TRUE CONTROL

SERO PRODUCT CATALOGUE





We enable laboratories to stay in control

OUR CORE VALUES

ETHICAL

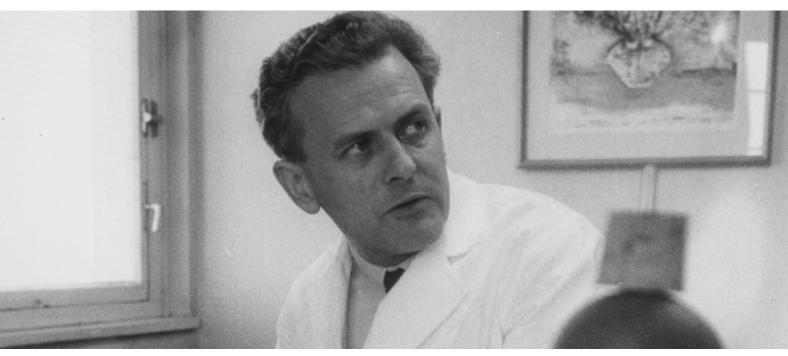
Ethics affect all we do, particularly our selection, collection and purchase of blood products and raw materials. Traceability, accountability and independence are at the core of our business.

DEDICATED

We are passionate professionals who know what it takes to provide high-quality products and services – dedication from each and every one of us, always.

FLEXIBLE

We are customer oriented and always open to new and improved solutions for our customers and partners. We know our flexibility is the key to addressing the needs of a fast-changing laboratory market.



Professor Dr. Med. Lorentz Eldjarn, founder of SERO and pioneer in the field of QC materials for the laboratory.

SERO – dedicated to laboratory quality since 1963

HISTORY

Professor Dr. Med. Lorentz Eldjarn started developing Quality Control (QC) materials as early as the 1950s and was a pioneer in the field when he established SERO as a specialized QC manufacturer in 1963. The Clinical Chemistry Award he received from the International Federation of Clinical Chemistry in 1975 underscores the important role that SERO has played in the development of this important field of laboratory medicine.

SERO TODAY

SERO is a Norwegian biotechnology company specialized in the production of quality control materials for medical laboratories. For many biotechnicians worldwide, our brand Seronorm $^{\text{TM}}$ has been synonymous with trust and a high level of reliability for decades.

Almost 60 years after its start, SERO still focuses solely on QC materials and has extensive experience in immunoassay, clinical chemistry, lipids, hormones, proteins, tumour markers, cardiac markers, diabetes, trace elements and therapeutic drugs.

We carry out all of our activities at our integrated production facilities located close to Oslo. This includes research and development, production, marketing and our own laboratory which was one of the first to be accredited in Norway as early as 1994*.

Our products hold a leading position in our Scandinavian home market and we also export to more than 40 countries worldwide.

^{*} For details regarding accredited methods, see our website www.sero.no.



Content

SERO's product philosophy6
SERO's Branded Control Sera9
The SERO product range10
Immunochemistry Seronorm™ Immunoassay
Proteins Seronorm™ Immunoprotein
Clinical Chemistry18Seronorm™ Human18Autonorm™ Clin Chem Liq19Seronorm™ Paediatric20Seronorm™ Urine21
DiabetesSeronorm™ HbA1c Liquid
Trace Elements Seronorm™ Trace Elements Serum
Therapeutic drugs Autonorm™ Pharmaca Liq27
Analyte index30



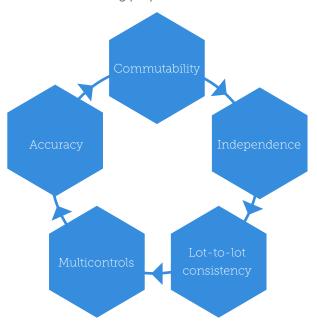


SERO's product philosophy

The purpose of quality control materials in the clinical laboratory is to help monitor the analytical process in order to detect, reduce and correct any deficiencies that could lead to wrong clinical decisions being made.

SERO's product philosophy – in line with our corporate mission – has always been to provide laboratories with high-quality control materials that ensure reliable results.

That is why SERO puts quality first in each step of the production process – from the selection of raw materials for production processes to data collection for product documentation. As an integral part of our product philosophy, SERO focuses on the following properties:



Commutability – no reliable analytical result without patient-like QC materials

Standard ISO 15189 for medical laboratories clearly states its requirements for the use of quality control materials: "The laboratory shall use quality control materials that react to the examining system in a manner as close as possible to patient samples".

Several studies (e.g. Miller et al, 2011, Clinical Chemistry) have shown that many of the QC materials on the market do not fulfill this basic and absolutely necessary function, presumably because the materials are far from being patient-like, i.e. commutable. Offering a control based on a human matrix is not enough to guarantee an acceptable degree of commutability. Heavily-buffered controls and/or controls that include various stabilizers or preservatives are definitely very different from patient samples. As a result, they may fail to react to analysis methods like patient samples would.

To ensure the best commutability, most of SERO's products contain more than 95% genuine human serum, with no stabilizers or preservatives added. The whole production process is designed to protect the properties of the matrix and thereby enable the final product to behave in a manner similar to patient samples. The result for laboratories? One of the most commutable and trustworthy control materials on the market!

True independent QC materials

SERO's branded products are true independent controls. Production is not optimized for any specific instrument or reagent kit, and the accuracy and precision data in the package inserts come from independent, trustworthy laboratories using the SERO's value assignment protocol.

With modern analytical instruments being more and more of a "black box system", the best way for medical laboratories to control their laboratory system is through the use of third-party quality controls. ISO 15189 "Medical laboratories – Requirements for quality and competence" clearly states its recommendations with regard to the selection of QC materials: "Use of independent third-party control materials should be considered, either instead of, or in addition to, any control materials supplied by the reagent or instrument manufacturer".

High lot-to-lot consistency

SERO's controls exhibit minimal variation from lot to lot. At SERO, we are fully aware that laboratories prefer minimal lot-to-lot variation due to the challenging and time-consuming task of introducing a new lot.

Our fully integrated production facility which ensures control of each step of the production process coupled with strict selection of the raw materials used in the production enable us to document an extremely high lot-to-lot consistency. This has been a key reason why many modern laboratories choose and keep SERO as their long-term control sera partner.

Multicontrols - allow huge savings

The SERO multi-parameter controls allow for huge savings. With the launch of Seronorm™ Immunoassay in 2003, SERO was the first QC manufacturer in the world to offer a highly consolidated immunoassay control that contains about 50 analytes, including most hormones, tumour markers and cardiac markers. By reducing the number of immunoassay controls used to cover the test menu in the laboratory, Seronorm™ Immunoassay has made it possible to significantly reduce waste related to dead volume in the instrument and enabled laboratories to achieve huge savings.

Our aim is to simplify our customers' daily laboratory routines and reduce the time and money spent on running QC materials. SERO's product range includes several multi-parameter control materials, however we are well aware that this consolidation must not compromise commutability, the most important property of any control material.

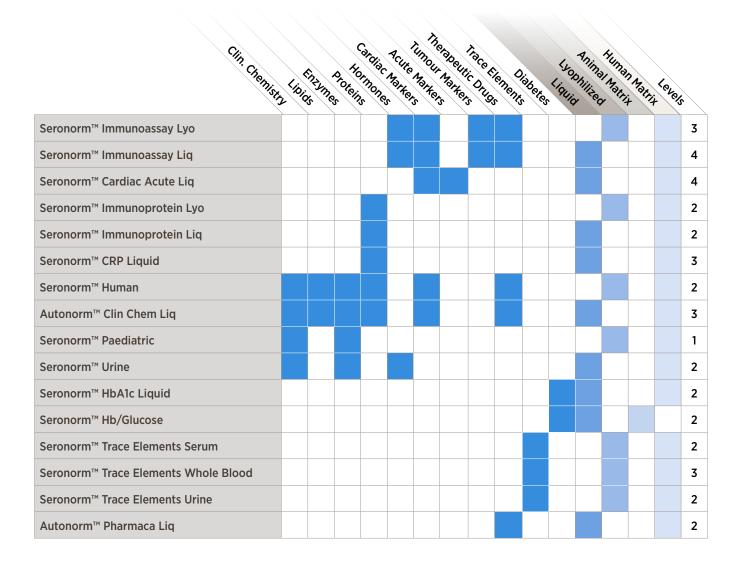
Accuracy – trustworthy laboratory results through traceable analytical data

SERO's accuracy controls can be used both for the verification of calibrators and for the monitoring of day to day precision. In addition, the information supplied with certain controls can be used to compare the trueness of your analytical results with other instruments and reference methods. The SERO lot-specific product documentation provides specific information on analytical results, methods, an uncertainty budget and traceability in accordance with ISO 17511 and ISO 18153*.



^{*} For detailed information concerning which control materials that can be used to monitor trueness and/or precision, please refer to the Instructions for Use available at our website www.sero.no or upon request.

SERO's Branded Control Sera

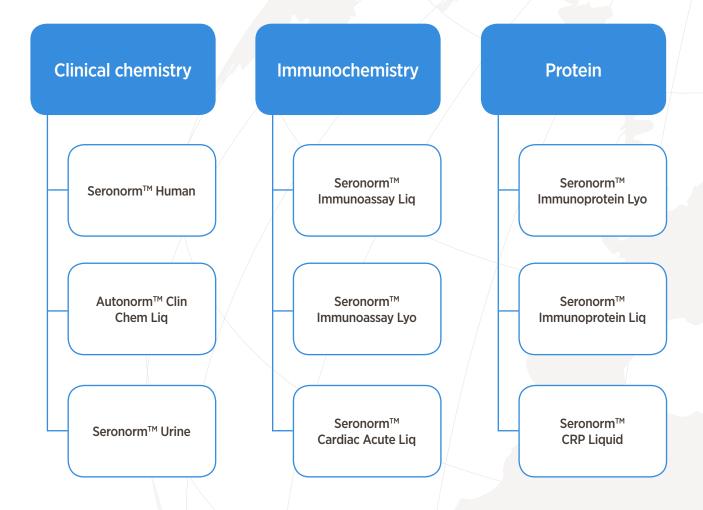


Customized quality control materials

In addition to branded products SERO has several decades of experience in customization of control materials for IVD companies, EQA organizations as well as group of laboratories or laboratory chains. Should you have any needs not covered

by our current range, feel free to contact us, we might have the possibility to tailor-make a specific material, for example in the clinical chemistry or immunoassay field.

The SERO product range



Speciality products Trace Elements Seronorm™ $Seronorm^{\text{TM}}$ Trace Elements Serum* Paediatric $Seronorm^{\text{TM}}$ Seronorm™ Hb/Glucose **Trace Elements Whole** Blood* $Seronorm^{\text{\tiny TM}}$ HbA1c Liq Seronorm™ Trace Elements Urine* Autonorm™ Pharmaca Liq

^{*} Also available as research use only (RUO)

Seronorm[™] Immunoassay

Your complete immunoassay control

≥ 95% human serum



Main features	Benefits
The "all-in-one" immunoassay control	Limits the number of different controls needed in your lab, reduces cost, saves time and space.
Contains more than 95% human serum; no preservatives or stabilizers added	Behaves similar to a patient sample (high commutability), allowing highly trustworthy results, especially during reagent lot changes.
Comprehensive product documentation for three different levels	Provides analytical data for more than 50 analytes for the most frequently used instruments on the market for clinically relevant concentrations.
Available in a liquid version	No need for reconstitution. Eliminates potential handling errors. Ready to use right after thawing.
Available in a lyophilized version with a shelf life of 4 years	Longer shelf life that makes it possible to reduce the frequency of lot change: resource and time-related consequences.
Independent QC material	Provides an objective assessment of the entire analytical system.

Α	nal	lvt	es:
A	IIai	ινι	es .

17-α-OH-Progesterone	CK-MB	IGF-1	SHBG
25(OH) Vitamin D	Cortisol	Insulin	T3, free
25(OH) Vitamin D3	C-peptide	LH	T3, total
AFP	DHEA-Sulfate	Methylmalonic acid	T4, free
Aldosterone	Digoxin	Myoglobin	T4, total
AMH*	EPO	NT-proBNP	TBG
Androstenedione	Estradiol	Ostase	Testosteron
Anti-Tg*	Ferritin	Pro-BNP	Theophyllin

ne ophylline Anti-TPO* Folate Progesterone Thyroglobulin β2-microglobulin FSH Prolactin Troponin I β-hCG, total hCG, total Prostatic acid phosphatase* Troponin T CA 125 HE4* PSA, complexed TSH CA 15-3 hGH PSA, free Vitamin B12

CA 19-9 Homocysteine PSA, total CEA IgE PTH, intact

Refer to the lot specific product documentation of currently available lots for specific analyte and stability claims. For details concerning intended use, please refer to the Instructions for Use (IFU). The documents are available on our website www.sero.no or upon request.

Stability

70	Shelf life	Open via	l stability	pəz	Shelf life	Open via	l stability
iqui	≤ -20 °C	≤ -20 °C	2-8 °C	iliy	2-8 °C	≤ -20 °C	2-8 °C
7	3 years Δ	1 month *	10 days Δ	70/7	4 years Δ	1 month **	10 days Δ

- Δ With a few exceptions
- * When refrozen within 30 minutes
- ** When reconstituted and frozen within 30 minutes

Art. no	Product	Size
207005	Seronorm™ Immunoassay Liq L-1	12 x 3 mL
207105	Seronorm™ Immunoassay Liq L-2	12 x 3 mL
207205	Seronorm™ Immunoassay Liq L-3	12 x 3 mL
206005	Seronorm™ Immunoassay Lyo L-1	12 x 3 mL
206105	Seronorm™ Immunoassay Lyo L-2	12 x 3 mL
206205	Seronorm™ Immunoassay Lyo L-3	12 x 3 mL

^{*} Lot to lot variation may occur

Seronorm[™] Immunoassay Liq Low

≥ 95% human serum

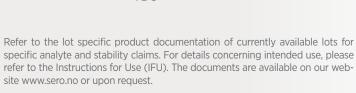
Analytes:

17-α-OH- Cortisol Progesterone Ferritin 25(OH) Vitamin D IgE

25 (OH) Vitamin D3 PSA, total Aldosterone T4, free Androstenedione TBG

Testosterone TSH

Vitamin B12





Main features

Clinically low levels of relevant analytes for control of e.g. anaemia

Contains more than 95% human serum; no preservatives or stabilizers added

Comprehensive product documentation from independent laboratories

Liquid control material

Independent QC material

Benefits

Ensures control of relevant low concentrations of cortisol, ferritin, TSH and a few other analytes.

Behaves similar to a patient sample (high commutability), allowing highly trustworthy results, especially during reagent lot changes.

Provides analytical data for the most frequently used instruments on the market.

No need for reconstitution. Eliminates potential handling errors. Ready to use right after thawing.

Provides an objective assessment of the entire analytical system.

Stability

Shelf life	Open vial stability	
≤ -20 °C	≤ -20 °C	2-8 °C
3 years ∆	1 month *	10 days

Δ With a few exceptions

* When refrozen within 30 minutes

Art. no	Product	Size
207305	Seronorm™ Immunoassay Liq Low	12 x 3 mL

Seronorm[™] Cardiac Acute Liq

The most complete acute control on the market

≥ 95% human serum

Analytes:

BNP Digoxin Pro-BNP β -hCG, total hCG, total Procalcitonin CK, total Homocysteine S100 β CK-MB IL-6 Troponin I CRP Myoglobin Troponin T

D-dimer NT-proBNP

Refer to the lot specific product documentation of currently available lots for specific analyte and stability claims. For details concerning intended use, please refer to the Instructions for Use (IFU). The documents are available on our website www.sero.no or upon request.



Main features

Consolidated acute control that includes 17 different analytes

Drov

Benefits

Provides a large panel of cardiac and acute markers to rule out life-threatening conditions and helps to limit the number of controls in your lab, reduces cost, saves time and space.

4 different levels, with the low level available in two variants (L-1A and L-1B)

Ensures control of relevant low concentrations for specific analytes like troponin on different instruments.

Liquid control material

No need for reconstitution. Eliminates potential handling errors. Ready to use right after thawing.

Comprehensive product documentation from independent laboratories

Provides analytical data for the most frequently used instruments on the market.

Independent QC material

Provides an objective assessment of the entire analytical system.

Stability

	Shelf life	Open vial stability		
	≤ -20 °C	≤ -20 °C	2-8 °C	
	2 years Δ	1 month *	14 days Δ	
٨	With a few exce	antions		

Δ With a few exceptions

Art. no	Product	Size
211005	Seronorm™ Cardiac Acute Liq L-1A	6 x 2 mL
211105	Seronorm™ Cardiac Acute Liq L-1B	6 x 2 mL
211205	Seronorm™ Cardiac Acute Liq L-2	6 x 2 mL
211305	Seronorm™ Cardiac Acute Liq L-3	6 x 2 mL

^{*} When refrozen within 30 minutes

Seronorm[™] Immunoprotein

≥ 95% human serum

Analytes:

α1-acid-glycoprotein α1-antitrypsin α2-macroglobulin Albumin Anti-CCP Apolipoprotein A1 ASL β2-microglobulin C4
Ceruloplasmin
CRP
Cystatin C
Digitoxin
Ferritin
Haptoglobin
IgA
IgE

IgG IgM Myoglobin Prealbumin Protein, total RF Transferrin Electrophoresis*





Refer to the lot specific product documentation of currently available lots for specific analyte and stability claims. For details concerning intended use, please refer to the Instructions for Use (IFU). The documents are available on our website www.sero.no or upon request.

* Present in Seronorm Immunoprotein Liq L-1

Main features

C3c

Consolidated protein control

Contains more than 95% human serum; no preservatives or stabilizers added

Available in a liquid version

Available in a lyophilized version with a shelf life of 3 years

Comprehensive product documentation from independent laboratories

Independent QC material

Benefits

Limits the number of different controls needed in your lab, reduces cost, saves time and space.

Behaves similar to a patient sample (high commutability), allowing highly trustworthy results, especially during reagent lot changes.

No need for reconstitution. Eliminates potential handling errors. Ready to use right after thawing.

Longer shelf life that makes it possible to reduce the frequency of lot change: resource and time-related consequences.

Provides analytical data on both nephelometric and turbidimetric methods.

Provides an objective assessment of the entire analytical system.

Stability

70	Shelf life	Open via	al stability	
Liquid	≤ -20 °C	≤ -20 °C	2-8 °C	
Lie	3 years Δ	1 month *	14 days ∆	
pəz	Shelf life	Open via	al stability	
.yophilized	2-8 °C	≤ -20 °C	2-8 °C	
.yo	3 years Δ	1 month **	14 days	

- Δ With a few exceptions
- * When refrozen within 30 minutes
- ** When reconstituted and frozen within 30 minutes

Art. no	Product	Size
210405	Seronorm™ Immunoprotein Liq L-1	6 x 1 mL
210505	Seronorm [™] Immunoprotein Liq L-2	6 x 1 mL
202805	Seronorm™ Immunoprotein Lyo L-1	6 x 1 mL
202905	$Seronorm^{\text{TM}}\ Immunoprotein\ Lyo\ L2$	6 x 1 mL

Seronorm[™] CRP Liquid

Straight from the fridge into the instrument

≥ 95% human serum

Analytes:

CRP



Refer to the lot specific product documentation of currently available lots for specific analyte and stability claims. For details concerning intended use, please refer to the Instructions for Use (IFU). The documents are available on our website www.sero.no or upon request.

Main features	Benefits
Contains more than 95% human serum	Behaves similar to a patient sample (high commutability), allowing highly trustworthy results, especially during reagent lot changes.
Liquid material stable at 2–8°C	Straight from the fridge to the instrument. Ready to use; no thawing or reconstitution needed. Eliminates potential handling errors.
Three clinically relevant levels	Ensures patient safety with a broader quality control range.
1-month stability in opened vials (2–8°C)	Reduces unnecessary waste for small-volume users.
Shelf life of 3 years	Longer shelf life that makes it possible to reduce the frequency of lot change: resource and time-related consequences.
Independent QC material	Provides an objective assessment of the entire analytical

system.

Stability

Shelf life	Open vial stability	
2-8 °C	2-8 °C	15-25 °C
3 years	31 days	7 days

Art. no	Product	Size
213005	Seronorm™ CRP Liquid L-1	12 x 1 mL
213105	Seronorm™ CRP Liquid L-2	12 x 1 mL
213205	Seronorm™ CRP Liquid L-3	12 x 1 mL

Seronorm[™] Human

Multi-component control with long shelf life

≥ 95% human serum

Analytes:

ALAT	Cholesterol, HDL	HBDH	Potassium
ALAI	•	прип	Polassiuiii
Albumin	Cholesterol, LDL	IgA	Protein, total
ALP	Cholesterol, total	IgG	Sodium
Amylase, pancreas	Cholinesterase	IgM	Theophylline
Amylase, total	CK	Iron	Transferrin
Apolipoprotein A1	CK-MB	Lactate	Triglycerides
Apolipoprotein B	Copper	LDH	UIBC
ASAT	Creatinine	Lipase	Urea
Bile Acid	CRP	Lithium	Uric Acid
Bilirubin, direct	Digoxin	Magnesium	Zinc
Bilirubin, total	GGT	NEFA	
Calcium	GLDH	Osmolality	
Chloride	Glucose	Phosphorus	



Refer to the lot specific product documentation of currently available lots for specific analyte and stability claims. For details concerning intended use, please refer to the Instructions for Use (IFU). The documents are available on our website www.sero.no or upon request.

Main features

Multi-component clinical chemistry control

Benefits

Limits the number of different controls needed in your lab, reduces cost, saves time and space.

Lyophilized material with a shelf life of 4 years

Longer shelf life that makes it possible to reduce the frequency of lot change: resource and time-related consequences.

Two clinically relevant levels

Ensures patient safety with a broader quality control range.

Contains more than 95% human serum; no preservatives or stabilizers added

Behaves similar to a patient sample (high commutability), allowing highly trustworthy results, especially during reagent lot changes.

Independent QC material

Provides an objective assessment of the entire analytical system.

Stability

zed	Shelf life	Open vial stability	
.yophilized	2-8 °C	≤ -20 °C	2-8 °C
/VO/	4 years	1 month *	7 days Δ

^{*} When reconstituted and frozen within 30 minutes

Art. no	Product	Size
200805	Seronorm [™] Human	10 x 5 mL
203005	Seronorm™ Human High	10 x 5 mL

Autonorm[™] Clin Chem Liq

CK-MB

Copper

A complete chemistry control ready to use

≥ 95% human serum

Analytes:

α1-acidglycoprotein α1-antitrypsin α2-macroglobulin Bilirubin, total **ALAT** Albumin ALP Amikacin Amylase, pancreas Amylase, total Apolipoprotein A1 Cholesterol, LDL Apolipoprotein B **ASAT** ASL/ASO

Bicarbonate Bile Acid Bilirubin, direct C3c C.4 Calcium Carbamazepine Ceruloplasmin Chloride Cholesterol, HDL

Cholinesterase

Creatinine **CRP** Digoxin Ethanol Ferritin Gentamycine **GGT** Glucose Haptoglobin **IgA** Cholesterol, total IgG IgM Iron

Lactate LDH Lipase Lithium Magnesium Methotrexate Osmolality Paracetamol Phenobarbitone Phenytoin Phosphorus Potassium Prealbumin Protein, total Quinidine

Salicylate Sodium Theophylline **TIBC** Tobramycin Transferrin Triglycerides **UIBC** Urea Uric Acid Valproic Acid Vancomvcin

Zinc



Refer to the lot specific product documentation of currently available lots for specific analyte and stability claims. For details concerning intended use, please refer to the Instructions for Use (IFU). The documents are available on our website www.sero.no or upon request.

Benefits

Main features

The "all-in-one" clinical chemistry control

Limits the number of different controls needed in your lab, reduces cost, saves time and space.

Shelf life of 2,5 years

Longer shelf life that makes it possible to reduce the frequency of lot change: resource and time-related consequences.

Contains more than 95% human serum; no preservatives or stabilizers added

Behaves similar to a patient sample (high commutability), allowing highly trustworthy results, especially during reagent lot changes.

Liquid control material

No need for reconstitution. Eliminates potential handling errors. Ready-to-use right after thawing.

Available in three clinically relevant levels

Ensures patient safety with a broader quality control range.

Comprehensive product documentation from independent laboratories

Provides analytical data for more than 60 analytes

Independent QC material

Provides an objective assessment of the entire analytical

Stability

Shelf life	Open vial stability	
≤ -20 °C	≤ -20 °C	2-8 °C
2,5 years Δ	1 month Δ^*	14 days ∆

With a few exceptions

Art. no	Product	Size
201915	Autonorm™ Clin Chem Liq L-1	6 x 5 mL
202115	Autonorm™ Clin Chem Liq L-2	12 x 5 mL
202215	Autonorm™ Clin Chem Liq L-3	12 x 5 mL

When refrozen within 30 minutes

Seronorm[™] Paediatric

Specially made for the newborn

≥ 95% human serum

Analytes:

ALP Glucose
Bilirubin, direct Magnesium
Bilirubin, indirect Phosphorus
Bilirubin, total Potassium
Calcium Sodium

Chloride

Refer to the lot specific product documentation of currently available lots for specific analyte and stability claims. For details concerning intended use, please refer to the Instructions for Use (IFU). The documents are available on our website www.sero.no or upon request.



Main features

Quality control specially made for newborns

Contains more than 95% human serum; no preservatives or stabilizers added

Lyophilized material with a shelf life of 4 years

Comprehensive product documentation from independent laboratories

Independent QC material

Benefits

Makes it possible to control analytes at clinically relevant levels for paediatric samples.

Behaves similar to a patient sample (high commutability), allowing highly trustworthy results, especially during reagent lot changes.

Longer shelf life that makes it possible to reduce the frequency of lot change: resource and time-related consequences.

Provides analytical data for 11 analytes.

Provides an objective assessment of the entire analytical system.

Stability

zed	Shelf life	Open vi	al stability
.yophilized	2-8 °C	≤ -20 °C	2-8 °C
Lyo	4 years	1 month *	7 days

^{*} When reconstituted and frozen within 30 minutes

Art. no	Product	Size
208005	Seronorm™ Paediatric	6 x 3 mL

Seronorm[™] Urine

≥ 95% human urine

Analytes:

Albumin/Creatinine Glucose Pregnancy
quota Magnesium Protein, total
Amylase Microalbumin Sodium
Calcium Osmolality Specific gravity

Chloride pH Urea Cortisol, free Phosphorus Uric Acid

Creatinine Potassium

Refer to the lot specific product documentation of currently available lots for specific analyte and stability claims. For details concerning intended use, please refer to the Instructions for Use (IFU). The documents are available on our website www.sero.no or upon request.



Main features

Contains more than 95% human urine

Benefits

Behaves similar to a patient sample (high commutability), allowing highly trustworthy results including stable creatinine, especially during reagent lot changes.

Liquid material stable at 2-8°C

Straight from the fridge to the instrument. Ready to use; no thawing or reconstitution needed. Eliminates potential handling errors.

Long stability in opened vials: 28 days at 2–8°C

Reduces uneccessary waste for small-volume users.

Independent QC material

Provides an objective assessment of the entire analytical system.

Stability

Liquid	Shelf life	Open vial stability
	2-8 °C	2-8 °C
	2 years	28 days

Art. no	Product	Size
208505	Seronorm™ Urine L-1	10 x 8 mL
208605	Seronorm™ Urine L-2	10 x 8 mL

Seronorm[™] HbA1c Liquid

≥ 95% human whole blood

Analytes:

HbA1c

Refer to the lot specific product documentation of currently available lots for specific analyte and stability claims. For details concerning intended use, please refer to the Instructions for Use (IFU). The documents are available on our website www.sero.no or upon request.





Main features

Product documentation from independent laboratories

Contains more than 95% human whole blood; no preservatives or stabilizers added

Liquid material with a shelf life of 3 years.

Produced through in vitro glycation of human blood

Independent QC material

Benefits

Provides analytical data for both immunological and point-ofcare methods.

Behaves similar to a patient sample (high commutability), allowing highly trustworthy results, especially during reagent lot changes.

No need for reconstitution. Eliminates potential handling errors. Ready to use right after thawing.

Highly ethical product without any use of blood from diabetic patients.

Provides an objective assessment of the entire analytical system.

Stability

Shelf life	Open vial stability
≤ -20 °C	2-8 °C
3 years	28 days

Art. no	Product	Size
209005	Seronorm [™] HbA1c Liquid L-1	3 x 1 mL
209105	Seronorm [™] HbA1c Liquid L-2	3 x 1 mL

Seronorm[™] Hb/Glucose

Quality control for point of care, straight from the fridge

Analytes:

Glucose Hemoglobin

Refer to the lot specific product documentation of currently available lots for specific analyte and stability claims. For details concerning intended use, please refer to the Instructions for Use (IFU). The documents are available on our website www.sero.no or upon request.



Main features	Benefits
Quality control for Point of Care	Combines hemoglobin and glucose in a single control.
Available in two clinically relevant levels	Ensures patient safety with a broader quality control range.
Liquid material with a shelf life of 3 years	No need for reconstitution. Eliminates potential handling errors. Ready to use right after thawing.
Long stability in opened vials: 28 days at 2-8 °C	Reduces uneccessary waste for small-volume users.
Independent QC material	Provides an objective assessment of the entire analytical system.

Stability

þ	Shelf life	Open vial stability
Liquid	2-8 °C	2-8 °C
Ţ	3 years	28 days

Art. no	Product	Size
103005	Seronorm™ Hb/Glucose L-1	6 x 1 mL
103105	Seronorm™ Hb/Glucose L-2	6 x 1 mL

Seronorm[™] Trace Elements Serum

≥ 95% human serum

The clinically most relevant elements:

Aluminium Fluoride Mercury Sodium
Calcium Iron Nickel Zinc
Chromium Lithium Phosphorus

Chromium Lithium Phosphoru
Cobalt Magnesium Potassium
Copper Manganese Selenium

Refer to analyte index (page 30) for a total of more than 60 elements.

Refer to the lot specific product documentation of currently available lots for specific elements and stability claims. For details concerning intended use, please refer to the Instructions for Use (IFU). The documents are available on our website www.sero.no or upon request.



Main features

Multicomponent including more than 60 elements

Contains more than 95% human serum; no preservatives or stabilizers added

Available in two clinically relevant levels

Lyophilized material with a shelf life of 7 years

Comprehensive product documentation from independent laboratories with analytical values traceable to international reference materials

Independent QC material

Benefits

Could be used in a wide variety of applications such as nutrition, occupational health, environmental health, toxicology, food safety, veterinary and biological studies.

Behaves similar to a patient sample (high commutability), allowing highly trustworthy results, especially during reagent lot changes.

Ensures patient safety with a broader quality control range.

Longer shelf life that makes it possible to reduce the frequency of lot change: resource and time-related consequences.

Provides analytical data for more than 60 elements.

Stability

zed	Shelf life	Open vi	al stability
.yopnilized	2-8 °C	≤ -20 °C	2-8 °C
70 70	7 years	1 month *	7 days

* When reconstituted and frozen within 30 minutes

Order Information:

system.

Art. no	Product	Size
201405	Seronorm [™] Trace Elements Serum L-1	6 x 3 mL
203105	Seronorm [™] Trace Elements Serum L-2	6 x 3 mL
201413	Seronorm [™] Trace Elements Serum L-1 RUO*	6 x 3 mL
203113	Seronorm [™] Trace Elements Serum L-2 RUO*	6 x 3 mL

Provides an objective assessment of the entire analytical

* The Trace Elements RUO products (Research Use Only) are not intended for use for medical in vitro diagnostic purposes. For questions related to this, please contact your distributor or SERO.

Seronorm™ Trace Elements Whole Blood

≥ 95% human whole blood

The clinically most relevant elements:

Aluminium Calcium I ead Molybdenum Antimony Chromium Lithium Nickel Cobalt Magnesium Selenium Arsenic Beryllium Copper Manganese Silver Bismuth Fluoride* Mercury Strontium Cadmium lodine Methylmercury Thallium

Vanadium onorm ice Elements hole Blood

Tin

7inc

ronorm ace Elements eronorm ace Elements Whole Blood

Refer to analyte index (page 30) for a total of more than 60 elements.

Refer to the lot specific product documentation of currently available lots for specific elements and stability claims. For details concerning intended use, please refer to the Instructions for Use (IFU). The documents are available on our website www.sero.no or upon request.

Main features

Multicomponent including more than 60 elements

Contains more than 95% human blood: no preservatives or stabilizers added

Available in three clinically relevant levels

Lyophilized material with a shelf life of 5 years

Comprehensive product documentation from independent laboratories with analytical values traceable to international reference materials

Independent QC material

Benefits

Could be used in a wide variety of applications such as nutrition, occupational health, environmental health, toxicology, food safety, veterinary and biological studies.

Behaves similar to a patient sample (high commutability), allowing highly trustworthy results, especially during reagent lot changes.

Ensures patient safety with a broader quality control range.

Longer shelf life that makes it possible to reduce the frequency of lot change: resource and time-related consequences.

Provides analytical data for more than 60 elements.

Stability

lized	Shelf life	Open vi	al stability
	2-8 °C	≤ -20 °C	2-8 °C
yophi	5 years	1 month *	7 days

^{*} When reconstituted and frozen within 30 minutes

Order Information:

system.

Art. no	Product	Size
210105	Seronorm $^{\text{TM}}$ Trace Elements Whole Blood L-1	10 x 3 mL
210205	$Seronorm^{\text{TM}} \ Trace \ Elements \ Whole \ Blood \ L-2$	10 x 3 mL
210305	Seronorm $^{\text{TM}}$ Trace Elements Whole Blood L-3	10 x 3 mL
210113	Seronorm $^{\text{TM}}$ Trace Elements Whole Blood L-1 RUO *	10 x 3 mL
210213	Seronorm $^{\text{TM}}$ Trace Elements Whole Blood L-2 RUO*	10 x 3 mL
210313	Seronorm $^{\text{TM}}$ Trace Elements Whole Blood L-3 RUO*	10 x 3 mL

Provides an objective assessment of the entire analytical

^{*} Only present in L-2 and L-3

^{*} The Trace Elements RUO products (Research Use Only) are not intended for use for medical in vitro diagnostic purposes. For questions related to this, please contact your distributor or SERO.

Seronorm[™] Trace Elements Urine

≥ 95% human urine

The clinically most relevant elements:

Aluminium	Chromium	Lead	Selenium
Antimony	Cobalt	Magnesium	Tellurium
Arsenic	Copper	Manganese	Thallium
Beryllium	Fluoride*	Mercury	Tin
Bismuth	lodine	Molybdenum	Vanadium
Cadmium	Iron	Nickel	Zinc



Refer to analyte index (page 30) for a total of more than 60 elements.

Refer to the lot specific product documentation of currently available lots for specific elements and stability claims. For details concerning intended use, please refer to the Instructions for Use (IFU). The documents are available on our website www.sero.no or upon request.

*Only in L-2

Main features

Multicomponent including more than 60 elements

Contains more than 95 % human urine; no preservatives or stabilizers added

Available in two clinically relevant levels

Lyophilized material with a shelf life of 7 years

Comprehensive product documentation from independent laboratories with analytical values traceable to international reference materials

Independent QC material

Benefits

Could be used in a wide variety of applications such as nutrition, occupational health, environmental health, toxicology, food safety, veterinary and biological studies.

Behaves similar to a patient sample (high commutability), allowing highly trustworthy results, especially during reagent lot changes.

Ensures patient safety with a broader quality control range.

Longer shelf life that makes it possible to reduce the frequency of lot change: resource and time-related consequences.

Provides analytical data for more than 60 elements.

.....

Provides an objective assessment of the entire analytical system.

Stability

pəz	Shelf life	Open v	ial stability
.yophilized	2-8 °C	≤ -20 °C	2-8 °C
Lyo	7 years	1 month *	7 days

^{*} When reconstituted and frozen within 30 minutes

Art. no	Product	Size
210605	Seronorm [™] Trace Elements Urine L-1	10 x 5 mL
210705	Seronorm [™] Trace Elements Urine L-2	10 x 5 mL
210613	Seronorm [™] Trace Elements Urine L-1 RUO*	10 x 5 mL
210713	Seronorm [™] Trace Elements Urine L-2 RUO*	10 x 5 mL

^{*} The Trace Elements RUO products (Research Use Only) are not intended for use for medical in vitro diagnostic purposes. For questions related to this, please contact your distributor or SERO.

Autonorm[™] Pharmaca Liq

"A pharmacy in a bottle..."

≥ 95% human serum

Pharmaceuticals:

Amikacin Gentamycine Paracetamol **Topiramate** Carbamazepine Haloperidol Phenobarbitone Valproic acid Vancomycin Clonazepam Lamotrigine Phenytoin Cyclosporine Levetiracetam Teicoplanin Zonisamide Diazepam Lithium Theophylline Digoxin Methotrexate Tobramycin

Refer to the lot specific product documentation of currently available lots for specific analyte and stability claims. For details concerning intended use, please refer to the Instructions for Use (IFU). The documents are available on our website www.sero.no or upon request.



Main features

Contains more than 95% human serum; no preservatives or stabilizers added

Two clinically relevant levels. Contains more than 20 therapeutic drugs

Liquid control material

Independent QC material

Benefits

Behaves similar to a patient sample (high commutability), allowing highly trustworthy results, especially during reagent lot changes.

Ensures patient safety with a broader quality control range.

No need for reconstitution. Eliminates potential handling errors. Ready to use right after thawing.

Provides an objective assessment of the entire analytical system.

Stability

Shelf life	Open vi	al stability
≤ -20 °C	≤ -20 °C	2-8 °C
2 years Δ	1 month *	7 days

- Δ With a few exceptions
- * When refrozen within 30 minutes

Art. no	Product	Size
211705	Autonorm™ Pharmaca Liq L-1	12 x 3 mL
211805	Autonorm™ Pharmaca Liq L-2	12 x 3 mL

Our mission

SERO's mission is to improve patient care by contributing to analyses that produce reliable and comparable results from one day to another and between laboratories.





Seronorm TM Immunoassay Seronorm TM Immunoassay Liq Iow Seronorm TM Cardiac Acute Liq Seronorm TM CRP Liquid Seronorm TM Human Autonorm TM Clin Chem Liq Seronorm TM HbA1c Liquid Seronorm TM HbA1c Liquid Seronorm TM HbA1c Liquid Seronorm TM HbA1c Liquid Seronorm TM Trace Elements Serum Seronorm TM Trace Elements Whole	26	
See page number 12 14 15 16 17 18 19 20 21 22 23 24 25		27
17-α-OH-Progesterone O O		
25(OH) Vitamin D O O		
α1-acid-glycoprotein O O		
α1-antitrypsin O O		
α2-macroglobulin O O		
AFP O		
ALAT O O		
Albumin O O O		
Albumin/Creatinine quota		
Aldosterone O O		
ALP 0 0 0		
Aluminium Al O O	0	
AMH O		
Amikacin		0
Amylase, pancreas O O		
Amylase, total O O O		
Androstenedione O O		
Anti-CCP O		
Antimony Sb O O	0	
Anti-Tg O		
Anti-TPO O		
Apolipoprotein A1 O O O		
Apolipoprotein B O O		
Arsenic As O O	0	
ASAT O O		
ASL/ASO O O		
β2-microglobulin O O		
β-hCG, total O O		
Barium Ba O O	0	
Beryllium Be O O	0	
Bicarbonate		
Bile Acid O		
Bilirubin, direct O O O		
Bilirubin, indirect		
Bilirubin, total O O O		
Bismuth Bi O O	0	
BNP		
Bromine Br O O	0	

O Analyte present Present in L-1 A Present in L-2

Analyte index C - D	Seronorm™ Immunoassay	Seronorm™ Immunoassay Liq low	Seronorm™ Cardiac Acute Liq	Seronorm™ Immunoprotein	Seronorm™ CRP Liquid	Seronorm™ Human	Autonorm™ Clin Chem Liq	Seronorm™ Paediatric	Seronorm™ Urine	Seronorm™ HbA1c Liquid	Seronorm™ Hb/Glucose	Seronorm™ Trace Elements Serum	Seronorm™ Trace Elements Whole Blood	Seronorm™ Trace Elements Urine	Autonorm™ Pharmaca Liq
See page number	12	14	15	16	17	18	19	20	21	22	23	24	25	26	27
C3c				0			0								
C4				0			0								
CA 125	0														
CA 15-3	0														
CA 19-9	0														
Cadmium Cd												0	0	0	
Calcium Ca						0	0	0	0			0	0	0	
Carbamazepine							0								0
CEA	0														
Cerium Ce												0	0	0	
Ceruloplasmin				0			0								
Cesium Cs												0	0	0	
Chloride						0	0	0	0						
Cholesterol, HDL						0	0								
Cholesterol, LDL						0	0								
Cholesterol, total						0	0								
Cholinesterase						0	0								
Chromium Cr												0	0	0	
CK			0			0	0								
CK-MB	0		0			0	0								
Clonazepam															0
Cobalt Co												0	0	0	
Copper Cu						0	0					0	0	0	
Cortisol	0	0													
Cortisol, free									0						
C-peptide	0														
Creatinine						0	0		0						
CRP			0	0	0	0	0								
Cyclosporine															0
Cystatin C				0											
DHEA-Sulfate	0			_											
Diazepam	_														0
D-dimer			0												
Digitoxin				0											
Digoxin	0		0			0	0								0
Dysprosium Dy												0	0	0	
5, opiosium by															

O Analyte present Present in L-1 A Pesent in L-2

Analyte index E – I	Seronorm™ Immunoassay	Seronorm™ Immunoassay Liq low	Seronorm™ Cardiac Acute Liq	Seronorm™ Immunoprotein	Seronorm™ CRP Liquid	Seronorm™ Human	Autonorm™ Clin Chem Liq	Seronorm™ Paediatric	Seronorm™ Urine	Seronorm™ HbA1c Liquid	Seronorm™ Hb/Glucose	Seronorm™ Trace Elements Serum	Seronorm™ Trace Elements Whole Blood	Seronorm™ Trace Elements Urine	Autonorm™ Pharmaca Liq
See page number	12	14	15	16	17	18	19	20	21	22	23	24	25	26	27
Electrophoresis															
EPO	0														
Erbium Er												0	0	0	
Estradiol	0														
Ethanol							0								
Europium Eu												0	0	0	
Ferritin	0	0		0			0								
Fluoride F												0	•	A	
Folate	0														
FSH	0														
Gadolinium Gd												A	0	0	
Gallium Ga												0	0	0	
Gentamycine							0								0
GGT						0	0								
GLDH						0									
Glucose						0	0	0	0		0				
Gold Au												0	0	0	
Hafnium Hf												0	0	0	
Haloperidol															0
Haptoglobin				0			0								
HbA1c										0					
HBDH						0									
hCG, total	0		0												
HE4	0														
Hemoglobin											0				
hGH	0														
Holmium Ho												0	0	0	
Homocysteine	0		0												
IgA				0		0	0								
IgE	0	0		0											
IGF1	0														
IgG				0		0	0								
IgM				0		0	0								
Insulin	0														
lodine I												0	0	0	
Iridium Ir												0	0	0	
Iron Fe						0	0					0	0	0	

O Analyte present in L-1 Present in L-2 Present in L-2 and L-3 The above index is updated as of January 2019.

Analyte index L – Prea	Seronorm™ Immunoassay	Seronorm™ Immunoassay Liq low	Seronorm™ Cardiac Acute Liq	Seronorm™ Immunoprotein	Seronorm™ CRP Liquid	Seronorm™ Human	Autonorm™ Clin Chem Liq	Seronorm™ Paediatric	Seronorm™ Urine	Seronorm™ HbA1c Liquid	Seronorm™ Hb/Glucose	Seronorm™ Trace Elements Serum	Seronorm™ Trace Elements Whole Blood	Seronorm™ Trace Elements Urine	Autonorm™ Pharmaca Liq
See page number	12	14	15	16	17	18	19	20	21	22	23	24	25	26	27
Lactate						0	0								
Lamotrigine															0
Lanthanum La												0	0	0	
LDH						0	0								
Lead Pb												0	0	0	
Levetiracetam															0
LH	0														
Lipase						0	0								
Lithium Li						0	0					0	0	0	0
Lutetium Lu												0	0	0	
Magnesium Mg						0	0	0	0			0	0	0	
Manganese Mn												0	0	0	
Methylmercury													0		
Mercury Hg												0	0	0	
Methotrexate							0								0
Methylmalonic acid	0														
Microalbumin									О						
Molybdenum Mo												0	0	0	
Myoglobin	0		0	0											
NEFA						0									
Neodymium Nd												0	0	0	
Nickel Ni												0	0	0	
Niobium Nb												0	0	0	
NT-proBNP	0		0												
Osmolality						0	0		О						
Ostase	0														
Paracetamol							0								0
pH									0						
Phenobarbitone							0								0
Phenytoin							0								0
Phosphorus P						0	0	0	0			0	0	0	
Platinum Pt												0	0	0	
Potassium K						0	0	0	0			0	0	0	
Praseodymium Pr												0	0	0	
Prealbumin				0			0								

Analyte index Preg – Te	Seronorm [™] Immunoassay	Seronorm [™] Immunoassay Liq low	Seronorm™ Cardiac Acute Liq	Seronorm [™] Immunoprotein	Seronorm™ CRP Liquid	Seronorm™ Human	Autonorm™ Clin Chem Liq	Seronorm™ Paediatric	Seronorm™ Urine	Seronorm™ HbA1c Liquid	Seronorm™ Hb/Glucose	Seronorm™ Trace Elements Serum	Seronorm™ Trace Elements Whole Blood	Seronorm™ Trace Elements Urine	Autonorm™ Pharmaca Liq
See page number	12	14	15	16	17	18	19	20	21	22	23	24	25	26	27
Pregnancy									0						
Pro-BNP	0		0												
Progesterone	0														
Procalcitonin			0												
Prolactin	0														
Prostatic acid phosphatase	0														
Protein, total				0		0	0		0						
PSA, complexed	0														
PSA, free	0														
PSA, total	0	0													
PTH, intact	0														
RF				0											
Rhenium												0	0	0	
Rubidium Rb												0	0	0	
S-100β			0												
Samarium Sm												0	0	0	
Selenium Se												0	0	0	
SHBG	0													_	
Silver Ag							0					0	0	0	
Sodium Na						0	U	0	0			0	0	0	
Specific gravity Strontium Sr									0			0	0	0	
Sulfur S												0	0	0	
T3, free	0													0	
T3, total	0														
T4, free	0	0													
T4, total	0	0													
Tantalum Ta												0	0	0	
TBG	0														
Teicoplanin	_														0
Tellurium Te												0	0	0	
Terbium Tb												0	0	0	
Testosterone	0	0													

Analyte index Th - Z	Seronorm™ Immunoassay	Seronorm™ Immunoassay Liq low	Seronorm™ Cardiac Acute Liq	Seronorm™ Immunoprotein	Seronorm™ CRP Liquid	Seronorm™ Human	Autonorm™ Clin Chem Liq	Seronorm™ Paediatric	Seronorm™ Urine	Seronorm™ HbA1c Liquid	Seronorm™ Hb/Glucose	Seronorm™ Trace Elements Serum	Seronorm™ Trace Elements Whole Blood	Seronorm™ Trace Elements Urine	Autonorm™ Pharmaca Liq
See page number	12	14	15	16	17	18	19	20	21	22	23	24	25	26	27
Thallium TI												0	0	0	
Theophylline	0					0	0								0
Thorium Th												0	0	0	
Thulium Tm												0	0	0	
Thyreoglobulin	0														
TIBC							0								
Tin Sn												0	0	0	
Tobramycin							0								0
Topiramate															0
Transferrin				0		0	0								
Triglycerides						0	0								
Troponin I	0		0												
Troponin T	0		0												
TSH	0	0													
UIBC						0	0								
Uranium U												0	0	0	
Urea						0	0		0						
Uric Acid						0	0		0						
Valproic Acid							0								0
Vanadium V												0	0	0	
Vancomycin							0								0
Vitamin B12	0	0													
Ytterbium Yb												0	0	0	
Yttrium Y												0	0	0	
Zinc Zn						0	0					0	0	0	
Zirconium Zr												0	0	0	
Zonisamide															0

SERO's mission is to improve patient care by contributing to analyses that produce reliable and comparable results from one day to another, and between laboratories.

SERO's products are available in more than 40 countries through an international network of specialized distributors.

For additional product details, please contact your local distributor (please see our website for contact information). No local distributor? Please contact us directly:

+47 66 85 89 00 or seronorm@sero.no

Interested in distributing SERO's products in your country? We would be happy to receive your application.

Learn more about SERO at www.sero.no

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