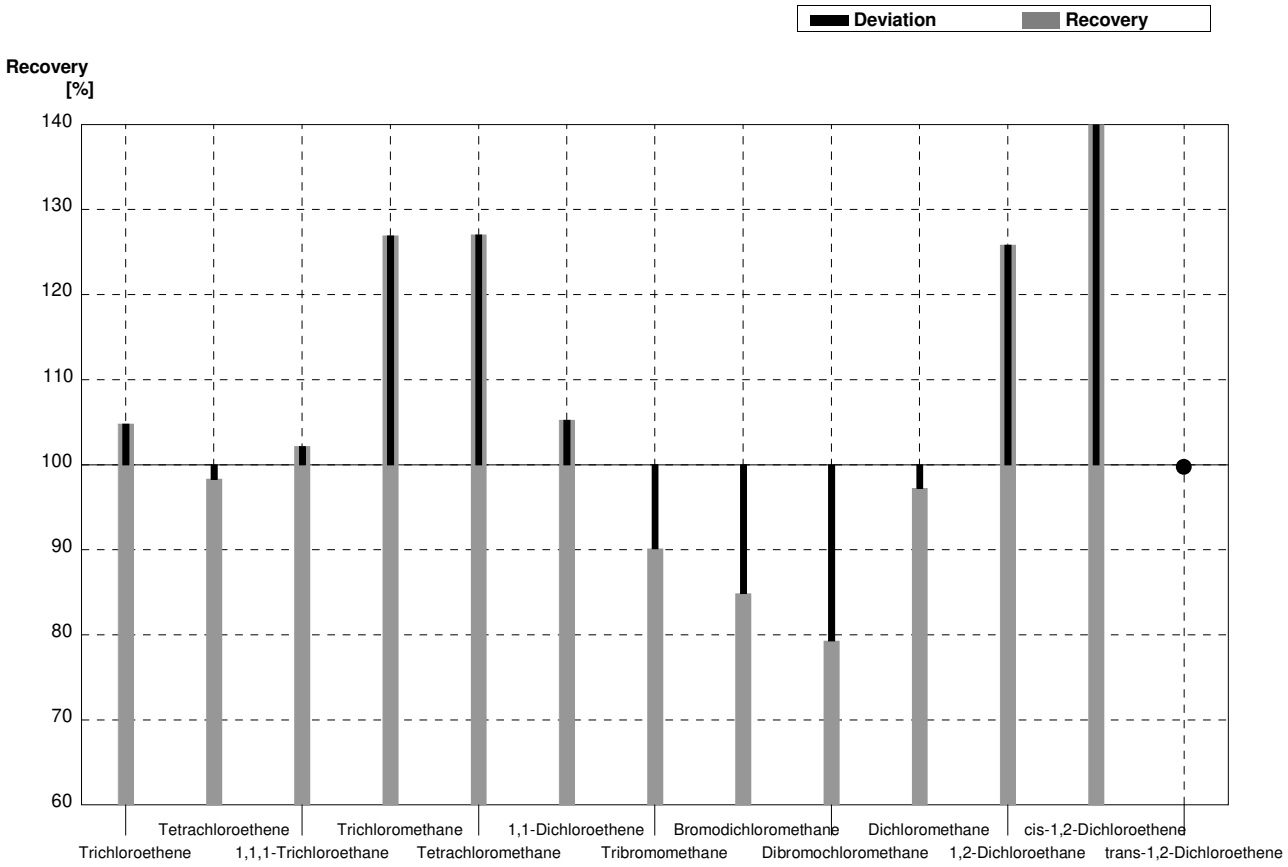
Sample C65B
Laboratory H

Parameter	Target value	± U (k=2)	Result	±	Unit	Recovery
Trichloroethene	0,375	0,022	0,339	0,051	µg/l	90%
Tetrachloroethene	0,928	0,048	1,003	0,150	µg/l	108%
1,1,1-Trichloroethane	<0,1		<0,1		µg/l	•
Trichloromethane	0,846	0,058	0,971	0,146	µg/l	115%
Tetrachloromethane	0,819	0,044	0,938	0,141	µg/l	115%
1,1-Dichloroethene	1,29	0,07	1,841	0,276	µg/l	143%
Tribromomethane	0,869	0,049	0,757	0,113	µg/l	87%
Bromodichloromethane	1,35	0,07	1,378	0,207	µg/l	102%
Dibromochloromethane	0,435	0,025	0,364	0,055	µg/l	84%
Dichloromethane	2,16	0,21	2,640	0,396	µg/l	122%
1,2-Dichloroethane	1,38	0,09	<0,1		µg/l	FN
cis-1,2-Dichloroethene	0,909	0,049	1,069	0,160	µg/l	118%
trans-1,2-Dichloroethene	2,55	0,13	3,187	0,478	µg/l	125%



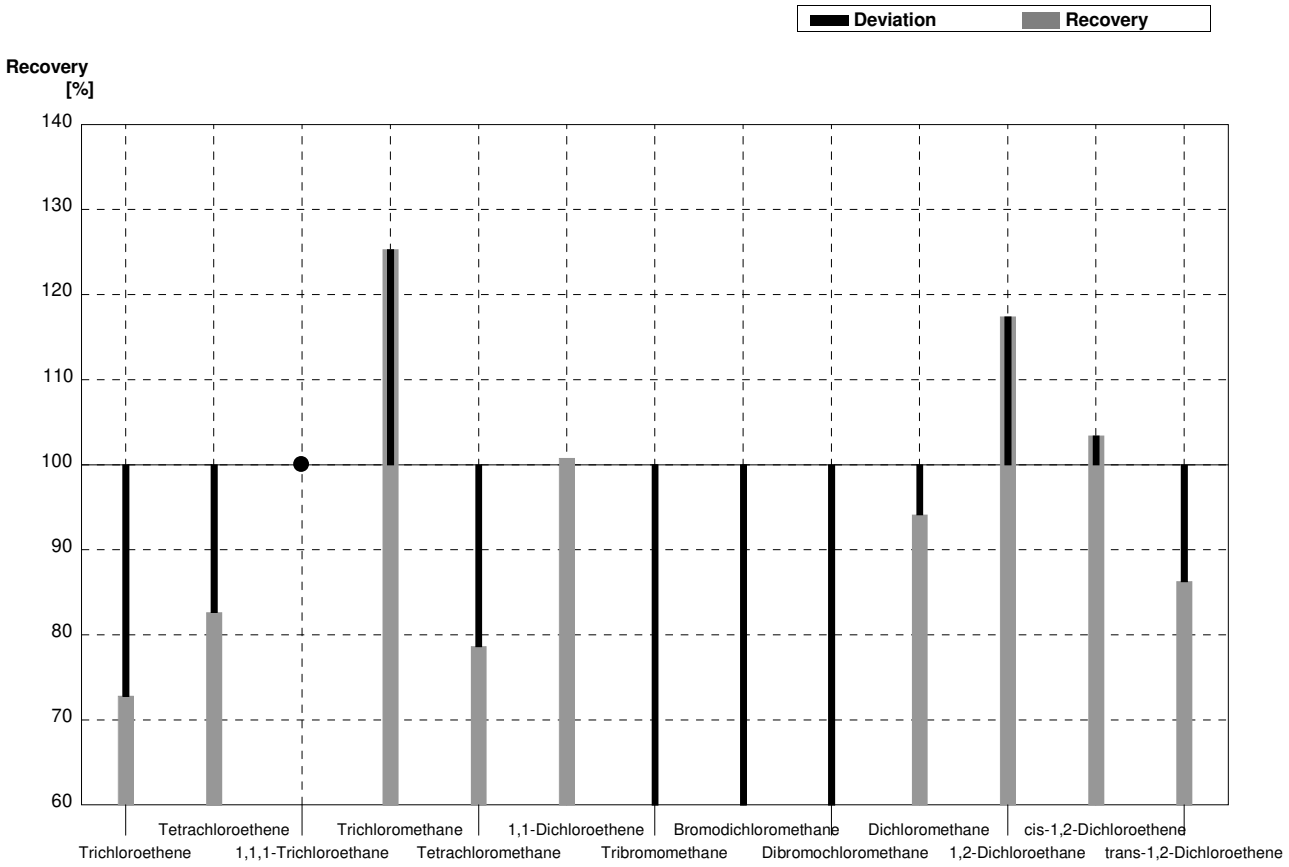
Sample C65A
Laboratory I

Parameter	Target value	± U (k=2)	Result	±	Unit	Recovery
Trichloroethene	1,88	0,10	1,97	0,39	µg/l	105%
Tetrachloroethene	1,79	0,09	1,76	0,35	µg/l	98%
1,1,1-Trichloroethane	0,274	0,016	0,280	0,06	µg/l	102%
Trichloromethane	0,323	0,037	0,410	0,08	µg/l	127%
Tetrachloromethane	0,370	0,024	0,470	0,09	µg/l	127%
1,1-Dichloroethene	3,43	0,13	3,61	0,72	µg/l	105%
Tribromomethane	0,375	0,028	0,338	0,07	µg/l	90%
Bromodichloromethane	0,271	0,022	0,230	0,05	µg/l	85%
Dibromochloromethane	1,40	0,07	1,11	0,22	µg/l	79%
Dichloromethane	2,87	0,26	2,791	0,56	µg/l	97%
1,2-Dichloroethane	0,596	0,069	0,750	0,15	µg/l	126%
cis-1,2-Dichloroethene	0,259	0,023	0,479	0,10	µg/l	185%
trans-1,2-Dichloroethene	<0,1		<BG		µg/l	•



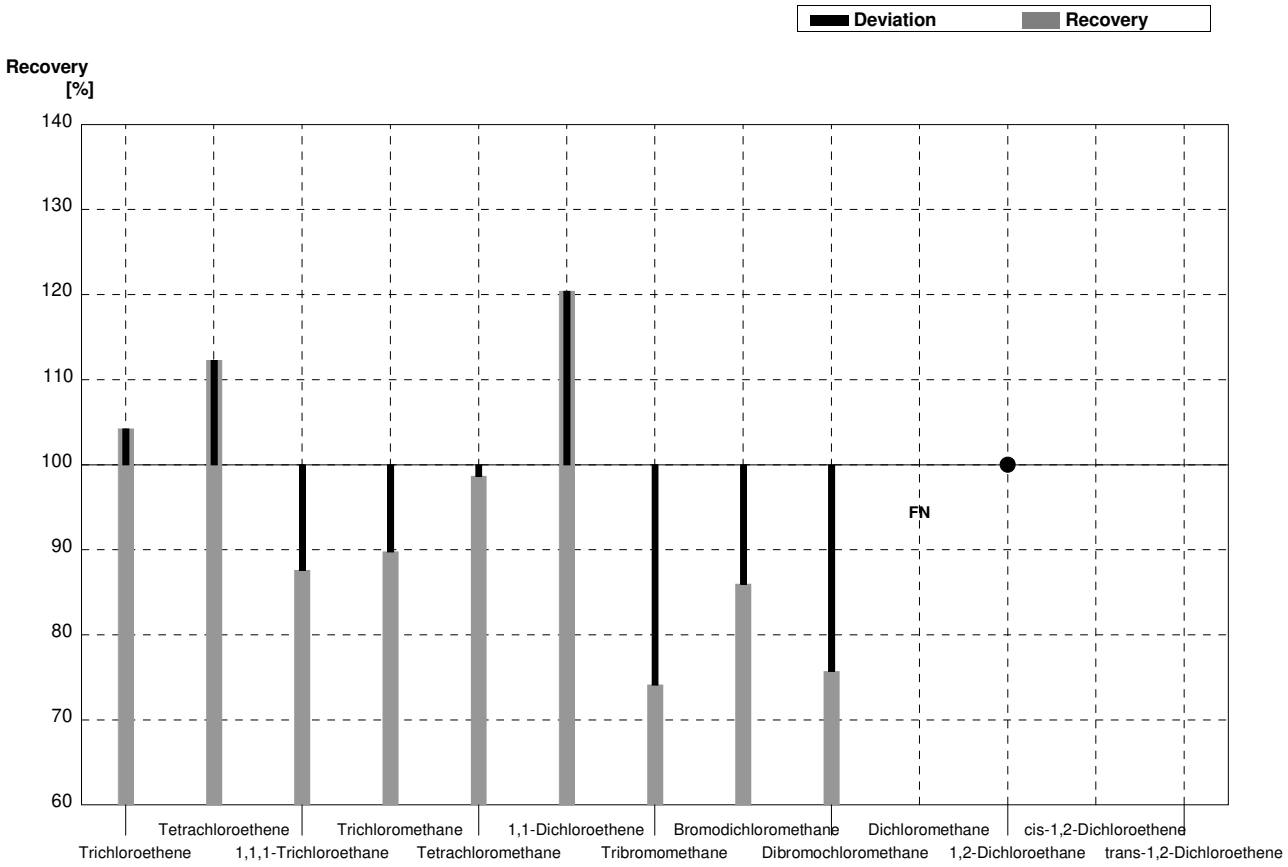
Sample C65B
Laboratory I

Parameter	Target value	± U (k=2)	Result	±	Unit	Recovery
Trichloroethene	0,375	0,022	0,273	0,05	µg/l	73%
Tetrachloroethene	0,928	0,048	0,767	0,15	µg/l	83%
1,1,1-Trichloroethane	<0,1		<BG		µg/l	•
Trichloromethane	0,846	0,058	1,06	0,21	µg/l	125%
Tetrachloromethane	0,819	0,044	0,644	0,13	µg/l	79%
1,1-Dichloroethene	1,29	0,07	1,30	0,26	µg/l	101%
Tribromomethane	0,869	0,049	0,442	0,09	µg/l	51%
Bromodichloromethane	1,35	0,07	0,700	0,14	µg/l	52%
Dibromochloromethane	0,435	0,025	0,187	0,04	µg/l	43%
Dichloromethane	2,16	0,21	2,033	0,41	µg/l	94%
1,2-Dichloroethane	1,38	0,09	1,62	0,32	µg/l	117%
cis-1,2-Dichloroethene	0,909	0,049	0,940	0,19	µg/l	103%
trans-1,2-Dichloroethene	2,55	0,13	2,200	0,44	µg/l	86%



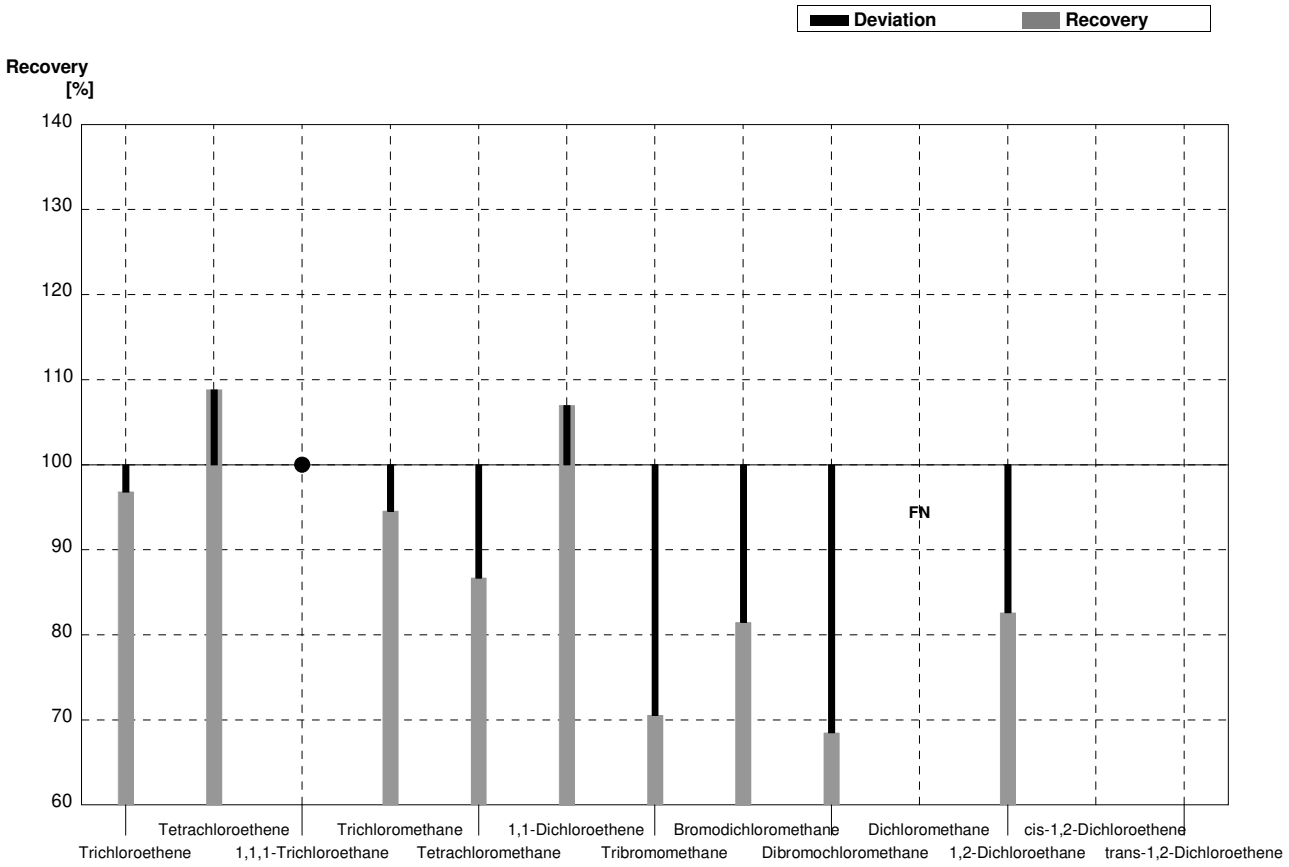
Sample **C65A**
Laboratory **J**

Parameter	Target value	± U (k=2)	Result	±	Unit	Recovery
Trichloroethene	1,88	0,10	1,96	0,5	µg/l	104%
Tetrachloroethene	1,79	0,09	2,01	0,5	µg/l	112%
1,1,1-Trichloroethane	0,274	0,016	0,240	0,1	µg/l	88%
Trichloromethane	0,323	0,037	0,290	0,1	µg/l	90%
Tetrachloromethane	0,370	0,024	0,365	0,1	µg/l	99%
1,1-Dichloroethene	3,43	0,13	4,13	1,0	µg/l	120%
Tribromomethane	0,375	0,028	0,278	0,1	µg/l	74%
Bromodichloromethane	0,271	0,022	0,233	0,1	µg/l	86%
Dibromochloromethane	1,40	0,07	1,06	0,3	µg/l	76%
Dichloromethane	2,87	0,26	<0,8		µg/l	FN
1,2-Dichloroethane	0,596	0,069	<0,8		µg/l	•
cis-1,2-Dichloroethene	0,259	0,023			µg/l	
trans-1,2-Dichloroethene	<0,1				µg/l	



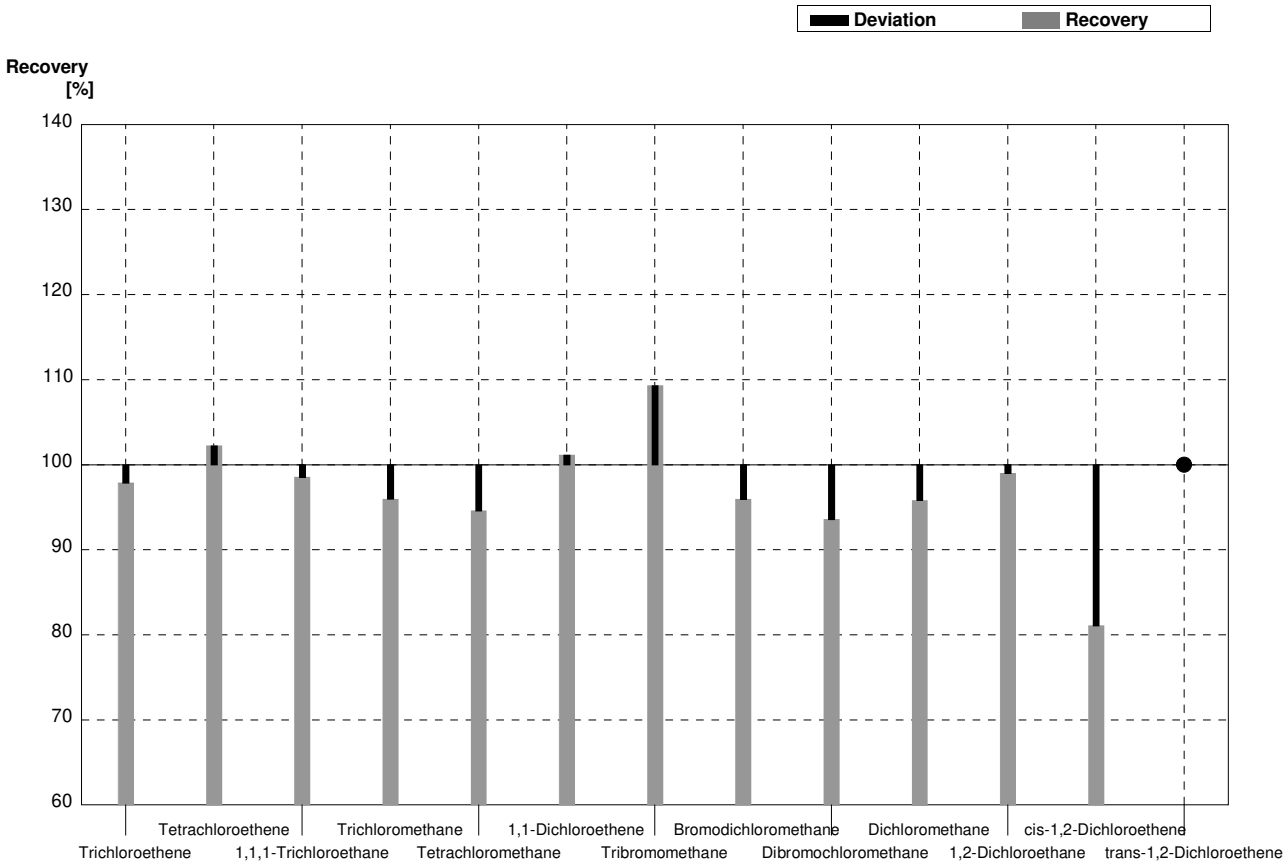
Sample C65B
Laboratory J

Parameter	Target value	± U (k=2)	Result	±	Unit	Recovery
Trichloroethene	0,375	0,022	0,363	0,1	µg/l	97%
Tetrachloroethene	0,928	0,048	1,01	0,3	µg/l	109%
1,1,1-Trichloroethane	<0,1		<0,1		µg/l	•
Trichloromethane	0,846	0,058	0,800	0,2	µg/l	95%
Tetrachloromethane	0,819	0,044	0,710	0,2	µg/l	87%
1,1-Dichloroethene	1,29	0,07	1,38	0,3	µg/l	107%
Tribromomethane	0,869	0,049	0,613	0,2	µg/l	71%
Bromodichloromethane	1,35	0,07	1,10	0,3	µg/l	81%
Dibromochloromethane	0,435	0,025	0,298	0,1	µg/l	69%
Dichloromethane	2,16	0,21	<0,8		µg/l	FN
1,2-Dichloroethane	1,38	0,09	1,14	0,3	µg/l	83%
cis-1,2-Dichloroethene	0,909	0,049			µg/l	
trans-1,2-Dichloroethene	2,55	0,13			µg/l	



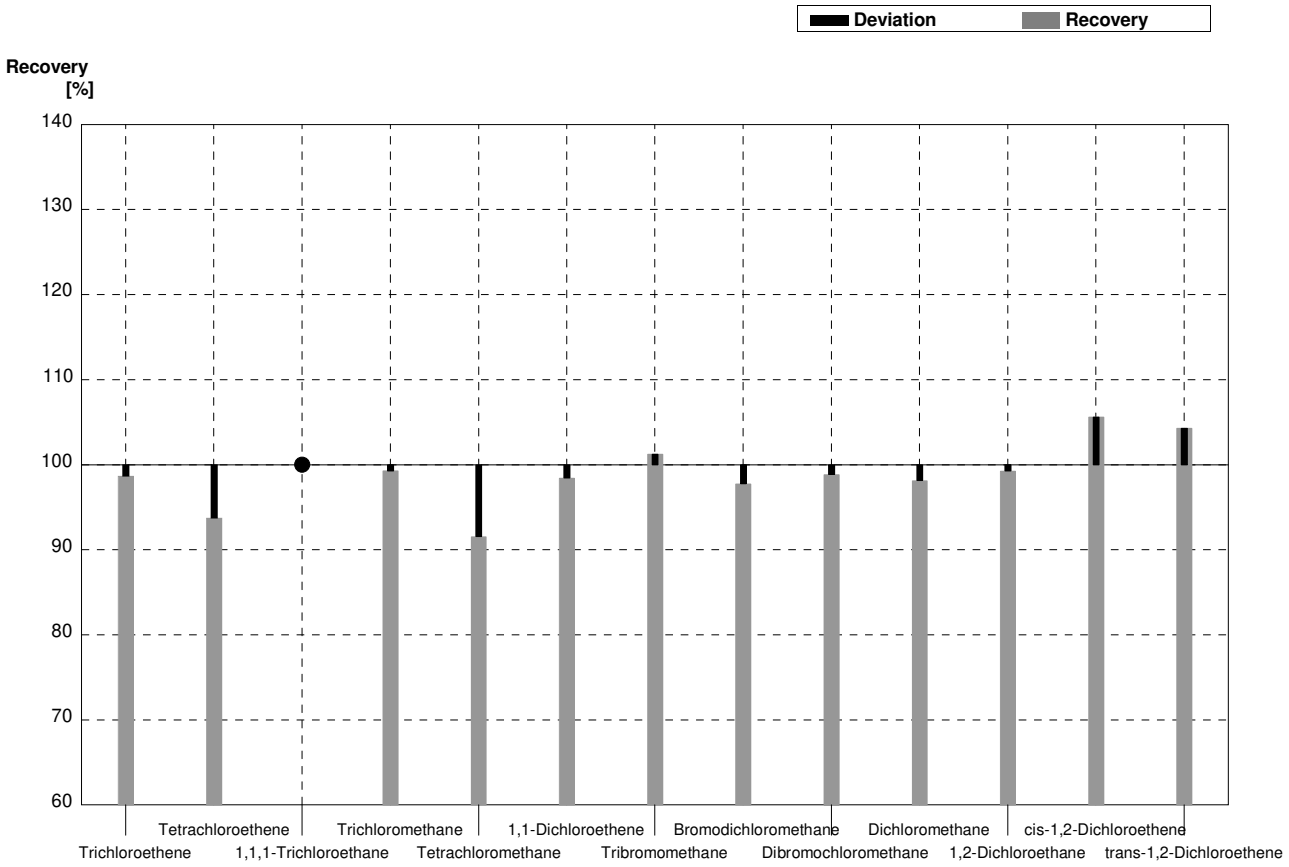
Sample C65A
Laboratory K

Parameter	Target value	± U (k=2)	Result	±	Unit	Recovery
Trichloroethene	1,88	0,10	1,84	0,368	µg/l	98%
Tetrachloroethene	1,79	0,09	1,83	0,366	µg/l	102%
1,1,1-Trichloroethane	0,274	0,016	0,270	0,054	µg/l	99%
Trichloromethane	0,323	0,037	0,310	0,062	µg/l	96%
Tetrachloromethane	0,370	0,024	0,350	0,070	µg/l	95%
1,1-Dichloroethene	3,43	0,13	3,470	0,694	µg/l	101%
Tribromomethane	0,375	0,028	0,410	0,082	µg/l	109%
Bromodichloromethane	0,271	0,022	0,260	0,052	µg/l	96%
Dibromochloromethane	1,40	0,07	1,31	0,262	µg/l	94%
Dichloromethane	2,87	0,26	2,750	0,550	µg/l	96%
1,2-Dichloroethane	0,596	0,069	0,590	0,118	µg/l	99%
cis-1,2-Dichloroethene	0,259	0,023	0,210	0,042	µg/l	81%
trans-1,2-Dichloroethene	<0,1		<0,020		µg/l	•



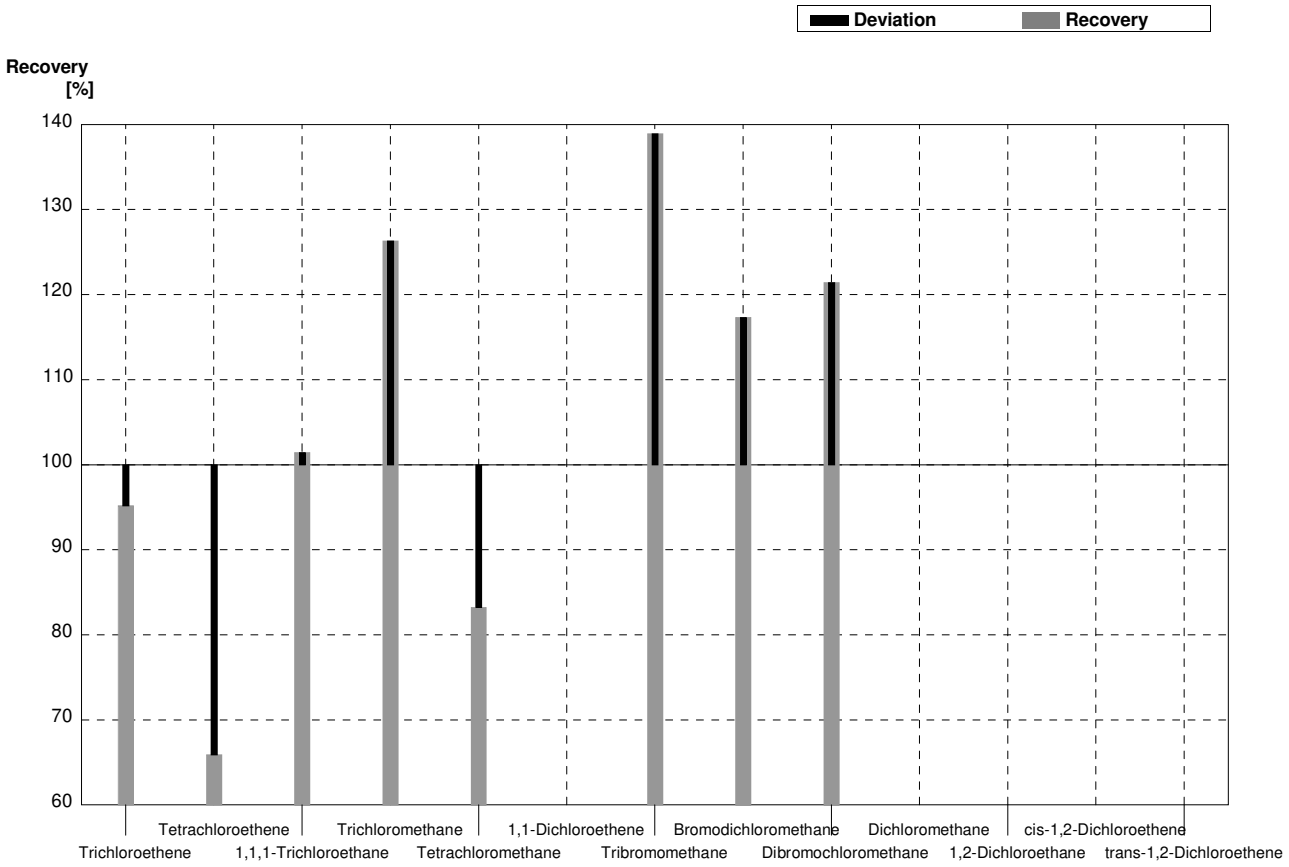
Sample **C65B**
Laboratory **K**

Parameter	Target value	± U (k=2)	Result	±	Unit	Recovery
Trichloroethene	0,375	0,022	0,370	0,074	µg/l	99%
Tetrachloroethene	0,928	0,048	0,870	0,174	µg/l	94%
1,1,1-Trichloroethane	<0,1		<0,020		µg/l	•
Trichloromethane	0,846	0,058	0,840	0,168	µg/l	99%
Tetrachloromethane	0,819	0,044	0,750	0,150	µg/l	92%
1,1-Dichloroethene	1,29	0,07	1,270	0,254	µg/l	98%
Tribromomethane	0,869	0,049	0,880	0,176	µg/l	101%
Bromodichloromethane	1,35	0,07	1,320	0,264	µg/l	98%
Dibromochloromethane	0,435	0,025	0,430	0,086	µg/l	99%
Dichloromethane	2,16	0,21	2,120	0,424	µg/l	98%
1,2-Dichloroethane	1,38	0,09	1,370	0,274	µg/l	99%
cis-1,2-Dichloroethene	0,909	0,049	0,960	0,192	µg/l	106%
trans-1,2-Dichloroethene	2,55	0,13	2,660	0,532	µg/l	104%



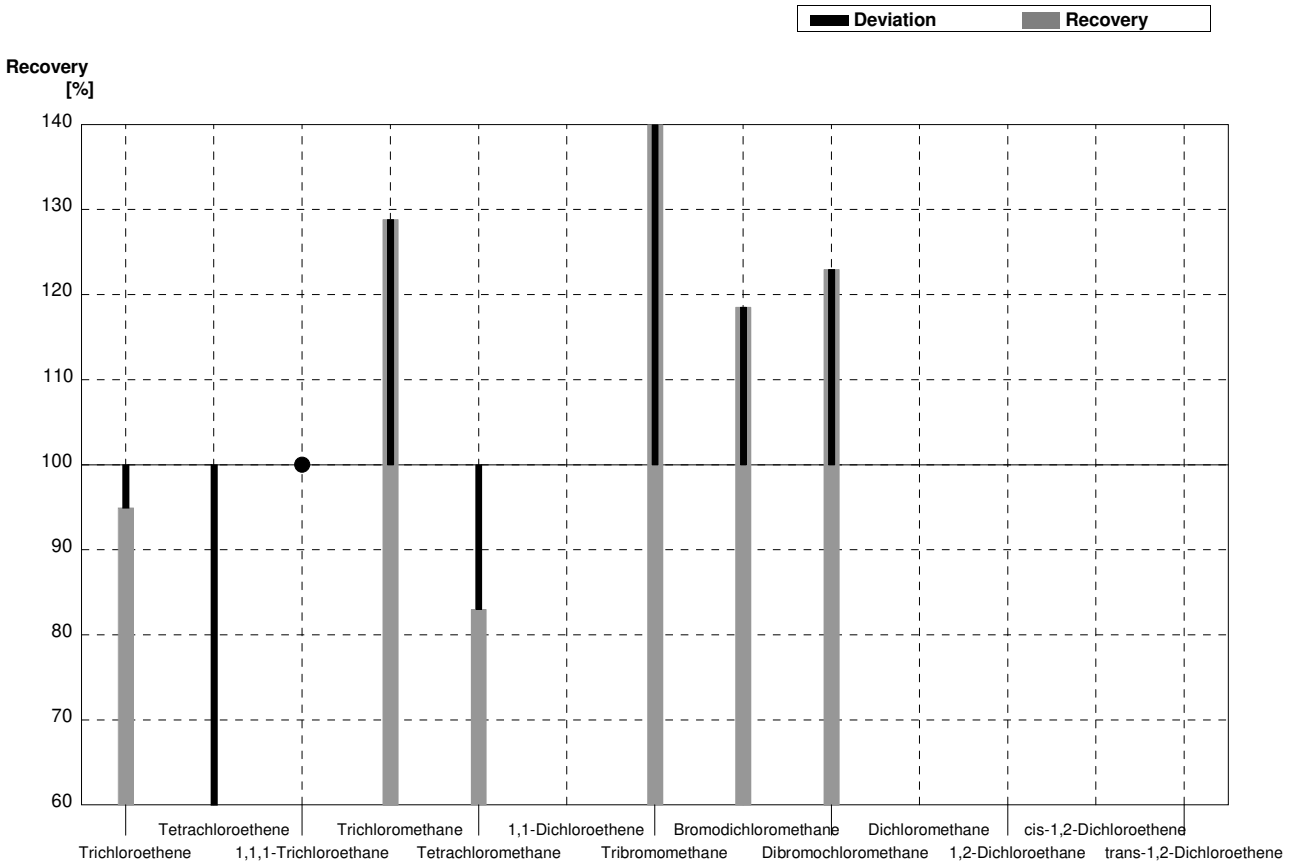
Sample C65A
Laboratory L

Parameter	Target value	± U (k=2)	Result	±	Unit	Recovery
Trichloroethene	1,88	0,10	1,79	0,06	µg/l	95%
Tetrachloroethene	1,79	0,09	1,18	0,07	µg/l	66%
1,1,1-Trichloroethane	0,274	0,016	0,278	0,02	µg/l	101%
Trichloromethane	0,323	0,037	0,408	0,02	µg/l	126%
Tetrachloromethane	0,370	0,024	0,308	0,02	µg/l	83%
1,1-Dichloroethene	3,43	0,13			µg/l	
Tribromomethane	0,375	0,028	0,521	0,02	µg/l	139%
Bromodichloromethane	0,271	0,022	0,318	0,01	µg/l	117%
Dibromochloromethane	1,40	0,07	1,70	0,12	µg/l	121%
Dichloromethane	2,87	0,26			µg/l	
1,2-Dichloroethane	0,596	0,069			µg/l	
cis-1,2-Dichloroethene	0,259	0,023			µg/l	
trans-1,2-Dichloroethene	<0,1				µg/l	



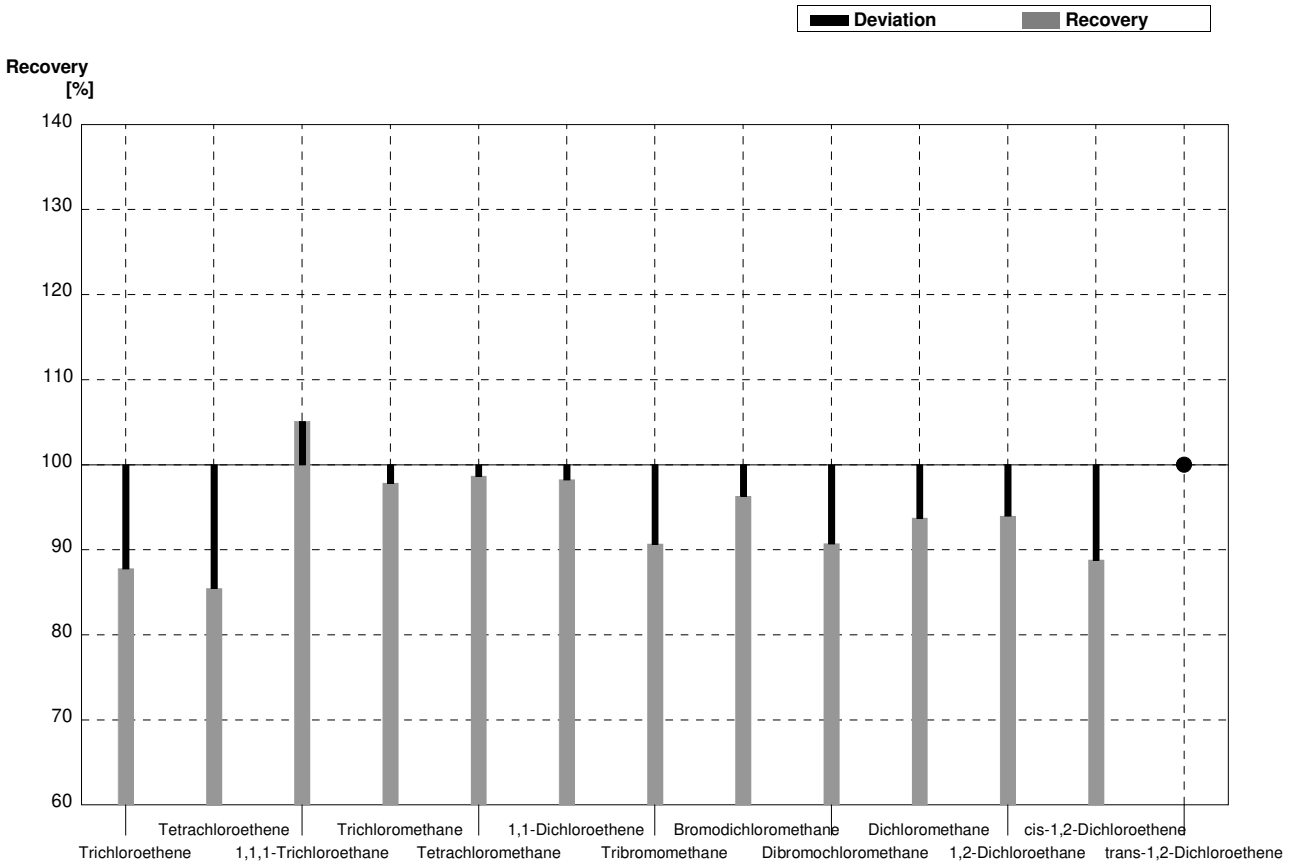
Sample **C65B**
Laboratory **L**

Parameter	Target value	± U (k=2)	Result	±	Unit	Recovery
Trichloroethene	0,375	0,022	0,356	0,01	µg/l	95%
Tetrachloroethene	0,928	0,048	0,548	0,04	µg/l	59%
1,1,1-Trichloroethane	<0,1		<0,1		µg/l	•
Trichloromethane	0,846	0,058	1,09	0,05	µg/l	129%
Tetrachloromethane	0,819	0,044	0,68	0,03	µg/l	83%
1,1-Dichloroethene	1,29	0,07			µg/l	
Tribromomethane	0,869	0,049	1,22	0,03	µg/l	140%
Bromodichloromethane	1,35	0,07	1,60	0,07	µg/l	119%
Dibromochloromethane	0,435	0,025	0,535	0,02	µg/l	123%
Dichloromethane	2,16	0,21			µg/l	
1,2-Dichloroethane	1,38	0,09			µg/l	
cis-1,2-Dichloroethene	0,909	0,049			µg/l	
trans-1,2-Dichloroethene	2,55	0,13			µg/l	



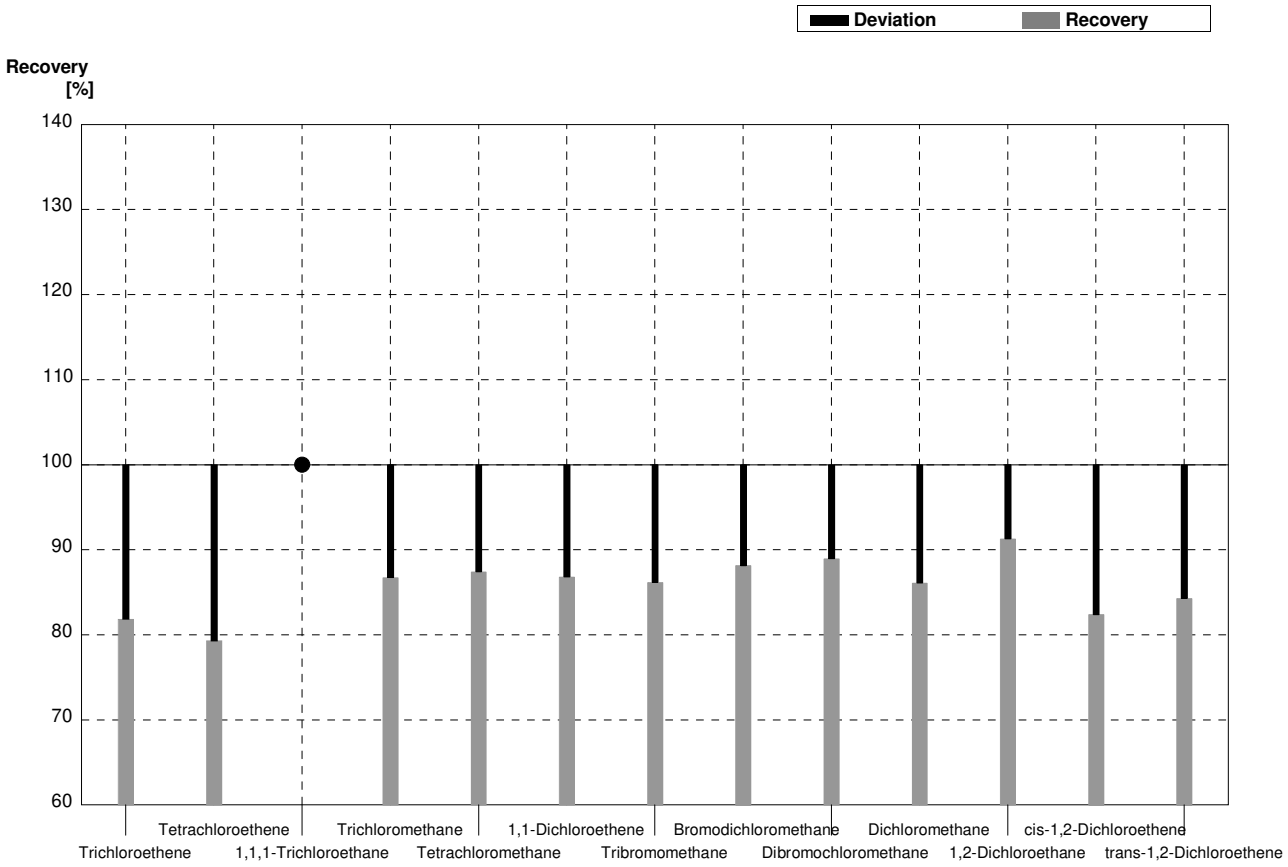
Sample C65A
Laboratory M

Parameter	Target value	± U (k=2)	Result	±	Unit	Recovery
Trichloroethene	1,88	0,10	1,65	0,058	µg/l	88%
Tetrachloroethene	1,79	0,09	1,53	0,048	µg/l	85%
1,1,1-Trichloroethane	0,274	0,016	0,288	0,008	µg/l	105%
Trichloromethane	0,323	0,037	0,316	0,013	µg/l	98%
Tetrachloromethane	0,370	0,024	0,365	0,012	µg/l	99%
1,1-Dichloroethene	3,43	0,13	3,37	0,096	µg/l	98%
Tribromomethane	0,375	0,028	0,340	0,010	µg/l	91%
Bromodichloromethane	0,271	0,022	0,261	0,010	µg/l	96%
Dibromochloromethane	1,40	0,07	1,27	0,057	µg/l	91%
Dichloromethane	2,87	0,26	2,69	0,109	µg/l	94%
1,2-Dichloroethane	0,596	0,069	0,560	0,021	µg/l	94%
cis-1,2-Dichloroethene	0,259	0,023	0,230	0,007	µg/l	89%
trans-1,2-Dichloroethene	<0,1		<0,10		µg/l	•



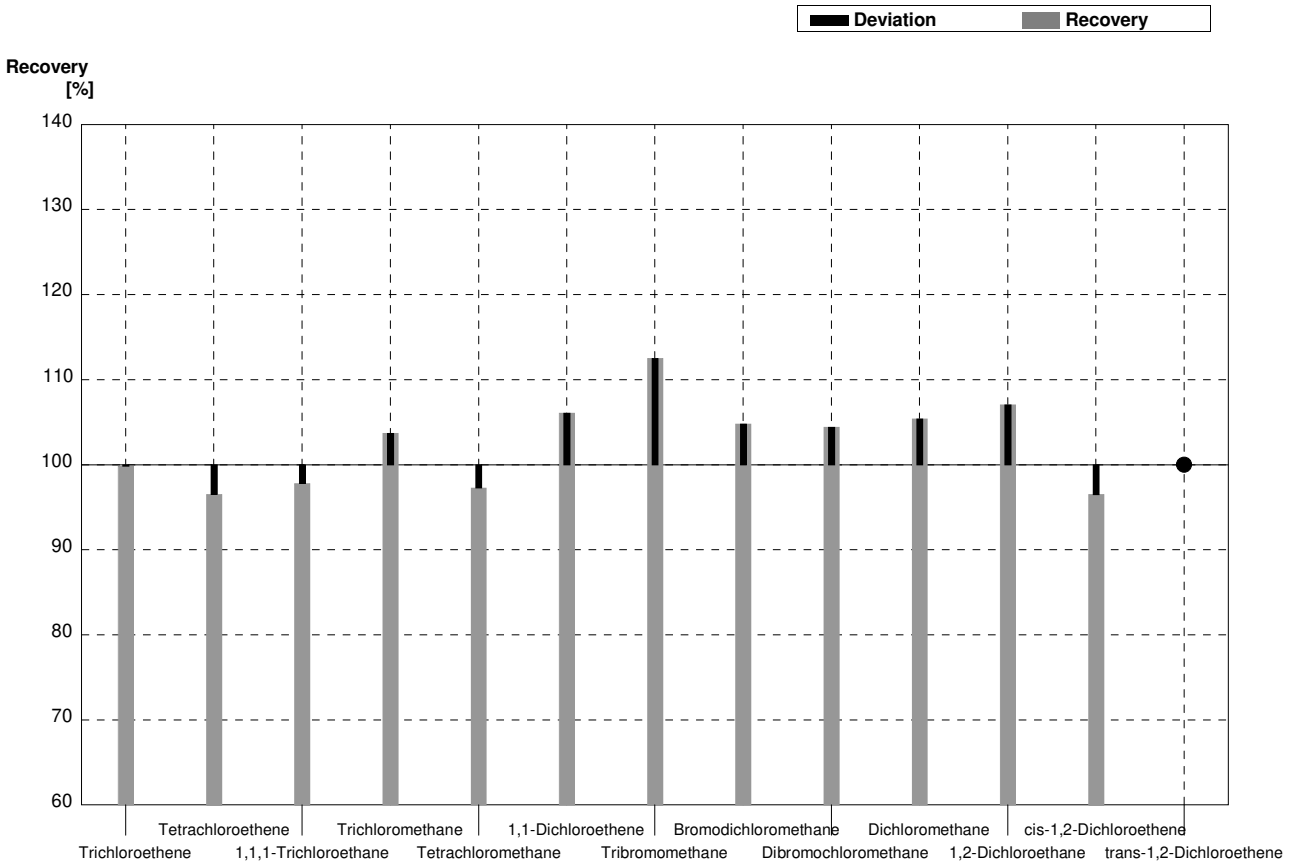
Sample C65B
Laboratory M

Parameter	Target value	± U (k=2)	Result	±	Unit	Recovery
Trichloroethene	0,375	0,022	0,307	0,005	µg/l	82%
Tetrachloroethene	0,928	0,048	0,736	0,005	µg/l	79%
1,1,1-Trichloroethane	<0,1		<0,10		µg/l	•
Trichloromethane	0,846	0,058	0,734	0,002	µg/l	87%
Tetrachloromethane	0,819	0,044	0,716	0,002	µg/l	87%
1,1-Dichloroethene	1,29	0,07	1,12	0,006	µg/l	87%
Tribromomethane	0,869	0,049	0,749	0,007	µg/l	86%
Bromodichloromethane	1,35	0,07	1,19	0,002	µg/l	88%
Dibromochloromethane	0,435	0,025	0,387	0,003	µg/l	89%
Dichloromethane	2,16	0,21	1,86	0,018	µg/l	86%
1,2-Dichloroethane	1,38	0,09	1,26	0,010	µg/l	91%
cis-1,2-Dichloroethene	0,909	0,049	0,749	0,002	µg/l	82%
trans-1,2-Dichloroethene	2,55	0,13	2,15	0,011	µg/l	84%



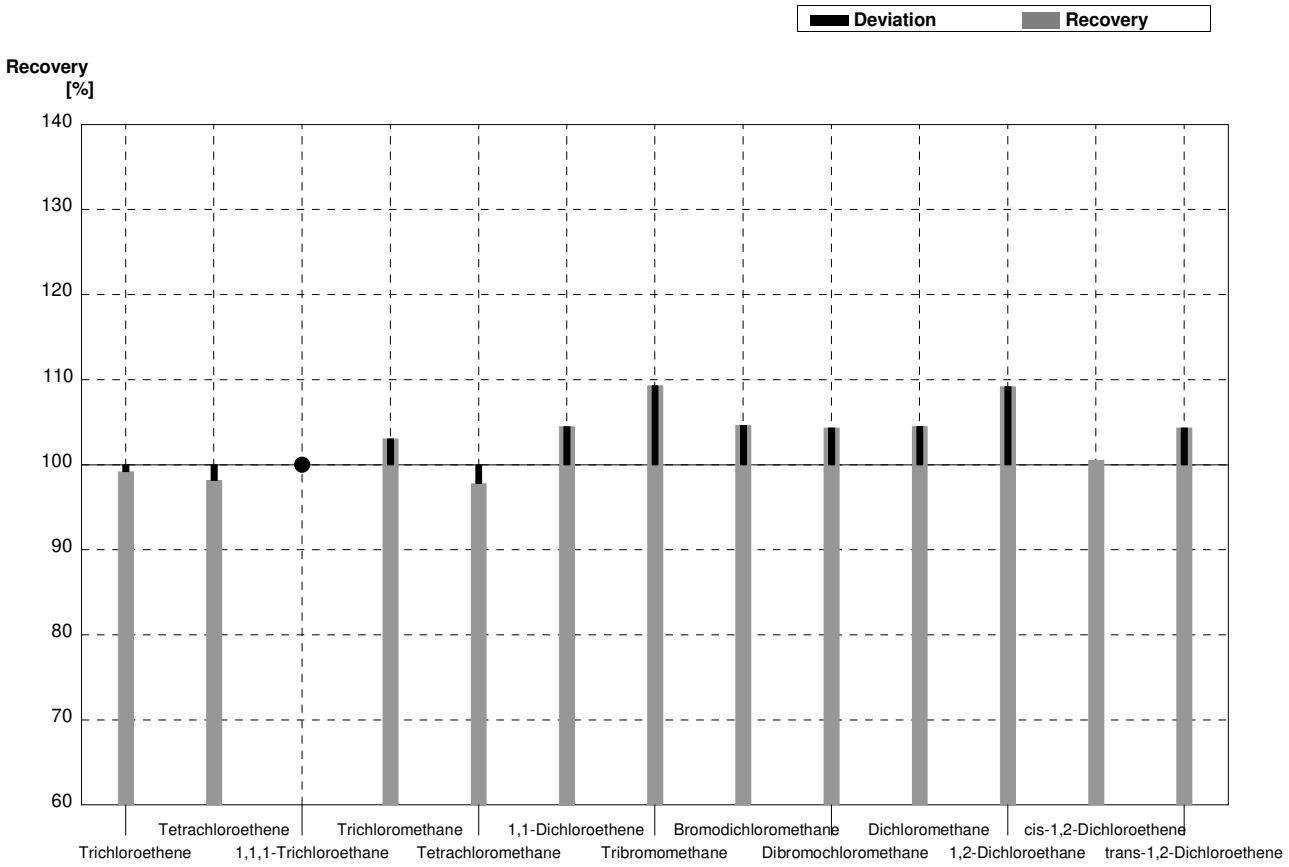
Sample **C65A**
Laboratory **N**

Parameter	Target value	± U (k=2)	Result	±	Unit	Recovery
Trichloroethene	1,88	0,10	1,877	0,503	µg/l	100%
Tetrachloroethene	1,79	0,09	1,728	0,385	µg/l	97%
1,1,1-Trichloroethane	0,274	0,016	0,268	0,037	µg/l	98%
Trichloromethane	0,323	0,037	0,335	0,045	µg/l	104%
Tetrachloromethane	0,370	0,024	0,360	0,056	µg/l	97%
1,1-Dichloroethene	3,43	0,13	3,639	0,459	µg/l	106%
Tribromomethane	0,375	0,028	0,422	0,057	µg/l	113%
Bromodichloromethane	0,271	0,022	0,284	0,062	µg/l	105%
Dibromochloromethane	1,40	0,07	1,462	0,935	µg/l	104%
Dichloromethane	2,87	0,26	3,025	0,847	µg/l	105%
1,2-Dichloroethane	0,596	0,069	0,638	0,102	µg/l	107%
cis-1,2-Dichloroethene	0,259	0,023	0,250	0,113	µg/l	97%
trans-1,2-Dichloroethene	<0,1		0,0173	0,0056	µg/l	•



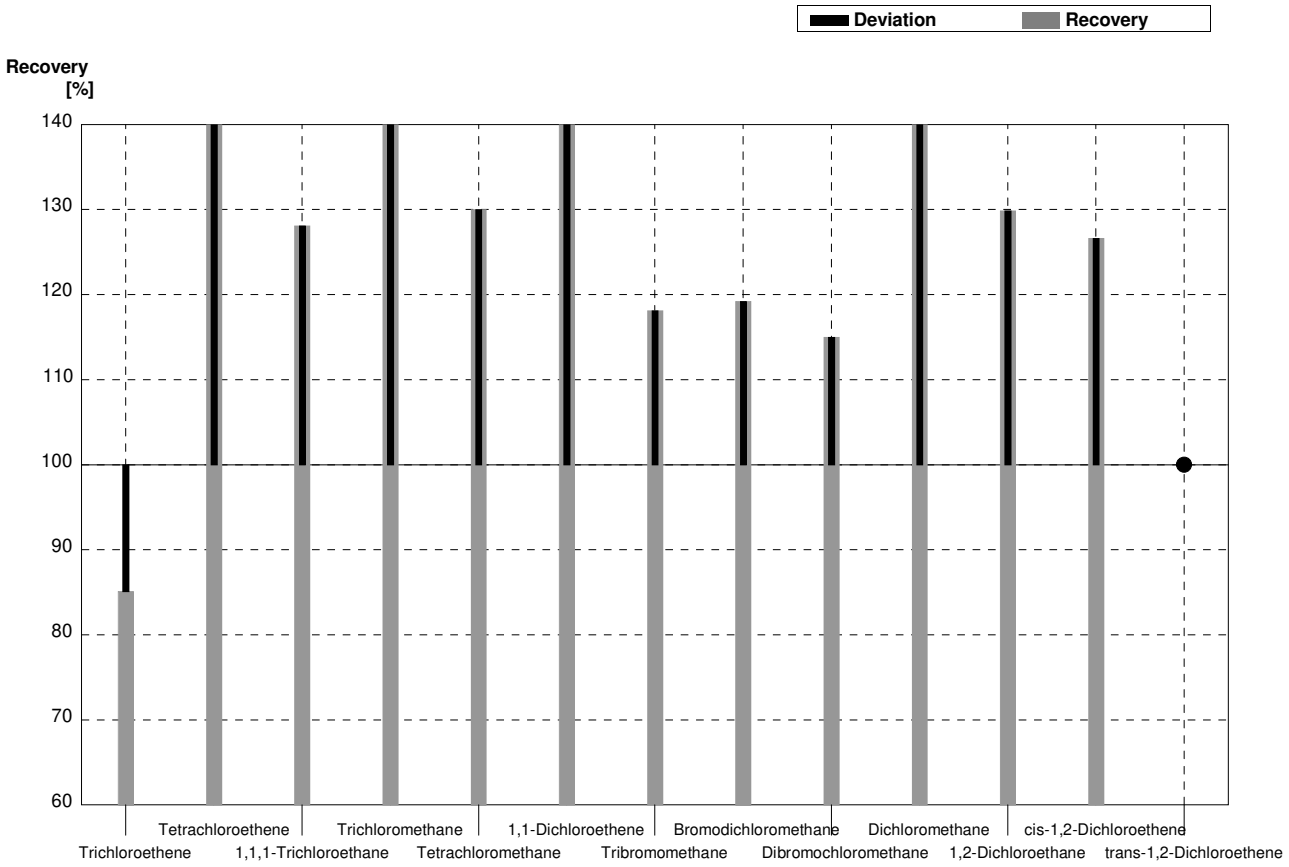
Sample C65B
Laboratory N

Parameter	Target value	± U (k=2)	Result	±	Unit	Recovery
Trichloroethene	0,375	0,022	0,372	0,100	µg/l	99%
Tetrachloroethene	0,928	0,048	0,911	0,203	µg/l	98%
1,1,1-Trichloroethane	<0,1		<0,05		µg/l	•
Trichloromethane	0,846	0,058	0,872	0,118	µg/l	103%
Tetrachloromethane	0,819	0,044	0,801	0,124	µg/l	98%
1,1-Dichloroethene	1,29	0,07	1,348	0,170	µg/l	104%
Tribromomethane	0,869	0,049	0,950	0,129	µg/l	109%
Bromodichloromethane	1,35	0,07	1,413	0,310	µg/l	105%
Dibromochloromethane	0,435	0,025	0,454	0,123	µg/l	104%
Dichloromethane	2,16	0,21	2,258	0,632	µg/l	105%
1,2-Dichloroethane	1,38	0,09	1,507	0,241	µg/l	109%
cis-1,2-Dichloroethene	0,909	0,049	0,914	0,413	µg/l	101%
trans-1,2-Dichloroethene	2,55	0,13	2,661	0,862	µg/l	104%



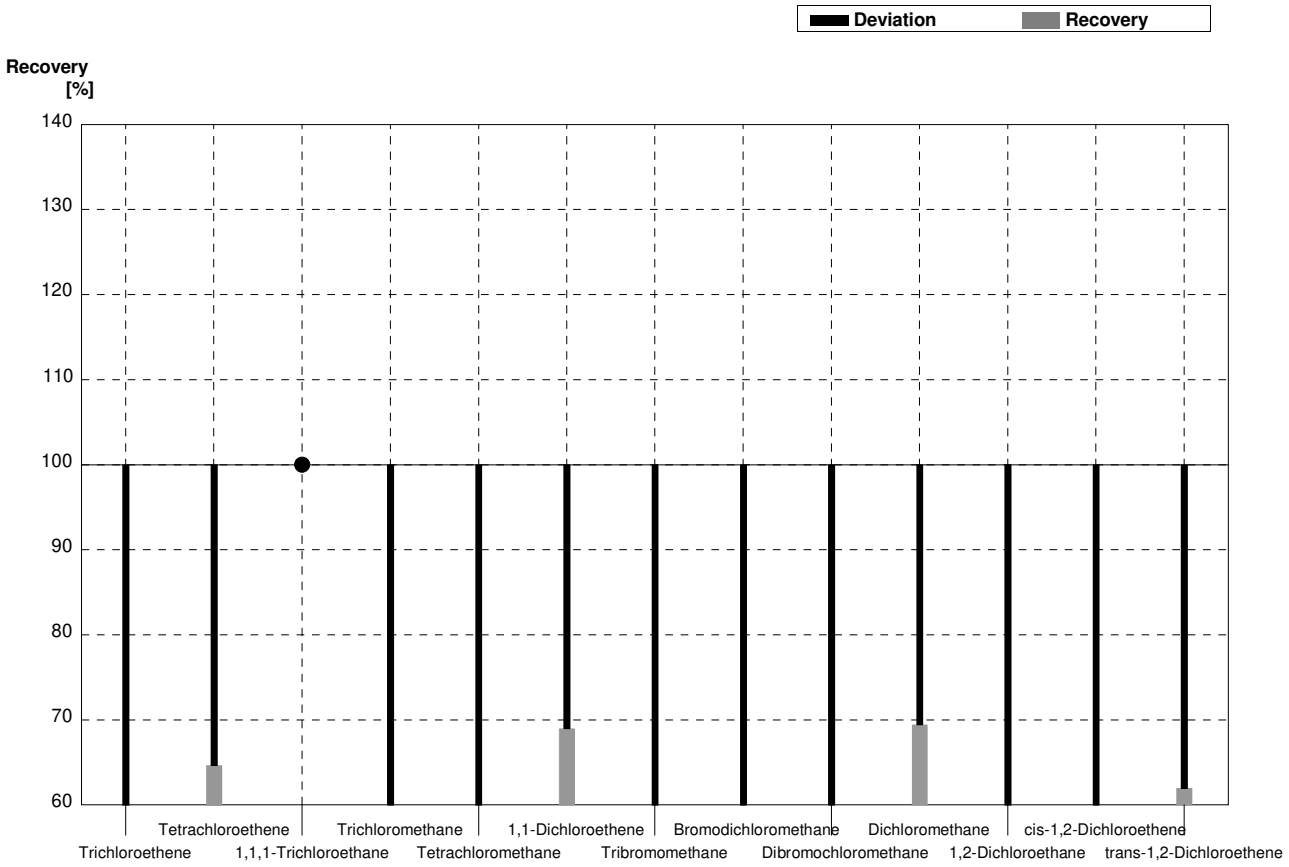
Sample **C65A**
Laboratory **O**

Parameter	Target value	± U (k=2)	Result	±	Unit	Recovery
Trichloroethene	1,88	0,10	1,60	0,326	µg/l	85%
Tetrachloroethene	1,79	0,09	2,71	0,59	µg/l	151%
1,1,1-Trichloroethane	0,274	0,016	0,351	0,088	µg/l	128%
Trichloromethane	0,323	0,037	0,460	0,079	µg/l	142%
Tetrachloromethane	0,370	0,024	0,481	0,122	µg/l	130%
1,1-Dichloroethene	3,43	0,13	5,7	1,1	µg/l	166%
Tribromomethane	0,375	0,028	0,443	0,073	µg/l	118%
Bromodichloromethane	0,271	0,022	0,323	0,080	µg/l	119%
Dibromochloromethane	1,40	0,07	1,61	0,39	µg/l	115%
Dichloromethane	2,87	0,26	4,29	1,41	µg/l	149%
1,2-Dichloroethane	0,596	0,069	0,774	0,177	µg/l	130%
cis-1,2-Dichloroethene	0,259	0,023	0,328	0,071	µg/l	127%
trans-1,2-Dichloroethene	<0,1		<0,1		µg/l	•



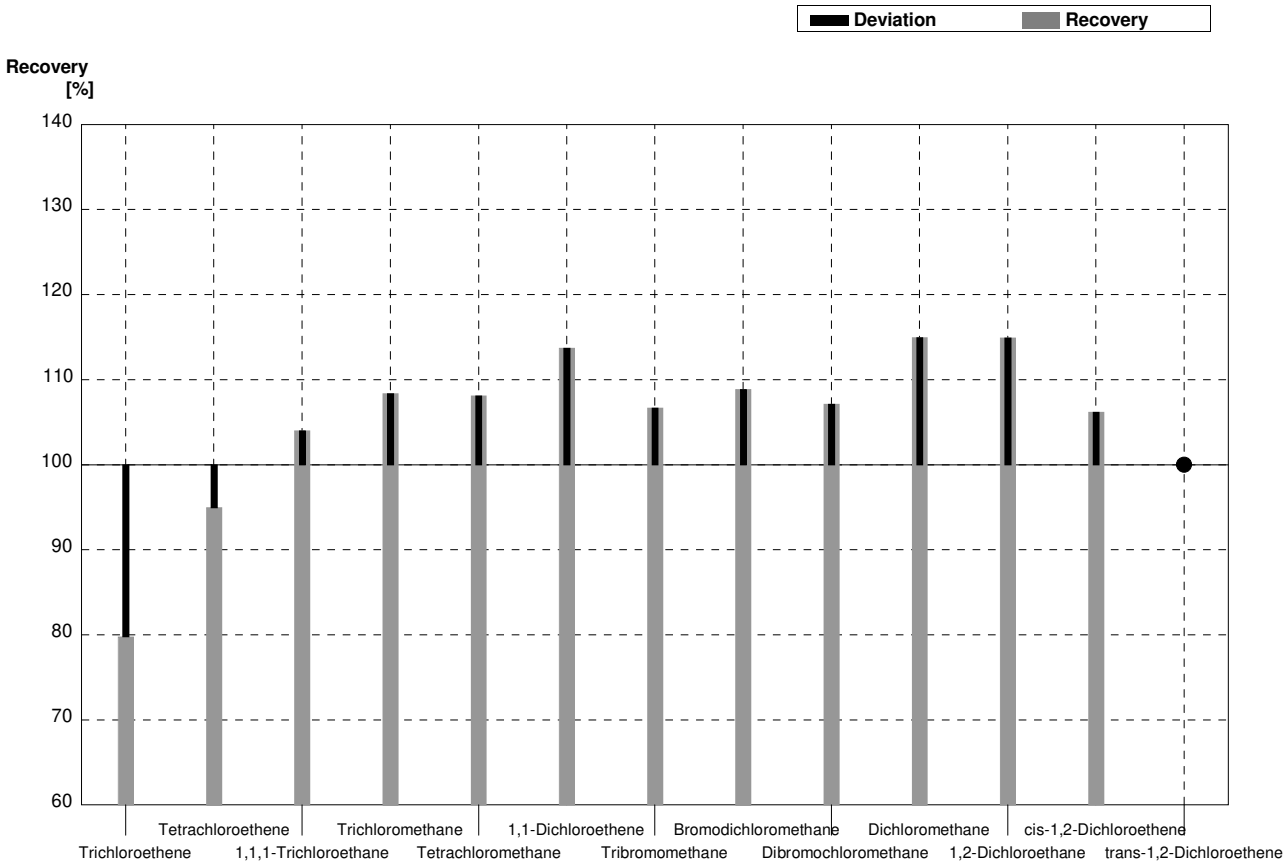
Sample **C65B**
Laboratory **O**

Parameter	Target value	± U (k=2)	Result	±	Unit	Recovery
Trichloroethene	0,375	0,022	0,129	0,016	µg/l	34%
Tetrachloroethene	0,928	0,048	0,60	0,13	µg/l	65%
1,1,1-Trichloroethane	<0,1		<0,1		µg/l	•
Trichloromethane	0,846	0,058	0,50	0,08	µg/l	59%
Tetrachloromethane	0,819	0,044	0,446	0,101	µg/l	54%
1,1-Dichloroethene	1,29	0,07	0,89	0,18	µg/l	69%
Tribromomethane	0,869	0,049	0,426	0,138	µg/l	49%
Bromodichloromethane	1,35	0,07	0,72	0,13	µg/l	53%
Dibromochloromethane	0,435	0,025	0,227	0,065	µg/l	52%
Dichloromethane	2,16	0,21	1,50	0,28	µg/l	69%
1,2-Dichloroethane	1,38	0,09	0,79	0,15	µg/l	57%
cis-1,2-Dichloroethene	0,909	0,049	0,487	0,088	µg/l	54%
trans-1,2-Dichloroethene	2,55	0,13	1,58	0,22	µg/l	62%



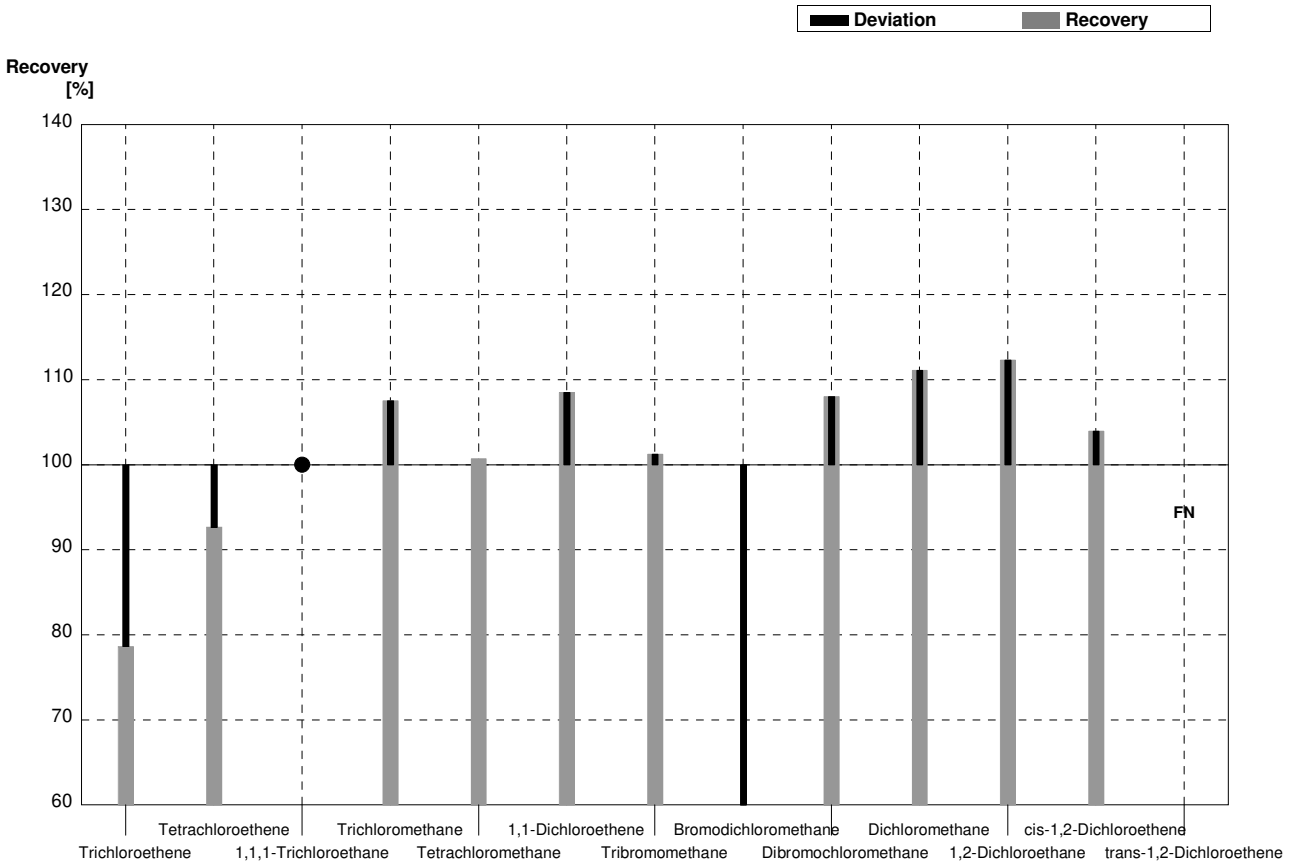
Sample **C65A**
Laboratory **P**

Parameter	Target value	± U (k=2)	Result	±	Unit	Recovery
Trichloroethene	1,88	0,10	1,50	0,45	µg/l	80%
Tetrachloroethene	1,79	0,09	1,70	0,51	µg/l	95%
1,1,1-Trichloroethane	0,274	0,016	0,285	0,09	µg/l	104%
Trichloromethane	0,323	0,037	0,350	0,11	µg/l	108%
Tetrachloromethane	0,370	0,024	0,400	0,12	µg/l	108%
1,1-Dichloroethene	3,43	0,13	3,90	1,2	µg/l	114%
Tribromomethane	0,375	0,028	0,400	0,12	µg/l	107%
Bromodichloromethane	0,271	0,022	0,295	0,09	µg/l	109%
Dibromochloromethane	1,40	0,07	1,50	0,45	µg/l	107%
Dichloromethane	2,87	0,26	3,30	0,99	µg/l	115%
1,2-Dichloroethane	0,596	0,069	0,685	0,21	µg/l	115%
cis-1,2-Dichloroethene	0,259	0,023	0,275	0,083	µg/l	106%
trans-1,2-Dichloroethene	<0,1		<0,1		µg/l	•



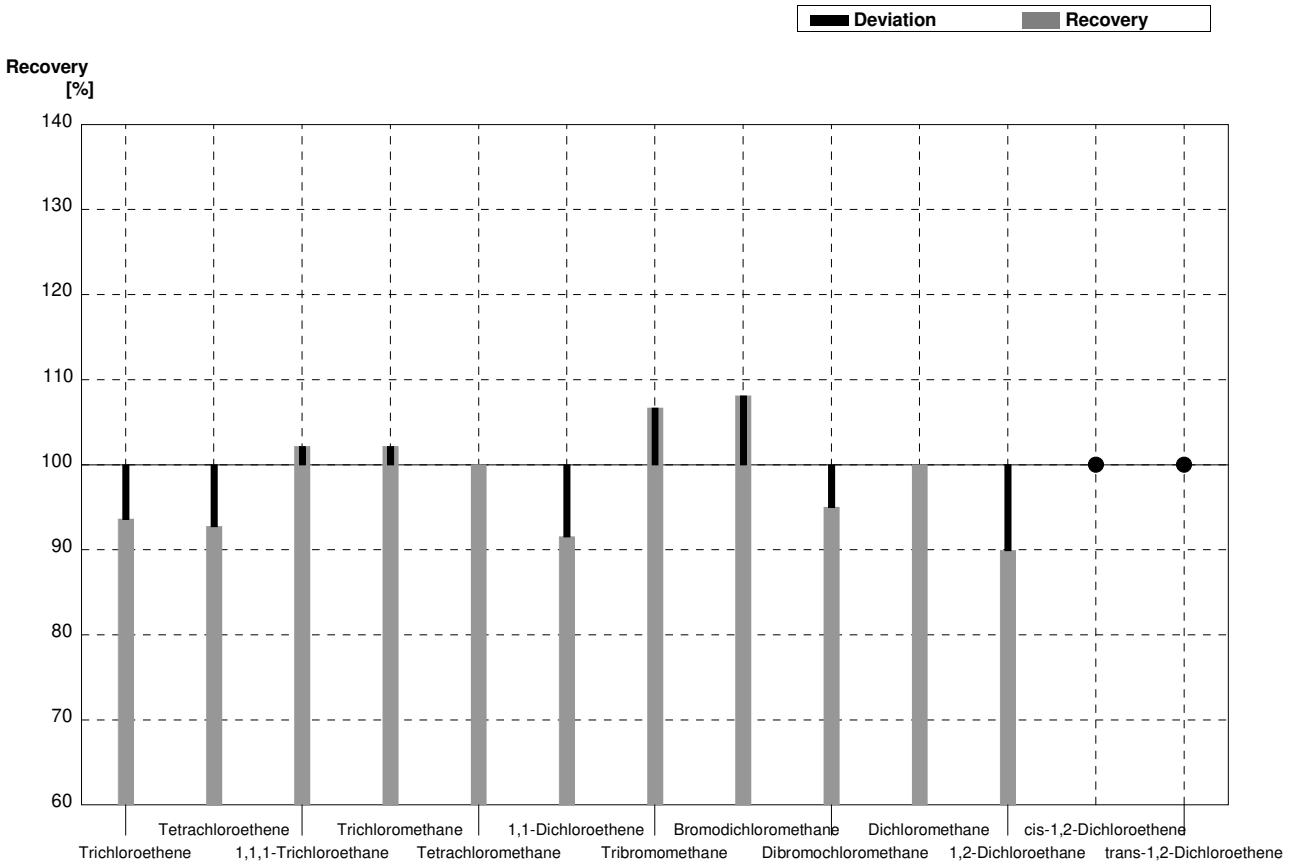
Sample **C65B**
Laboratory **P**

Parameter	Target value	± U (k=2)	Result	±	Unit	Recovery
Trichloroethene	0,375	0,022	0,295	0,09	µg/l	79%
Tetrachloroethene	0,928	0,048	0,860	0,26	µg/l	93%
1,1,1-Trichloroethane	<0,1		<0,1		µg/l	•
Trichloromethane	0,846	0,058	0,910	0,27	µg/l	108%
Tetrachloromethane	0,819	0,044	0,825	0,25	µg/l	101%
1,1-Dichloroethene	1,29	0,07	1,40	0,42	µg/l	109%
Tribromomethane	0,869	0,049	0,880	0,26	µg/l	101%
Bromodichloromethane	1,35	0,07	0,470	0,14	µg/l	35%
Dibromochloromethane	0,435	0,025	0,470	0,14	µg/l	108%
Dichloromethane	2,16	0,21	2,40	0,72	µg/l	111%
1,2-Dichloroethane	1,38	0,09	1,55	0,465	µg/l	112%
cis-1,2-Dichloroethene	0,909	0,049	0,945	0,284	µg/l	104%
trans-1,2-Dichloroethene	2,55	0,13	<0,1		µg/l	FN



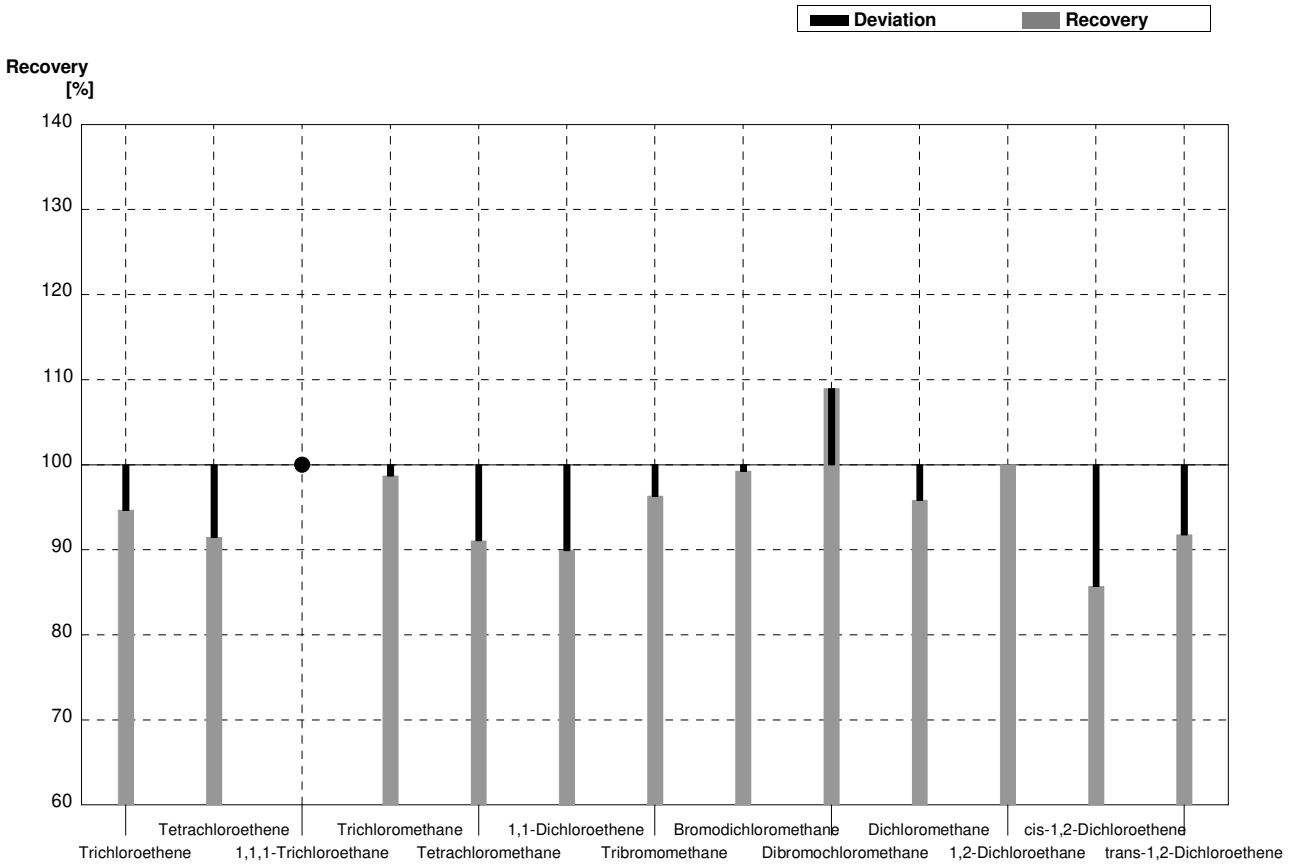
Sample **C65A**
Laboratory **Q**

Parameter	Target value	± U (k=2)	Result	±	Unit	Recovery
Trichloroethene	1,88	0,10	1,76	0,26	µg/l	94%
Tetrachloroethene	1,79	0,09	1,66	0,25	µg/l	93%
1,1,1-Trichloroethane	0,274	0,016	0,280	0,04	µg/l	102%
Trichloromethane	0,323	0,037	0,330	0,05	µg/l	102%
Tetrachloromethane	0,370	0,024	0,370	0,06	µg/l	100%
1,1-Dichloroethene	3,43	0,13	3,14	0,47	µg/l	92%
Tribromomethane	0,375	0,028	0,400	0,06	µg/l	107%
Bromodichloromethane	0,271	0,022	0,293	0,04	µg/l	108%
Dibromochloromethane	1,40	0,07	1,33	0,20	µg/l	95%
Dichloromethane	2,87	0,26	2,87	0,43	µg/l	100%
1,2-Dichloroethane	0,596	0,069	0,536	0,08	µg/l	90%
cis-1,2-Dichloroethene	0,259	0,023	<0,5		µg/l	•
trans-1,2-Dichloroethene	<0,1		<0,5		µg/l	•



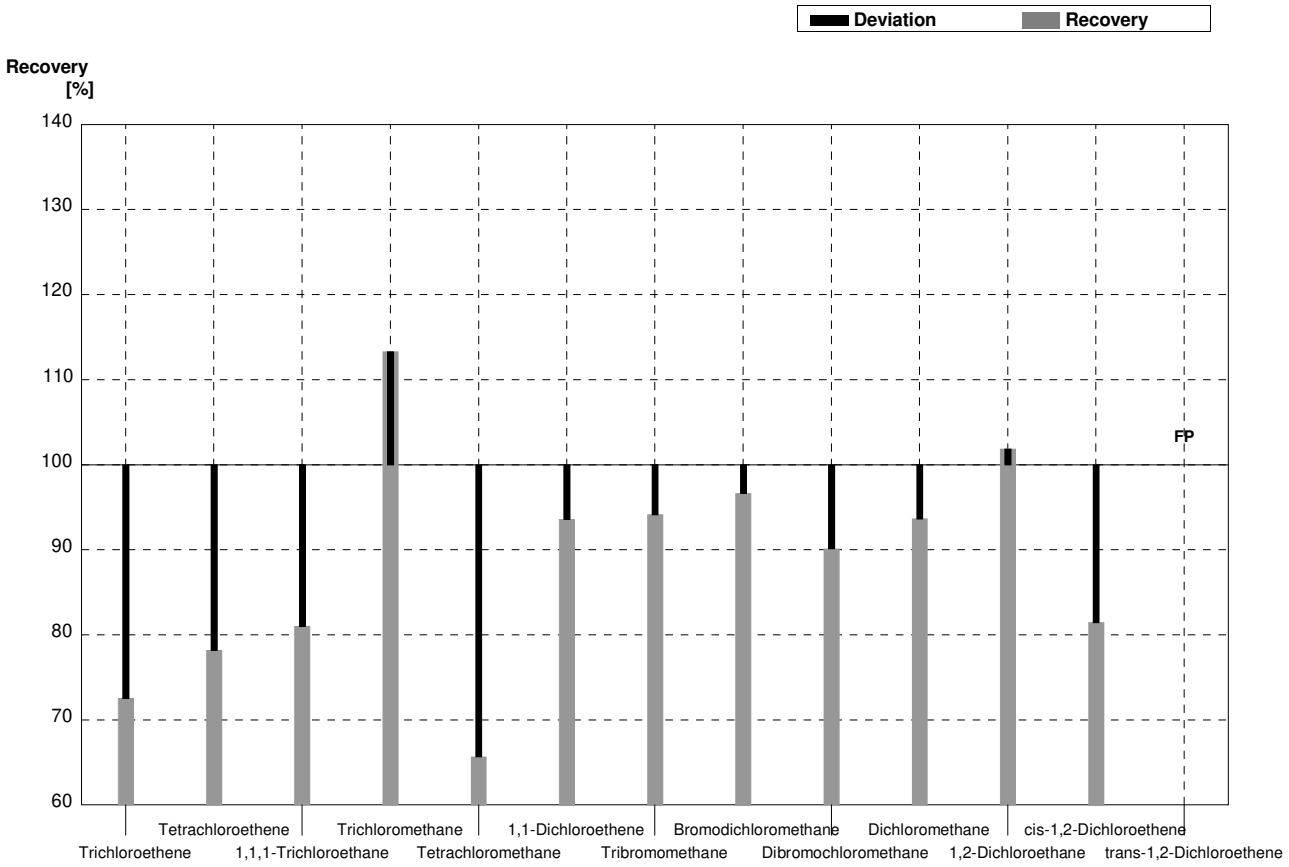
Sample **C65B**
Laboratory **Q**

Parameter	Target value	± U (k=2)	Result	±	Unit	Recovery
Trichloroethene	0,375	0,022	0,355	0,05	µg/l	95%
Tetrachloroethene	0,928	0,048	0,849	0,13	µg/l	91%
1,1,1-Trichloroethane	<0,1		<0,1		µg/l	•
Trichloromethane	0,846	0,058	0,835	0,13	µg/l	99%
Tetrachloromethane	0,819	0,044	0,746	0,11	µg/l	91%
1,1-Dichloroethene	1,29	0,07	1,16	0,17	µg/l	90%
Tribromomethane	0,869	0,049	0,837	0,13	µg/l	96%
Bromodichloromethane	1,35	0,07	1,34	0,20	µg/l	99%
Dibromochloromethane	0,435	0,025	0,474	0,07	µg/l	109%
Dichloromethane	2,16	0,21	2,07	0,31	µg/l	96%
1,2-Dichloroethane	1,38	0,09	1,38	0,21	µg/l	100%
cis-1,2-Dichloroethene	0,909	0,049	0,779	0,12	µg/l	86%
trans-1,2-Dichloroethene	2,55	0,13	2,34	0,35	µg/l	92%



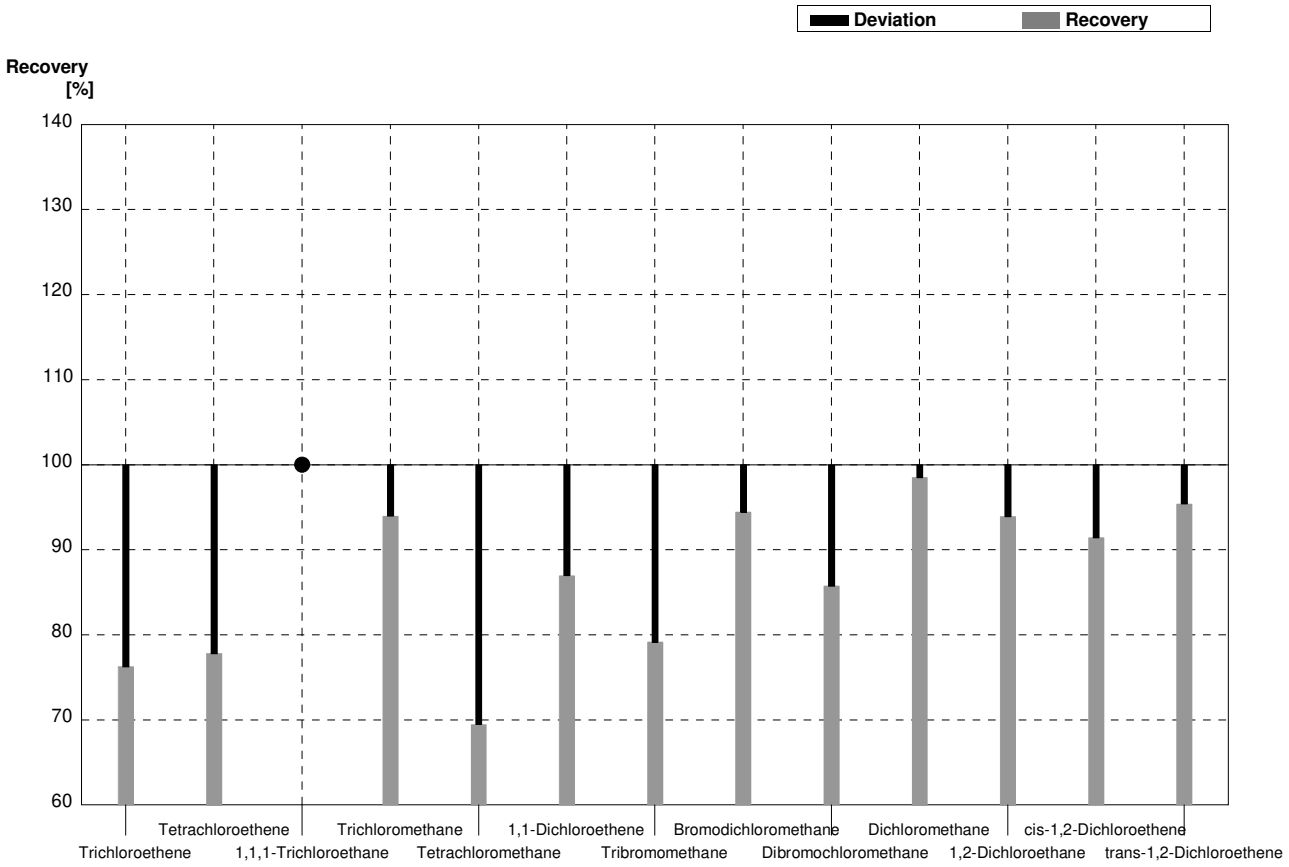
Sample **C65A**
Laboratory **R**

Parameter	Target value	± U (k=2)	Result	±	Unit	Recovery
Trichloroethene	1,88	0,10	1,364	0,136	µg/l	73%
Tetrachloroethene	1,79	0,09	1,400	0,140	µg/l	78%
1,1,1-Trichloroethane	0,274	0,016	0,222	0,022	µg/l	81%
Trichloromethane	0,323	0,037	0,366	0,037	µg/l	113%
Tetrachloromethane	0,370	0,024	0,243	0,024	µg/l	66%
1,1-Dichloroethene	3,43	0,13	3,210	0,321	µg/l	94%
Tribromomethane	0,375	0,028	0,353	0,035	µg/l	94%
Bromodichloromethane	0,271	0,022	0,2619	0,026	µg/l	97%
Dibromochloromethane	1,40	0,07	1,262	0,126	µg/l	90%
Dichloromethane	2,87	0,26	2,688	0,269	µg/l	94%
1,2-Dichloroethane	0,596	0,069	0,607	0,061	µg/l	102%
cis-1,2-Dichloroethene	0,259	0,023	0,211	0,021	µg/l	81%
trans-1,2-Dichloroethene	<0,1		0,168	0,017	µg/l	FP



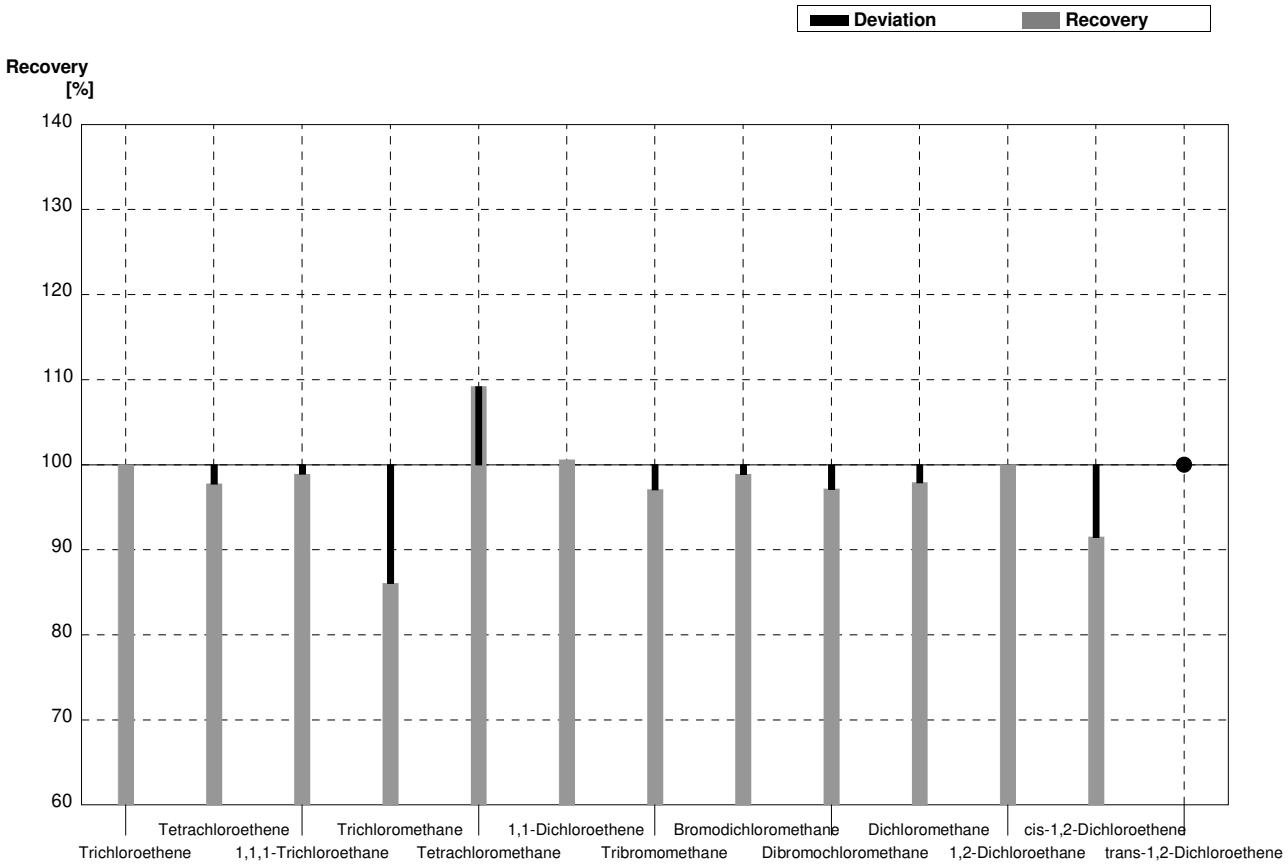
Sample **C65B**
Laboratory **R**

Parameter	Target value	± U (k=2)	Result	±	Unit	Recovery
Trichloroethene	0,375	0,022	0,286	0,029	µg/l	76%
Tetrachloroethene	0,928	0,048	0,722	0,072	µg/l	78%
1,1,1-Trichloroethane	<0,1		<0,01	0,005	µg/l	•
Trichloromethane	0,846	0,058	0,795	0,080	µg/l	94%
Tetrachloromethane	0,819	0,044	0,569	0,057	µg/l	69%
1,1-Dichloroethene	1,29	0,07	1,122	0,112	µg/l	87%
Tribromomethane	0,869	0,049	0,688	0,069	µg/l	79%
Bromodichloromethane	1,35	0,07	1,275	0,128	µg/l	94%
Dibromochloromethane	0,435	0,025	0,373	0,037	µg/l	86%
Dichloromethane	2,16	0,21	2,128	0,213	µg/l	99%
1,2-Dichloroethane	1,38	0,09	1,296	0,130	µg/l	94%
cis-1,2-Dichloroethene	0,909	0,049	0,831	0,083	µg/l	91%
trans-1,2-Dichloroethene	2,55	0,13	2,433	0,243	µg/l	95%



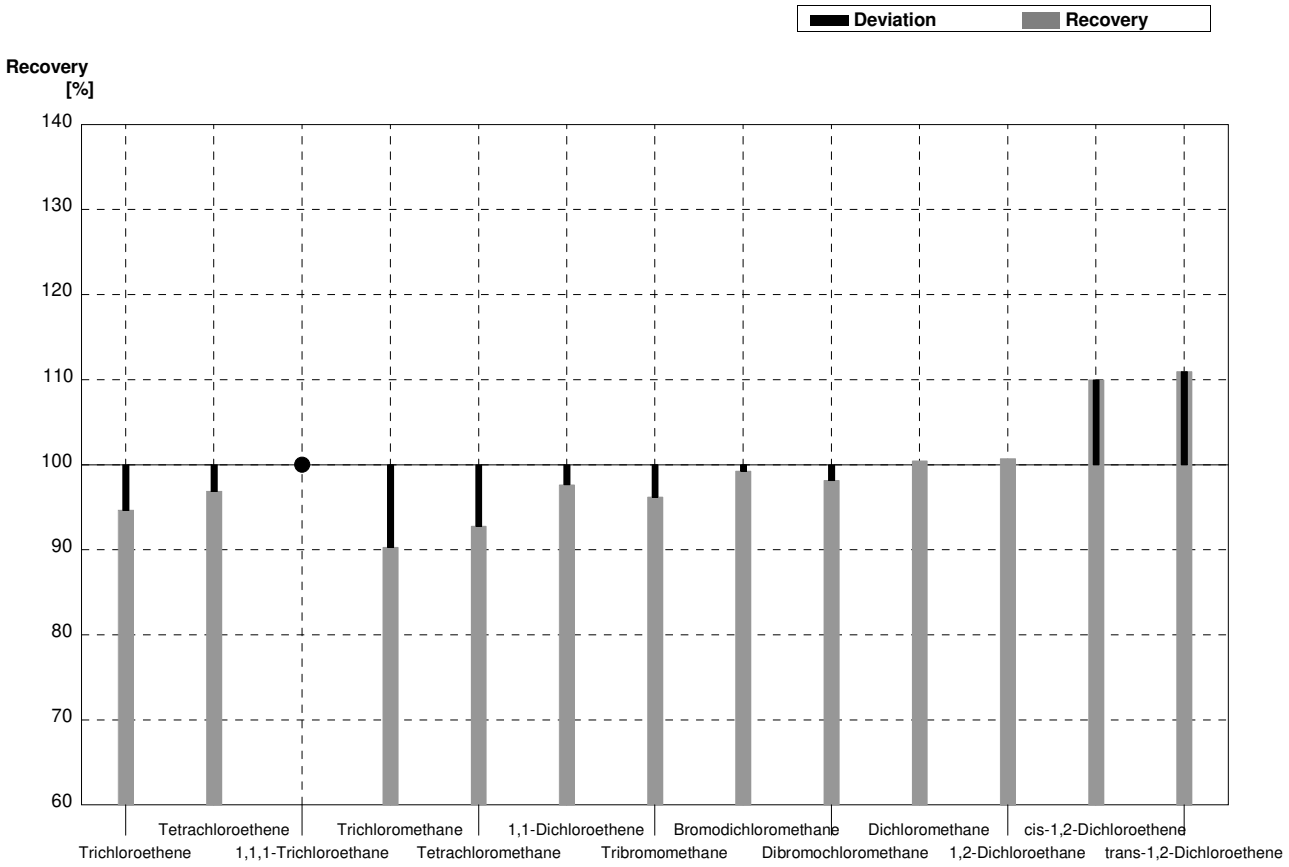
Sample **C65A**
Laboratory **S**

Parameter	Target value	± U (k=2)	Result	±	Unit	Recovery
Trichloroethene	1,88	0,10	1,88	0,104	µg/l	100%
Tetrachloroethene	1,79	0,09	1,75	0,105	µg/l	98%
1,1,1-Trichloroethane	0,274	0,016	0,271	0,009	µg/l	99%
Trichloromethane	0,323	0,037	0,278	0,014	µg/l	86%
Tetrachloromethane	0,370	0,024	0,404	0,016	µg/l	109%
1,1-Dichloroethene	3,43	0,13	3,45	0,131	µg/l	101%
Tribromomethane	0,375	0,028	0,364	0,014	µg/l	97%
Bromodichloromethane	0,271	0,022	0,268	0,013	µg/l	99%
Dibromochloromethane	1,40	0,07	1,36	0,095	µg/l	97%
Dichloromethane	2,87	0,26	2,81	0,092	µg/l	98%
1,2-Dichloroethane	0,596	0,069	0,596	0,104	µg/l	100%
cis-1,2-Dichloroethene	0,259	0,023	0,237	0,012	µg/l	92%
trans-1,2-Dichloroethene	<0,1		<0,05		µg/l	•



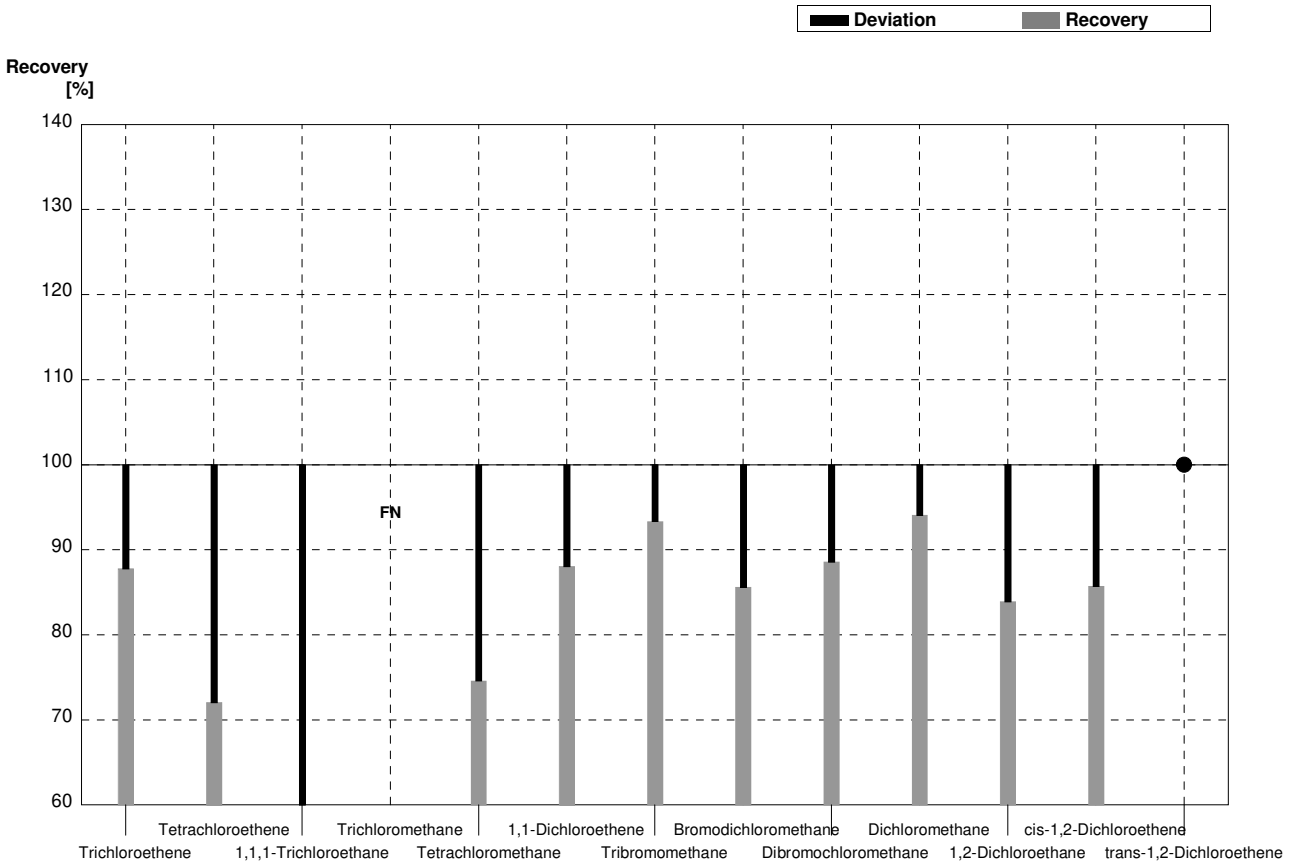
Sample **C65B**
Laboratory **S**

Parameter	Target value	± U (k=2)	Result	±	Unit	Recovery
Trichloroethene	0,375	0,022	0,355	0,007	µg/l	95%
Tetrachloroethene	0,928	0,048	0,899	0,111	µg/l	97%
1,1,1-Trichloroethane	<0,1		<0,05		µg/l	•
Trichloromethane	0,846	0,058	0,764	0,119	µg/l	90%
Tetrachloromethane	0,819	0,044	0,760	0,248	µg/l	93%
1,1-Dichloroethene	1,29	0,07	1,26	0,109	µg/l	98%
Tribromomethane	0,869	0,049	0,836	0,116	µg/l	96%
Bromodichloromethane	1,35	0,07	1,34	0,120	µg/l	99%
Dibromochloromethane	0,435	0,025	0,427	0,102	µg/l	98%
Dichloromethane	2,16	0,21	2,17	0,087	µg/l	100%
1,2-Dichloroethane	1,38	0,09	1,39	0,110	µg/l	101%
cis-1,2-Dichloroethene	0,909	0,049	1,00	0,107	µg/l	110%
trans-1,2-Dichloroethene	2,55	0,13	2,83	0,157	µg/l	111%



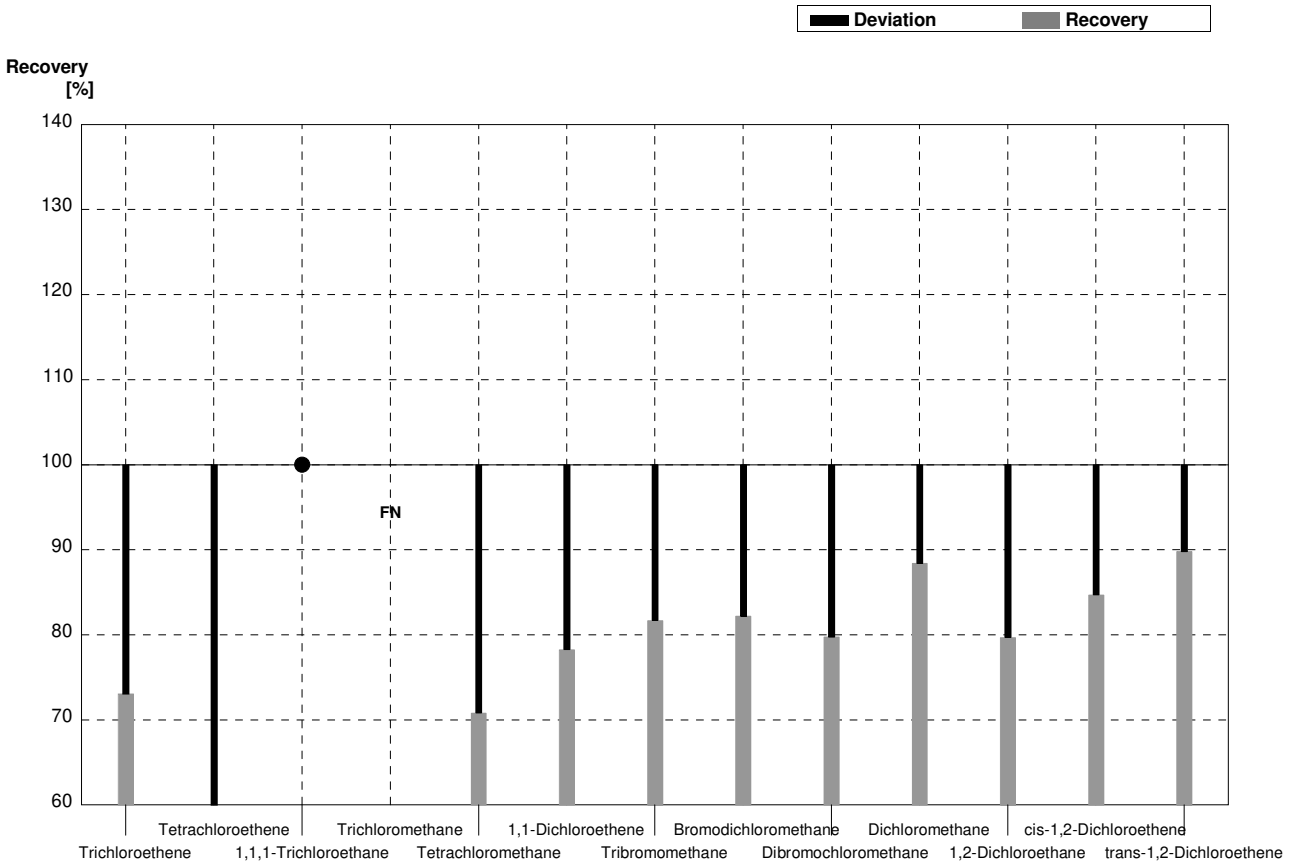
Sample C65A
Laboratory T

Parameter	Target value	± U (k=2)	Result	±	Unit	Recovery
Trichloroethene	1,88	0,10	1,65	0,33	µg/l	88%
Tetrachloroethene	1,79	0,09	1,29	0,32	µg/l	72%
1,1,1-Trichloroethane	0,274	0,016	0,160	0,03	µg/l	58%
Trichloromethane	0,323	0,037	<0,05	0	µg/l	FN
Tetrachloromethane	0,370	0,024	0,276	0,07	µg/l	75%
1,1-Dichloroethene	3,43	0,13	3,02	0,75	µg/l	88%
Tribromomethane	0,375	0,028	0,350	0,11	µg/l	93%
Bromodichloromethane	0,271	0,022	0,232	0,06	µg/l	86%
Dibromochloromethane	1,40	0,07	1,24	0,31	µg/l	89%
Dichloromethane	2,87	0,26	2,70	0,54	µg/l	94%
1,2-Dichloroethane	0,596	0,069	0,500	0,13	µg/l	84%
cis-1,2-Dichloroethene	0,259	0,023	0,222	0,04	µg/l	86%
trans-1,2-Dichloroethene	<0,1		<0,05	0	µg/l	•



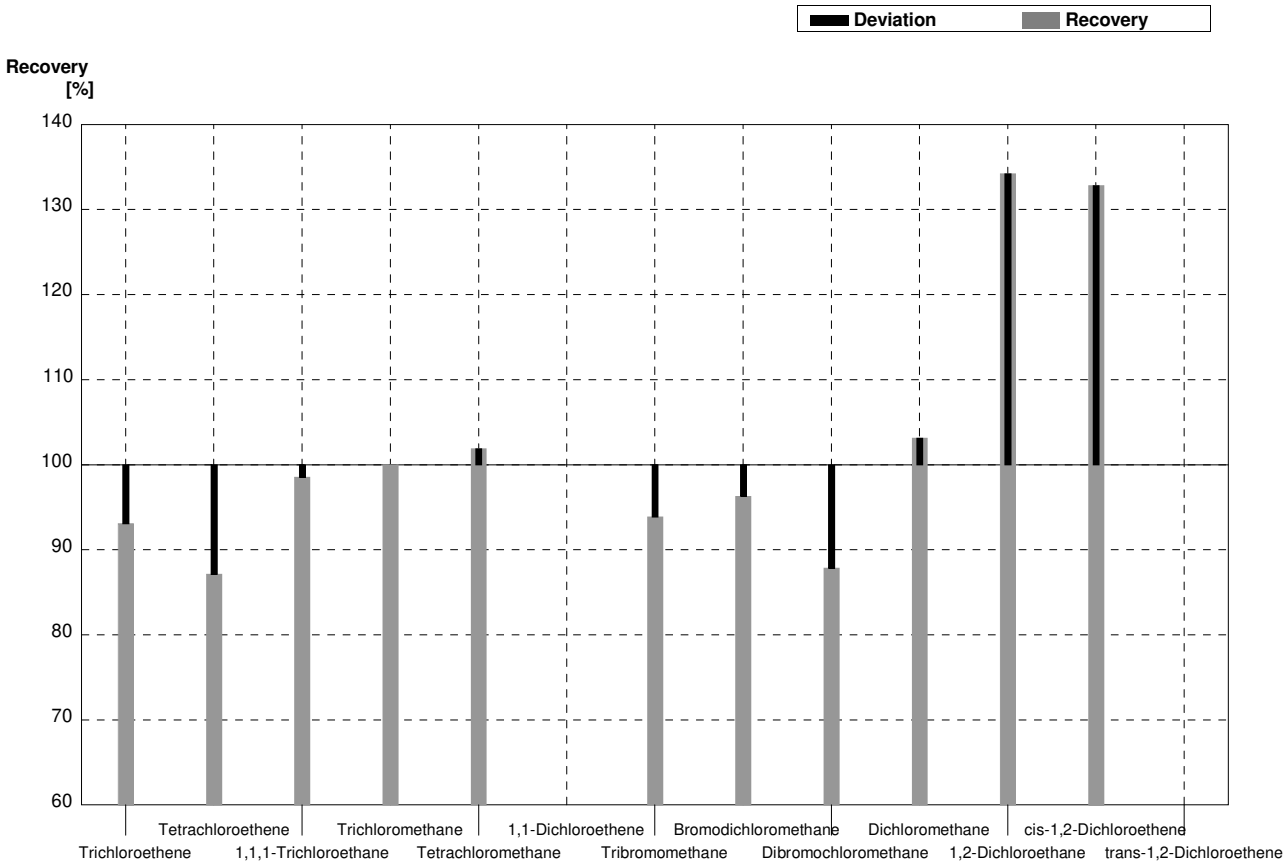
Sample C65B
Laboratory T

Parameter	Target value	± U (k=2)	Result	±	Unit	Recovery
Trichloroethene	0,375	0,022	0,274	0,06	µg/l	73%
Tetrachloroethene	0,928	0,048	0,53	0,13	µg/l	57%
1,1,1-Trichloroethane	<0,1		<0,05	0	µg/l	•
Trichloromethane	0,846	0,058	<0,05	0	µg/l	FN
Tetrachloromethane	0,819	0,044	0,58	0,15	µg/l	71%
1,1-Dichloroethene	1,29	0,07	1,01	0,25	µg/l	78%
Tribromomethane	0,869	0,049	0,71	0,21	µg/l	82%
Bromodichloromethane	1,35	0,07	1,11	0,28	µg/l	82%
Dibromochloromethane	0,435	0,025	0,347	0,09	µg/l	80%
Dichloromethane	2,16	0,21	1,91	0,38	µg/l	88%
1,2-Dichloroethane	1,38	0,09	1,10	0,28	µg/l	80%
cis-1,2-Dichloroethene	0,909	0,049	0,77	0,15	µg/l	85%
trans-1,2-Dichloroethene	2,55	0,13	2,29	0,46	µg/l	90%



Sample C65A
Laboratory U

Parameter	Target value	± U (k=2)	Result	±	Unit	Recovery
Trichloroethene	1,88	0,10	1,75	0,17	µg/l	93%
Tetrachloroethene	1,79	0,09	1,56	0,16	µg/l	87%
1,1,1-Trichloroethane	0,274	0,016	0,270	0,027	µg/l	99%
Trichloromethane	0,323	0,037	0,323	0,032	µg/l	100%
Tetrachloromethane	0,370	0,024	0,377	0,038	µg/l	102%
1,1-Dichloroethene	3,43	0,13			µg/l	
Tribromomethane	0,375	0,028	0,352	0,035	µg/l	94%
Bromodichloromethane	0,271	0,022	0,261	0,026	µg/l	96%
Dibromochloromethane	1,40	0,07	1,23	0,12	µg/l	88%
Dichloromethane	2,87	0,26	2,96	0,30	µg/l	103%
1,2-Dichloroethane	0,596	0,069	0,80	0,08	µg/l	134%
cis-1,2-Dichloroethene	0,259	0,023	0,344	0,034	µg/l	133%
trans-1,2-Dichloroethene	<0,1				µg/l	



Sample C65B
Laboratory U

Parameter	Target value	± U (k=2)	Result	±	Unit	Recovery
Trichloroethene	0,375	0,022	0,328	0,033	µg/l	87%
Tetrachloroethene	0,928	0,048	0,76	0,08	µg/l	82%
1,1,1-Trichloroethane	<0,1		<0,1		µg/l	•
Trichloromethane	0,846	0,058	0,83	0,08	µg/l	98%
Tetrachloromethane	0,819	0,044	0,80	0,08	µg/l	98%
1,1-Dichloroethene	1,29	0,07			µg/l	
Tribromomethane	0,869	0,049	0,74	0,07	µg/l	85%
Bromodichloromethane	1,35	0,07	1,27	0,13	µg/l	94%
Dibromochloromethane	0,435	0,025	0,394	0,039	µg/l	91%
Dichloromethane	2,16	0,21	2,18	0,22	µg/l	101%
1,2-Dichloroethane	1,38	0,09	1,49	0,15	µg/l	108%
cis-1,2-Dichloroethene	0,909	0,049	0,93	0,09	µg/l	102%
trans-1,2-Dichloroethene	2,55	0,13			µg/l