



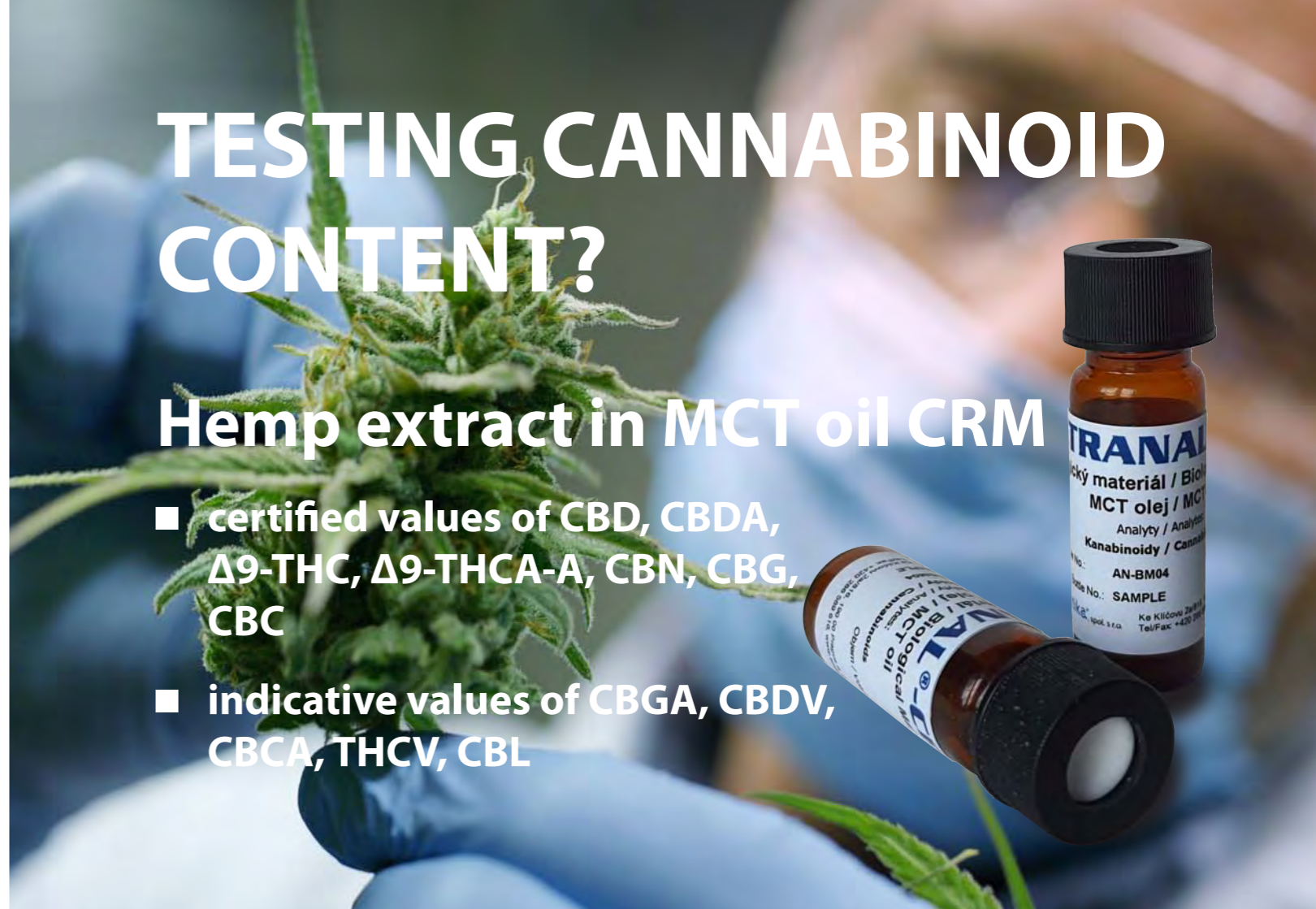
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# TESTING CANNABINOID CONTENT?

## Hemp extract in MCT oil CRM

- certified values of CBD, CBDA,  $\Delta^9$ -THC,  $\Delta^9$ -THCA-A, CBN, CBG, CBC
- indicative values of CBGA, CBDV, CBCA, THCV, CBL



## ABOUT US

Since 1991, Czech company ANALYTIKA has been providing laboratory quality control and assurance products. Our primary goal is to produce and distribute certified reference materials (CRM), reference materials (RM), QC standards, reagents and other laboratory solutions. With over 30 years of experience in manufacturing standards, we have acquired valuable knowledge that we apply to our product range.

In 2018, the Department of Reference Materials achieved accreditation certification for reference material producers, meeting the requirements of ČSN EN ISO/IEC 17034:2017. One year later, the Testing Laboratory was awarded an Accreditation Certificate in accordance with ČSN EN ISO/IEC 17025:2018.

Our priority is to provide our customers with high-quality products at reasonable prices, along with fast service.

## ORDERING AND SUPPORT

At ANALYTIKA we focus on your satisfaction and easy access to our products. Our team of sales representatives are on hand to process your orders and provide support. With the aim of continuous improvement, we have created an e-shop for you. At [www.analytika.net](http://www.analytika.net) you can easily make enquiries, place orders, and view our current range of products. By registering with our e-shop, you can access safety data sheets and certificates. If you prefer to contact us in a different way, you can send us an e-mail or give us a call. Whether through our e-shop or other communication channels, we are here to fulfil your orders.

## ACCREDITATION AND CERTIFICATION

The quality policy encompasses internal and external factors, including environmental considerations, and is rooted in the organization's context while maintaining a continuous identification of pertinent stakeholders, their requirements and effective communication.

Quality management in our company is meticulously governed in accordance with the ISO 9001 standard. This standard provides a systematic framework for process management, emphasizing continuous improvement and customer satisfaction. For environmental management, we adhere to the ISO 14001 standard to effectively address environmental risks and contribute to sustainable development. As producers of reference materials, we take pride in our accreditation to ISO 17034. This accreditation ensures that our manufacturing practices adhere to the highest standards, and our certified reference materials provide a reliable foundation for analytical methods. Our testing laboratory is accredited in accordance with ISO/IEC 17025 to guarantee the quality control of our products. This accreditation validates our laboratory's capacity to deliver dependable outcomes, which is crucial for ensuring the quality of our products.

## OUR QUALITY CONTROL SYSTEMS

ISO 9001

ISO 14001

ISO/IEC 17025

ISO 17034



## CUSTOM SOLUTIONS

Challenging analytical tasks often require specific solutions. Our many years of experience in the design and manufacture of reference materials enables us to help you.

### CUSTOM MADE REFERENCE MATERIALS

- RM for ICP, ICP-MS, ICP-OES, AAS, IC, ...
- Tuning solutions and internal standards for ICP, ICP-MS, ICP-OES
- RM for chromatography
- Matrix RM
- Samples for intralaboratory and interlaboratory comparisons

### WHAT DO WE NEED TO KNOW?

- Category (RM/CRM, adjustment solution etc.)
- Analyte(s) and their concentration
- Type of the solution's matrix
- Required volume of the solution and the required packaging
- Delivery time

### HOW TO ORDER

You can contact our sales department with your requirements by phone or email, or you can use our solutions configurator tool on our website. It is a simple tool that guides you through the process of ordering a customised solution, so you do not forget any of the information we need.

## PREMIUM CERTIFIED REFERENCE MATERIALS ASTASOL®



### Single and multi-element standards

Our range comprises a diverse selection of single and multi-element certified reference materials (CRM) in aqueous solution form. These substances are specifically formulated for use in the validation, verification and calibration of analytical techniques, such as atomic spectrometry (AAS, AES, ICP-OES, ICP-MS) and certain electroanalytical methodologies.

### Concentration

Single element solutions are available in concentrations of 10 mg/l, 100 mg/l, 1000 mg/l and 10000 mg/l. Multi-element solutions have various concentrations.

### Volume

Available in volumes of 30 ml, 50 ml, 100 ml, 250 ml and 500 ml.

### Package

CRMs are supplied in amber HDPE plastic or laboratory grade glass bottles. These bottles ensure optimum protection of the materials from external influences. In addition, our premium CRMs are packaged in barrier bags. This ensures long-term certified values within the stated uncertainty.

# CERTIFIED REFERENCE MATERIALS

## Single element standards

Analyte	Matrix	Concentration			
		10 mg/l	100 mg/l	1000 mg/l	10000 mg/l
Ag (Silver)	HNO <sub>3</sub>	AN7001N	AN8001N	AN90011N	AN900110N
Al (Aluminium)	HCl	AN7002C	AN8002C	AN90021C	AN900210C
Al (Aluminium)	HNO <sub>3</sub>	AN7002N	AN8002N	AN90021N	AN900210N
As (Arsenic)	HNO <sub>3</sub>	AN7003N	AN8003N	AN90031N	AN900310N
Au (Gold)	HCl	AN7004C	AN8004C	AN90041C	AN900410C
B (Boron)	H <sub>2</sub> O	AN7005H	AN8005H	AN90051H	AN900510H
Ba (Barium)	HCl	AN7006C	AN8006C	AN90061C	AN900610C
Ba (Barium)	HNO <sub>3</sub>	AN7006N	AN8006N	AN90061N	AN900610N
Be (Beryllium)	HNO <sub>3</sub>	AN7007N	AN8007N	AN90071N	AN900710N
Bi (Bismuth)	HNO <sub>3</sub>	AN7008N	AN8008N	AN90081N	AN900810N
Ca (Calcium)	HCl	AN7009C	AN8009C	AN90091C	AN900910C
Ca (Calcium)	HNO <sub>3</sub>	AN7009N	AN8009N	AN90091N	AN900910N
Cd (Cadmium)	HCl	AN7010C	AN8010C	AN90101C	AN901010C
Cd (Cadmium)	HNO <sub>3</sub>	AN7010N	AN8010N	AN90101N	AN901010N
Ce (Cerium)	HNO <sub>3</sub>	AN7011N	AN8011N	AN90111N	AN901110N
Co (Cobalt)	HCl	AN7012C	AN8012C	AN90121C	AN901210C
Co (Cobalt)	HNO <sub>3</sub>	AN7012N	AN8012N	AN90121N	AN901210N
Cr (Chromium)	HCl	AN7013C	AN8013C	AN90131C	AN901310C
Cr (Chromium)	HNO <sub>3</sub>	AN7013N	AN8013N	AN90131N	AN901310N
Cs (Cesium)	H <sub>2</sub> O	AN7014H	AN8014H	AN90141H	AN901410H
Cs (Cesium)	HNO <sub>3</sub>	AN7014N	AN8014N	AN90141N	AN901410N

# CERTIFIED REFERENCE MATERIALS

## Single element standards

Analyte	Matrix	Concentration			
		10 mg/l	100 mg/l	1000 mg/l	10000 mg/l
Cu (Copper)	HCl	AN7015C	AN8015C	AN90151C	AN901510C
Cu (Copper)	HNO <sub>3</sub>	AN7015N	AN8015N	AN90151N	AN901510N
Dy (Dysprosium)	HNO <sub>3</sub>	AN7016N	AN8016N	AN90161N	AN901610N
Er (Erbium)	HNO <sub>3</sub>	AN7017N	AN8017N	AN90171N	AN901710N
Eu (Europium)	HNO <sub>3</sub>	AN7018N	AN8018N	AN90181N	AN901810N
Fe (Iron)	HCl	AN7019C	AN8019C	AN90191C	AN901910C
Fe (Iron)	HNO <sub>3</sub>	AN7019N	AN8019N	AN90191N	AN901910N
Ga (Gallium)	HNO <sub>3</sub>	AN7020N	AN8020N	AN90201N	AN902010N
Gd (Gadolinium)	HNO <sub>3</sub>	AN7021N	AN8021N	AN90211N	AN902110N
Ge (Germanium)	HNO <sub>3</sub> + HF	AN7022FN	AN8022FN	AN90221FN	AN902210FN
Hf (Hafnium)	HNO <sub>3</sub> + HF	AN7023FN	AN8023FN	AN90231FN	AN902310FN
Hg (Mercury)	HNO <sub>3</sub>	AN7024N	AN8024N	AN90241N	AN902410N
Ho (Holmium)	HNO <sub>3</sub>	AN7025N	AN8025N	AN90251N	AN902510N
In (Indium)	HNO <sub>3</sub>	AN7026N	AN8026N	AN90261N	AN902610N
Ir (Iridium)	HCl	AN7027C	AN8027C	AN90271C	AN902710C
K (Potassium)	H <sub>2</sub> O	AN7028H	AN8028H	AN90281H	AN902810H
K (Potassium)	HNO <sub>3</sub>	AN7028N	AN8028N	AN90281N	AN902810N
La (Lanthanum)	HNO <sub>3</sub>	AN7029N	AN8029N	AN90291N	AN902910N
Li (Lithium)	HCl	AN7030C	AN8030C	AN90301C	AN903010C
Li (Lithium)	HNO <sub>3</sub>	AN7030N	AN8030N	AN90301N	AN903010N
Lu (Lutetium)	HNO <sub>3</sub>	AN7031N	AN8031N	AN90311N	AN903110N



# CERTIFIED REFERENCE MATERIALS

## Single element standards

Analyte	Matrix	Concentration			
		10 mg/l	100 mg/l	1000 mg/l	10000 mg/l
Mg (Magnesium)	HCl	AN7032C	AN8032C	AN90321C	AN903210C
Mg (Magnesium)	HNO <sub>3</sub>	AN7032N	AN8032N	AN90321N	AN903210N
Mn (Manganese)	HCl	AN7033C	AN8033C	AN90331C	AN903310C
Mn (Manganese)	HNO <sub>3</sub>	AN7033N	AN8033N	AN90331N	AN903310N
Mo (Molybdenum)	NH <sub>4</sub> OH	AN7034A	AN8034A	AN90341A	AN903410A
Na (Sodium)	H <sub>2</sub> O	AN7035H	AN8035H	AN90351H	AN903510H
Na (Sodium)	HNO <sub>3</sub>	AN7035N	AN8035N	AN90351N	AN903510N
Nb (Niobium)	HNO <sub>3</sub> + HF	AN7036FN	AN8036FN	AN90361FN	AN903610FN
Nd (Neodymium)	HNO <sub>3</sub>	AN7037N	AN8037N	AN90371N	AN903710N
Ni (Nickel)	HCl	AN7038C	AN8038C	AN90381C	AN903810C
Ni (Nickel)	HNO <sub>3</sub>	AN7038N	AN8038N	AN90381N	AN903810N
Os (Osmium)	HCl	AN7039C	AN8039C	AN90391C	AN903910C
P (Phosphorus)	H <sub>2</sub> SO <sub>4</sub>	AN7040S	AN8040S	AN90401S	AN904010S
Pb (Lead)	HNO <sub>3</sub>	AN7041N	AN8041N	AN90411N	AN904110N
Pd (Palladium)	HCl	AN7042C	AN8042C	AN90421C	AN904210C
Pr (Praseodymium)	HNO <sub>3</sub>	AN7043N	AN8043N	AN90431N	AN904310N
Pt (Platinum)	HCl	AN7044C	AN8044C	AN90441C	AN904410C
Rb (Rubidium)	H <sub>2</sub> O	AN7045H	AN8045H	AN90451H	AN904510H
Rb (Rubidium)	HNO <sub>3</sub>	AN7045N	AN8045N	AN90451N	AN904510N
Re (Rhenium)	H <sub>2</sub> O	AN7046H	AN8046H	AN90461H	AN904610H
Rh (Rhodium)	HCl	AN7047C	AN8047C	AN90471C	AN904710C

# CERTIFIED REFERENCE MATERIALS

## Single element standards

Analyte	Matrix	Concentration			
		10 mg/l	100 mg/l	1000 mg/l	10000 mg/l
Ru (Ruthenium)	HCl	AN7048C	AN8048C	AN90481C	AN904810C
S (Sulfur)	H <sub>2</sub> O	AN7049H	AN8049H	AN90491H	AN904910H
Sb (Antimony)	HCl	AN7050C	AN8050C	AN90501C	AN905010C
Sb (Antimony)	HNO <sub>3</sub> + HF	AN7050FN	AN8050FN	AN90501FN	AN905010FN
Sc (Scandium)	HNO <sub>3</sub>	AN7052N	AN8052N	AN90521N	AN905210N
Se (Selenium)	HNO <sub>3</sub>	AN7051N	AN8051N	AN90511N	AN905110N
Si (Silicon)	HF	AN7053F	AN8053F	AN90531F	AN905310F
Si (Silicon)	H <sub>2</sub> O	AN7053H	AN8053H	AN90531H	AN905310H
Sm (Samarium)	HNO <sub>3</sub>	AN7054N	AN8054N	AN90541N	AN905410N
Sn (Tin)	HCl	AN7055C	AN8055C	AN90551C	AN905510C
Sn (Tin)	HNO <sub>3</sub> + HF	AN7055FN	AN8055FN	AN90551FN	AN905510FN
Sr (Strontium)	HCl	AN7056C	AN8056C	AN90561C	AN905610C
Sr (Strontium)	HNO <sub>3</sub>	AN7056N	AN8056N	AN90561N	AN905610N
Ta (Tantalum)	HNO <sub>3</sub> + HF	AN7057FN	AN8057FN	AN90571FN	AN905710FN
Tb (Terbium)	HNO <sub>3</sub>	AN7058N	AN8058N	AN90581N	AN905810N
Te (Tellurium)	HCl	AN7059C	AN8059C	AN90591C	AN905910C
Th (Thorium)	HNO <sub>3</sub>	AN7060N	AN8060N	AN90601N	AN906010N
Ti (Titanium)	HNO <sub>3</sub> + HF	AN7061FN	AN8061FN	AN90611FN	AN906110FN
Tl (Thallium)	HNO <sub>3</sub>	AN7062N	AN8062N	AN90621N	AN906210N
Tm (Thulium)	HNO <sub>3</sub>	AN7063N	AN8063N	AN90631N	AN906310N
U (Uranium)	HNO <sub>3</sub>	AN7064N	AN8064N	AN90641N	N/A

# CERTIFIED REFERENCE MATERIALS

## Single element standards

Analyte	Matrix	Concentration			
		10 mg/l	100 mg/l	1000 mg/l	10000 mg/l
V (Vanadium)	HNO <sub>3</sub>	AN7065N	AN8065N	AN90651N	AN906510N
W (Tungsten)	NH <sub>4</sub> OH	AN7066A	AN8066A	AN90661A	AN906610A
Y (Yttrium)	HNO <sub>3</sub>	AN7067N	AN8067N	AN90671N	AN906710N
Yb (Ytterbium)	HNO <sub>3</sub>	AN7068N	AN8068N	AN90681N	AN906810N
Zn (Zinc)	HCl	AN7069C	AN8069C	AN90691C	AN906910C
Zn (Zinc)	HNO <sub>3</sub>	AN7069N	AN8069N	AN90691N	AN906910N
Zr (Zirconium)	HNO <sub>3</sub> + HF	AN7070FN	AN8070FN	AN90701FN	AN907010FN
Br (Bromides)	H <sub>2</sub> O	N/A	AN8071H	AN90711H	AN907110H
Cl <sup>-</sup> (Chlorides)	H <sub>2</sub> O	N/A	AN8072H	AN90721H	AN907210H
F <sup>-</sup> (Fluorides)	H <sub>2</sub> O	N/A	AN8073H	AN90731H	AN907310H
I <sup>-</sup> (Iodides)	H <sub>2</sub> O	N/A	AN8074H	AN90741H	AN907410H
NO <sub>2</sub> <sup>-</sup> (Nitrites)	H <sub>2</sub> O	N/A	AN8075H	AN90751H	AN907510H
NO <sub>3</sub> <sup>-</sup> (Nitrates)	H <sub>2</sub> O	N/A	AN8076H	AN90761H	AN907610H
PO <sub>4</sub> <sup>3-</sup> (Phosphates)	H <sub>2</sub> O	N/A	AN8077H	AN90771H	AN907710H
SO <sub>4</sub> <sup>2-</sup> (Sulfates)	H <sub>2</sub> O	N/A	AN8078H	AN90781H	AN907810H
Cr <sup>6+</sup> (Chromium VI)	H <sub>2</sub> O	N/A	AN8079H	AN90791H	AN907910H
NH <sub>4</sub> <sup>+</sup> (Ammonium)	H <sub>2</sub> O	N/A	AN8080H	AN90801H	AN908010H

# CERTIFIED REFERENCE MATERIALS

## Multi-element standards

Product code	Analytes	Concentration (mg/l)	Matrix
AN9081MC	K, Li, Na	1000	HCl
AN9082MN	Ba, Ca, Mg, Sr	1000	HNO <sub>3</sub>
AN9083MC	Ca K Mg Na	100 150 20 3300	HCl
AN9084MN	Co, Cr, Cu, Fe, Mn, Ni, V	500	HNO <sub>3</sub>
AN9085MCN	Pb, V Cr, Ni, Zn Co, Cu As Be, Mo Cd, Hg	200 100 50 25 10 2	Aqua regia
AN9086MN	Pb Al, Tl Co, Ni, V, Zn B, Cd, Cr, Cu, Fe Mn Ba, Se Be	200 100 50 20 10 5 2	HNO <sub>3</sub>
AN9087MC	Au, Ir, Os, Pd, Pt, Rh, Ru	100	HCl
AN9088MN	Ce, La, Nd, Pr Dy, Er, Eu, Gd, Ho, Lu, Sc, Sm, Tb, Tm, Y, Yb	100 20	HNO <sub>3</sub>
AN9089MN	Cd, Co, Cr, Cu, Mn, Ni, Pb, V, Zn	100	HNO <sub>3</sub>
AN9090MN	Al, As, B, Ba, Be, Bi, Ca, Cd, Co, Cr, Cu, Fe, K, Li, Mg, Mn, Mo, Na, Ni, Pb, Se, Sr, Ti, Tl, V, Zn	100	HNO <sub>3</sub>
AN9091MN	Ca, K, Mg, Na	1000	HNO <sub>3</sub>

# CERTIFIED REFERENCE MATERIALS

## Multi-element standards

Product code	Analytes	Concentration (mg/l)	Matrix
AN9092MN	Al, B, Ba, Ca, Cd, Co, Cr, Cu, Fe, Mg, Mn, Ni, Pb, Zn	1000	HNO <sub>3</sub>
AN9093MN	Al, Ba, Ca, Cd, Co, Cr, Cu, Fe, Mg, Mn, Na, Ni, Pb, Ti, Zn	100	HNO <sub>3</sub>
AN9094MFN	As, Be, Ca, Cd, Co, Cr, Cu, Fe, Li, Mg, Mn, Mo, Ni, P, Pb, Sb, Se, Sn, Sr, Ti, Tl, V, Zn	100	HNO <sub>3</sub> + HF
AN9095MFN	Al, Be, Bi, Cd, Co, Cu, Fe, Li, Mn, Mo, Ni, Pb, Si, Sr, V, W, Zn, Zr	100	HNO <sub>3</sub> + HF
AN9096MFN	As, Sb, Se, Sn	100	HNO <sub>3</sub> + HF
AN9097MN	Ca, K, Mg, Na, P, S	100	HNO <sub>3</sub>
AN9098MN	As, Be, Ca, Cd, Co, Cr, Cu, Fe, Mg, Mn, Mo, Ni, Pb, Sb, Se, Ti, Tl, V, Zn	100	HNO <sub>3</sub>
AN9099MN	Ag, Hg	100	HNO <sub>3</sub>
AN9104MN	Ca	1000	HNO <sub>3</sub>
	As, B, Be, Fe, Se, Zn	100	
	Ag, Al, Ba, Bi, Cd, Co, Cr, Cu, Ga, K, Li, Mg, Mn, Mo, Na, Ni, Pb, Rb, Sr, Te, Tl, U, V	10	
AN9108MN	Al, As, Pb, Sb, Se, Tl	100	HNO <sub>3</sub>
	Ba, Co, Cu, Ni	50	
	Cr, Fe, Mn	20	
	Ag	10	
	Be, Cd	5	
AN9109MN	Ni	10	HNO <sub>3</sub>
	Cr	3	
AN9110MN	Al	500	HNO <sub>3</sub>
	V	250	
	As, Be, Co, Cr, Cu, Fe, Mn, Ni, Pb, Zn	100	
	Cd, Se	25	
	Hg	5	
AN9111MC	K, P, S	100	HCl
	As, La, Li, Mn, Mo, Na, Ni, Sc	20	

# CERTIFIED REFERENCE MATERIALS

## Multi-element standards

Product code	Analytes	Concentration (mg/l)	Matrix
AN9112MN	Ca, K, Mg, Na	5000	HNO <sub>3</sub>
AN9113MN	Ca, Fe, K, Mg, Na	500	HNO <sub>3</sub>
AN9114MN	Ag, Al, B, Ba, Bi, Ca, Cd, Co, Cr, Cu, Fe, Ga, In, K, Li, Mg, Mn, Na, Ni, Pb, Sr, Tl, Zn	1000	HNO <sub>3</sub>
AN9115MN	Ce, Dy, Er, Eu, Gd, Ho, La, Lu, Nd, Pr, Sc, Sm, Tb, Th, Tm, U, Y, Yb	100	HNO <sub>3</sub>
AN9116MFN	Mo, Sb, Sn, Ti	100	HNO <sub>3</sub> + HF
AN9117MN	Ag, Al, As, Ba, Be, Bi, Ca, Cd, Co, Cr, Cs, Cu, Fe, Ga, In, K, Li, Mg, Mn, Na, Ni, Pb, Rb, Se, Sr, Tl, U, V, Zn	10	HNO <sub>3</sub>
AN9118MN	K	500	HNO <sub>3</sub>
	Al, As, Ba, Cd, Co, Cr, Cu, Mn, Mo, Ni, Pb, Se, Sr, Zn	50	
AN9119MN	As, Be, Cd, Ni, Pb, Se, Tl	100	HNO <sub>3</sub>
AN9120MC	Ir, Os, Pd, Pt, Rh, Ru	100	HCl
AN9121MC	Ir, Os, Pd, Pt, Rh, Ru	10	HCl
AN9122MN	Cu	1000	HNO <sub>3</sub>
	Ni	500	
	Mo, V	100	
	Cd	25	
	Hg	15	
	Pb	5	
	As	1.5	
AN9123MN	Cu	100	HNO <sub>3</sub>
	Ni	50	
	Mo, V	10	
	Pb	5	
	Cd	2.5	
	As, Hg	1.5	

# CERTIFIED REFERENCE MATERIALS

## Multi-element standards

Product code	Analytes	Concentration (mg/l)	Matrix
AN9124MN	As, Hg Pb Cd	15 10 5	HNO <sub>3</sub>
AN9125MN	Ag, Al, As, Ba, Be, Cd, Co, Cr, Cu, Mn, Ni, Pb, Se, Th, Tl, U, V, Zn	100	HNO <sub>3</sub>
AN9126MN	Ca Fe Mg Al Na	6000 5000 3000 1200 1000	HNO <sub>3</sub>

### Economy set of three bottles of CRM

- » Same batch for better control of testing
- » Prolonged usability
- » Contamination concerns are minimized
- » 3x 30 ml for easier transport of hazardous solutions
- » Smaller packing, better utilization, less hazardous waste



## CERTIFIED REFERENCE MATERIALS ASTASOL®



### Single and multi element standards

Ensure the accuracy of your analytical methods for aqueous solutions with our affordable calibration solutions. Our standards are designed for techniques such as atomic spectrometry, UV-VIS spectrophotometry, titrimetry and electroanalytical methods. We offer single and multi-element standards that comply with ISO standards and are traceable to CRM ASTASOL®.

### Concentration

Single element solutions are available in concentrations of 1000 mg/l and 10000 mg/l. Multi-element solutions have various concentrations.

### Volume

Available in volumes of 100 ml, 250 ml and 500 ml, providing flexibility to suit your specific laboratory requirements.

### Package

Our solutions are packaged in amber HDPE or laboratory grade glass bottles.



# CERTIFIED REFERENCE MATERIALS

## Single element standards

Analyte	Matrix	Conc. 1000 mg/l	Conc. 10000 mg/l
Ag (Silver)	HNO <sub>3</sub>	ANS001	ANS201
Al (Aluminium)	HCl	ANS002	ANS202
Al (Aluminium)	HNO <sub>3</sub>	ANS002N	ANS202N
As (Arsenic)	HNO <sub>3</sub>	ANS003	ANS203
B (Boron)	H <sub>2</sub> O	ANS005	ANS205
Ba (Barium)	HNO <sub>3</sub>	ANS006	ANS206
Bi (Bismuth)	HNO <sub>3</sub>	ANS008	ANS208
Ca (Calcium)	HNO <sub>3</sub>	ANS009	ANS209
Cd (Cadmium)	HNO <sub>3</sub>	ANS010	ANS210
Co (Cobalt)	HNO <sub>3</sub>	ANS012	ANS212
Cr (Chromium)	HNO <sub>3</sub>	ANS013	ANS213
Cu (Copper)	HNO <sub>3</sub>	ANS015	ANS215
Fe (Iron)	HNO <sub>3</sub>	ANS019	ANS219
Hg (Mercury)	HNO <sub>3</sub>	ANS024	ANS224
K (Potassium)	H <sub>2</sub> O	ANS028	ANS228
K (Potassium)	HNO <sub>3</sub>	ANS028N	ANS228N
Li (Lithium)	HNO <sub>3</sub>	ANS030	ANS230
Mg (Magnesium)	HNO <sub>3</sub>	ANS032	ANS232
Mn (Manganese)	HNO <sub>3</sub>	ANS033	ANS233
Mo (Molybdenum)	NH <sub>4</sub> OH	ANS034	ANS234
Na (Sodium)	H <sub>2</sub> O	ANS035	ANS235
Ni (Nickel)	HNO <sub>3</sub>	ANS038	ANS238

# CERTIFIED REFERENCE MATERIALS

## Single element standards

Analyte	Matrix	Conc. 1000 mg/l	Conc. 10000 mg/l
P (Phosphorus)	H <sub>2</sub> SO <sub>4</sub>	ANS040	ANS240
Pb (Lead)	HNO <sub>3</sub>	ANS041	ANS241
S (Sulfur)	H <sub>2</sub> O	ANS049	ANS249
Sb (Antimony)	HCl	ANS050	ANS250
Se (Selenium)	HNO <sub>3</sub>	ANS051	ANS251
Si (Silicon)	H <sub>2</sub> O	ANS053	ANS253
Sn (Tin)	HCl	ANS055	ANS255
Sr (Strontium)	HCl	ANS056	ANS256
Ti (Titanium)	HNO <sub>3</sub> + HF	ANS061	ANS261
Tl (Thallium)	HNO <sub>3</sub>	ANS062	ANS262
V (Vanadium)	HNO <sub>3</sub>	ANS065	ANS265
W (Tungsten)	NH <sub>4</sub> OH	ANS066	ANS266
Zn (Zinc)	HNO <sub>3</sub>	ANS069	ANS269
Cl <sup>-</sup> (Chlorides)	H <sub>2</sub> O	ANS072	ANS272
F <sup>-</sup> (Fluorides)	H <sub>2</sub> O	ANS073	ANS273
NO <sub>2</sub> <sup>-</sup> (Nitrites)	H <sub>2</sub> O	ANS075	ANS275
NO <sub>3</sub> <sup>-</sup> (Nitrates)	H <sub>2</sub> O	ANS076	ANS276
PO <sub>4</sub> <sup>3-</sup> (Phosphates)	H <sub>2</sub> O	ANS077	ANS277
SO <sub>4</sub> <sup>2-</sup> (Sulfates)	H <sub>2</sub> O	ANS078	ANS278
Cr <sup>6+</sup> (Chromium VI)	H <sub>2</sub> O	ANS079	ANS279
NH <sub>4</sub> <sup>+</sup> (Ammonium)	H <sub>2</sub> O	ANS080	ANS280

# REFERENCE MATERIALS

## Multi-element standards

Product code	Analytes	Concentration (mg/l)	Matrix
ANM010	Al, As, B, Ba, Be, Bi, Ca, Cd, Co, Cr, Cu, Fe, K, Li, Mg, Mn, Mo, Na, Ni, Pb, Se, Sr, Ti, Tl, V, Zn	100	HNO <sub>3</sub>
ANM012	Al, B, Ba, Ca, Cd, Co, Cr, Cu, Fe, Mg, Mn, Ni, Pb, Zn	1000	HNO <sub>3</sub>
ANM1001IC	Cl <sup>-</sup> SO <sub>4</sub> <sup>2-</sup> N-(NO <sub>3</sub> <sup>-</sup> ) F <sup>-</sup> N-(NH <sub>4</sub> <sup>+</sup> ), P-(PO <sub>4</sub> <sup>3-</sup> )	2000 1000 400 100 20	H <sub>2</sub> O
ANM1002IC	Cl <sup>-</sup> , NO <sub>3</sub> <sup>-</sup> , SO <sub>4</sub> <sup>2-</sup> F <sup>-</sup> , NO <sub>2</sub> <sup>-</sup> , PO <sub>4</sub> <sup>3-</sup>	1000 100	H <sub>2</sub> O
ANM1004	Al, As, B, Ba, Be, Cd, Co, Cr, Cu, Fe, Mn, Mo, Ni, Pb, Sb, Se, Si, Sr, Th, U, V, Zn	10	HNO <sub>3</sub> + HF
ANM1006	Ag, Al, As, Ba, Be, Cd, Co, Cr, Cu, Fe, Hg, Mn, Ni, Pb, Sb, Se, Sn, Sr, Tl, V, Zn	100	HNO <sub>3</sub> + HF
ANM1010	Ca Mg, Na K Al, Cu, Fe B, Cr, Mn, Zn Ni Cd, Pb	1000 500 100 10 5 3 1	HNO <sub>3</sub>
ANM1011	Ca Na Mg, Si K Cu, Zn Al, B, Ba, Fe, P	10000 4000 1000 400 40 10	HNO <sub>3</sub>
ANM1014	Cl <sup>-</sup> , NO <sub>3</sub> <sup>-</sup> , SO <sub>4</sub> <sup>2-</sup> F <sup>-</sup> Br, NO <sub>2</sub> <sup>-</sup>	250 10 5	H <sub>2</sub> O

## TUNING, VERIFICATION AND INTERNAL STANDARD SOLUTIONS



### Solutions for ICP-OES or ICP-MS

We provide tuning, verification and internal standards for calibrating these instruments, all traceable to corresponding certified reference materials, such as CRM ASTASOL®. ICP-OES or ICP-MS allows the analysis of elements in samples with high sensitivity and precision, which is invaluable in areas such as environmental monitoring, medical diagnostics and materials research.

### Composition and concentration

The composition of the solutions and their concentrations correspond to the requirements of the manufacturers of the individual analytical instruments.

### Volume

Available in volumes of 25 ml, 50 ml, 100 ml, 250 ml, 500 ml and 1000 ml.

### Package

Delivered in amber HDPE or transparent laboratory grade PFA bottles.

# TUNING, VERIFICATION AND INTERNAL STANDARD SOLUTIONS

Product code	Analytes	Concentration	Matrix
TUNE01	Ba, Be, Bi, Ce, Co, In, Li, Ni, Pb, U	10 mg/l	HNO <sub>3</sub>
TUNE02	Ca, Fe, K, Li, Na	10 mg/l	HNO <sub>3</sub>
TUNE03	Al, As, Ba, Be, Ca, Cd, Co, Cr, Cu, Fe, In, K, Li, Mg, Mn, Mo, Na, Ni, Pb, Se, Tl, U, V, Zn	10 mg/l	HNO <sub>3</sub>
TUNE04	As, In, Pb, Se, V	10 mg/l	HNO <sub>3</sub>
TUNE06	Ag, Al, As, B, Ba, Be, Bi, Ca, Cd, Ce, Co, Cr, Cs, Cu, Dy, Er, Eu, Fe, Ga, Gd, Ge, Hf, Ho, In, K, La, Li, Lu, Mg, Mn, Mo, Na, Nb, Nd, Ni, P, Pb, Pd, Pr, Rb, Re, Sb, Se, Sc, Si, Sm, Sn, Sr, Ta, Tb, Te, Th, Ti, Tl, Tm, U, V, W, Y, Yb, Zn, Zr	50 µg/l	HNO <sub>3</sub>
TUNE07	Be Zn Cu, Ni Al, Ga, Mg Co, Li, Sc Ag, Mn Sr Ba, Tl Bi, Ce, Cs, Ho, In, Rh, Ta, Tb, U, Y	35 µg/l 20 µg/l 15 µg/l 10 µg/l 8 µg/l 6 µg/l 5 µg/l 4 µg/l 3 µg/l	HNO <sub>3</sub>
TUNE08	Ba, Bi, Ce, Co, In, Li, U	1 µg/l	HNO <sub>3</sub> + HCl
TUNE09	Se Ca, P, Si Be, Te, Ti As B Cu, Ge, Ni, Zn Cd, Li, Mo, Pd Al, Ba, Mg Ga, Gd, Nd, Sm, Sn Ag, Cr, Na, Sb, V Co, K, Zr	625 mg/l 500 mg/l 250 mg/l 125 mg/l 100 mg/l 75 mg/l 50 mg/l 25 mg/l 22.5 mg/l 20 mg/l 17.5 mg/l	HNO <sub>3</sub> + HF

# TUNING, VERIFICATION AND INTERNAL STANDARD SOLUTIONS

Product code	Analytes	Concentration	Matrix
TUNE09 (continued)	Rb, Sc Dy, W, Yb Fe, Mn, Nb, Sr Cs, Er, Hf, Re, Y Ce, Eu, In, La, Pb, Pr, Tl Bi, Ho, Lu, Ta, Tb, Th, Tm, U	15 mg/l 12.5 mg/l 10 mg/l 7.5 mg/l 5 mg/l 2.5 mg/l	HNO <sub>3</sub> + HF
TUNE10	Fe Li Hf, Nd, Pb, Sr, U Tl	3000 µg/l 1000 µg/l 200 µg/l 50 µg/l	HNO <sub>3</sub> + HF
TUNE11	Ba, Bi, Ce, Co, Ho, In, Li, Mg, Ti, U, Y	1 µg/l	HNO <sub>3</sub> + HCl
TUNE12	P K, Ni Al, Cu, Mn Ba, Ca, Mg, Zn	10 mg/l 5 mg/l 1 mg/l 0.2 mg/l	HNO <sub>3</sub>
TUNE20	Ag, Al, As, Ba, Be, Cd, Co, Cr, Cu, Mn, Mo, Na, Ni, Pb, Sb, Se, Th, Tl, U, V, Zn Ca, Fe, K, Mg, Na	1000 mg/l 10 mg/l	HNO <sub>3</sub> + HF
TUNE21	As, Be, Cd, Zn Mg, Pb, Sc Al, Ba, Bi, Co, Cr, Cu, In, 6Li, Lu, Mn, Na, Ni, Sr, Th, Tl, U, V Y, Yb	20 mg/l 10 mg/l 5 mg/l 2.5 mg/l	HNO <sub>3</sub>
TUNE22	Ge, Mo, Pd, Ru, Sb, Sn Ir, Ti	10 mg/l 5 mg/l	HCl
TUNE23	Ce, Co, Li, Tl, Y	10 mg/l	HNO <sub>3</sub>
TUNE24	Ag, Al, As, Ba, Be, Ca, Cd, Co, Cr, Cs, Cu, Fe, Ga, Hg, K, Li, Mg, Mn, Na, Ni, Pb, Rb, Se, Sr, Tl, U, V, Zn	10 mg/l	HNO <sub>3</sub>
TUNE25	Ce, Co, Li, Mg, Tl, Y	1 µg/l	HNO <sub>3</sub>

# TUNING, VERIFICATION AND INTERNAL STANDARD SOLUTIONS

Product code	Analytes	Concentration	Matrix
TUNE28	K Al, As, Ba, Cd, Co, Cr, Cu, Mn, Mo, Ni, Pb, Se, Sr, Zn	50 mg/l 5 mg/l	HNO <sub>3</sub>
TUNE29	Ba, Be, Ce, Co, In, Mg, Pb, Th, Tl	10 mg/l	HNO <sub>3</sub>
TUNE35	B, Ge, Mo, Nb, P, Re, S, Si, Ta, Ti, W, Zr	10 mg/l	HNO <sub>3</sub> + HF
TUNE36	Ce, Dy, Er, Eu, Gd, Ho, La, Lu, Nd, Pr, Sc, Sm, Tb, Th, Tm, Y, Yb	10 mg/l	HNO <sub>3</sub>
TUNE37	Au, Hf, Ir, Pd, Pt, Rh, Ru, Sb, Sn, Te	10 mg/l	HNO <sub>3</sub> + HCl
TUNE40	Ba, Ce, Cd, Cu, Ge, Mg, Pb, Rh, Sc, Tl, Tb	10 µg/l	HNO <sub>3</sub>
TUNE41	Be, Co, In, Tl, U	10 µg/l	HNO <sub>3</sub>
TUNE42	Cd, Cu, Mg, Pb, Rh	200 µg/l	HNO <sub>3</sub> + HCl
TUNE43	K La, Li, Mn, Na, Sr Ba, Ca	50 mg/l 10 mg/l 1 mg/l	HNO <sub>3</sub>
TUNE44	Ag, Al, As, Ba, Be, Cd, Co, Cr, Cu, Mn, Ni, Pb, Sb, Se, Tl, V, Zn	10 mg/l	HNO <sub>3</sub>
TUNE45	Ba, Be, Ce, Co, In, Li, Mg, Pb, Rh, Tl, U, Y	10 mg/l	HNO <sub>3</sub> + HCl
TUNE46	Bi, Ce, Co, In, Mg, Ni, Pb, U	10 mg/l	HNO <sub>3</sub>
INT-MIX1	Bi, In, Sc, Tb, Y	10 mg/l	HNO <sub>3</sub>
INT-MIX2	Au, Rh	10 mg/l	HCl
INT-MIX3	Bi, Ge, In, <sup>6</sup> Li, Sc, Tb, Y	10 mg/l	HNO <sub>3</sub> + HF
INT-MIX4	Bi, Ge, In, <sup>6</sup> Li, Lu, Rh, Sc, Tb	100 mg/l	HNO <sub>3</sub> + HCl
INT-MIX5	Bi, Ge, In, <sup>6</sup> Li, Lu, Rh, Sc, Tb	10 mg/l	HNO <sub>3</sub> + HCl
INT-MIX6	Bi, In, <sup>6</sup> Li, Sc, Tb, Y	100 mg/l	HNO <sub>3</sub>
INT-MIX7	Bi, Ge, In, <sup>6</sup> Li, Lu, Rh, Sc, Tb	100 mg/l	HNO <sub>3</sub> + HCl

### CRM ASTASOL® FOR ION CHROMATOGRAPHY



#### Single and multi element standards

Certified reference materials are designed for ion chromatography and are carefully formulated to improve the accuracy and reliability of analytical methods focused on the analysis of aqueous solutions. These CRMs include both single and multi-element standards, providing a versatile solution for a wide range of analytical needs.

#### Concentration

Solutions are available in concentrations of 100 mg/l and 1000 mg/l.

#### Volume

Available in volumes of 30 ml, 50 ml, 100 ml, 250 ml and 500 ml.

#### Package

CRMs are supplied in amber HDPE plastic or laboratory grade glass bottles. These bottles ensure optimum protection of the materials from external influences. In addition, our premium CRMs are packaged in barrier bags. This ensures long-term certified values within the stated uncertainty.



### Single element ion chromatography standards

Analyte	Matrix	Available concentration	
		100 mg/l	1000 mg/l
Ba (Barium)	H <sub>2</sub> O	AN8006HIC	AN90061HIC
Ca (Calcium)	H <sub>2</sub> O	AN8009HIC	AN90091HIC
Cs (Cesium)	H <sub>2</sub> O	AN8014HIC	AN90141HIC
K (Potassium)	HNO <sub>3</sub>	AN8028NIC	AN90281NIC
Li (Lithium)	HNO <sub>3</sub>	AN8030NIC	AN90301NIC
Mg (Magnesium)	H <sub>2</sub> O	AN8032HIC	AN90321HIC
Na (Sodium)	HNO <sub>3</sub>	AN8035NIC	AN90351NIC
Rb (Rubidium)	HNO <sub>3</sub>	AN8045NIC	AN90451NIC
Sr (Strontium)	HNO <sub>3</sub>	AN8056NIC	AN90561NIC

Analyte	Matrix	Available concentration	
		100 mg/l	1000 mg/l
Br (Bromides)	H <sub>2</sub> O	AN8071HIC	AN90711HIC
Cl <sup>-</sup> (Chlorides)	H <sub>2</sub> O	AN8072HIC	AN90721HIC
F <sup>-</sup> (Fluorides)	H <sub>2</sub> O	AN8073HIC	AN90731HIC
NO <sub>2</sub> <sup>-</sup> (Nitrites)	H <sub>2</sub> O	AN8075HIC	AN90751HIC
NO <sub>3</sub> <sup>-</sup> (Nitrates)	H <sub>2</sub> O	AN8076HIC	AN90761HIC
PO <sub>4</sub> <sup>3-</sup> (Phosphates)	H <sub>2</sub> O	AN8077HIC	AN90771HIC
SO <sub>4</sub> <sup>2-</sup> (Sulfates)	H <sub>2</sub> O	AN8078HIC	AN90781HIC
Cr <sup>6+</sup> (Chromium VI)	H <sub>2</sub> O	AN8079HIC	AN90791HIC
NH <sub>4</sub> <sup>+</sup> (Ammonium)	H <sub>2</sub> O	AN8080HIC	AN90801HIC

### Multi-elements ion chromatography standards

Product code	Analytes	Concentration (mg/l)	Matrix
AN9100MHIC	Br, Cl <sup>-</sup> , F <sup>-</sup>	1000	H <sub>2</sub> O
AN9101MHIC	NO <sub>3</sub> <sup>-</sup> , PO <sub>4</sub> <sup>3-</sup> , SO <sub>4</sub> <sup>2-</sup>	1000	H <sub>2</sub> O
AN9102MHIC	Br, Cl <sup>-</sup> , F <sup>-</sup> , NO <sub>3</sub> <sup>-</sup> , PO <sub>4</sub> <sup>3-</sup> , SO <sub>4</sub> <sup>2-</sup>	100	H <sub>2</sub> O
AN9103MHIC	Ba, Ca, K, Li, Mg, Na, NH <sub>4</sub> <sup>+</sup> , Sr	100	H <sub>2</sub> O
AN9105MNIC	Ba, Ca, K, Li, Mg, Mn, Na, NH <sub>4</sub> <sup>+</sup> , Sr	100	HNO <sub>3</sub>
AN9106MHIC	Br, Cl <sup>-</sup> , F <sup>-</sup> , NO <sub>2</sub> <sup>-</sup> , NO <sub>3</sub> <sup>-</sup> , PO <sub>4</sub> <sup>3-</sup> , SO <sub>4</sub> <sup>2-</sup>	1000	H <sub>2</sub> O
AN9107MHIC	N-(NH <sub>4</sub> <sup>+</sup> ), N-(NO <sub>3</sub> <sup>-</sup> ), P-(PO <sub>4</sub> <sup>3-</sup> ), S-(SO <sub>4</sub> <sup>2-</sup> )	100	H <sub>2</sub> O

# REFERENCE MATERIALS

## Ion chromatography

### Ion chromatography standards

Analyte	Formula	Concentration		Matrix
		1000 mg/l	5000 mg/l	
Formate	HCOO <sup>-</sup>	OIC001	OIC551	H <sub>2</sub> O
Acetate	CH <sub>3</sub> COO <sup>-</sup>	OIC002	OIC552	H <sub>2</sub> O
Oxalate	(COO) <sub>2</sub> <sup>2-</sup>	OIC003	OIC553	H <sub>2</sub> O
Tartrate	(CHOH) <sub>2</sub> (COO) <sub>2</sub> <sup>2-</sup>	OIC004	OIC554	H <sub>2</sub> O
Propionate	CH <sub>3</sub> CH <sub>2</sub> COO <sup>-</sup>	OIC005	OIC555	H <sub>2</sub> O
Monoethanolamine	NH <sub>2</sub> CH <sub>2</sub> CH <sub>2</sub> OH	OIC006	OIC556	H <sub>2</sub> O

### Eluents (concentrates)

Product code	Eluent solution	Concentration	Volume
IC-CON 1	Eluent concentrate Na <sub>2</sub> CO <sub>3</sub>	0.25M Na <sub>2</sub> CO <sub>3</sub>	100
IC-CON 2	Eluent concentrate NaHCO <sub>3</sub>	0.25M NaHCO <sub>3</sub>	100
IC-CON 3	Eluent concentrate Na <sub>2</sub> CO <sub>3</sub> + NaHCO <sub>3</sub>	0.125M Na <sub>2</sub> CO <sub>3</sub> + 0.125M NaHCO <sub>3</sub>	100
IC-CON 4	Hydrochloric acid concentrate	0.25M HCl	100
IC-CON 5	Eluent concentrate Na <sub>2</sub> CO <sub>3</sub>	0.5M Na <sub>2</sub> CO <sub>3</sub>	100
IC-CON 6	Eluent concentrate NaHCO <sub>3</sub>	0.5M NaHCO <sub>3</sub>	100
IC-CON 7	Eluent concentrate Na <sub>2</sub> CO <sub>3</sub> + NaHCO <sub>3</sub>	0.35M Na <sub>2</sub> CO <sub>3</sub> + 0.10M NaHCO <sub>3</sub>	100
IC-CON 8	Nitric acid concentrate	0.1M HNO <sub>3</sub>	500
IC-CON 9	Methanesulfonic acid concentrate	1.8M CH <sub>3</sub> SO <sub>3</sub> H	500
IC-CON 10	Nitric acid chelation solution concentrate	2M HNO <sub>3</sub>	500



Have you not chosen from  
our basic offer?

Ask us to design the  
solutions you need.

# CERTIFIED REFERENCE MATERIALS

## Determination of total carbon

### CRM ASTASOL® FOR THE DETERMINATION OF TOTAL CARBON



#### Organic and inorganic carbon

Total carbon is all the carbon contained in the sample, both organically bound and inorganically bound carbon. Total organic carbon, which represents the amount of organic matter present in water, is one of the important indicators of water quality and is used to monitor emissions discharged to waters.

#### Shelf life and expiry

The shelf life is set at 5 years from the date of manufacture unless otherwise stated. The expiry date is set at 12 months from the time the vial is first opened and within the lifetime of the CRM, unless otherwise stated.

#### Volume

Available in volumes of 100 ml and 500 ml.

#### Package

CRMs are supplied in laboratory grade glass bottles with screw caps.

# CERTIFIED REFERENCE MATERIALS

## Determination of total carbon

Analyte	Matrix	Concentration				
		10 mg/l	50 mg/l	100 mg/l	500 mg/l	1000 mg/l
C <sub>inorg</sub> (TIC)	H <sub>2</sub> O	TIC5H	TIC4H	TIC3H	TIC2H	TIC1H
C <sub>org</sub> (TOC)	H <sub>2</sub> O	TOC5H	TOC4H	TOC3H	TOC2H	TOC1H
C <sub>inorg</sub> + C <sub>org</sub> (1:1)	H <sub>2</sub> O	TIOC5H	TIOC4H	TIOC3H	TIOC2H	TIOC1H

# REFERENCE MATERIALS

## Physical properties

### CONDUCTIVITY AND pH STANDARDS



#### Physical properties

Water conductivity is a parameter for assessing water quality as it correlates directly with the concentration of electrolytes in the water. It is essential to maintain the temperature of the sample during measurement, as even a 1° C change can result in a difference of at least 2 %. Similarly, pH is temperature dependent, so it is important to homogenise the sample by stirring before measurement.

#### Conductanal™

Certified reference materials designed to calibrate measuring instruments that identify electrical conductivity. It is also used to verify and authenticate analytical techniques for conductivity measurements.

#### pHanal™

Reference materials for calibration and verification of analytical method. Standard for measuring solutions pH.

#### Package

Transparent HDPE laboratory grade bottles are used to store both types of standards.

### Certified reference materials CONDUCTANAL™

Product code	Temperature (°C)	Conductivity (μS/cm)
CON147	25	147.0 ± 1.5
CON1015	25	1 015 ± 10
CON1413	25	1 413 ± 14

Product code	Temperature (°C)	Conductivity (μS/cm)
CON12880	25	12 880 ± 70
CON111300	25	111 300 ± 900

### Certified reference materials pHanal™

Product code	Temperature (°C)	pH value
CRMPH1677	20	1.677 ± 0.010
CRMPH3781	20	3.781 ± 0.010
CRMPH4001	20	4.001 ± 0.010
CRMPH6881	20	6.881 ± 0.010

Product code	Temperature (°C)	pH value
CRMPH7429	20	7.429 ± 0.010
CRMPH9225	20	9.225 ± 0.010
CRMPH10062	20	10.062 ± 0.020

### Reference materials pHanal™

Product code	Temperature (°C)	pH value
PH04	20	4.00 ± 0.02
PH04B	20	4.00 ± 0.02
PH07	20	7.00 ± 0.02
PH07B	20	7.00 ± 0.02

Product code	Temperature (°C)	pH value
PH09	20	9.00 ± 0.02
PH10	20	10.00 ± 0.02
PH10B	20	10.00 ± 0.02

## MINERAL ACIDS AND REAGENTS



### ANALPURE® ULTRA

High purity chemicals with minimal trace impurities, typically less than 10 ppt. Our acids are supplied with a detailed analytical report containing specifications for over 60 analytes. Fluoropolymer bottles are used to store these pure acids.

### ANALPURE®

Reagents designed to contain no more than 1 ppb of trace impurities, ensuring the highest purity and reliability.

### ANALYTIKA® p.a.+

Acids ideal for laboratory applications and purification and meet ACS, ISO and R.G. standards.



## ANALPURE®-ULTRA reagents

Reagents	Formula	Volume			
		250 ml	500 ml	1000 ml	2000 ml
Acetic acid, min. 99.5%	CH <sub>3</sub> COOH	UAc0017-250	UAc0017-500	UAc0017-1000	UAc0017-2000
Ammonia solution, min. 21%	NH <sub>4</sub> OH	UCH0170-250	UCH0170-500	UCH0170-1000	UCH0170-2000
Hydrobromic acid, min. 44-49%	HBr	UAc0019-250	UAc0019-500	UAc0019-1000	UAc0019-2000
Hydrochloric acid, min. 35%	HCl	UAc0031-250	UAc0031-500	UAc0031-1000	UAc0031-2000
Hydrofluoric acid, min. 48%	HF	UAc0091-250	UAc0091-500	UAc0091-1000	N/A
Hydrogen peroxide	H <sub>2</sub> O <sub>2</sub>	N/A	UCH02161-500	N/A	N/A
Nitric acid, min. 67%	HNO <sub>3</sub>	UAc0061-250	UAc0061-500	UAc0061-1000	UAc0061-2000
Perchloric acid, min. 65-71%	HClO <sub>4</sub>	UAc11002-250	UAc11002-500	UAc11002-1000	UAc11002-2000
Sulfuric acid, min. 95%	H <sub>2</sub> SO <sub>4</sub>	UAc0012-250	UAc0012-500	UAc0012-1000	UAc0012-2000
Water	H <sub>2</sub> O	N/A	UAq0001-500	UAq0001-1000	N/A

## High purity diluted acids

Reagents	Formula	Volume	Product code
2% Nitric acid, ANALPURE®-ULTRA	HNO <sub>3</sub>	500	UAc0061-BLANK2
5% Nitric acid, ANALPURE®-ULTRA	HNO <sub>3</sub>	500	UAc0061-BLANK5
5% Hydrochloric acid, ANALPURE®-ULTRA	HCl	500	UAc0031-BLANK5
2% Nitric acid, ANALPURE®	HNO <sub>3</sub>	500	SAc0061-BLANK2
5% Nitric acid, ANALPURE®	HNO <sub>3</sub>	500	SAc0061-BLANK5
5% Hydrochloric acid, ANALPURE®	HCl	500	SAc0031-BLANK5

# MINERAL ACIDS AND REAGENTS

## ANALPURE® reagents

Reagents	Formula	Volume		
		500 ml	1000 ml	2500 ml
Acetic acid, min. 99.5%	CH <sub>3</sub> COOH	SAC0017-500	SAC0017-1000	SAC0017-2500
Ammonia solution, min. 21%	NH <sub>4</sub> OH	SCH0170-500	SCH0170-1000	N/A
Hydrochloric acid, min. 35%	HCl	SAC0031-500	SAC0031-1000	SAC0031-2500
Hydrochloric acid, min. 29-31%	HCl	SAC0032-500	SAC0032-1000	N/A
Hydrofluoric acid, min. 48%	HF	SAC0091-500	SAC0091-1000	N/A
Nitric acid, min. 67%	HNO <sub>3</sub>	SAC0061-500	SAC0061-1000	SAC0061-2500
Perchloric acid, min. 68%	HClO <sub>4</sub>	SAC11002-500	SAC11002-1000	SAC11002-2500
Sulfuric acid, min. 95%	H <sub>2</sub> SO <sub>4</sub>	SAC0012-500	SAC0012-1000	SAC0012-2500
Water (Low TOC)	H <sub>2</sub> O	N/A	SAQ0001-1000	N/A

## Bottle-top dispensers for high purity acids and HF

Product	Description	Product code
Teflon™ Dispenser ANALPURE®-ULTRA, 0-5 ml	Specially leached bottle-top dispenser for high purity acids	USS01
Teflon™ Dispenser ANALPURE®, 0-5 ml	Bottle-top Dispenser for Hydrofluoric acid	USS02
Adaptor for Dispenser ANALPURE®-ULTRA, 45 mm	Optional adaptor for installing ANALPURE®-ULTRA Dispenser to non-standard necks	USS03
Base for Dispenser ANALPURE®-ULTRA	Adjustable base for ANALPURE®-ULTRA bottles	USS04

## ANALYTIKA® p.a.+ grade acids and H<sub>2</sub>O<sub>2</sub>

Reagents	Formula	Volume	Product code
Acetic acid, min. 99.5%, p.a.+	CH <sub>3</sub> COOH	1000	SAC7000-1000
Acetic acid, min. 99.5%, p.a.+	CH <sub>3</sub> COOH	2500	SAC7000-2500
Hydrochloric acid, min. 37%, p.a.+	HCl	1000	SAC2000-1000
Hydrofluoric acid, min 48%, p.a.+	HF	1000	SAC4000-1000
Hydrogen peroxide, 30%, p.a.+	H <sub>2</sub> O <sub>2</sub>	1000	SCH02161-1000
Nitric acid, min. 65%, p.a.+	HNO <sub>3</sub>	1000	SAC3000-1000
Perchloric acid, min. 68%, p.a.+	HClO <sub>4</sub>	1000	SAC1000-1000
Sulfuric acid, min. 96%, p.a.+	H <sub>2</sub> SO <sub>4</sub>	1000	SAC5000-1000

## REFERENCE MATERIALS ASTASOL-CH® FOR CHROMATOGRAPHY



### Organic reference materials

Reference materials for calibration chromatographic standards for the determination of organic substances in the chemical, petrochemical and pharmaceutical industries. Chromatography plays an important role in environmental quality monitoring. Our standards can be used to determine organic compounds in various samples, including air, water, soil, sludge, sediment, waste and food. For instance, they can be used to detect pesticides and PCBs in water and soil. Gas chromatography can be used to analyse BTEX and VOC in air, while HPLC can be used to detect PAHs in water and soil.

### Volume

Our standards are available in volumes of 1.5 ml, 4.5 ml and 10 ml.

### Package

Delivered in CERTAN® vials, which are stored in a protective polypropylene plastic container with a screw cap.

# REFERENCE MATERIALS FOR CHROMATOGRAPHY

## Determination of polycyclic aromatic hydrocarbons (PAH)

Name	Analytes	Concentration (µg/ml)	Matrix	Volume (ml)	Product code	
PAH MIX-1 (WHO)	benzo(b)fluoranthene	20	acetonitrile	1.5	CE001A-1.5	
	benzo(k)fluoranthene	20				
	benzo(g,h,i)perylene	20				
	benzo(a)pyrene	20		4.5	CE001A-4.5	
	fluoranthene	50				
	indeno(1,2,3-c,d)pyrene	50				
PAH MIX-2 (EPA 610)	acenaphthene	10	acetonitrile	4.5	CE002A-4.5	
	acenaphthylene					dibenzo(a,h)anthracene
	anthracene					fluoranthene
	benzo(a)anthracene					fluorene
	benzo(b)fluoranthene		indeno(1,2,3-c,d)pyrene	cyclohexane	4.5	CE002C-4.5
	benzo(k)fluoranthene		naphthalene			
	benzo(g,h,i)perylene		phenanthrene			
	benzo(a)pyrene		pyrene			
PAH MIX-3 (EPA 610)	acenaphthene	500	acetonitrile	1.5	CE003A-1.5	
	acenaphthylene	800				
	anthracene	100				
	benzo(a)anthracene	100				
	benzo(b)fluoranthene	200				
	benzo(k)fluoranthene	100				
	benzo(g,h,i)perylene	200				
	benzo(a)pyrene	100				
	chrysene	100				
	dibenzo(a,h)anthracene	200				
	fluoranthene	200				
	fluorene	200				
	indeno(1,2,3-c,d)pyrene	100				
	naphthalene	500				
	phenanthrene	100				
pyrene	100					

# REFERENCE MATERIALS FOR CHROMATOGRAPHY

## Determination of polycyclic aromatic hydrocarbons (PAH) (continued)

Name	Analytes	Concentration (µg/ml)	Matrix	Volume (ml)	Product code	
PAH MIX-5 (EPA 610)	acenaphthene acenaphthylene anthracene benzo(a)anthracene benzo(b)fluoranthene benzo(k)fluoranthene benzo(g,h,i)perylene benzo(a)pyrene	chrysene dibenzo(a,h)anthracene fluoranthene fluorene indeno(1,2,3-c,d)pyrene naphthalene phenanthrene pyrene	100	toluene	4.5	CE005T-4.5
PAH MIX-7 (ECC directive)	benzo(b)fluoranthene benzo(k)fluoranthene benzo(g,h,i)perylene	benzo(a)pyrene fluoranthene indeno(1,2,3-c,d)pyrene	10	acetonitrile	4.5	CE007A-4.5
PAH MIX-9	acenaphthene acenaphthylene anthracene benzo(a)anthracene benzo(b)fluoranthene benzo(k)fluoranthene benzo(g,h,i)perylene benzo(a)pyrene	chrysene dibenzo(a,h)anthracene fluoranthene fluorene indeno(1,2,3-c,d)pyrene naphthalene phenanthrene pyrene	100	acetonitrile	4.5	CE009A-4.5

## Determination of polychlorinated biphenyls (PCB)

Name	Analytes	Concentration (µg/ml)	Matrix	Volume (ml)	Product code	
PCB MIX-1	PCB 28 PCB 52 PCB 101 PCB118	PCB 138 PCB 153 PCB 180 PCB 194	10	iso-octane	10	CE150I-10

# REFERENCE MATERIALS FOR CHROMATOGRAPHY

## Determination of polychlorinated biphenyls (PCB) (continued)

Name	Analytes	Concentration (µg/ml)	Matrix	Volume (ml)	Product code
PCB MIX-2	PCB 28	PCB 138	methanol	4.5	CE151M-4.5
	PCB 52	PCB 153			
	PCB 101	PCB 180			
	PCB118	PCB 194			
		1		10	CE151M-10

## Determination of volatile organic compounds (VOC, BTEX)

### Single analyte reference materials

Analyte	Concentration (µg/ml)	Matrix	Volume (ml)	Product code
1,2-dichlorethane	5000	methanol	4.5	CE222M-4.5
benzene	5000	methanol	4.5	CE200M-4.5
m-xylene	5000	methanol	4.5	CE204M-4.5
o-xylene	5000	methanol	4.5	CE203M-4.5
p-xylene	5000	methanol	4.5	CE205M-4.5
trichloromethane	5000	methanol	4.5	CE220M-4.5
vinylchloride	200	methanol	1.5	CE237M-1.5

### Multi-analyte reference materials

Name	Analytes	Concentration (µg/ml)	Matrix	Volume (ml)	Product code
BTEX MIX-1	benzene	2000	methanol	1.5	CE210M-1.5
	ethylbenzene			4.5	CE210M-4.5
	toluene				
BTEX MIX-1	benzene ethylbenzene toluene	1000	methanol	1.5	CE2101M-1.5

# REFERENCE MATERIALS FOR CHROMATOGRAPHY

## Determination of volatile organic compounds (VOC, BTEX) (continued)

Name	Analytes	Concentration (µg/ml)	Matrix	Volume (ml)	Product code
BTEX MIX-2	benzene	1000	methanol	1.5	CE211M-1.5
	ethylbenzene			4.5	CE211M-4.5
BTEX MIX-2	styrene	1000	methanol	1.5	CE211M-1.5
	toluene			4.5	CE211M-4.5
VOC MIX-1	chlorobenzene	1000	iso-octane	10	CE280I-10
	1,2-dichlorobenzene			10	CE280I-10
VOC MIX-1	1,3-dichlorobenzene	1000	methanol	1.5	CE280M-1.5
	1,4-dichlorobenzene			1.5	CE280M-1.5
VOC MIX-1	1,2-dichloroethane	1000	methanol	1.5	CE280M-1.5
	1,1-dichloroethylene			1.5	CE280M-1.5
VOC MIX-5	1,1-dichloroethylene	1000	methanol	4.5	CE284M-4.5
	cis-1,2-dichloroethylene			4.5	CE284M-4.5
VOC MIX-5	trans-1,2-dichloroethylene	1000	methanol	4.5	CE284M-4.5
	1,1,2-trichloroethylene			4.5	CE284M-4.5
VOC MIX-6	bromodichloromethane	1000	methanol	4.5	CE285M-4.5
	dibromochloromethane			4.5	CE285M-4.5
VOC MIX-6	tribromomethane	1000	methanol	4.5	CE285M-4.5
	trichloromethane			4.5	CE285M-4.5
VOC MIX-7	trichloromethane	60	methanol	4.5	CE286M-4.5
	1,2-dichloroethane			4.5	CE286M-4.5
VOC MIX-7	bromodichloromethane, dibromochloromethane, cis-1,2-dichloroethylene, 1,1,2,2-tetrachloroethylene, tribromomethane, 1,1,2-trichloroethylene	20	methanol	4.5	CE286M-4.5
	benzene, ethylbenzene, styrene, toluene, 1,1,1-trichloroethane, m-xylene, o-xylene			4.5	CE286M-4.5
VOC MIX-7	tetrachloromethane	7.5	methanol	4.5	CE286M-4.5
	chlorobenzene			4.5	CE286M-4.5
VOC MIX-7	1,2-dichlorobenzene, 1,3-dichlorobenzene, 1,4-dichlorobenzene	4	methanol	4.5	CE286M-4.5
	1,2-dichlorobenzene, 1,3-dichlorobenzene, 1,4-dichlorobenzene			4.5	CE286M-4.5



# REFERENCE MATERIALS FOR CHROMATOGRAPHY

## Determination of volatile organic compounds (VOC, BTEX) (continued)

Name	Analytes	Concentration (µg/ml)	Matrix	Volume (ml)	Product code	
VOC MIX-8	bromodichloromethane chlorobenzene dibromochloromethane 1,2-dichlorobenzene 1,3-dichlorobenzene 1,4-dichlorobenzene 1,1-dichloroethane 1,2-dichloroethane 1,1-dichloroethylene cis-1,2-dichloroethylene trans-1,2-dichloroethylene	dichloromethane 1,1,1,2-tetrachloroethane 1,1,2,2-tetrachloroethane 1,1,2,2-tetrachloroethylene tetrachloromethane tribromomethane 1,1,1-trichloroethane 1,1,2-trichloroethane 1,1,2-trichloroethylene trichloromethane	1000	methanol	4.5	CE287M-4.5

# REFERENCE MATERIALS FOR CHROMATOGRAPHY

## Dertermination of pesticides (metabolites)

Name	Analytes		Concentration (µg/ml)	Matrix	Volume (ml)	Product code
OCP MIX-1	4,4'-DDT gamma-HCH (lindane) heptachlor	hexachlorobenzene 4,4'-methoxychlor	10	iso-octane	4.5	CE500I-4.5
OCP MIX-2	4,4'-DDD 4,4'-DDE 4,4'-DDT alpha-HCH beta-HCH	gamma-HCH (lindane) delta-HCH heptachlor hexachlorobenzene 4,4'-methoxychlor	10	iso-octane	4.5	CE501I-4.5
OCP MIX-3	4,4'-DDD 4,4'-DDE 4,4'-DDT alpha-HCH beta-HCH	gamma-HCH (lindane) delta-HCH heptachlor hexachlorobenzene 4,4'-methoxychlor	1	methanol	10	CE502M-10
OCP MIX-4	aldrin 4,4'-DDD 4,4'-DDE 4,4'-DDT dieldrin endrin alpha-endosulfan	beta-endosulfan gamma-HCH (lindane) heptachlor hexachlorobenzene 4,4'-methoxychlor trifluralin	10	iso-octane	1.5	CE503I-1.5
OCP + PCB MIX-1	4,4'-DDD 4,4'-DDE 4,4'-DDT alpha-HCH beta-HCH gamma-HCH (lindane) delta-HCH heptachlor hexachlorobenzene	4,4'-methoxychlor PCB 28 PCB 52 PCB 101 PCB 118 PCB 138 PCB 153 PCB 180 PCB 194	10	iso-octane	4.5	CE700I-4.5

# REFERENCE MATERIALS FOR CHROMATOGRAPHY

## Dertermination of pesticides (metabolites) (continued)

Name	Analytes	Concentration (µg/ml)	Matrix	Volume (ml)	Product code	
OCP MIX-9	alachlor aldrin chlorpyriphos-ehtyl 2,4'-DDD 4,4'-DDD 2,4'-DDE 4,4'-DDE 2,4'-DDT 4,4'-DDT dieldrin alpha-endosulfan beta-endosulfan endrin alpha-HCH beta-HCH	gamma-HCH (lindane) delta-HCH heptachlor heptachlor-epoxide A heptachlor-epoxide B hexachlorobenzene hexachlorobutadiene isodrin 4,4'-methoxychlor pentachlorobenzene 1,2,4,5-tetrachlorobenzene 1,2,3-trichlorobenzene 1,2,4-trichlorobenzene 1,3,5-trichlorobenzene trifluralin	500	acetone	4.5	CE518N-4.5
PEST MIX-6 (EN ISO 11369)	atrazine atrazine-desethyl chlorotoluron cyanazine diuron hexazinone isoproturon linuron metazachlor	methabenzthiazuron metobromuron metolachlor metoxuron monolinuron sebutylazine simazine terbutylazine	100	acetonitrile	4.5	CE513A-4.5

# REFERENCE MATERIALS FOR CHROMATOGRAPHY

## Determination of phthalates (EPA 8060)

Name	Analytes		Concentration (µg/ml)	Matrix	Volume (ml)	Product code
FT MIX-1	bis(2-ethylhexyl)phthalate	di-n-butylphthalate	100	methanol	1.5	CE840M-1.5
	butylbenzylphthalate	di-n-octylphthalate			4.5	CE840M-4.5
	diethylphthalate					
	dimethylphthalate					

## Determination of phthalates (EPA 8060)

Analytes	Concentration (µg/ml)	Matrix	Volume (ml)	Product code	Analytes	Concentration (µg/ml)	Matrix	Volume (ml)	Product code
Matrix	blank	iso-octane	1.5	CESAN 0	Nitrogen Sulfur	1 1	iso-octane	1.5	CESAN 5
Nitrogen Sulfur	0.125 0.125	iso-octane	1.5	CESAN 1	Nitrogen Sulfur	5 5	iso-octane	1.5	CESAN 6
Nitrogen Sulfur	0.25 0.25	iso-octane	1.5	CESAN 2	Nitrogen Sulfur	10 10	iso-octane	1.5	CESAN 7
Nitrogen Sulfur	0.5 0.5	iso-octane	1.5	CESAN 3	Nitrogen Sulfur	25 25	iso-octane	1.5	CESAN 8
Nitrogen Sulfur	0.75 0.75	iso-octane	1.5	CESAN 4	Nitrogen Sulfur	50 50	iso-octane	1.5	CESAN 9

Set		Matrix	Volume (ml)	Product code
CESAN 1 - 9 + blank		iso-octane	10x 1.5	CESAN KIT 1

# REFERENCE MATERIALS FOR CHROMATOGRAPHY



## MATRIX REFERENCE MATERIALS



### Certified matrix reference materials

Matrix reference materials are suitable for validation and verification of methods for the determination of analytes in real samples which matrix is similar or identical to that of the reference material. They are suitable for the determination of analytes in soils, sludges, sediments and biological material. These matrix certified reference materials have certified values for analytes such as heavy metals, PAHs, pesticides, PCBs and AOX.

### Quality control materials

These cost effective quality control materials are used to routinely check the accuracy of measurements. You can choose from a variety of matrices.

## Certified reference materials METRANAL®-CRM

Product	Destricpion	Analytes	Matrix	Weight
AN-BM01	Strawberry leaves	metals	biological	25 g
AN-BM02	Green tea	metals	biological	30 g
AN-BM03	Green tea	pesticides	biological	30 g
AN-BM04	MCT oil with medium chain triglycerides	cannabinoids	MCT oil	3 ml
AN-OK01	Sewage sludge	PCB, PAH, metals	sewage sludge	40 g
AN-OK02	Sewage sludge	PCDD, PCDF, PCB	sewage sludge	60 g
AN-OK03	AOX	AOX	sewage sludge	40 g
AN-ZP01	Agricultural soil, heavy loam	metals	soil	50 g
AN-ZP02	Agricultural soil, silty clay loam	metals	soil	50 g
AN-ZP set	2 units of various agricultural soil	metals	soil	2x 50 g
AN-ZP03	Agricultural soil	pesticides	soil	50 g

# MATRIX REFERENCE MATERIALS

## Quality control materials

### Quality control materials METRANAL®

Product	Description	Analytes	Matrix	Weight
METRANAL 1	River sediment	metals	sediment	80 g
METRANAL 8	Green algae	metals	biological	20 g
METRANAL 9	Industrial sandy-loam soil	metals	soil	50 g
METRANAL 14	River sediment RS-01-2	metals	sediment	60 g
METRANAL 17	Set of three environmental samples for the determination of mercury from solid samples	mercury	soil, sewage sludge, fly ash	3 x 15 g
METRANAL 18	Pond sediment RS-01-2	metals	sediment	40 g
METRANAL 20	Sewage sludge SS-02	metals	sewage sludge	40 g
METRANAL 22	Industrial polluted land	metals	soil	40 g
METRANAL 31	Light sandy soil, normal analyte levels	metals	soil	80 g
METRANAL 33	Clay loam soil, normal analyte levels	metals	soil	80 g
METRANAL 34	Loam, elevated analyte levels	metals	soil	80 g