

## CALIBRATION SERUM LEVEL 3 (CAL 3)

**CAT. NO.** CAL 235 I

**LOT NO.** 996UE

**SIZE:** 20 x 5ml

**EXPIRY:** 2020-07-28

**GTIN:** 05055273200966

### INTENDED USE

For use as a Calibrator in clinical chemistry assays. RANDOX Calibration Sera are based on lyophilised human serum. The concentrations and activities are suitable for calibration of clinical chemistry assays on a wide range of automatic analysers. Constituent concentrations are available at 2 levels.

### SAFETY PRECAUTIONS AND WARNINGS

Human source material, from which this product has been derived, has been tested at donor level for the Human Immunodeficiency Virus (HIV 1, HIV 2) antibody, Hepatitis B Surface Antigen (HbsAg), and Hepatitis C Virus (HCV) antibody and found to be NON-REACTIVE. FDA approved methods have been used to conduct these tests.

However, since no method can offer complete assurance as to the absence of infectious agents, this material and all patient samples should be handled as though capable of transmitting infectious diseases and disposed of accordingly.

For *in vitro* diagnostic use only.

### STORAGE AND STABILITY

Unreconstituted serum is stable up to the expiry date shown on the side of each individual bottle. Once reconstituted, the components of the Calibration Sera are stable for 8 hours at +15°C to +25°C, 7 days at +2°C to +8°C, and 28 days at -20°C when frozen once (see limitations).

### PREPARATION FOR USE

Serum must only be reconstituted using the following procedure:

1. Open the vial carefully, avoiding any loss of material.
2. Reconstitute by pipetting exactly 5 ml of distilled water at +15°C to +25°C, into the vial.
3. Replace the rubber stopper and leave to stand for 30 minutes out of bright light before use.
4. Swirl gently several times during the reconstitution period to ensure that the contents are completely dissolved.
5. Prior to use, mix the contents by inverting the vial. Do not shake the vial as the formation of foam should be avoided. Ensure that no lyophilised material remains unreconstituted.
6. The serum is then ready for use with either a manual test or with an automated instrument.

### MATERIALS PROVIDED

Calibration Serum - Level 3  
Cat No. CAL 235 I 20 x 5ml

### MATERIALS REQUIRED BUT NOT PROVIDED

Calibrated pipette, double deionised water.

### LIMITATIONS

After reconstitution, Bicarbonate is stable for 8 hours in the closed bottle and 1 hour in the open bottle.

For Total and Prostatic Acid Phosphatase, the material should be stabilised by adding 1 drop (25 µl - 30 µl) of 0.7M Acetic acid solution to 1 ml of the serum exactly 30 minutes after reconstitution. After stabilisation, Total & Prostatic Acid Phosphatase are stable for 2 hours at +15°C to +25°C, 2 days at +2°C to +8°C, and 28 days when frozen once at -20°C.

Alkaline Phosphatase levels in the reconstituted serum will rise over the stability period. It is recommended that the reconstituted serum be allowed to stand for 1 hour at +15°C to +25°C before measurement.

Bilirubin in the serum is light sensitive and it is recommended that the serum is stored in the dark. Stored in the dark, it is stable for 1 day at +2°C to +8°C. Do not store at +15°C to +25°C. Do not freeze.

Bacterial contamination of the reconstituted serum will cause reductions in the stability of many components. Different lot numbers of this calibrator should not be interchanged, as the values assigned to the calibrators vary from lot to lot.

**VALUE ASSIGNMENT**

Each batch of serum is distributed to approximately 3000 laboratories worldwide and values are assigned by a consensus of results obtained by these laboratories. The Calibration values for each instrument have been determined in at least 10 independent laboratories. Values are verified against a master lot of calibrator, which is traceable to reference methods or reference materials. In some cases, values may be assigned at Randox Laboratories in comparison to a master lot of calibrator, which is traceable to reference methods or reference materials.

If an instrument specific value is not available, refer to the Mean of all Instruments section. If necessary, contact Randox Laboratories - Technical Services, Northern Ireland, tel: +44 (0) 28 9445 1070 or email [Technical.Services@randox.com](mailto:Technical.Services@randox.com).

**NOTES**

- ® All trademarks recognised.
- (1) Values established by reference laboratories officially recognised by the Federal Chamber of Physicians in Germany.
- (2) DGKC: German Society for Clinical Chemistry.
- (3) IFCC: International Federation of Clinical Chemistry.
- (4) SCE : Scandinavian Committee on Enzymes.

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## CALIBRATION SERUM LEVEL 3 (CAL 3)

Abbott Architect c/ci Systems® Lot No. 996UE Cat. No. CAL2351

Size 20 x 5ml Expiry 2020-07-28

Analyte	unit	Target	methods
Albumin	g/l	28.2	Bromocresol Green
	g/dl	2.82	
	g/l	27.1	Bromocresol Purple
	g/dl	2.71	
Alkaline Phosphatase	U/l	306	AMP optimised to IFCC 37°C
	U/l	306	AMP non-optimised 37°C
ALT (GPT)	U/l	155	Tris buffer without P5P 37°C
Amylase Pancreatic	U/l	275	Immunoinhibition EPS substrate 37°C
Amylase Total	U/l	338	Abbott Architect Non-IFCC Cal. 37°C
	U/l	378	Abbott Architect IFCC Cal. 37°C
AST (GOT)	U/l	140	Tris buffer without P5P 37°C
Bicarbonate	mmol/l	15.7	Enzymatic
Bile Acids	µmol/l	44.3	Enzymatic Colorimetric
Bilirubin Direct	µmol/l	30.3	Dichlorophenyl Diazonium (DPD)
	mg/dl	1.77	
	µmol/l	30.0	Diazo with Sulphanilic Acid
	mg/dl	1.75	
Bilirubin Total	µmol/l	30.1	Diazo with Dichloroaniline (DCA)
	mg/dl	1.76	
Bilirubin Total	µmol/l	79.6	Diazo with Dichloroaniline (DCA)
	mg/dl	4.66	
	µmol/l	81.7	Diazo with Sulphanilic Acid
	mg/dl	4.78	
	µmol/l	83.4	Dichlorophenyl Diazonium (DPD)
mg/dl	4.88		
Calcium	mmol/l	3.04	Arsenazo III
	mg/dl	12.2	
Chloride	mmol/l	117	ISE indirect
Cholesterol	mmol/l	7.08	Cholesterol Oxidase
	mg/dl	273	
Cholinesterase	U/l	6106	Colorimetric Butyrylthiocholine 37°C
CK Total	U/l	542	CK-NAC (IFCC) 37°C
Creatinine	µmol/l	414	Alkaline picrate no deproteinization
	mg/dl	4.68	
	µmol/l	400	Enzymatic UV method
	mg/dl	4.52	
Creatinine	µmol/l	400	Creatinine PAP method
	mg/dl	4.52	

## CALIBRATION SERUM LEVEL 3 (CAL 3)

Abbott Architect c/ci Systems® Lot No. 996UE Cat. No. CAL2351

Size 20 x 5ml Expiry 2020-07-28

Analyte	unit	Target	methods
Creatinine	µmol/l	414	Jaffe rate blanked
	mg/dl	4.67	
	µmol/l	414	IDMS traceable
	mg/dl	4.68	
gamma-GT	U/l	175	Gamma glutamyl.-3-carboxy-4-nitroanilide 37°C
	U/l	173	Gamma Glutamyl-3-Carboxy-4-nitroanilide (IFCC) 37°C
Glucose	mmol/l	15.7	Hexokinase
	mg/dl	283	
	mmol/l	15.8	Glucose oxidase
	mg/dl	285	
Iron	µmol/l	38.8	Colorimetric with ppt.
	µg/dl	217	
	µmol/l	39.0	Colorimetric without ppt.
	µg/dl	218	
Lactate	mmol/l	6.02	Colorimetric Lactate Oxidase
	mg/dl	54.2	
LD (LDH)	U/l	373	L->P 37°C
	U/l	369	L->P IFCC 37°C
Lipase	U/l	64	Other Colorimetric 37°C
Lithium	mmol/l	2.03	Spectrophotometric
	mg/dl	1.41	
Magnesium	mmol/l	1.72	Arsenazo III
	mg/dl	4.18	
	mmol/l	1.74	Enzymatic
	mg/dl	4.23	
Phosphate Inorganic	mmol/l	2.15	Phosphomolybdate enzymatic
	mg/dl	6.67	
	mmol/l	2.16	Phosphomolybdate UV
	mg/dl	6.70	
Potassium	mmol/l	6.26	ISE method - indirect
Protein Total	g/l	45.4	Biuret reaction end point
	g/dl	4.54	
Sodium	mmol/l	160	ISE method - indirect
TIBC	µmol/l	49.4	FE+UIBC(saturation with iron)
	µg/dl	276	
Triglycerides	mmol/l	2.84	Lipase/GPO-PAP no correction
	mg/dl	251	
	mmol/l	2.88	Lipase/GPO-PAP 0.11mmol/l correction
	mg/dl	255	
	mmol/l	2.90	L/G Kinase EP. no correction
	mg/dl	257	
	mmol/l	2.89	Lipase/Glycerol Dehydrogenase
	mg/dl	256	

## CALIBRATION SERUM LEVEL 3 (CAL 3)

Abbott Architect c/ci Systems® Lot No. 996UE Cat. No. CAL2351

Size 20 x 5ml Expiry 2020-07-28

Analyte	unit	Target	methods
UIBC	µmol/l	10.5	Direct Colorimetric
	µg/dl	58.9	
Urea	mmol/l	21.4	Urease end point
	mg/dl	129	
	mmol/l	21.7	Urease kinetic
	mg/dl	130	
Uric Acid (Urate)	mmol/l	21.7	BUN
	mg/dl	60.9	
Uric Acid (Urate)	mmol/l	0.568	Uricase peroxidase with ascorbate oxidase
	mg/dl	9.54	
	mmol/l	0.569	Uricase peroxidase no ascorbate oxidase
	mg/dl	9.56	
	mmol/l	0.573	Uricase Peroxidase with ascorbate oxidase @ 546nm
	mg/dl	9.63	

## CALIBRATION SERUM LEVEL 3 (CAL 3)

Beckman Coulter AU Series® Lot No. 996UE Cat. No. CAL2351

Size 20 x 5ml Expiry 2020-07-28

Analyte	unit	Target	methods
Albumin	g/l	27.0	Bromocresol Green
	g/dl	2.70	
	g/l	28.5	Bromocresol Purple
	g/dl	2.85	
Alkaline Phosphatase	U/l	375	AMP optimised to IFCC 37°C
ALT (GPT)	U/l	161	Tris buffer without P5P 37°C
Amylase Total	U/l	305	pNP Maltotrioxide substrates 37°C
	U/l	304	Beckman Synchron CX4/CX5/CX7 37°C
	U/l	307	Beckman Coulter - blocked pNPG7 37°C
AST (GOT)	U/l	154	Tris buffer without P5P 37°C
Bicarbonate	mmol/l	17.1	Enzymatic
Bilirubin Direct	µmol/l	25.7	Dichlorophenyl Diazonium (DPD)
	mg/dl	1.50	
Bilirubin Total	µmol/l	81.5	Diazo with Dichloroaniline (DCA)
	mg/dl	4.77	
	µmol/l	85.9	Diazo with Sulphanilic Acid
	mg/dl	5.02	
	µmol/l	81.7	DPD (Beckman AU)
	mg/dl	4.78	
Calcium	mmol/l	3.02	Cresolphthalein complexone
	mg/dl	12.1	
	mmol/l	3.02	Arsenazo III
	mg/dl	12.1	
Chloride	mmol/l	116	ISE indirect
Cholesterol	mmol/l	7.14	Cholesterol Oxidase
	mg/dl	276	
Cholinesterase	U/l	4959	Colorimetric Butyrylthiocholine 37°C
CK Total	U/l	579	CK-NAC substrate start (DGKC) 37°C
	U/l	555	CK-NAC (IFCC) 37°C
Creatinine	µmol/l	381	Alkaline picrate no deproteinization
	mg/dl	4.31	
	µmol/l	409	Enzymatic UV method
	mg/dl	4.62	
	µmol/l	403	Creatinine PAP method
	mg/dl	4.56	
µmol/l	381	Jaffe rate blanked	
mg/dl	4.31		
µmol/l	404	Jaffe rate blanked compensated (-18 µmol/l)	
mg/dl	4.57		

## CALIBRATION SERUM LEVEL 3 (CAL 3)

Beckman Coulter AU Series® Lot No. 996UE Cat. No. CAL2351

Size 20 x 5ml Expiry 2020-07-28

Analyte	unit	Target	methods
Creatinine	µmol/l	389	IDMS traceable
	mg/dl	4.40	
D-3-Hydroxybutyrate	mmol/l	1.14	Tris buffer 100mmol pH 8.5
gamma-GT	U/l	181	Gamma glutamyl.-3-carboxy-4-nitroanilide 37°C
	U/l	150	Gamma glutamyl-4-nitroanilide 37°C
	U/l	179	Gamma Glutamyl-3-Carboxy-4-nitroanilide (IFCC) 37°C
GLDH	U/l	31	Triethanolamine buffer 50 mmol 37°C
Glucose	mmol/l	15.7	Hexokinase
	mg/dl	283	
	mmol/l	15.9	Glucose oxidase
	mg/dl	287	
Iron	µmol/l	38.5	Colorimetric with ppt.
	µg/dl	215	
	µmol/l	38.0	Colorimetric without ppt.
	µg/dl	212	
Lactate	mmol/l	5.60	Colorimetric Lactate Oxidase
	mg/dl	50.5	
LD (LDH)	U/l	362	L->P 37°C
	U/l	839	P->L Scandinavian & Dutch 37°C
	U/l	374	L->P IFCC 37°C
Lipase	U/l	69	Other Colorimetric 37°C
	U/l	63	Roche Colorimetric 37°C
	U/l	92	Randox Colorimetric 37°C
Lithium	mmol/l	2.03	Spectrophotometric
	mg/dl	1.41	
Magnesium	mmol/l	1.78	Xylidyl Blue
	mg/dl	4.33	
Phosphate Inorganic	mmol/l	2.21	Phosphomolybdate UV
	mg/dl	6.85	
Potassium	mmol/l	6.22	ISE method - indirect
Protein Total	g/l	44.7	Biuret reaction end point
	g/dl	4.47	
	g/l	45.0	Biuret reaction kinetic
	g/dl	4.50	
Sodium	mmol/l	160	ISE method - indirect
TIBC	µmol/l	49.4	FE+UIBC(saturation with iron)
	µg/dl	276	
Triglycerides	mmol/l	2.91	Lipase/GPO-PAP no correction
	mg/dl	258	
	mmol/l	2.94	L/G Kinase EP. no correction
	mg/dl	260	
UIBC	µmol/l	11.8	Direct Colorimetric
	µg/dl	66.1	

## CALIBRATION SERUM LEVEL 3 (CAL 3)

Beckman Coulter AU Series® Lot No. 996UE Cat. No. CAL2351

Size 20 x 5ml Expiry 2020-07-28

Analyte	unit	Target	methods
Urea	mmol/l	21.5	Urease end point
	mg/dl	129	
	mmol/l	21.4	Urease kinetic
	mg/dl	129	
Uric Acid (Urate)	mmol/l	21.4	BUN
	mg/dl	60.1	
	mmol/l	0.597	Uricase peroxidase with ascorbate oxidase
	mg/dl	10.0	
Uric Acid (Urate)	mmol/l	0.594	Uricase peroxidase no ascorbate oxidase
	mg/dl	9.98	
	mmol/l	0.570	Uricase Peroxidase with ascorbate oxidase @ 546nm
mg/dl	9.58		



## CALIBRATION SERUM LEVEL 3 (CAL 3)

Beckman CX4/5/7/9/LX20®/DxC600/800® Lot No. 996UE Cat. No. CAL2351

Size 20 x 5ml Expiry 2020-07-28

Analyte	unit	Target	methods
Albumin	g/l	29.7	Bromocresol Green
	g/dl	2.97	
	g/l	28.6	Bromocresol Purple
	g/dl	2.86	
Alkaline Phosphatase	U/l	334	AMP optimised to IFCC 37°C
	U/l	324	AMP non-optimised 37°C
ALT (GPT)	U/l	149	Tris buffer without P5P 37°C
	U/l	145	Tris buffer SCE 37°C
Amylase Total	U/l	315	Beckman Synchron CX4/CX5/CX7 37°C
	U/l	319	Beckman Synchron AMY7 37°C
AST (GOT)	U/l	138	Tris buffer without P5P 37°C
	U/l	135	Tris buffer SCE 37°C
Bicarbonate	mmol/l	16.6	Differential rate pH change
	mmol/l	17.5	Ion selective electrode
Bilirubin Direct	µmol/l	17.4	Diazo with Sulphanilic Acid
	mg/dl	1.02	
Bilirubin Total	µmol/l	81.6	Diazo with Sulphanilic Acid
	mg/dl	4.77	
Calcium	mmol/l	3.02	Ion selective electrode
	mg/dl	12.1	
	mmol/l	2.96	Arsenazo III
	mg/dl	11.9	
Chloride	mmol/l	117	ISE indirect
Cholesterol	mmol/l	7.06	Cholesterol Oxidase
	mg/dl	273	
CK Total	U/l	548	CK-NAC (IFCC) 37°C
	U/l	560	Monothioglycerol 37°C
	U/l	544	Creatinine phosphate substrate Start 37°C
Creatinine	µmol/l	399	Alkaline picrate no deproteinization
	mg/dl	4.51	
	µmol/l	392	Jaffe rate blanked
	mg/dl	4.43	
IDMS traceable	µmol/l	396	IDMS traceable
	mg/dl	4.48	
gamma-GT	U/l	144	Gamma glutamyl-4-nitroanilide 37°C
Glucose	mmol/l	15.1	Hexokinase
	mg/dl	273	
	mmol/l	15.1	Glucose oxidase
	mg/dl	272	

## CALIBRATION SERUM LEVEL 3 (CAL 3)

Beckman CX4/5/7/9/LX20®/DxC600/800® Lot No. 996UE Cat. No. CAL2351

Size 20 x 5ml Expiry 2020-07-28

Analyte	unit	Target	methods
Iron	µmol/l	37.3	Colorimetric without ppt.
	µg/dl	209	
Lactate	mmol/l	5.22	Colorimetric Lactate Oxidase
	mg/dl	47.0	
LD (LDH)	U/l	309	L->P 37°C
Lipase	U/l	66	Other Colorimetric 37°C
Magnesium	mmol/l	1.69	Calmagite
	mg/dl	4.11	
Phosphate Inorganic	mmol/l	2.23	Phosphomolybdate enzymatic
	mg/dl	6.91	
	mmol/l	2.26	Phosphomolybdate UV
	mg/dl	7.01	
Potassium	mmol/l	6.22	ISE method - indirect
Protein Total	g/l	44.1	Biuret reaction CX4/5/7
	g/dl	4.41	
	g/l	44.9	Biuret reaction end point
	g/dl	4.49	
	g/l	42.6	
g/dl	4.26		
Sodium	mmol/l	159	ISE method - indirect
Triglycerides	mmol/l	3.05	Lipase/GPO-PAP no correction
	mg/dl	270	
	mmol/l	3.05	L/G Kinase EP. no correction
	mg/dl	270	
Urea	mmol/l	21.1	Urease end point
	mg/dl	127	
	mmol/l	21.7	Urease kinetic
	mg/dl	130	
	mmol/l	21.7	BUN
	mg/dl	60.9	
Uric Acid (Urate)	mmol/l	0.548	Uricase peroxidase no ascorbate oxidase
	mg/dl	9.21	

## CALIBRATION SERUM LEVEL 3 (CAL 3)

BIOSYSTEMS A15 Lot No. 996UE Cat. No. CAL2351

Size 20 x 5ml Expiry 2020-07-28

Analyte	unit	Target	methods
Albumin	g/l	29.0	Bromocresol Green
	g/dl	2.90	
ALT (GPT)	U/l	163	Tris buffer without P5P 37°C
	U/l	121	Tris buffer without P5P 30°C
	U/l	92	Tris buffer without P5P 25°C
AST (GOT)	U/l	155	Tris buffer without P5P 37°C
	U/l	105	Tris buffer without P5P 30°C
	U/l	74	Tris buffer without P5P 25°C
Bilirubin Direct	µmol/l	27.8	Diazo with Sulphanilic Acid
	mg/dl	1.63	
Bilirubin Total	µmol/l	83.8	Diazo with Sulphanilic Acid
	mg/dl	4.90	
Cholesterol	mmol/l	7.26	Cholesterol Oxidase
	mg/dl	280	
Glucose	mmol/l	16.1	Glucose oxidase
	mg/dl	289	
Protein Total	g/l	45.2	Biuret reaction end point
	g/dl	4.52	
Triglycerides	mmol/l	2.81	Lipase/GPO-PAP no correction
	mg/dl	249	
Uric Acid (Urate)	mmol/l	0.548	Uricase peroxidase with ascorbate oxidase
	mg/dl	9.21	

## CALIBRATION SERUM LEVEL 3 (CAL 3)

BIOSYSTEMS A25 Lot No. 996UE Cat. No. CAL2351

Size 20 x 5ml Expiry 2020-07-28

Analyte	unit	Target	methods
Albumin	g/l	29.5	Bromocresol Green
	g/dl	2.95	
Alkaline Phosphatase	U/l	303	AMP optimised to IFCC 37°C
	U/l	236	AMP optimised to IFCC 30°C
	U/l	194	AMP optimised to IFCC 25°C
ALT (GPT)	U/l	156	Tris buffer without P5P 37°C
	U/l	115	Tris buffer without P5P 30°C
	U/l	88	Tris buffer without P5P 25°C
AST (GOT)	U/l	155	Tris buffer without P5P 37°C
	U/l	105	Tris buffer without P5P 30°C
	U/l	74	Tris buffer without P5P 25°C
Bilirubin Total	µmol/l	80.5	Diazo with Sulphanilic Acid
	mg/dl	4.71	
Cholesterol	mmol/l	7.14	Cholesterol Oxidase
	mg/dl	276	
Glucose	mmol/l	15.9	Glucose oxidase
	mg/dl	287	
Phosphate Inorganic	mmol/l	2.30	Phosphomolybdate UV
	mg/dl	7.13	
Protein Total	g/l	45.5	Biuret reaction end point
	g/dl	4.55	
Triglycerides	mmol/l	2.97	Lipase/GPO-PAP no correction
	mg/dl	263	
Urea	mmol/l	20.4	Urease kinetic
	mg/dl	123	
	mmol/l	20.4	BUN
Uric Acid (Urate)	mmol/l	0.599	Uricase peroxidase no ascorbate oxidase
	mg/dl	10.1	

## CALIBRATION SERUM LEVEL 3 (CAL 3)

Biotechnica/Wiener BT and CB Series Lot No. 996UE Cat. No. CAL2351

Size 20 x 5ml Expiry 2020-07-28

Analyte	unit	Target	methods
Albumin	g/l	28.6	Bromocresol Green
	g/dl	2.86	
Alkaline Phosphatase	U/l	402	Diethanolamine buffer DEA 37°C
	U/l	313	Diethanolamine buffer DEA 30°C
	U/l	257	Diethanolamine buffer DEA 25°C
ALT (GPT)	U/l	159	Tris buffer without P5P 37°C
	U/l	118	Tris buffer without P5P 30°C
	U/l	90	Tris buffer without P5P 25°C
AST (GOT)	U/l	147	Tris buffer without P5P 37°C
	U/l	99	Tris buffer without P5P 30°C
	U/l	70	Tris buffer without P5P 25°C
Cholesterol	mmol/l	6.97	Cholesterol Oxidase
	mg/dl	269	
Creatinine	µmol/l	348	Alkaline picrate no deproteinization
	mg/dl	3.93	
Glucose	mmol/l	14.8	Glucose oxidase
	mg/dl	267	
Triglycerides	mmol/l	2.70	Lipase/GPO-PAP no correction
	mg/dl	239	
Urea	mmol/l	20.4	Urease kinetic
	mg/dl	123	
	mmol/l	20.4	BUN
	mg/dl	57.3	
Uric Acid (Urate)	mmol/l	0.547	Uricase peroxidase no ascorbate oxidase
	mg/dl	9.19	

## CALIBRATION SERUM LEVEL 3 (CAL 3)

COBAS INTEGRA® Lot No. 996UE Cat. No. CAL2351

Size 20 x 5ml Expiry 2020-07-28

Analyte	unit	Target	methods
Albumin	g/l	30.2	Bromocresol Green
	g/dl	3.02	
	g/l	26.6	Turbidimetric Assays
	g/dl	2.66	
Alkaline Phosphatase	U/l	278	Roche Integra AMP buffer 37°C
	U/l	217	Roche Integra AMP buffer 30°C
	U/l	178	Roche Integra AMP buffer 25°C
ALT (GPT)	U/l	148	Tris buffer without P5P 37°C
	U/l	110	Tris buffer without P5P 30°C
	U/l	83	Tris buffer without P5P 25°C
Amylase Pancreatic	U/l	277	Roche EPS Liquid 37°C
Amylase Total	U/l	299	Roche Integra 2-chloro-pNPG7 37°C
	U/l	297	Roche liquid stable pNPG7 37°C
AST (GOT)	U/l	143	Tris buffer without P5P 37°C
	U/l	97	Tris buffer without P5P 30°C
	U/l	68	Tris buffer without P5P 25°C
Bicarbonate	mmol/l	16.7	Colorimetric
	mmol/l	17.0	Enzymatic
Bilirubin Direct	µmol/l	30.1	Dichlorophenyl Diazonium (DPD)
	mg/dl	1.76	
	µmol/l	30.1	Diazo with Sulphanilic Acid
	mg/dl	1.76	
Bilirubin Total	µmol/l	30.4	Roche JG factored
	mg/dl	1.78	
	µmol/l	73.9	Diazo with Sulphanilic Acid
	mg/dl	4.32	
Bilirubin Total	µmol/l	72.2	Dichlorophenyl Diazonium (DPD)
	mg/dl	4.23	
	µmol/l	72.6	Diazonium ion
	mg/dl	4.25	
Calcium	mmol/l	3.09	Cresolphthalein complexone
	mg/dl	12.4	
	mmol/l	3.09	NM-BAPTA
	mg/dl	12.4	
Chloride	mmol/l	118	ISE indirect
Cholesterol	mmol/l	6.98	Cholesterol Oxidase
	mg/dl	269	
CK Total	U/l	515	CK-NAC (IFCC) 37°C
	U/l	322	CK-NAC (IFCC) 30°C
	U/l	219	CK-NAC (IFCC) 25°C

## CALIBRATION SERUM LEVEL 3 (CAL 3)

COBAS INTEGRA® Lot No. 996UE Cat. No. CAL2351

Size 20 x 5ml Expiry 2020-07-28

Analyte	unit	Target	methods	
Creatinine	µmol/l	396	Alkaline picrate no deproteinization	
	mg/dl	4.47		
	µmol/l	400	Roche Creatinine Plus	
	mg/dl	4.52		
	µmol/l	424	Jaffe rate blanked comp. (-26 µmol/l)	
mg/dl	4.79			
gamma-GT	U/l	166	Gamma glutamyl.-3-carboxy-4-nitroanilide 37°C	
	U/l	131	Gamma glutamyl.-3-carboxy-4-nitroanilide 30°C	
	U/l	102	Gamma glutamyl.-3-carboxy-4-nitroanilide 25°C	
	U/l	181	Gamma Glutamyl-3-Carboxy-4-nitroanilide (IFCC) 37°C	
	U/l	143	Gamma Glutamyl-3-Carboxy-4-nitroanilide (IFCC) 30°C	
	U/l	112	Gamma Glutamyl-3-Carboxy-4-nitroanilide (IFCC) 25°C	
Glucose	mmol/l	15.7	Hexokinase	
	mg/dl	283		
Iron	µmol/l	38.1	Colorimetric with ppt.	
	µg/dl	213		
	µmol/l	37.9	Colorimetric without ppt.	
Lactate	µg/dl	212	Colorimetric Lactate Oxidase	
	mmol/l	5.84		
LD (LDH)	mg/dl	52.6	P->L German methods 37°C	
	U/l	714		
	U/l	516		P->L German methods 30°C
	U/l	362		P->L German methods 25°C
	U/l	395		L->P IFCC 37°C
	U/l	285		L->P IFCC 30°C
Lipase	U/l	200	L->P IFCC 25°C	
	U/l	72	Roche Colorimetric 37°C	
Lithium	mmol/l	2.13	Ion selective electrode	
	mg/dl	1.48		
Magnesium	mmol/l	1.78	Chlorphosphonazo III	
	mg/dl	4.33		
Phosphate Inorganic	mmol/l	2.27	Phosphomolybdate enzymatic	
	mg/dl	7.04		
	mmol/l	2.29	Phosphomolybdate UV	
Potassium	mg/dl	7.10	ISE method - indirect	
	mmol/l	6.29		
Protein Total	g/l	43.0	Biuret reaction end point	
	g/dl	4.30		
	g/l	43.1	Biuret reaction kinetic	
	g/dl	4.31		

## CALIBRATION SERUM LEVEL 3 (CAL 3)

COBAS INTEGRA® Lot No. 996UE Cat. No. CAL2351

Size 20 x 5ml Expiry 2020-07-28

Analyte	unit	Target	methods
Sodium	mmol/l	161	ISE method - indirect
TIBC	µmol/l	47.8	FE+UIBC(saturation with iron)
	µg/dl	267	
Triglycerides	mmol/l	2.92	Lipase/GPO-PAP no correction
	mg/dl	258	
	mmol/l	2.83	Lipase/GPO-PAP 0.11mmol/l correction
	mg/dl	250	
	mmol/l	2.85	Lipase/Glycerol Dehydrogenase
	mg/dl	252	
Urea	mmol/l	20.8	Urease kinetic
	mg/dl	125	
	mmol/l	20.8	BUN
	mg/dl	58.4	
Uric Acid (Urate)	mmol/l	0.575	Uricase peroxidase with ascorbate oxidase
	mg/dl	9.66	
	mmol/l	0.574	Uricase peroxidase no ascorbate oxidase
	mg/dl	9.64	
	mmol/l	0.575	Uricase Peroxidase with ascorbate oxidase @ 546nm
	mg/dl	9.66	



## CALIBRATION SERUM LEVEL 3 (CAL 3)

Elitech/Vitalab Selectra Series Lot No. 996UE Cat. No. CAL2351

Size 20 x 5ml Expiry 2020-07-28

Analyte	unit	Target	methods
Albumin	g/l	31.0	Bromocresol Green
	g/dl	3.10	
Alkaline Phosphatase	U/l	467	Diethanolamine buffer DEA 37°C
ALT (GPT)	U/l	161	Tris buffer without P5P 37°C
AST (GOT)	U/l	142	Tris buffer without P5P 37°C
Calcium	mmol/l	3.12	Arsenazo III
	mg/dl	12.5	
Cholesterol	mmol/l	7.33	Cholesterol Oxidase
	mg/dl	283	
Creatinine	µmol/l	389	Alkaline picrate no deproteinization
	mg/dl	4.39	
Glucose	mmol/l	15.9	Glucose oxidase
	mg/dl	286	
Phosphate Inorganic	mmol/l	2.15	Phosphomolybdate UV
	mg/dl	6.67	
Protein Total	g/l	48.5	Biuret reaction end point
	g/dl	4.85	
Triglycerides	mmol/l	2.81	Lipase/GPO-PAP no correction
	mg/dl	249	
Urea	mmol/l	20.9	Urease kinetic
	mg/dl	126	
	mmol/l	20.9	BUN
Uric Acid (Urate)	mmol/l	0.543	Uricase peroxidase no ascorbate oxidase
	mg/dl	9.12	

## CALIBRATION SERUM LEVEL 3 (CAL 3)

HITACHI SERIES® Lot No. 996UE Cat. No. CAL2351

Size 20 x 5ml Expiry 2020-07-28

Analyte	unit	Target	methods
Albumin	g/l	30.0	Bromocresol Green
	g/dl	3.00	
Alkaline Phosphatase	U/l	257	Roche Integra AMP buffer 37°C
	U/l	200	Roche Integra AMP buffer 30°C
	U/l	164	Roche Integra AMP buffer 25°C
	U/l	319	Randox AMP 37°C
	U/l	249	Randox AMP 30°C
	U/l	204	Randox AMP 25°C
ALT (GPT)	U/l	148	Tris buffer without P5P 37°C
	U/l	110	Tris buffer without P5P 30°C
	U/l	83	Tris buffer without P5P 25°C
Amylase Pancreatic	U/l	303	Randox Liquid Ethylidene pNPG7 37°C
Amylase Total	U/l	284	Roche liquid stable pNPG7 37°C
	U/l	323	Randox Liquid Ethylidene pNPG7 37°C
AST (GOT)	U/l	135	Tris buffer without P5P 37°C
	U/l	91	Tris buffer without P5P 30°C
	U/l	64	Tris buffer without P5P 25°C
Bile Acids	µmol/l	45.3	5th Generation Colorimetric
Bilirubin Total	µmol/l	74.3	Dichlorophenyl Diazonium (DPD)
	mg/dl	4.35	
Calcium	mmol/l	3.07	Cresolphthalein complexone
	mg/dl	12.3	
	mmol/l	3.06	NM-BAPTA
mg/dl	12.3		
Chloride	mmol/l	114	ISE indirect
Cholesterol	mmol/l	6.91	Cholesterol Oxidase
	mg/dl	267	
CK Total	U/l	505	CK-NAC (IFCC) 37°C
	U/l	316	CK-NAC (IFCC) 30°C
	U/l	215	CK-NAC (IFCC) 25°C
Creatinine	µmol/l	393	Roche Creatinine Plus
	mg/dl	4.44	
	µmol/l	427	
mg/dl	4.83		
D-3-Hydroxybutyrate	mmol/l	1.18	Tris buffer 100mmol pH 8.5
gamma-GT	U/l	158	Gamma glutamyl.-3-carboxy-4-nitroanilide 37°C
	U/l	125	Gamma glutamyl.-3-carboxy-4-nitroanilide 30°C
	U/l	97	Gamma glutamyl.-3-carboxy-4-nitroanilide 25°C
	U/l	189	Randox Gamma glutamyl.-3-carboxy-4-nitroanilide 37°C
	U/l	149	Randox Gamma glutamyl.-3-carboxy-4-nitroanilide 30°C
	U/l	117	Randox Gamma glutamyl.-3-carboxy-4-nitroanilide 25°C

## CALIBRATION SERUM LEVEL 3 (CAL 3)

HITACHI SERIES® Lot No. 996UE Cat. No. CAL2351

Size 20 x 5ml Expiry 2020-07-28

Analyte	unit	Target	methods
GLDH	U/l	32	Triethanolamine buffer 50 mmol 37°C
	U/l	25	Triethanolamine buffer 50 mmol 30°C
	U/l	20	Triethanolamine buffer 50 mmol 25°C
Glucose	mmol/l	15.6	Hexokinase
	mg/dl	280	
LD (LDH)	U/l	385	L->P IFCC 37°C
	U/l	278	L->P IFCC 30°C
	U/l	195	L->P IFCC 25°C
Lipase	U/l	63	Roche Colorimetric 37°C
Magnesium	mmol/l	1.74	Xylidyl Blue
	mg/dl	4.23	
Phosphate Inorganic	mmol/l	2.19	Phosphomolybdate UV
	mg/dl	6.79	
Potassium	mmol/l	6.37	ISE method - indirect
Protein Total	g/l	44.6	Biuret reaction end point
	g/dl	4.46	
Sodium	mmol/l	162	ISE method - indirect
Triglycerides	mmol/l	2.94	Lipase/GPO-PAP no correction
	mg/dl	260	
Urea	mmol/l	21.6	Urease kinetic
	mg/dl	130	
	mmol/l	21.6	BUN
Uric Acid (Urate)	mmol/l	0.554	Uricase Peroxidase with ascorbate oxidase @ 546nm
	mg/dl	9.31	

## CALIBRATION SERUM LEVEL 3 (CAL 3)

ILab 600®/650®/Aries/Taurus Lot No. 996UE Cat. No. CAL2351

Size 20 x 5ml Expiry 2020-07-28

Analyte	unit	Target	methods
Albumin	g/l	29.1	Bromocresol Green
	g/dl	2.91	
Alkaline Phosphatase	U/l	336	AMP optimised to IFCC 37°C
	U/l	262	AMP optimised to IFCC 30°C
	U/l	215	AMP optimised to IFCC 25°C
ALT (GPT)	U/l	144	Tris buffer without P5P 37°C
	U/l	107	Tris buffer without P5P 30°C
	U/l	81	Tris buffer without P5P 25°C
AST (GOT)	U/l	140	Tris buffer without P5P 37°C
	U/l	95	Tris buffer without P5P 30°C
	U/l	67	Tris buffer without P5P 25°C
Bilirubin Total	µmol/l	82.9	Diazo with Sulphanilic Acid
	mg/dl	4.85	
Calcium	mmol/l	3.18	Cresolphthalein complexone
	mg/dl	12.7	
Cholesterol	mmol/l	7.16	Cholesterol Oxidase
	mg/dl	276	
CK Total	U/l	493	CK-NAC (IFCC) 37°C
	U/l	309	CK-NAC (IFCC) 30°C
	U/l	210	CK-NAC (IFCC) 25°C
Creatinine	µmol/l	372	Alkaline picrate no deproteinization
	mg/dl	4.20	
gamma-GT	U/l	167	Gamma Glutamyl-3-Carboxy-4-nitroanilide (IFCC) 37°C
	U/l	132	Gamma Glutamyl-3-Carboxy-4-nitroanilide (IFCC) 30°C
	U/l	103	Gamma Glutamyl-3-Carboxy-4-nitroanilide (IFCC) 25°C
Glucose	mmol/l	14.6	Glucose oxidase
	mg/dl	263	
Phosphate Inorganic	mmol/l	2.25	Phosphomolybdate UV
	mg/dl	6.98	
Protein Total	g/l	45.9	Biuret reaction end point
	g/dl	4.59	
Triglycerides	mmol/l	2.90	Lipase/GPO-PAP no correction
	mg/dl	257	
Urea	mmol/l	21.8	Urease end point
	mg/dl	131	
	mmol/l	21.8	BUN
	mg/dl	61.2	
Uric Acid (Urate)	mmol/l	0.545	Uricase peroxidase no ascorbate oxidase
	mg/dl	9.16	

## CALIBRATION SERUM LEVEL 3 (CAL 3)

Konelab 20/30/60®/Thermo Scientific Indiko Plus® Lot No. 996UE Cat. No. CAL2351

Size 20 x 5ml Expiry 2020-07-28

Analyte	unit	Target	methods
Albumin	g/l	28.9	Bromocresol Green
	g/dl	2.89	
Alkaline Phosphatase	U/l	453	Diethanolamine buffer DEA 37°C
	U/l	353	Diethanolamine buffer DEA 30°C
	U/l	289	Diethanolamine buffer DEA 25°C
	U/l	318	AMP optimised to IFCC 37°C
	U/l	248	AMP optimised to IFCC 30°C
	U/l	203	AMP optimised to IFCC 25°C
ALT (GPT)	U/l	170	Tris buffer without P5P 37°C
	U/l	126	Tris buffer without P5P 30°C
	U/l	96	Tris buffer without P5P 25°C
AST (GOT)	U/l	162	Tris buffer without P5P 37°C
	U/l	110	Tris buffer without P5P 30°C
	U/l	77	Tris buffer without P5P 25°C
Bile Acids	µmol/l	45.6	Enzymatic Colorimetric
Bilirubin Direct	µmol/l	30.0	Diazo with Sulphanilic Acid
	mg/dl	1.75	
Bilirubin Total	µmol/l	74.8	Diazo with Sulphanilic Acid
	mg/dl	4.37	
	µmol/l	75.6	Nitrobenzenediazonium salt
	mg/dl	4.42	
Calcium	mmol/l	3.14	Arsenazo III
	mg/dl	12.6	
Chloride	mmol/l	118	ISE direct
Cholesterol	mmol/l	7.10	Cholesterol Oxidase
	mg/dl	274	
CK Total	U/l	533	CK-NAC (IFCC) 37°C
	U/l	334	CK-NAC (IFCC) 30°C
	U/l	227	CK-NAC (IFCC) 25°C
Creatinine	µmol/l	393	Alkaline picrate no deproteinization
	mg/dl	4.44	
gamma-GT	U/l	178	Gamma Glutamyl-3-Carboxy-4-nitroanilide (IFCC) 37°C
	U/l	140	Gamma Glutamyl-3-Carboxy-4-nitroanilide (IFCC) 30°C
	U/l	110	Gamma Glutamyl-3-Carboxy-4-nitroanilide (IFCC) 25°C
Glucose	mmol/l	16.1	Hexokinase
	mg/dl	290	
	mmol/l	15.7	Glucose oxidase
	mg/dl	283	
Iron	µmol/l	39.3	Colorimetric without ppt.
	µg/dl	220	

## CALIBRATION SERUM LEVEL 3 (CAL 3)

Konelab 20/30/60®/Thermo Scientific Indiko Plus® Lot No. 996UE Cat. No. CAL2351

Size 20 x 5ml Expiry 2020-07-28

Analyte	unit	Target	methods
Magnesium	mmol/l	1.71	Xylidyl Blue
	mg/dl	4.16	
Phosphate Inorganic	mmol/l	2.30	Phosphomolybdate UV
	mg/dl	7.13	
Potassium	mmol/l	6.15	ISE method - direct
Protein Total	g/l	46.4	Biuret reaction end point
	g/dl	4.64	
Sodium	mmol/l	157	ISE method - direct
Triglycerides	mmol/l	2.96	Lipase/GPO-PAP no correction
	mg/dl	262	
Urea	mmol/l	20.4	Urease kinetic
	mg/dl	123	
	mmol/l	20.4	BUN
	mg/dl	57.3	
Uric Acid (Urate)	mmol/l	0.584	Uricase peroxidase with ascorbate oxidase
	mg/dl	9.81	
	mmol/l	0.576	Uricase peroxidase no ascorbate oxidase
	mg/dl	9.68	

## CALIBRATION SERUM LEVEL 3 (CAL 3)

MEAN OF ALL INSTRUMENTS Lot No. 996UE Cat. No. CAL2351

Size 20 x 5ml Expiry 2020-07-28

Analyte	unit	Target	methods
Acid Phosphatase (Total)	U/l	25.6	1-Naphthyl Phosphate substrate Kinetic 37°C
Albumin	g/l	29.1	Bromocresol Green
	g/dl	2.91	
	g/l	27.6	Bromocresol Purple
	g/dl	2.76	
	g/l	26.8	Turbidimetric Assays
g/dl	2.68		
Alkaline Phosphatase	U/l	460	Diethanolamine buffer DEA 37°C
	U/l	358	Diethanolamine buffer DEA 30°C
	U/l	294	Diethanolamine buffer DEA 25°C
	U/l	328	AMP optimised to IFCC 37°C
	U/l	256	AMP optimised to IFCC 30°C
	U/l	210	AMP optimised to IFCC 25°C
	U/l	312	AMP non-optimised 37°C
	U/l	243	AMP non-optimised 30°C
	U/l	199	AMP non-optimised 25°C
ALT (GPT)	U/l	181	Tris buffer with P5P 37°C
	U/l	134	Tris buffer with P5P 30°C
	U/l	102	Tris buffer with P5P 25°C
	U/l	153	Tris buffer without P5P 37°C
	U/l	113	Tris buffer without P5P 30°C
	U/l	86	Tris buffer without P5P 25°C
	U/l	145	Tris buffer SCE 37°C
	U/l	107	Tris buffer SCE 30°C
	U/l	82	Tris buffer SCE 25°C
Amylase Pancreatic	U/l	270	Immunoinhibition EPS substrate 37°C
	U/l	266	Roche EPS Liquid 37°C
	U/l	303	Randox Liquid Ethylidene pNPG7 37°C
Amylase Total	U/l	306	pNP Maltotrioxide substrates 37°C
	U/l	300	Siemens - blocked pNPG7 37°C
	U/l	245	Randox Lyo. Ethylidene pNPG7 37°C
	U/l	323	Randox Liquid Ethylidene pNPG7 37°C
	U/l	285	BM/Roche Colorimetric pNPG7 37°C
	U/l	294	Roche Integra 2-chloro-pNPG7 37°C
	U/l	289	Roche liquid stable pNPG7 37°C
	U/l	369	Siemens 2-chloro-pNPG3 37°C
	U/l	307	Beckman Coulter - blocked pNPG7 37°C
	U/l	318	Beckman Synchron AMY7 37°C
U/l	338	Abbott Architect Non-IFCC Cal. 37°C	

## CALIBRATION SERUM LEVEL 3 (CAL 3)

MEAN OF ALL INSTRUMENTS Lot No. 996UE Cat. No. CAL2351

Size 20 x 5ml Expiry 2020-07-28

Analyte	unit	Target	methods
Amylase Total	U/l	378	Abbott Architect IFCC Cal. 37°C
AST (GOT)	U/l	226	Tris buffer with P5P 37°C
	U/l	153	Tris buffer with P5P 30°C
	U/l	108	Tris buffer with P5P 25°C
	U/l	144	Tris buffer without P5P 37°C
	U/l	97	Tris buffer without P5P 30°C
	U/l	69	Tris buffer without P5P 25°C
	U/l	135	Tris buffer SCE 37°C
	U/l	91	Tris buffer SCE 30°C
	U/l	64	Tris buffer SCE 25°C
Bicarbonate	mmol/l	16.6	Colorimetric
	mmol/l	16.7	Differential rate pH change
	mmol/l	17.1	Enzymatic
	mmol/l	17.3	Ion selective electrode
Bile Acids	µmol/l	45.7	4th Generation Colorimetric
	µmol/l	45.3	5th Generation Colorimetric
Bilirubin Direct	µmol/l	28.6	Dichlorophenyl Diazonium (DPD)
	mg/dl	1.67	
	µmol/l	30.0	Diazo with Sulphanilic Acid
	mg/dl	1.76	
	µmol/l	30.1	Diazo with Dichloroaniline (DCA)
	mg/dl	1.76	
	µmol/l	29.7	Oxidation to Biliverdin/Vanadate
	mg/dl	1.74	
	µmol/l	30.6	Modified Jendrassik
mg/dl	1.79		
Bilirubin Total	µmol/l	89.5	Diazo with Dichloroaniline (DCA)
	mg/dl	5.24	
	µmol/l	80.3	Diazo with Sulphanilic Acid
	mg/dl	4.70	
	µmol/l	88.4	Dichlorophenyl Diazonium (DPD)
	mg/dl	5.17	
	µmol/l	75.6	Nitrobenzenediazonium salt
	mg/dl	4.42	
	µmol/l	75.9	Diazonium ion
	mg/dl	4.44	
µmol/l	87.1	Oxidation to Biliverdin/Vanadate	
mg/dl	5.09		
µmol/l	93.3	Modified Jendrassik	
mg/dl	5.46		
Calcium	mmol/l	3.06	Cresolphthalein complexone
	mg/dl	12.3	
	mmol/l	3.02	Ion selective electrode
mg/dl	12.1		



## CALIBRATION SERUM LEVEL 3 (CAL 3)

MEAN OF ALL INSTRUMENTS Lot No. 996UE Cat. No. CAL2351

Size 20 x 5ml Expiry 2020-07-28

Analyte	unit	Target	methods
Calcium	mmol/l	3.04	Arsenazo III
	mg/dl	12.2	
	mmol/l	3.08	NM-BAPTA
	mg/dl	12.3	
Chloride	mmol/l	117	Colorimetric
	mmol/l	115	ISE indirect
	mmol/l	117	ISE direct
Cholesterol	mmol/l	7.03	Cholesterol Oxidase
	mg/dl	271	
Cholinesterase	U/l	5263	Colorimetric Butyrylthiocholine 37°C
CK Total	U/l	531	CK-NAC serum start (DGKC) 37°C
	U/l	332	CK-NAC serum start (DGKC) 30°C
	U/l	226	CK-NAC serum start (DGKC) 25°C
	U/l	528	CK-NAC substrate start (DGKC) 37°C
	U/l	331	CK-NAC substrate start (DGKC) 30°C
	U/l	224	CK-NAC substrate start (DGKC) 25°C
	U/l	527	CK-NAC (IFCC) 37°C
	U/l	330	CK-NAC (IFCC) 30°C
	U/l	224	CK-NAC (IFCC) 25°C
	U/l	560	Monothioglycerol 37°C
	U/l	351	Monothioglycerol 30°C
U/l	238	Monothioglycerol 25°C	
Copper	µmol/l	26.9	Atomic absorption
	µg/dl	171	
	µmol/l	26.2	Colorimetric
	µg/dl	167	
Creatinine	µmol/l	391	Alkaline picrate no deproteinization
	mg/dl	4.42	
	µmol/l	401	Enzymatic UV method
	mg/dl	4.53	
	µmol/l	404	Creatinine PAP method
	mg/dl	4.57	
	µmol/l	395	Jaffe rate blanked
	mg/dl	4.46	
	µmol/l	425	Jaffe rate blanked comp. (-26 µmol/l)
mg/dl	4.80		
µmol/l	406	Jaffe rate blanked compensated (-18 µmol/l)	
mg/dl	4.59		
µmol/l	397	IDMS traceable	
mg/dl	4.49		
D-3-Hydroxybutyrate	mmol/l	1.17	Tris buffer 100mmol pH 8.5
gamma-GT	U/l	171	Gamma glutamyl.-3-carboxy-4-nitroanilide 37°C
	U/l	135	Gamma glutamyl.-3-carboxy-4-nitroanilide 30°C
	U/l	106	Gamma glutamyl.-3-carboxy-4-nitroanilide 25°C

## CALIBRATION SERUM LEVEL 3 (CAL 3)

MEAN OF ALL INSTRUMENTS Lot No. 996UE Cat. No. CAL2351

Size 20 x 5ml Expiry 2020-07-28

Analyte	unit	Target	methods
gamma-GT	U/l	145	Gamma glutamyl-4-nitroanilide 37°C
	U/l	114	Gamma glutamyl-4-nitroanilide 30°C
	U/l	89	Gamma glutamyl-4-nitroanilide 25°C
	U/l	181	Gamma Glutamyl-3-Carboxy-4-nitroanilide (IFCC) 37°C
	U/l	143	Gamma Glutamyl-3-Carboxy-4-nitroanilide (IFCC) 30°C
	U/l	112	Gamma Glutamyl-3-Carboxy-4-nitroanilide (IFCC) 25°C
	U/l	189	Randox Gamma glutamyl.-3-carboxy-4-nitroanilide 37°C
	U/l	149	Randox Gamma glutamyl.-3-carboxy-4-nitroanilide 30°C
	U/l	117	Randox Gamma glutamyl.-3-carboxy-4-nitroanilide 25°C
GLDH	U/l	29	Triethanolamine buffer 50 mmol 37°C
	U/l	22	Triethanolamine buffer 50 mmol 30°C
	U/l	18	Triethanolamine buffer 50 mmol 25°C
Glucose	mmol/l	15.5	Glucose dehydrogenase
	mg/dl	279	
	mmol/l	15.6	Hexokinase
	mg/dl	281	
	mmol/l	15.3	Oxygen electrode
	mg/dl	276	
mmol/l	15.6	Glucose oxidase	
mg/dl	281		
Iron	µmol/l	38.0	Colorimetric with ppt.
	µg/dl	212	
	µmol/l	38.0	Colorimetric without ppt.
	µg/dl	212	
Lactate	mmol/l	5.68	Colorimetric Lactate Oxidase
	mg/dl	51.2	
	mmol/l	6.05	Enzymatic Electrode
	mg/dl	54.5	
LAP	U/l	15	NAGEL 37°C
LD (LDH)	U/l	340	L->P 37°C
	U/l	245	L->P 30°C
	U/l	172	L->P 25°C
	U/l	823	P->L Scandinavian & Dutch 37°C
	U/l	594	P->L Scandinavian & Dutch 30°C
	U/l	417	P->L Scandinavian & Dutch 25°C
	U/l	734	P->L German methods 37°C
	U/l	530	P->L German methods 30°C
	U/l	372	P->L German methods 25°C
	U/l	735	P->L SFBC 37°C
	U/l	531	P->L SFBC 30°C
	U/l	373	P->L SFBC 25°C

**CALIBRATION SERUM LEVEL 3 (CAL 3)**

MEAN OF ALL INSTRUMENTS Lot No. 996UE Cat. No. CAL2351

Size 20 x 5ml Expiry 2020-07-28

Analyte	unit	Target	methods
LD (LDH)	U/l	381	L->P IFCC 37°C
	U/l	275	L->P IFCC 30°C
	U/l	193	L->P IFCC 25°C
Lipase	U/l	66	Other Colorimetric 37°C
	U/l	63	Roche Colorimetric 37°C
	U/l	95	Randox Colorimetric 37°C
Lithium	mmol/l	2.14	Ion selective electrode
	mg/dl	1.49	
	mmol/l	2.04	Spectrophotometric
	mg/dl	1.42	
	mmol/l	2.09	Randox Colorimetric
mg/dl	1.45		
Magnesium	mmol/l	1.72	Arsenazo III
	mg/dl	4.18	
	mmol/l	1.69	Calmagite
	mg/dl	4.11	
	mmol/l	1.76	Xylidyl Blue
	mg/dl	4.28	
	mmol/l	1.74	Methylthymol blue
	mg/dl	4.23	
Osmolality	mOsm/kg	349	Calculated
	mOsm/kg	388	Freezing point depression
Phosphate Inorganic	mmol/l	2.21	Phosphomolybdate enzymatic
	mg/dl	6.85	
	mmol/l	2.21	Phosphomolybdate UV
	mg/dl	6.85	
Potassium	mmol/l	6.28	Enzymatic
	mmol/l	6.21	ISE method - direct
	mmol/l	6.29	ISE method - indirect
Protein Total	g/l	45.0	Biuret reaction end point
	g/dl	4.50	
	g/l	43.8	Biuret reaction kinetic
	g/dl	4.38	
Sodium	mmol/l	161	Enzymatic
	mmol/l	159	ISE method - direct
	mmol/l	161	ISE method - indirect
TIBC	µmol/l	44.9	Removal of excess free iron
	µg/dl	251	
	µmol/l	48.2	FE+UIBC(saturation with iron)
	µg/dl	269	

## CALIBRATION SERUM LEVEL 3 (CAL 3)

MEAN OF ALL INSTRUMENTS Lot No. 996UE Cat. No. CAL2351

Size 20 x 5ml Expiry 2020-07-28

Analyte	unit	Target	methods
TIBC	µmol/l	49.1	Direct Colorimetric
	µg/dl	274	
	µmol/l	41.7	Calculated from Transferrin
	µg/dl	233	
µmol/l	54.7	Randox Direct	
µg/dl	306		
Triglycerides	mmol/l	2.88	Lipase/GPO-PAP no correction
	mg/dl	255	
	mmol/l	2.85	Lipase/GPO-PAP 0.11mmol/l correction
	mg/dl	252	
mmol/l	2.94	L/G Kinase EP. no correction	
mg/dl	260		
mmol/l	2.87	Lipase/Glycerol Dehydrogenase	
mg/dl	254		
Urea	mmol/l	21.2	Urease end point
	mg/dl	127	
	mmol/l	21.3	Urease kinetic
mg/dl	128		
mmol/l	21.3	BUN	
mg/dl	59.8		
Uric Acid (Urate)	mmol/l	0.557	Uricase catalase 340nm
	mg/dl	9.36	
	mmol/l	0.572	Uricase peroxidase with ascorbate oxidase
	mg/dl	9.61	
	mmol/l	0.567	Uricase peroxidase no ascorbate oxidase
mg/dl	9.53		
mmol/l	0.567	Spectrophotometric at 280-290	
mg/dl	9.53		
mmol/l	0.561	Uricase Peroxidase with ascorbate oxidase @ 546nm	
mg/dl	9.42		
Zinc	µmol/l	37.3	Colorimetric with deproteinisation
	µg/dl	244	

## CALIBRATION SERUM LEVEL 3 (CAL 3)

MINDRAY BS-200/300/400 Lot No. 996UE Cat. No. CAL2351

Size 20 x 5ml Expiry 2020-07-28

Analyte	unit	Target	methods
Albumin	g/l	30.0	Bromocresol Green
	g/dl	3.00	
Alkaline Phosphatase	U/l	341	AMP optimised to IFCC 37°C
	U/l	266	AMP optimised to IFCC 30°C
	U/l	218	AMP optimised to IFCC 25°C
ALT (GPT)	U/l	161	Tris buffer without P5P 37°C
	U/l	119	Tris buffer without P5P 30°C
	U/l	91	Tris buffer without P5P 25°C
Amylase Total	U/l	361	Siemens 2-chloro-pNPG3 37°C
AST (GOT)	U/l	148	Tris buffer without P5P 37°C
	U/l	100	Tris buffer without P5P 30°C
	U/l	70	Tris buffer without P5P 25°C
Bilirubin Direct	µmol/l	34.6	Oxidation to Biliverdin/Vanadate
	mg/dl	2.02	
Bilirubin Total	µmol/l	82.4	Diazo with Sulphanilic Acid
	mg/dl	4.82	
Calcium	mmol/l	3.07	Arsenazo III
	mg/dl	12.3	
Chloride	mmol/l	118	ISE indirect
Cholesterol	mmol/l	7.13	Cholesterol Oxidase
	mg/dl	275	
CK Total	U/l	535	CK-NAC (IFCC) 37°C
	U/l	335	CK-NAC (IFCC) 30°C
	U/l	227	CK-NAC (IFCC) 25°C
Creatinine	µmol/l	370	Alkaline picrate no deproteinization
	mg/dl	4.18	
gamma-GT	U/l	172	Gamma Glutamyl-3-Carboxy-4-nitroanilide (IFCC) 37°C
	U/l	136	Gamma Glutamyl-3-Carboxy-4-nitroanilide (IFCC) 30°C
	U/l	106	Gamma Glutamyl-3-Carboxy-4-nitroanilide (IFCC) 25°C
Glucose	mmol/l	15.6	Hexokinase
	mg/dl	281	
	mmol/l	15.7	Glucose oxidase
Iron	µmol/l	37.4	Colorimetric without ppt.
	µg/dl	209	
LD (LDH)	U/l	739	P->L SFBC 37°C
	U/l	534	P->L SFBC 30°C
	U/l	375	P->L SFBC 25°C
	U/l	376	L->P IFCC 37°C
	U/l	271	L->P IFCC 30°C
	U/l	191	L->P IFCC 25°C

## CALIBRATION SERUM LEVEL 3 (CAL 3)

MINDRAY BS-200/300/400 Lot No. 996UE Cat. No. CAL2351

Size 20 x 5ml Expiry 2020-07-28

Analyte	unit	Target	methods
Magnesium	mmol/l	1.59	Xylidyl Blue
	mg/dl	3.86	
Phosphate Inorganic	mmol/l	2.15	Phosphomolybdate UV
	mg/dl	6.67	
Potassium	mmol/l	6.32	ISE method - indirect
Protein Total	g/l	45.8	Biuret reaction end point
	g/dl	4.58	
Sodium	mmol/l	160	ISE method - indirect
Triglycerides	mmol/l	2.80	Lipase/GPO-PAP no correction
	mg/dl	248	
Urea	mmol/l	21.3	Urease kinetic
	mg/dl	128	
	mmol/l	21.3	BUN
	mg/dl	59.8	
Uric Acid (Urate)	mmol/l	0.566	Uricase peroxidase with ascorbate oxidase
	mg/dl	9.51	
	mmol/l	0.570	Uricase peroxidase no ascorbate oxidase
	mg/dl	9.58	
	mmol/l	0.558	Uricase Peroxidase with ascorbate oxidase @ 546nm
	mg/dl	9.37	

## CALIBRATION SERUM LEVEL 3 (CAL 3)

Roche Cobas 6000 c501 e601 Lot No. 996UE Cat. No. CAL2351

Size 20 x 5ml Expiry 2020-07-28

Analyte	unit	Target	methods
Albumin	g/l	30.2	Bromocresol Green
	g/dl	3.02	
	g/l	26.5	Bromocresol Purple
	g/dl	2.65	
	g/l	26.9	Turbidimetric Assays
	g/dl	2.69	
Alkaline Phosphatase	U/l	263	Roche Integra AMP buffer 37°C
	U/l	205	Roche Integra AMP buffer 30°C
	U/l	168	Roche Integra AMP buffer 25°C
ALT (GPT)	U/l	148	Tris buffer without P5P 37°C
	U/l	110	Tris buffer without P5P 30°C
	U/l	83	Tris buffer without P5P 25°C
Amylase Pancreatic	U/l	264	Roche EPS Liquid 37°C
Amylase Total	U/l	286	Roche Integra 2-chloro-pNPG7 37°C
	U/l	288	Roche liquid stable pNPG7 37°C
AST (GOT)	U/l	142	Tris buffer without P5P 37°C
	U/l	96	Tris buffer without P5P 30°C
	U/l	68	Tris buffer without P5P 25°C
Bicarbonate	mmol/l	17.3	Colorimetric
	mmol/l	17.1	Enzymatic
Bile Acids	µmol/l	46.0	Enzymatic Colorimetric
Bilirubin Direct	µmol/l	30.0	Dichlorophenyl Diazonium (DPD)
	mg/dl	1.76	
	µmol/l	29.9	Diazo with Sulphanilic Acid
	mg/dl	1.75	
	µmol/l	29.9	Roche JG factored
mg/dl	1.75		
Bilirubin Total	µmol/l	75.4	Diazo with Sulphanilic Acid
	mg/dl	4.41	
	µmol/l	75.5	Dichlorophenyl Diazonium (DPD)
	mg/dl	4.41	
	µmol/l	75.4	Diazonium ion
	mg/dl	4.41	
Calcium	mmol/l	3.07	Cresolphthalein complexone
	mg/dl	12.3	
	mmol/l	3.07	NM-BAPTA
	mg/dl	12.3	
Chloride	mmol/l	113	ISE indirect
Cholesterol	mmol/l	6.90	Cholesterol Oxidase
	mg/dl	266	

## CALIBRATION SERUM LEVEL 3 (CAL 3)

Roche Cobas 6000 c501 e601 Lot No. 996UE Cat. No. CAL2351

Size 20 x 5ml Expiry 2020-07-28

Analyte	unit	Target	methods
Cholinesterase	U/l	5268	Colorimetric Butyrylthiocholine 37°C
CK Total	U/l	517	CK-NAC substrate start (DGKC) 37°C
	U/l	324	CK-NAC substrate start (DGKC) 30°C
	U/l	220	CK-NAC substrate start (DGKC) 25°C
	U/l	507	CK-NAC (IFCC) 37°C
	U/l	317	CK-NAC (IFCC) 30°C
	U/l	215	CK-NAC (IFCC) 25°C
Creatinine	µmol/l	399	Alkaline picrate no deproteinization
	mg/dl	4.51	
	µmol/l	412	Enzymatic UV method
	mg/dl	4.65	
	µmol/l	409	Roche Creatinine Plus
	mg/dl	4.62	
	µmol/l	414	Jaffe rate blanked
	mg/dl	4.68	
D-3-Hydroxybutyrate	µmol/l	424	Jaffe rate blanked comp. (-26 µmol/l)
	mg/dl	4.79	
	µmol/l	420	Jaffe rate blanked compensated (-18 µmol/l)
	mg/dl	4.75	
	µmol/l	405	IDMS traceable
	mg/dl	4.58	
	mmol/l	1.21	Tris buffer 100mmol pH 8.5
gamma-GT	U/l	158	Gamma glutamyl.-3-carboxy-4-nitroanilide 37°C
	U/l	125	Gamma glutamyl.-3-carboxy-4-nitroanilide 30°C
	U/l	97	Gamma glutamyl.-3-carboxy-4-nitroanilide 25°C
	U/l	184	Gamma Glutamyl-3-Carboxy-4-nitroanilide (IFCC) 37°C
	U/l	145	Gamma Glutamyl-3-Carboxy-4-nitroanilide (IFCC) 30°C
	U/l	114	Gamma Glutamyl-3-Carboxy-4-nitroanilide (IFCC) 25°C
GLDH	U/l	29	Triethanolamine buffer 50 mmol 37°C
	U/l	22	Triethanolamine buffer 50 mmol 30°C
	U/l	18	Triethanolamine buffer 50 mmol 25°C
Glucose	mmol/l	15.3	Glucose dehydrogenase
	mg/dl	275	
	mmol/l	15.5	Hexokinase
Iron	mg/dl	279	
	µmol/l	37.5	Colorimetric with ppt.
	µg/dl	210	
Lactate	µmol/l	37.9	Colorimetric without ppt.
	µg/dl	212	
	mmol/l	5.59	Colorimetric Lactate Oxidase
LD (LDH)	mg/dl	50.4	
	U/l	731	P->L German methods 37°C
	U/l	528	P->L German methods 30°C
	U/l	371	P->L German methods 25°C



## CALIBRATION SERUM LEVEL 3 (CAL 3)

Roche Cobas 6000 c501 e601 Lot No. 996UE Cat. No. CAL2351

Size 20 x 5ml Expiry 2020-07-28

Analyte	unit	Target	methods
LD (LDH)	U/l	385	L->P IFCC 37°C
	U/l	278	L->P IFCC 30°C
	U/l	195	L->P IFCC 25°C
Lipase	U/l	62	Roche Colorimetric 37°C
Lithium	mmol/l	2.09	Spectrophotometric
	mg/dl	1.45	
Magnesium	mmol/l	1.76	Xylidyl Blue
	mg/dl	4.28	
	mmol/l	1.76	Chlorphosphonazo III
	mg/dl	4.28	
Phosphate Inorganic	mmol/l	2.21	Phosphomolybdate enzymatic
	mg/dl	6.85	
	mmol/l	2.21	Phosphomolybdate UV
	mg/dl	6.85	
Potassium	mmol/l	6.34	ISE method - indirect
Protein Total	g/l	44.2	Biuret reaction CX4/5/7
	g/dl	4.42	
	g/l	44.8	Biuret reaction end point
	g/dl	4.48	
	g/l	45.5	Biuret reaction kinetic
	g/dl	4.55	
Sodium	mmol/l	162	ISE method - indirect
TIBC	µmol/l	47.1	FE+UIBC(saturation with iron)
	µg/dl	263	
	µmol/l	43.2	Calculated from Transferrin
	µg/dl	241	
Triglycerides	mmol/l	2.87	Lipase/GPO-PAP no correction
	mg/dl	254	
	mmol/l	2.85	L/G Kinase EP. no correction
	mg/dl	252	
Urea	mmol/l	21.1	Urease kinetic
	mg/dl	127	
	mmol/l	21.1	BUN
	mg/dl	59.2	
Uric Acid (Urate)	mmol/l	0.556	Uricase peroxidase with ascorbate oxidase
	mg/dl	9.34	
	mmol/l	0.557	Uricase peroxidase no ascorbate oxidase
	mg/dl	9.36	
	mmol/l	0.555	Uricase Peroxidase with ascorbate oxidase @ 546nm
	mg/dl	9.32	

## CALIBRATION SERUM LEVEL 3 (CAL 3)

Roche Cobas C111® Lot No. 996UE Cat. No. CAL2351

Size 20 x 5ml Expiry 2020-07-28

Analyte	unit	Target	methods	
Albumin	g/l	29.5	Bromocresol Green	
	g/dl	2.95		
Alkaline Phosphatase	U/l	276	Roche Integra AMP buffer 37°C	
	U/l	215	Roche Integra AMP buffer 30°C	
	U/l	176	Roche Integra AMP buffer 25°C	
ALT (GPT)	U/l	147	Tris buffer without P5P 37°C	
	U/l	109	Tris buffer without P5P 30°C	
	U/l	83	Tris buffer without P5P 25°C	
Amylase Total	U/l	296	Roche liquid stable pNPG7 37°C	
AST (GOT)	U/l	141	Tris buffer without P5P 37°C	
	U/l	95	Tris buffer without P5P 30°C	
	U/l	67	Tris buffer without P5P 25°C	
Bicarbonate	mmol/l	15.9	Enzymatic	
Bilirubin Direct	µmol/l	30.0	Dichlorophenyl Diazonium (DPD)	
	mg/dl	1.76		
	µmol/l	29.9	Roche JG factored	
	mg/dl	1.75		
Bilirubin Total	µmol/l	72.8	Diazo with Sulphanilic Acid	
	mg/dl	4.26		
	µmol/l	72.7	Dichlorophenyl Diazonium (DPD)	
	mg/dl	4.25		
	µmol/l	71.5	Diazonium ion	
	mg/dl	4.18		
	Calcium	mmol/l	3.10	NM-BAPTA
		mg/dl	12.4	
Chloride	mmol/l	118	ISE indirect	
Cholesterol	mmol/l	7.09	Cholesterol Oxidase	
	mg/dl	274		
CK Total	U/l	511	CK-NAC (IFCC) 37°C	
	U/l	320	CK-NAC (IFCC) 30°C	
	U/l	217	CK-NAC (IFCC) 25°C	
Creatinine	µmol/l	400	Roche Creatinine Plus	
	mg/dl	4.52		
	µmol/l	414	Jaffe rate blanked comp. (-26 µmol/l)	
	mg/dl	4.68		
	µmol/l	401	Jaffe rate blanked compensated (-18 µmol/l)	
	mg/dl	4.53		
gamma-GT	U/l	167	Gamma glutamyl.-3-carboxy-4-nitroanilide 37°C	
	U/l	132	Gamma glutamyl.-3-carboxy-4-nitroanilide 30°C	
	U/l	103	Gamma glutamyl.-3-carboxy-4-nitroanilide 25°C	

## CALIBRATION SERUM LEVEL 3 (CAL 3)

Roche Cobas C111® Lot No. 996UE Cat. No. CAL2351

Size 20 x 5ml Expiry 2020-07-28

Analyte	unit	Target	methods
gamma-GT	U/l	175	Gamma Glutamyl-3-Carboxy-4-nitroanilide (IFCC) 37°C
	U/l	138	Gamma Glutamyl-3-Carboxy-4-nitroanilide (IFCC) 30°C
	U/l	108	Gamma Glutamyl-3-Carboxy-4-nitroanilide (IFCC) 25°C
Glucose	mmol/l	15.9	Hexokinase
	mg/dl	286	
LD (LDH)	U/l	386	L->P IFCC 37°C
	U/l	279	L->P IFCC 30°C
	U/l	196	L->P IFCC 25°C
Magnesium	mmol/l	1.76	Chlorphosphonazo III
	mg/dl	4.28	
Phosphate Inorganic	mmol/l	2.25	Phosphomolybdate UV
	mg/dl	6.98	
Potassium	mmol/l	6.17	ISE method - indirect
Protein Total	g/l	46.2	Biuret reaction end point
	g/dl	4.62	
Sodium	mmol/l	157	ISE method - indirect
Triglycerides	mmol/l	2.93	Lipase/GPO-PAP no correction
	mg/dl	259	
Urea	mmol/l	20.7	Urease kinetic
	mg/dl	124	
	mmol/l	20.7	BUN
Uric Acid (Urate)	mmol/l	0.577	Uricase peroxidase with ascorbate oxidase
	mg/dl	9.69	
	mmol/l	0.570	Uricase peroxidase no ascorbate oxidase
	mg/dl	9.58	
	mmol/l	0.575	Uricase Peroxidase with ascorbate oxidase @ 546nm
	mg/dl	9.66	

## CALIBRATION SERUM LEVEL 3 (CAL 3)

Roche Cobas C311® Lot No. 996UE Cat. No. CAL2351

Size 20 x 5ml Expiry 2020-07-28

Analyte	unit	Target	methods
Albumin	g/l	30.0	Bromocresol Green
	g/dl	3.00	
	g/l	27.1	Bromocresol Purple
	g/dl	2.71	
Alkaline Phosphatase	U/l	261	Roche Integra AMP buffer 37°C
	U/l	203	Roche Integra AMP buffer 30°C
	U/l	167	Roche Integra AMP buffer 25°C
ALT (GPT)	U/l	149	Tris buffer without P5P 37°C
	U/l	110	Tris buffer without P5P 30°C
	U/l	84	Tris buffer without P5P 25°C
Amylase Pancreatic	U/l	271	Roche EPS Liquid 37°C
Amylase Total	U/l	291	Roche liquid stable pNPG7 37°C
AST (GOT)	U/l	143	Tris buffer without P5P 37°C
	U/l	97	Tris buffer without P5P 30°C
	U/l	68	Tris buffer without P5P 25°C
Bicarbonate	mmol/l	16.4	Enzymatic
Bilirubin Direct	µmol/l	29.2	Dichlorophenyl Diazonium (DPD)
	mg/dl	1.71	
	µmol/l	28.4	Roche JG factored
Bilirubin Total	µmol/l	75.8	Diazo with Sulphanilic Acid
	mg/dl	4.43	
	µmol/l	75.1	Dichlorophenyl Diazonium (DPD)
Calcium	mg/dl	4.39	Diazonium ion
	µmol/l	75.5	
	mg/dl	4.42	
Chloride	mmol/l	3.09	Cresolphthalein complexone
	mg/dl	12.4	
	mmol/l	3.11	NM-BAPTA
Cholesterol	mg/dl	12.5	ISE indirect
	mmol/l	113	
	mg/dl	269	Cholesterol Oxidase
CK Total	U/l	518	CK-NAC (IFCC) 37°C
	U/l	324	CK-NAC (IFCC) 30°C
	U/l	220	CK-NAC (IFCC) 25°C
Creatinine	µmol/l	407	Alkaline picrate no deproteinization
	mg/dl	4.60	
	µmol/l	406	Enzymatic UV method
	mg/dl	4.58	

## CALIBRATION SERUM LEVEL 3 (CAL 3)

Roche Cobas C311® Lot No. 996UE Cat. No. CAL2351

Size 20 x 5ml Expiry 2020-07-28

Analyte	unit	Target	methods
Creatinine	µmol/l	414	Roche Creatinine Plus
	mg/dl	4.68	
	µmol/l	432	Jaffe rate blanked comp. (-26 µmol/l)
	mg/dl	4.88	
gamma-GT	U/l	161	Gamma glutamyl.-3-carboxy-4-nitroanilide 37°C
	U/l	127	Gamma glutamyl.-3-carboxy-4-nitroanilide 30°C
	U/l	99	Gamma glutamyl.-3-carboxy-4-nitroanilide 25°C
	U/l	187	Gamma Glutamyl-3-Carboxy-4-nitroanilide (IFCC) 37°C
	U/l	147	Gamma Glutamyl-3-Carboxy-4-nitroanilide (IFCC) 30°C
	U/l	115	Gamma Glutamyl-3-Carboxy-4-nitroanilide (IFCC) 25°C
Glucose	mmol/l	15.6	Hexokinase
	mg/dl	281	
	mmol/l	16.1	Glucose oxidase
	mg/dl	290	
Iron	µmol/l	37.9	Colorimetric without ppt.
	µg/dl	212	
Lactate	mmol/l	5.48	Colorimetric Lactate Oxidase
	mg/dl	49.4	
LD (LDH)	U/l	719	P->L German methods 37°C
	U/l	519	P->L German methods 30°C
	U/l	365	P->L German methods 25°C
	U/l	387	L->P IFCC 37°C
	U/l	279	L->P IFCC 30°C
	U/l	196	L->P IFCC 25°C
Lipase	U/l	61	Roche Colorimetric 37°C
Magnesium	mmol/l	1.76	Xylidyl Blue
	mg/dl	4.28	
	mmol/l	1.75	Chlorphosphonazo III
	mg/dl	4.25	
Phosphate Inorganic	mmol/l	2.23	Phosphomolybdate UV
	mg/dl	6.91	
Potassium	mmol/l	6.35	ISE method - indirect
Protein Total	g/l	45.0	Biuret reaction end point
	g/dl	4.50	
Sodium	mmol/l	162	ISE method - indirect
TIBC	µmol/l	49.1	FE+UIBC(saturation with iron)
	µg/dl	274	
Triglycerides	mmol/l	2.88	Lipase/GPO-PAP no correction
	mg/dl	255	
	mmol/l	2.84	L/G Kinase EP. no correction
	mg/dl	251	
Urea	mmol/l	21.3	Urease kinetic
	mg/dl	128	

## CALIBRATION SERUM LEVEL 3 (CAL 3)

Roche Cobas C311® Lot No. 996UE Cat. No. CAL2351

Size 20 x 5ml Expiry 2020-07-28

Analyte	unit	Target	methods
Urea	mmol/l	21.3	BUN
	mg/dl	59.8	
Uric Acid (Urate)	mmol/l	0.565	Uricase peroxidase with ascorbate oxidase
	mg/dl	9.49	
	mmol/l	0.569	Uricase peroxidase no ascorbate oxidase
	mg/dl	9.56	
mmol/l	0.568	Uricase Peroxidase with ascorbate oxidase @ 546nm	
mg/dl	9.54		

## CALIBRATION SERUM LEVEL 3 (CAL 3)

Roche Cobas c701 / c702 / c711 Lot No. 996UE Cat. No. CAL2351

Size 20 x 5ml Expiry 2020-07-28

Analyte	unit	Target	methods
Albumin	g/l	30.1	Bromocresol Green
	g/dl	3.01	
Alkaline Phosphatase	U/l	254	Roche Integra AMP buffer 37°C
	U/l	198	Roche Integra AMP buffer 30°C
	U/l	162	Roche Integra AMP buffer 25°C
ALT (GPT)	U/l	150	Tris buffer without P5P 37°C
	U/l	111	Tris buffer without P5P 30°C
	U/l	84	Tris buffer without P5P 25°C
Amylase Pancreatic	U/l	266	Roche EPS Liquid 37°C
Amylase Total	U/l	288	Roche liquid stable pNPG7 37°C
AST (GOT)	U/l	142	Tris buffer without P5P 37°C
	U/l	96	Tris buffer without P5P 30°C
	U/l	68	Tris buffer without P5P 25°C
Bicarbonate	mmol/l	17.2	Enzymatic
Bile Acids	µmol/l	45.3	Enzymatic Colorimetric
Bilirubin Direct	µmol/l	30.1	Dichlorophenyl Diazonium (DPD)
	mg/dl	1.76	
	µmol/l	29.7	Roche JG factored
Bilirubin Total	mg/dl	1.74	
	µmol/l	75.2	Diazo with Sulphanilic Acid
	mg/dl	4.40	
Bilirubin Total	µmol/l	73.7	Dichlorophenyl Diazonium (DPD)
	mg/dl	4.31	
	µmol/l	74.5	Diazonium ion
Calcium	mg/dl	4.36	
	mmol/l	3.03	Cresolphthalein complexone
	mg/dl	12.1	
Calcium	mmol/l	3.05	NM-BAPTA
	mg/dl	12.2	
Chloride	mmol/l	114	ISE indirect
Cholesterol	mmol/l	6.83	Cholesterol Oxidase
	mg/dl	264	
CK Total	U/l	503	CK-NAC (IFCC) 37°C
	U/l	315	CK-NAC (IFCC) 30°C
	U/l	214	CK-NAC (IFCC) 25°C
Creatinine	µmol/l	413	Roche Creatinine Plus
	mg/dl	4.66	
	µmol/l	428	Jaffe rate blanked comp. (-26 µmol/l)
Creatinine	mg/dl	4.84	

## CALIBRATION SERUM LEVEL 3 (CAL 3)

Roche Cobas c701 / c702 / c711 Lot No. 996UE Cat. No. CAL2351

Size 20 x 5ml Expiry 2020-07-28

Analyte	unit	Target	methods
gamma-GT	U/l	152	Gamma glutamyl.-3-carboxy-4-nitroanilide 37°C
	U/l	120	Gamma glutamyl.-3-carboxy-4-nitroanilide 30°C
	U/l	94	Gamma glutamyl.-3-carboxy-4-nitroanilide 25°C
	U/l	178	Gamma Glutamyl-3-Carboxy-4-nitroanilide (IFCC) 37°C
	U/l	140	Gamma Glutamyl-3-Carboxy-4-nitroanilide (IFCC) 30°C
	U/l	110	Gamma Glutamyl-3-Carboxy-4-nitroanilide (IFCC) 25°C
Glucose	mmol/l	15.4	Hexokinase
	mg/dl	278	
Iron	µmol/l	36.9	Colorimetric without ppt.
	µg/dl	206	
Lactate	mmol/l	5.57	Colorimetric Lactate Oxidase
	mg/dl	50.2	
LD (LDH)	U/l	382	L->P IFCC 37°C
	U/l	276	L->P IFCC 30°C
	U/l	194	L->P IFCC 25°C
Lipase	U/l	61	Roche Colorimetric 37°C
Lithium	mmol/l	2.04	Spectrophotometric
	mg/dl	1.42	
Magnesium	mmol/l	1.75	Xylidyl Blue
	mg/dl	4.25	
Phosphate Inorganic	mmol/l	2.19	Phosphomolybdate UV
	mg/dl	6.79	
Potassium	mmol/l	6.35	ISE method - indirect
Protein Total	g/l	44.7	Biuret reaction end point
	g/dl	4.47	
Sodium	mmol/l	163	ISE method - indirect
TIBC	µmol/l	47.0	FE+UIBC(saturation with iron)
	µg/dl	263	
Triglycerides	mmol/l	2.87	Lipase/GPO-PAP no correction
	mg/dl	254	
Urea	mmol/l	21.0	Urease kinetic
	mg/dl	126	
	mmol/l	21.0	BUN
Uric Acid (Urate)	mmol/l	0.555	Uricase peroxidase with ascorbate oxidase
	mg/dl	9.32	
	mmol/l	0.562	Uricase peroxidase no ascorbate oxidase
	mg/dl	9.44	
	mmol/l	0.550	Uricase Peroxidase with ascorbate oxidase @ 546nm
	mg/dl	9.24	



## CALIBRATION SERUM LEVEL 3 (CAL 3)

RX SERIES® Lot No. 996UE Cat. No. CAL2351

Size 20 x 5ml Expiry 2020-07-28

Analyte	unit	Target	methods
Albumin	g/l	29.6	Bromocresol Green
	g/dl	2.96	
Alkaline Phosphatase	U/l	498	Diethanolamine buffer DEA 37°C
	U/l	319	AMP optimised to IFCC 37°C
ALT (GPT)	U/l	158	Tris buffer without P5P 37°C
Amylase Pancreatic	U/l	303	Randox Liquid Ethylidene pNPG7 37°C
Amylase Total	U/l	323	Randox Liquid Ethylidene pNPG7 37°C
AST (GOT)	U/l	146	Tris buffer without P5P 37°C
Bile Acids	µmol/l	45.3	5th Generation Colorimetric
Bilirubin Direct	µmol/l	29.8	Diazo with Sulphanilic Acid
	mg/dl	1.74	
	µmol/l	30.1	Oxidation to Biliverdin/Vanadate
	mg/dl	1.76	
Bilirubin Total	µmol/l	82.8	Diazo with Sulphanilic Acid
	mg/dl	4.84	
	µmol/l	86.2	Oxidation to Biliverdin/Vanadate
	mg/dl	5.04	
Calcium	mmol/l	3.08	Arsenazo III
	mg/dl	12.3	
Cholesterol	mmol/l	7.37	Cholesterol Oxidase
	mg/dl	284	
CK Total	U/l	534	CK-NAC substrate start (DGKC) 37°C
	U/l	563	CK-NAC (IFCC) 37°C
Creatinine	µmol/l	353	Alkaline picrate no deproteinization
	mg/dl	3.99	
	µmol/l	402	Enzymatic UV method
	mg/dl	4.54	
gamma-GT	U/l	189	Gamma Glutamyl-3-Carboxy-4-nitroanilide (IFCC) 37°C
Glucose	mmol/l	15.9	Hexokinase
	mg/dl	286	Glucose oxidase
	mmol/l	16.1	
mg/dl	290		
Iron	µmol/l	40.1	Colorimetric without ppt.
	µg/dl	224	
Lactate	mmol/l	5.48	Colorimetric Lactate Oxidase
	mg/dl	49.4	
LD (LDH)	U/l	762	P->L German methods 37°C
	U/l	361	L->P IFCC 37°C
Lipase	U/l	95	Randox Colorimetric 37°C

## CALIBRATION SERUM LEVEL 3 (CAL 3)

RX SERIES® Lot No. 996UE Cat. No. CAL2351

Size 20 x 5ml Expiry 2020-07-28

Analyte	unit	Target	methods
Lithium	mmol/l	2.09	Colorimetric
	mg/dl	1.45	
Magnesium	mmol/l	1.74	Xylidyl Blue
	mg/dl	4.23	
Phosphate Inorganic	mmol/l	2.28	Phosphomolybdate UV
	mg/dl	7.07	
Potassium	mmol/l	6.28	Enzymatic
Protein Total	g/l	46.7	Biuret reaction end point
	g/dl	4.67	
Sodium	mmol/l	161	Enzymatic
TIBC	µmol/l	54.7	Direct Colorimetric
	µg/dl	306	
Triglycerides	mmol/l	2.84	Lipase/GPO-PAP no correction
	mg/dl	251	
Urea	mmol/l	21.7	Urease kinetic
	mg/dl	130	
	mmol/l	21.7	BUN
Uric Acid (Urate)	mmol/l	0.594	Uricase peroxidase no ascorbate oxidase
	mg/dl	10.0	
	mmol/l	0.591	Uricase Peroxidase with ascorbate oxidase @ 546nm
	mg/dl	9.93	

## CALIBRATION SERUM LEVEL 3 (CAL 3)

SIEMENS ADVIA 1200/1650/1800/2400® Lot No. 996UE Cat. No. CAL2351

Size 20 x 5ml Expiry 2020-07-28

Analyte	unit	Target	methods
Albumin	g/l	28.3	Bromocresol Green
	g/dl	2.83	
	g/l	26.3	Bromocresol Purple
	g/dl	2.63	
Alkaline Phosphatase	U/l	284	AMP optimised to IFCC 37°C
	U/l	276	AMP non-optimised 37°C
ALT (GPT)	U/l	170	Tris buffer without P5P 37°C
Amylase Pancreatic	U/l	260	Immunoinhibition EPS substrate 37°C
Amylase Total	U/l	299	Siemens - blocked pNPG7 37°C
AST (GOT)	U/l	154	Tris buffer without P5P 37°C
Bicarbonate	mmol/l	18.3	Enzymatic
Bilirubin Direct	µmol/l	29.8	Oxidation to Biliverdin/Vanadate
	mg/dl	1.74	
Bilirubin Total	µmol/l	86.1	Oxidation to Biliverdin/Vanadate
	mg/dl	5.04	
Calcium	mmol/l	3.15	Cresolphthalein complexone
	mg/dl	12.6	
	mmol/l	2.98	Arsenazo III
mg/dl	11.9		
Chloride	mmol/l	118	ISE indirect
Cholesterol	mmol/l	7.21	Cholesterol Oxidase
	mg/dl	278	
CK Total	U/l	535	CK-NAC (IFCC) 37°C
Creatinine	µmol/l	386	Enzymatic UV method
	mg/dl	4.36	
	µmol/l	413	
mg/dl	4.67		
gamma-GT	U/l	180	Gamma Glutamyl-3-Carboxy-4-nitroanilide (IFCC) 37°C
Glucose	mmol/l	15.2	Hexokinase
	mg/dl	274	
	mmol/l	15.0	Glucose oxidase
mg/dl	270		
Iron	µmol/l	38.1	Colorimetric without ppt.
	µg/dl	213	
Lactate	mmol/l	5.69	Colorimetric Lactate Oxidase
	mg/dl	51.3	
LD (LDH)	U/l	748	P->L German methods 37°C
	U/l	378	L->P IFCC 37°C
Lipase	U/l	92	Other Colorimetric 37°C

## CALIBRATION SERUM LEVEL 3 (CAL 3)

SIEMENS ADVIA 1200/1650/1800/2400® Lot No. 996UE Cat. No. CAL2351

Size 20 x 5ml Expiry 2020-07-28

Analyte	unit	Target	methods
Lithium	mmol/l	1.98	Spectrophotometric
	mg/dl	1.37	
Magnesium	mmol/l	1.76	Xylidyl Blue
	mg/dl	4.28	
Phosphate Inorganic	mmol/l	2.23	Phosphomolybdate UV
	mg/dl	6.91	
Potassium	mmol/l	6.34	ISE method - indirect
Protein Total	g/l	45.5	Biuret reaction end point
	g/dl	4.55	
Sodium	mmol/l	162	ISE method - indirect
TIBC	µmol/l	51.2	Direct Colorimetric
	µg/dl	286	
Triglycerides	mmol/l	2.94	Lipase/GPO-PAP no correction
	mg/dl	260	
Urea	mmol/l	21.5	Urease kinetic
	mg/dl	129	
	mmol/l	21.5	BUN
	mg/dl	60.3	
Uric Acid (Urate)	mmol/l	0.569	Uricase peroxidase no ascorbate oxidase
	mg/dl	9.56	

## CALIBRATION SERUM LEVEL 3 (CAL 3)

SIEMENS DIMENSION EXL® Lot No. 996UE Cat. No. CAL2351

Size 20 x 5ml Expiry 2020-07-28

Analyte	unit	Target	methods
Albumin	g/l	27.0	Bromocresol Purple
	g/dl	2.70	
Alkaline Phosphatase	U/l	296	Siemens Dimension AMP buffer 37°C
	U/l	289	AMP optimised to IFCC 37°C
ALT (GPT)	U/l	168	Tris buffer with P5P 37°C
	U/l	164	Siemens Dade Standard Non IFCC Correlated 37°C
Amylase Total	U/l	371	Siemens 2-chloro-pNPG3 37°C
AST (GOT)	U/l	190	Tris buffer with P5P 37°C
	U/l	196	Siemens Dade Standard Non IFCC Correlated 37°C
Bicarbonate	mmol/l	18.1	Enzymatic
Bilirubin Direct	µmol/l	18.0	Diazo with Sulphanilic Acid
	mg/dl	1.05	
Bilirubin Total	µmol/l	80.6	Diazo with Sulphanilic Acid
	mg/dl	4.71	
Calcium	mmol/l	3.03	Cresolphthalein complexone
	mg/dl	12.1	
Chloride	mmol/l	118	ISE indirect
Cholesterol	mmol/l	6.62	Dimension-Siemens reagents
	mg/dl	256	
CK Total	U/l	509	CK-NAC (IFCC) 37°C
Creatinine	µmol/l	404	Alkaline picrate no deproteinization
	mg/dl	4.57	
	µmol/l	410	
gamma-GT	U/l	183	Gamma Glutamyl-3-Carboxy-4-nitroanilide (IFCC) 37°C
	U/l	218	Siemens Dimension (non IFCC) 37°C
Glucose	mmol/l	15.6	Hexokinase
	mg/dl	281	
Iron	µmol/l	36.5	Colorimetric without ppt.
	µg/dl	204	
Lactate	mmol/l	5.78	UV LDH
	mg/dl	52.1	
LD (LDH)	U/l	372	Siemens Dimension L-P Non IFCC 37°C
	U/l	369	L->P IFCC 37°C
Lipase	U/l	271	Colorimetric Siemens Dimension (LIPL Kit) 37°C
Magnesium	mmol/l	1.73	Methylthymol blue
	mg/dl	4.20	
Phosphate Inorganic	mmol/l	2.27	Phosphomolybdate UV
	mg/dl	7.04	

## CALIBRATION SERUM LEVEL 3 (CAL 3)

SIEMENS DIMENSION EXL® Lot No. 996UE Cat. No. CAL2351

Size 20 x 5ml Expiry 2020-07-28

Analyte	unit	Target	methods	
Potassium	mmol/l	6.31	ISE method - indirect	
Protein Total	g/l	46.6	Biuret reaction end point	
	g/dl	4.66		
Sodium	mmol/l	162	ISE method - indirect	
Triglycerides	mmol/l	2.82	Lipase/GPO-PAP no correction	
	mg/dl	250		
	mmol/l	2.86	L/G Kinase EP. no correction	
	mg/dl	253		
Urea	mmol/l	2.88	Lipase/Glycerol Dehydrogenase	
	mg/dl	255		
	Urea	mmol/l	21.7	Urease kinetic
		mg/dl	130	
Uric Acid (Urate)	mmol/l	21.7	BUN	
	mg/dl	60.9		
	Uric Acid (Urate)	mmol/l	0.573	Uricase peroxidase no ascorbate oxidase
		mg/dl	9.63	
Uric Acid (Urate)	mmol/l	0.567	Spectrophotometric at 280-290	
	mg/dl	9.53		

## CALIBRATION SERUM LEVEL 3 (CAL 3)

SIEMENS DIMENSION RxL/Max/Xpand® Lot No. 996UE Cat. No. CAL2351

Size 20 x 5ml Expiry 2020-07-28

Analyte	unit	Target	methods
Albumin	g/l	27.0	Bromocresol Purple
	g/dl	2.70	
Alkaline Phosphatase	U/l	285	Siemens Dimension AMP buffer 37°C
	U/l	284	AMP optimised to IFCC 37°C
ALT (GPT)	U/l	169	Tris buffer with P5P 37°C
	U/l	164	Siemens Dade Standard Non IFCC Correlated 37°C
Amylase Total	U/l	367	Siemens 2-chloro-pNPG3 37°C
AST (GOT)	U/l	193	Tris buffer with P5P 37°C
	U/l	194	Siemens Dade Standard Non IFCC Correlated 37°C
Bicarbonate	mmol/l	17.1	Enzymatic
Bilirubin Direct	µmol/l	17.8	Diazo with Sulphanilic Acid
	mg/dl	1.04	
Bilirubin Total	µmol/l	81.7	Diazo with Sulphanilic Acid
	mg/dl	4.78	
Calcium	mmol/l	3.05	Cresolphthalein complexone
	mg/dl	12.2	
Chloride	mmol/l	119	ISE indirect
Cholesterol	mmol/l	6.65	Dimension-Siemens reagents
	mg/dl	257	
CK Total	U/l	517	CK-NAC (IFCC) 37°C
Creatinine	µmol/l	406	Alkaline picrate no deproteinization
	mg/dl	4.59	
	µmol/l	403	Enzymatic UV method
	mg/dl	4.56	
gamma-GT	U/l	191	Gamma Glutamyl-3-Carboxy-4-nitroanilide (IFCC) 37°C
	U/l	212	Siemens Dimension (non IFCC) 37°C
Glucose	mmol/l	15.7	Hexokinase
	mg/dl	282	
Iron	µmol/l	36.2	Colorimetric without ppt.
	µg/dl	202	
LD (LDH)	U/l	375	Siemens Dimension L-P Non IFCC 37°C
	U/l	373	L->P IFCC 37°C
Lipase	U/l	271	Colorimetric Siemens Dimension (LIPL Kit) 37°C
Magnesium	mmol/l	1.75	Methylthymol blue
	mg/dl	4.25	
Phosphate Inorganic	mmol/l	2.27	Phosphomolybdate enzymatic
	mg/dl	7.04	

## CALIBRATION SERUM LEVEL 3 (CAL 3)

SIEMENS DIMENSION RxL/Max/Xpand® Lot No. 996UE Cat. No. CAL2351

Size 20 x 5ml Expiry 2020-07-28

Analyte	unit	Target	methods
Phosphate Inorganic	mmol/l	2.27	Phosphomolybdate UV
	mg/dl	7.04	
Potassium	mmol/l	6.39	ISE method - indirect
Protein Total	g/l	46.5	Biuret reaction end point
	g/dl	4.65	
Sodium	mmol/l	163	ISE method - indirect
Triglycerides	mmol/l	2.83	Lipase/GPO-PAP no correction
	mg/dl	250	
	mmol/l	2.85	Lipase/Glycerol Dehydrogenase
	mg/dl	252	
Urea	mmol/l	21.9	Urease kinetic
	mg/dl	132	
	mmol/l	21.9	BUN
	mg/dl	61.5	
Uric Acid (Urate)	mmol/l	0.571	Uricase peroxidase no ascorbate oxidase
	mg/dl	9.59	
	mmol/l	0.567	Spectrophotometric at 280-290
	mg/dl	9.53	