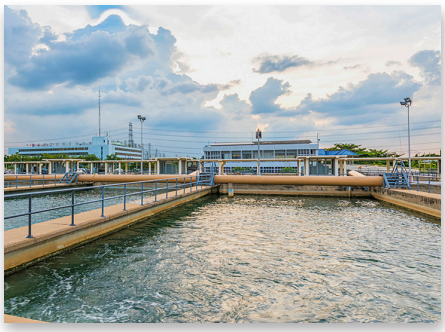
Certified Reference Materials

Produced and certified under DANAK accreditation no. 535 according to ISO 17034

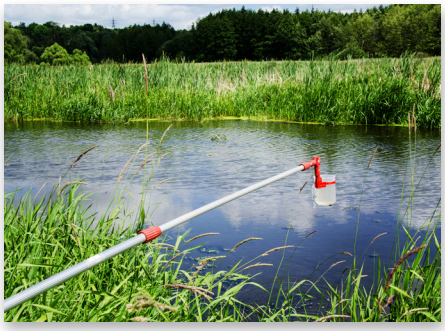
Certified reference materials provide more reliable and traceable documentation.

VKI Certified Reference Materials consist of a broad range of certified reference materials that are used to improve and document the analytical quality of environmental laboratories.



Wastewater

- General water quality parameters
- Nutrients
- Trace elements/metals



Surface water, fresh water and marine water

- Nutrients
- Trace elements/metals
- Nutrients in natural marine water

Drinking water and groundwater

- Major components drinking water
- TOC in natural water
- Trace elements/metals
- Bromide and Iodide

Sludge and Soil

- Trace elements/metals
- Organic contaminants

Wastewater

General water quality parameters and nutrients

(1 L prepared reference material per ampoule)

VKI Reference Material	Unit	NO_3-N	NH_4-N	PO_4-P	TN	TP	COD_{Cr}	BOD	TOC (NVOC)	SS
CONCENTRATION LEVELS										
QC WW1B	mg/L	5	1	0,5						
QC WW2.1	mg/L		10	5						
QC WW2.2	mg/L	1								
QC WW3	mg/L				8	2				
QC WW4	mg/L						510		200	
QC WW4A	mg/L						50		20	
QC WW5	mg/L							210		
QC WW6*	mg/L									240

*83 ml prepared reference material per ampoule.

Trace elements/Metals

VKI Reference Material	Unit	Ag	Al	As	Ba	Cd	Co	Cr	Cu	Fe	Hg	Mn	Mo	Ni	Pb	Sb	Se	Sn	Sr	V	Zn	Prepared reference material per ampoule
CONCENTRATION LEVELS																						
QC LL1	µg/L		200	30				20	20				20	20				20		20	50	1 L
QC LL2	µg/L	5			100	2	50			200		50			20	50	100		50			1 L
QC LL3	µg/L										7											1 L
QC HL1	mg/L		2							3		2	10		10			10			0,5	0,25 L
QC HL2	mg/L	2			2	1	0,5	4	4					2					5			0,25 L

Surface water, fresh water and marine water

Nutrients

(1 L prepared reference material per ampoule)

VKI Reference Material	Unit	NO_3-N	NH_4-N	PO_4-P	TN	TP
CONCENTRATION LEVELS						
QC RW1	µg/L	100	100	100		
QC RW2	µg/L				260	200

Trace elements/Metals

VKI Reference Material	Unit	Ag	Al	As	Ba	Cd	Co	Cr	Cu	Fe	Hg	Mn	Mo	Ni	Pb	Sb	Se	Sn	Sr	V	Zn	Prepared reference material per ampoule
CONCENTRATION LEVELS																						
QC LL1	µg/L		200	30				20	20				20	20				20		20	50	1 L
QC LL2	µg/L	5			100	2	50			200		50			20	50	100		50			1 L
QC LL3	µg/L										7											1 L

Nutrients in natural marine water (100 mL)

VKI Reference Material	Unit	Salinity (appx value)	NH_4	NO_2	NO_{2+3}	TN	PO_4	TP	SiO_4
CONCENTRATION LEVELS									
QC SW3.1B OUT OF STOCK	µM	11	3	1	13	17*			
QC SW3.2B OUT OF STOCK	µM	11					2	2*	16
QC SW4.1B	µM	33	3	0,2	13	19			
QC SW4.2B	µM	33					1,2*	1,3	3,5

*Non-certified value.

Major components (1 L prepared reference material)

VKI Reference Material	Na	K	Ca	Mg	Cl	F	SO_4	HCO_3	K_{25}	pH	TS
CONCENTRATION LEVELS											
Unit	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mS/m	-	mg/L
QC DWB	50	5	25	5	60	1	60	65	45	9	250

TOC in drinking water (10 mL)

VKI Reference Material	TOC
CONCENTRATION LEVELS	
Unit	mg/L
QC DW4	3

Trace elements/Metals

VKI Reference Material	Unit	Ag	Al	As	Ba	Cd	Co	Cr	Cu	Fe	Hg	Mn	Mo	Ni	Pb	Sb	Se	Sn	Sr	V	Zn	Prepared reference material per ampoule
CONCENTRATION LEVELS																						
QC LL1	µg/L		200	30				20	20				20	20				20		20	50	1 L
QC LL2	µg/L	5			100	2	50			200		50			20	50	100		50			1 L
QC LL3	µg/L										7											1 L

Sludge and soil

Trace elements/Metals

VKI Reference Material	As	Cd	Cr	Cu	Hg	Ni	Pb	Zn	K	Loss on ignition
CONCENTRATION LEVELS										
Unit	mg/kg DM								g/kg DM	
QC LOAM SOIL B	3	0,3	45	20	0,1	15	120	75	1	25

VKI Reference Material	Ag	As	Cd	Co	Cr	Cu	Hg	Mn	Mo	Ni	Pb	U	Sb	Tl	V	Zn	Al	Ca	Fe	K	Mg	Total N	Total P	Lol**
CONCENTRATION LEVELS																								
Unit	mg/kg DM																g/kg DM							
QC Sludge B - Aqua regia digestion OUT OF STOCK	1	4	1	3	35	140	0,7	360	4	20	30	1	2*	0,2*	15	530	5	110	20	7	5	50	25	600
QC Sludge B - Nitric acid digestion OUT OF STOCK	1	4	1	3	35	140	0,7	360	4	15	30	1	2*	0,2*	15	530	5	110	20	7	5	50	25	600

*Non-certified value. **Loss on ignition.

Organic micropollutants

VKI REFERENCE MATERIAL QC ORGANIC COMPONENTS IN MUNICIPAL SLUDGE																								
Individual components																					Sum parameters			
Acenaphthene	Acenaphthylene	Anthracene	Benzo(a)anthracene	Benzo(a)pyrene	Benzo(ghi)perylene	Benzo(b+j+k)fluoranthenes	Chrysene	Dibenz(a,h)anthracene	Fluoranthene	Fluorene	Indeno(1,2,3-cd)pyrene	Phenanthrene	Pyrene	Di(2-ethylhexyl)phthalate (DEHP)	Nonylphenol	Nonylphenolmonoethoxylate	Nonylphenoldiethoxylate	C_{10}-LAS	C_{11}-LAS	C_{12}-LAS	C_{13}-LAS	LAS	ΣPAH	NPE	DEHP
CONCENTRATION LEVELS (mg/kg)																								
0,1*	0,05*	0,5*	0,5*	0,5*	0,2*	0,8	0,5*	<0,1*	1	0,3	0,3*	1	1	25	80	5*	2*	70	500*	850	700	2100	5	90	25

*Non-certified value.

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