

ASSAYED BOVINE MULTI-SERA - LEVEL 3 (BOV ASY CONTROL 3)

Cat. No. AEI032 **Lot No.** 340SE
Size: 20 x 5 ml **Expiry:** 2017-01

INTENDED USE

This product is intended for *in vitro* diagnostic use in the quality control of diagnostic assays. The Assayed Bovine Multi-sera is for the control of accuracy.

DEVICE DESCRIPTION

The Assayed Bovine Multi-sera is supplied at 3 levels, level 1, 2 and 3. Target values and ranges are supplied for the analytes listed in the value section at 3 levels.

SAFETY PRECAUTIONS AND WARNINGS

For *in vitro* diagnostic use only. Do not pipette by mouth. Exercise the normal precautions required for handling laboratory reagents.

Assayed Bovine Multi-sera is manufactured from bovine sera. Human source material which has been added 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.

Health and Safety Data Sheets are available on request.

STORAGE AND STABILITY

OPENED: Store refrigerated (+2°C to +8°C). Reconstituted serum is stable for 8 hours at +15°C to +25°C or 7 days at +2°C to +8°C, and 28 days when frozen once at -20°C (see Limitations).

LIMITATIONS

For Total and Prostatic Acid Phosphatase, the material should be stabilised by adding 1 drop (25 - 30 µl) of 0.7M Acetic acid solution to 1 ml of the serum. After stabilisation Total & Prostatic Acid Phosphatase is 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 is 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, Bilirubin is stable for 2 days at +2°C to +8°C. Do not store at +15°C to +25°C. Do not freeze.

PSA is stable for 4 days at +2°C to +8°C, or 28 days in aliquots frozen at -20°C.

Bacterial contamination of the reconstituted serum will cause reductions in the stability of many components.

Different lot numbers of this control should not be interchanged as the values assigned to the controls vary from lot to lot.

The control should not be used as a calibration material.

UNOPENED: Store refrigerated (+2°C to +8°C). Stable to expiration date printed on individual vials.

PREPARATION FOR USE

The Assayed Bovine Multi-sera is supplied lyophilised.

1. Carefully reconstitute each vial of lyophilised serum with exactly 5 ml of distilled water at +15°C to +25°C. Close the bottle and allow to stand for 30 minutes before use. Ensure contents are completely dissolved by swirling gently. Avoid formation of foam. Do not shake.
2. Refer to the Control section of the individual analyser application.
3. Refrigerate any unused material. Prior to reuse, mix contents thoroughly.

MATERIALS PROVIDED

Assayed Bovine Multi-sera - Level 3 20 x 5 ml

MATERIALS REQUIRED BUT NOT PROVIDED

Volumetric pipette

ASSIGNED VALUES

Each lot of serum is submitted to a number of external laboratories. Values are assigned from a consensus of results obtained by these laboratories and internal testing conducted at Randox Laboratories Ltd. With each batch, a control range is provided for individual parameters and each parameter method. The control range is equivalent to the assigned mean $\pm$ 2 S.D.

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

Revised 18 Mar '14 ne

ASSAYED BOVINE MULTI-SERA - LEVEL 3 (BOV ASY CONTROL 3)

Cat. No. AE1032 Lot No. 340SE Size: 20 x 5 ml Expiry: 2017-01

Beckman Coulter AU400/500/600/800®

Range

Analyte	unit	target	low	high	methods
Albumin	g/l	47.0	40.0	54.1	Bromocresol Green
	g/dl	4.70	4.00	5.40	
Alkaline Phosphatase	U/l	387	329	445	AMP optimised to IFCC 37°C
ALT (GPT)	U/l	125	100	150	Tris buffer without P5P 37°C
AST (GOT)	U/l	192	154	230	Tris buffer without P5P 37°C
Bicarbonate	mmol/l	26.9	21.3	32.5	Enzymatic
Bilirubin Direct	µmol/l	23.2	18.3	28.1	Diazo with Sulphanilic Acid
	mg/dl	1.36	1.07	1.65	
Bilirubin Total	µmol/l	79.1	62.5	95.7	Dichlorophenyl Diazonium (DPD)
	mg/dl	4.63	3.66	5.60	
Calcium	mmol/l	3.01	2.71	3.31	Arsenazo III
	mg/dl	12.1	10.9	13.3	
Chloride	mmol/l	117	108	126	ISE indirect
CK Total	U/l	473	388	558	CK-NAC (IFCC) 37°C
Creatinine	µmol/l	497	398	596	Jaffe rate blanked
	mg/dl	5.62	4.50	6.73	
Gamma-GT	U/l	120	102	138	Gamma Glutamyl-3-Carboxy-4-nitroanilide (IFCC) 37°C
Glucose	mmol/l	15.1	12.8	17.4	Hexokinase
	mg/dl	272	231	313	
Iron	µmol/l	37.6	30.8	44.4	Colorimetric without ppt.
	µg/dl	210	172	248	
LD (LDH)	U/l	433	368	498	L->P IFCC 37°C
Magnesium	mmol/l	1.50	1.32	1.68	Xylidyl Blue
	mg/dl	3.65	3.21	4.09	
Phosphate Inorganic	mmol/l	2.17	1.84	2.50	Phosphomolybdate UV
	mg/dl	6.73	5.70	7.76	
Potassium	mmol/l	6.23	5.73	6.73	ISE method - indirect
Protein Total	g/l	72.1	57.7	86.5	Biuret reaction end point
	g/dl	7.21	5.77	8.65	
Sodium	mmol/l	151	143	159	ISE method - indirect
Urea	mmol/l	22.3	19.0	25.6	Urease kinetic
	mg/dl	134	114	154	
	mmol/l	22.3	19.0	25.6	BUN
	mg/dl	62.6	53.2	72.0	
Uric Acid (Urate)	mmol/l	0.574	0.500	0.650	Uricase peroxidase with ascorbate oxidase
	mg/dl	9.64	8.40	10.9	

ASSAYED BOVINE MULTI-SERA - LEVEL 3 (BOV ASY CONTROL 3)

Cat. No. AE1032 Lot No. 340SE Size: 20 x 5 ml Expiry: 2017-01

COBAS INTEGRA®		Range			
Analyte	unit	target	low	high	methods
Albumin	g/l	52.6	44.7	60.5	Bromocresol Green
	g/dl	5.26	4.47	6.05	
Alkaline Phosphatase	U/l	242	206	278	AMP optimised to IFCC 37°C
	U/l	189	160	217	AMP optimised to IFCC 30°C
	U/l	155	132	178	AMP optimised to IFCC 25°C
ALT (GPT)	U/l	122	98	146	Tris buffer without P5P 37°C
	U/l	90	73	107	Tris buffer without P5P 30°C
	U/l	69	55	83	Tris buffer without P5P 25°C
Amylase Total	U/l	417	354	480	Roche liquid stable pNPG7 37°C
AST (GOT)	U/l	177	142	212	Tris buffer without P5P 37°C
	U/l	120	96	144	Tris buffer without P5P 30°C
	U/l	84	68	100	Tris buffer without P5P 25°C
Bicarbonate	mmol/l	23.0	18.2	27.8	Enzymatic
Bilirubin Direct	µmol/l	20.2	16.0	24.4	Diazo with Sulphanilic Acid
	mg/dl	1.18	0.936	1.42	
Bilirubin Total	µmol/l	78.7	62.2	95.2	Diazo with Sulphanilic Acid
	mg/dl	4.60	3.64	5.56	
Calcium	mmol/l	3.02	2.72	3.32	NM-BAPTA
	mg/dl	12.1	10.9	13.3	
Chloride	mmol/l	117	108	126	ISE indirect
Cholesterol	mmol/l	5.82	5.06	6.58	Cholesterol Oxidase
	mg/dl	225	195	255	
CK Total	U/l	477	391	563	CK-NAC serum start (DGKC) 37°C
	U/l	299	245	353	CK-NAC serum start (DGKC) 30°C
	U/l	203	166	240	CK-NAC serum start (DGKC) 25°C
Creatinine	µmol/l	479	383	575	Alkaline picrate no deproteinization
	mg/dl	5.41	4.33	6.50	
Gamma-GT	U/l	119	101	137	Gamma glutamyl.-3-carboxy-4-nitroanilide 37°C
	U/l	94	80	108	Gamma glutamyl.-3-carboxy-4-nitroanilide 30°C
	U/l	73	62	84	Gamma glutamyl.-3-carboxy-4-nitroanilide 25°C
Glucose	mmol/l	15.2	12.9	17.5	Hexokinase
	mg/dl	274	232	316	
Iron	µmol/l	37.1	30.4	43.8	Colorimetric without ppt.
	µg/dl	207	170	244	
LD (LDH)	U/l	392	333	451	L->P IFCC 37°C
	U/l	283	240	326	L->P IFCC 30°C
	U/l	199	169	229	L->P IFCC 25°C
Lithium	mmol/l	1.60	1.41	1.79	Ion selective electrode
	mg/dl	1.11	0.980	1.24	
Magnesium	mmol/l	1.47	1.29	1.65	Chlorphosphonazo III
	mg/dl	3.57	3.13	4.01	
Phosphate Inorganic	mmol/l	2.27	1.93	2.61	Phosphomolybdate UV
	mg/dl	7.04	5.98	8.10	

ASSAYED BOVINE MULTI-SERA - LEVEL 3 (BOV ASY CONTROL 3)

Cat. No. AE1032 Lot No. 340SE Size: 20 x 5 ml Expiry: 2017-01

COBAS INTEGRA®

Range

Analyte	unit	target	low	high	methods
Potassium	mmol/l	6.30	5.80	6.80	ISE indirect
Protein Total	g/l	71.0	56.8	85.2	Biuret reaction end point
	g/dl	7.10	5.68	8.52	
Sodium	mmol/l	151	143	159	ISE indirect
Triglycerides	mmol/l	2.61	2.19	3.03	Lipase/GPO-PAP no correction
	mg/dl	231	194	268	
Urea	mmol/l	22.0	18.7	25.3	Urease kinetic
	mg/dl	132	112	152	
	mmol/l	22.0	18.7	25.3	BUN
	mg/dl	61.7	52.4	71.0	
Uric Acid (Urate)	mmol/l	0.550	0.480	0.620	Uricase peroxidase with ascorbate oxidase
	mg/dl	9.24	8.06	10.4	

ASSAYED BOVINE MULTI-SERA - LEVEL 3 (BOV ASY CONTROL 3)

Cat. No. AE1032 Lot No. 340SE Size: 20 x 5 ml Expiry: 2017-01

HITACHI SERIES®		Range			
Analyte	unit	target	low	high	methods
Acid Phosphatase (non-prostatic)	U/l	15.8	10.6	21.0	1-Naphthyl Phosphate substrate Kinetic 37°C
	U/l	13.6	9.11	18.1	1-Naphthyl Phosphate, Kinetic with Pentane diol Activation 37°C
Acid Phosphatase (Prostatic)	U/l	30.5	20.4	40.6	1-Naphthyl Phosphate substrate Kinetic 37°C
	U/l	49.1	32.9	65.3	1-Naphthyl Phosphate, Kinetic with Pentane diol Activation 37°C
Acid Phosphatase (Total)	U/l	46.3	31.0	61.6	1-Naphthyl Phosphate substrate Kinetic 37°C
	U/l	62.7	42.0	83.4	1-Naphthyl Phosphate, Kinetic with Pentane diol Activation 37°C
Albumin	g/l	51.0	43.4	58.7	Bromocresol Green
	g/dl	5.10	4.34	5.86	
Alkaline Phosphatase	U/l	511	434	588	Diethanolamine buffer DEA 37°C
	U/l	398	338	458	Diethanolamine buffer DEA 30°C
	U/l	327	277	377	Diethanolamine buffer DEA 25°C
	U/l	224	190	258	AMP optimised to IFCC 37°C
	U/l	174	148	201	AMP optimised to IFCC 30°C
	U/l	143	121	165	AMP optimised to IFCC 25°C
	U/l	337	286	388	Randox AMP 37°C
	U/l	263	223	302	Randox AMP 30°C
	U/l	215	183	248	Randox AMP 25°C
ALT (GPT)	U/l	125	100	150	Tris buffer without P5P 37°C
	U/l	93	74	112	Tris buffer without P5P 30°C
	U/l	70	56	84	Tris buffer without P5P 25°C
Amylase Total	U/l	439	373	505	Roche liquid stable pNPG7 37°C
	U/l	542	461	623	Randox liquid stable pNPG7 37°C
AST (GOT)	U/l	176	141	211	Tris buffer without P5P 37°C
	U/l	119	95	143	Tris buffer without P5P 30°C
	U/l	84	67	101	Tris buffer without P5P 25°C
Bicarbonate	mmol/l	24.9	19.7	30.1	Enzymatic
Bile Acids	µmol/l	85.2	68.2	102	5th Generation Colorimetric
Bilirubin Direct	µmol/l	22.3	17.6	27.0	Diazo with Sulphanilic Acid
	mg/dl	1.30	1.03	1.57	
	µmol/l	31.3	24.7	37.9	Oxidation to Biliverdin
	mg/dl	1.83	1.44	2.22	
Bilirubin Total	µmol/l	71.7	56.6	86.8	Diazo with Sulphanilic Acid
	mg/dl	4.19	3.31	5.07	
	µmol/l	75.0	59.3	90.8	Dichlorophenyl Diazonium (DPD)
	mg/dl	4.39	3.47	5.31	
Calcium	mmol/l	3.06	2.75	3.37	Cresolphthalein complexone
	mg/dl	12.3	11.0	13.6	
	mmol/l	2.95	2.66	3.25	Arsenazo III
	mg/dl	11.8	10.7	13.0	
	mmol/l	3.07	2.76	3.38	NM-BAPTA
	mg/dl	12.3	11.1	13.5	
Chloride	mmol/l	114	105	123	ISE indirect

ASSAYED BOVINE MULTI-SERA - LEVEL 3 (BOV ASY CONTROL 3)

Cat. No. AE1032 Lot No. 340SE Size: 20 x 5 ml Expiry: 2017-01

HITACHI SERIES®

Range

Analyte	unit	target	low	high	methods
Cholesterol	mmol/l	5.85	5.09	6.61	Cholesterol Oxidase
	mg/dl	226	196	256	
CK Total	U/l	427	350	504	CK-NAC (IFCC) 37°C
	U/l	267	219	315	CK-NAC (IFCC) 30°C
	U/l	181	149	213	CK-NAC (IFCC) 25°C
	U/l	439	360	518	CK-NAC substrate start (DGKC) 37°C
	U/l	275	225	324	CK-NAC substrate start (DGKC) 30°C
	U/l	187	153	220	CK-NAC substrate start (DGKC) 25°C
Creatinine	µmol/l	539	431	647	Alkaline picrate no deproteinization
	mg/dl	6.09	4.87	7.31	
Gamma-GT	U/l	121	103	139	Gamma Glutamyl-3-Carboxy-4-nitroanilide (IFCC) 37°C
	U/l	95	81	109	Gamma Glutamyl-3-Carboxy-4-nitroanilide (IFCC) 30°C
	U/l	75	64	86	Gamma Glutamyl-3-Carboxy-4-nitroanilide (IFCC) 25°C
Glucose	mmol/l	15.5	13.2	17.8	Glucose oxidase
	mg/dl	279	238	320	
	mmol/l	16.2	13.8	18.6	Hexokinase
	mg/dl	292	249	335	
Iron	µmol/l	36.4	29.8	43.0	Colorimetric without ppt.
	µg/dl	203	167	239	
LD (LDH)	U/l	505	429	581	P->L German methods 37°C
	U/l	365	310	420	P->L German methods 30°C
	U/l	256	218	294	P->L German methods 25°C
	U/l	409	348	470	L->P IFCC 37°C
	U/l	295	251	339	L->P IFCC 30°C
	U/l	207	176	238	L->P IFCC 25°C
Lipase	U/l	90	72	108	Randox Colorimetric 37°C
Magnesium	mmol/l	1.46	1.28	1.64	Xylidyl Blue
	mg/dl	3.55	3.11	3.99	
	mmol/l	1.46	1.28	1.64	Chlorphosphonazo III
	mg/dl	3.55	3.11	3.99	
Phosphate Inorganic	mmol/l	2.20	1.87	2.53	Phosphomolybdate UV
	mg/dl	6.82	5.80	7.84	
Potassium	mmol/l	6.29	5.79	6.79	ISE indirect
Protein Total	g/l	72.0	57.6	86.4	Biuret reaction end point
	g/dl	7.20	5.76	8.64	
Sodium	mmol/l	154	146	162	ISE indirect
TIBC	µmol/l	43.1	34.0	52.2	Randox Direct
	µg/dl	241	190	292	
Triglycerides	mmol/l	2.61	2.19	3.03	Lipase/GPO-PAP no correction
	mg/dl	231	194	268	
Urea	mmol/l	22.5	19.1	25.9	Urease kinetic
	mg/dl	135	115	155	
	mmol/l	22.5	19.1	25.9	BUN
	mg/dl	63.2	53.7	72.7	
Uric Acid (Urate)	mmol/l	0.531	0.462	0.600	Uricase peroxidase with ascorbate oxidase
	mg/dl	8.92	7.76	10.1	

ASSAYED BOVINE MULTI SERA - LEVEL 3 (BOV ASY CONTROL 3)

Cat. No. AE1032 Lot No. 340SE Size: 20 x 5 ml Expiry: 2017-01

MEAN OF ALL INSTRUMENTS

			Range		
Analyte	unit	target	low	high	methods
Alpha-HBDH	U/l	123	97	149	Oxobutyrate < 10 mmol/l 37°C
	U/l	93	73	112	Oxobutyrate < 10 mmol/l 30°C
	U/l	70	55	84	Oxobutyrate < 10 mmol/l 25°C
Acid Phosphatase (non-prostatic)	U/l	15.8	10.6	21.0	1-Naphthyl Phosphate substrate Kinetic 37°C
	U/l	13.6	9.11	18.1	1-Naphthyl Phosphate, Kinetic with Pentane diol Activation 37°C
Acid Phosphatase (Prostatic)	U/l	30.5	20.4	40.6	1-Naphthyl Phosphate substrate Kinetic 37°C
	U/l	49.1	32.9	65.3	1-Naphthyl Phosphate, Kinetic with Pentane diol Activation 37°C
Acid Phosphatase (Total)	U/l	46.3	31.0	61.6	1-Naphthyl Phosphate substrate Kinetic 37°C
	U/l	62.7	42.0	83.4	1-Naphthyl Phosphate, Kinetic with Pentane diol Activation 37°C
Albumin	g/l	49.7	42.2	57.2	Bromocresol Green
	g/dl	4.97	4.22	5.72	
Alkaline Phosphatase	U/l	342	274	410	p-Nitrophenylphosphate AMP 37°C
	U/l	266	213	319	p-Nitrophenylphosphate AMP 30°C
	U/l	219	175	263	p-Nitrophenylphosphate AMP 25°C
	U/l	511	434	588	Diethanolamine buffer DEA 37°C
	U/l	398	338	458	Diethanolamine buffer DEA 30°C
	U/l	327	277	377	Diethanolamine buffer DEA 25°C
ALT (GPT)	U/l	156	125	187	Tris buffer with P5P 37°C
	U/l	115	93	137	Tris buffer with P5P 30°C
	U/l	88	70	106	Tris buffer with P5P 25°C
	U/l	126	101	151	Tris buffer without P5P 37°C
	U/l	93	75	111	Tris buffer without P5P 30°C
	U/l	71	57	85	Tris buffer without P5P 25°C
Amylase Total	U/l	521	443	599	Randox - Ethylidene pNPG7 37°C
	U/l	542	461	623	Randox liquid stable pNPG7 37°C
	U/l	427	363	491	Roche liquid stable pNPG7 37°C
AST (GOT)	U/l	239	191	287	Tris buffer with P5P 37°C
	U/l	162	129	195	Tris buffer with P5P 30°C
	U/l	114	91	137	Tris buffer with P5P 25°C
	U/l	184	147	221	Tris buffer without P5P 37°C
	U/l	124	99	149	Tris buffer without P5P 30°C
	U/l	88	70	106	Tris buffer without P5P 25°C
Bicarbonate	mmol/l	23.4	18.6	28.2	Enzymatic
Bile Acids	µmol/l	110	88.0	132	4th Generation Colorimetric
	µmol/l	85.2	68.2	102	5th Generation Colorimetric
Bilirubin Direct	µmol/l	31.4	24.8	38.0	Diazo with Sulphanilic Acid
	mg/dl	1.84	1.45	2.23	
	µmol/l	23.9	18.9	28.9	Modified Jendrassik
	mg/dl	1.40	1.11	1.69	
Bilirubin Total	µmol/l	85.0	67.2	103	Diazo with Sulphanilic Acid
	mg/dl	4.97	3.93	6.01	
	µmol/l	92.4	73.0	112	Dichlorophenyl Diazonium (DPD)
	mg/dl	5.41	4.27	6.55	

ASSAYED BOVINE MULTI SERA - LEVEL 3 (BOV ASY CONTROL 3)

Cat. No. AE1032 Lot No. 340SE Size: 20 x 5 ml Expiry: 2017-01

MEAN OF ALL INSTRUMENTS

Range

Analyte	unit	target	low	high	methods
Bilirubin Total	μmol/l	93.9	74.2	114	Diazo with Dichloroaniline (DCA)
	mg/dl	5.49	4.34	6.67	
	μmol/l	94.7	74.8	115	Modified Jendrassik
	mg/dl	5.54	4.38	6.73	
Calcium	mmol/l	2.95	2.66	3.25	Arsenazo III
	mg/dl	11.8	10.7	12.9	
	mmol/l	3.08	2.77	3.39	Cresolphthalein complexone
	mg/dl	12.3	11.1	13.5	
	mmol/l	3.05	2.75	3.36	NM-BAPTA
	mg/dl	12.2	11.0	13.5	
Chloride	mmol/l	114	105	123	Colorimetric
	mmol/l	113	104	122	ISE indirect
	mmol/l	113	104	122	ISE direct
Cholesterol	mmol/l	5.86	5.10	6.62	Cholesterol Oxidase
	mg/dl	226	197	255	
CK Total	U/l	452	371	533	CK-NAC serum start (DGKC) 37°C
	U/l	283	232	334	CK-NAC serum start (DGKC) 30°C
	U/l	192	158	226	CK-NAC serum start (DGKC) 25°C
	U/l	449	368	530	CK-NAC substrate start (DGKC) 37°C
	U/l	281	230	332	CK-NAC substrate start (DGKC) 30°C
	U/l	191	156	226	CK-NAC substrate start (DGKC) 25°C
	U/l	453	371	535	CK-NAC (IFCC) 37°C
	U/l	284	232	336	CK-NAC (IFCC) 30°C
Copper	μmol/l	24.7	19.8	29.6	Colorimetric
	μg/dl	157	126	188	
Cortisol	nmol/l	424	318	530	Siemens Immulite 2000
	μg/dl	15.3	11.4	19.1	
Creatinine	μmol/l	505	404	606	Alkaline picrate no deproteinization
	mg/dl	5.71	4.57	6.85	
	μmol/l	528	422	634	Randox Enzymatic UV method
	mg/dl	5.97	4.77	7.17	
D-3-Hydroxybutyrate	mmol/l	2.45	2.08	2.82	Tris buffer 100mmol pH 8.5
Free T4	pmol/l	60.1	45.1	75.1	Siemens Immulite 2000
	ng/dl	4.69	3.52	5.86	
	pg/ml	46.9	35.2	58.6	
Gamma-GT	U/l	120	102	138	Gamma glutamyl.-3-carboxy-4-nitroanilide 37°C
	U/l	95	80	110	Gamma glutamyl.-3-carboxy-4-nitroanilide 30°C
	U/l	74	63	85	Gamma glutamyl.-3-carboxy-4-nitroanilide 25°C
	U/l	120	102	138	Gamma Glutamyl-3-Carboxy-4-nitroanilide (IFCC) 37°C
	U/l	95	80	110	Gamma Glutamyl-3-Carboxy-4-nitroanilide (IFCC) 30°C
	U/l	74	63	85	Gamma Glutamyl-3-Carboxy-4-nitroanilide (IFCC) 25°C
	U/l	121	103	139	Randox Gamma glutamyl.-3-carboxy-4-nitroanilide 37°C
	U/l	95	81	110	Randox Gamma glutamyl.-3-carboxy-4-nitroanilide 30°C
	U/l	75	64	86	Randox Gamma glutamyl.-3-carboxy-4-nitroanilide 25°C

ASSAYED BOVINE MULTI SERA - LEVEL 3 (BOV ASY CONTROL 3)

Cat. No. AE1032 Lot No. 340SE Size: 20 x 5 ml Expiry: 2017-01

MEAN OF ALL INSTRUMENTS

Range

Analyte	unit	target	low	high	methods
GLDH	U/l	24	19	29	Triethanolamine buffer 50 mmol 37°C
	U/l	18	15	21	Triethanolamine buffer 50 mmol 30°C
	U/l	15	12	18	Triethanolamine buffer 50 mmol 25°C
Glucose	mmol/l	15.2	12.9	17.5	Hexokinase
	mg/dl	274	232	316	
	mmol/l	15.7	13.3	18.1	Glucose oxidase
	mg/dl	283	240	326	
Iron	µmol/l	36.1	29.6	42.6	Colorimetric without ppt.
	µg/dl	202	165	239	
Lactate	mmol/l	6.31	5.17	7.45	Enzymatic Colorimetric
	mg/dl	56.9	46.6	67.1	
LD (LDH)	U/l	513	436	590	P->L German methods 37°C
	U/l	370	315	425	P->L German methods 30°C
	U/l	260	221	299	P->L German methods 25°C
	U/l	408	347	469	L->P IFCC 37°C
	U/l	295	251	339	L->P IFCC 30°C
	U/l	207	176	238	L->P IFCC 25°C
	U/l	416	354	478	L->P Randox 37°C
	U/l	300	256	345	L->P Randox 30°C
	U/l	211	179	242	L->P Randox 25°C
Lipase	U/l	90	72	108	Randox Colorimetric 37°C
	U/l	568	456	680	Randox Turbidimetric with colipase 37°C
Lithium	mmol/l	1.76	1.55	1.97	Colorimetric
	mg/dl	1.22	1.08	1.36	
	mmol/l	1.60	1.41	1.79	Ion selective electrode
	mg/dl	1.11	0.979	1.24	
Magnesium	mmol/l	1.40	1.23	1.57	Xylidyl Blue
	mg/dl	3.40	2.99	3.81	
	mmol/l	1.44	1.27	1.61	Chlorphosphonazo III
	mg/dl	3.50	3.09	3.91	
NEFA	mmol/l	2.91	2.47	3.35	Colorimetric
Osmolality	mOsm/kg	472	378	566	Freezing point depression
Phosphate Inorganic	mmol/l	2.16	1.84	2.48	Phosphomolybdate UV
	mg/dl	6.70	5.70	7.70	
Potassium	mmol/l	6.11	5.62	6.60	Enzymatic
	mmol/l	6.35	5.84	6.86	ISE direct
	mmol/l	6.23	5.73	6.73	ISE indirect
Protein Total	g/l	72.2	57.8	86.6	Biuret reaction end point
	g/dl	7.22	5.78	8.66	
PSA Total	ng/ml = µg/l	45.3	34.0	56.6	Siemens Advia Centaur
Sodium	mmol/l	152	144	160	Enzymatic
	mmol/l	151	143	159	ISE direct
	mmol/l	151	143	159	ISE indirect
TIBC	µmol/l	43.1	34.0	52.2	Randox Direct
	µg/dl	241	190	292	
Total T3	nmol/l	2.69	2.02	3.36	Siemens Immulite 2000
	ng/ml	1.75	1.32	2.19	
	ng/dl	175	132	219	

ASSAYED BOVINE MULTI SERA - LEVEL 3 (BOV ASY CONTROL 3)

Cat. No. AE1032 Lot No. 340SE Size: 20 x 5 ml Expiry: 2017-01

MEAN OF ALL INSTRUMENTS

Range

Analyte	unit	target	low	high	methods
Total T4	nmol/l	187	140	234	Siemens Immulite 2000
	µg/dl	14.6	10.9	18.3	
	ng/ml	146	109	183	
Triglycerides	mmol/l	2.55	2.14	2.96	Lipase/GPO-PAP no correction
	mg/dl	226	189	263	
Urea	mmol/l	21.9	18.6	25.2	Urease kinetic
	mg/dl	132	112	152	
	mmol/l	21.6	18.4	24.8	Urease hypochlorite
	mg/dl	130	111	149	
	mmol/l	8.59	7.30	9.88	Urease Berthelot
	mg/dl	51.6	43.9	59.4	
	mmol/l	21.9	18.6	25.2	BUN
	mg/dl	61.5	52.3	70.7	
Uric Acid (Urate)	mmol/l	0.540	0.470	0.610	Uricase Peroxidase with ascorbate oxidase @ 546nm
	mg/dl	9.07	7.90	10.2	
	mmol/l	0.504	0.438	0.570	Uricase peroxidase no ascorbate oxidase
	mg/dl	8.47	7.36	9.58	
	mmol/l	0.525	0.457	0.593	Uricase peroxidase with ascorbate oxidase
	mg/dl	8.82	7.68	9.96	
Zinc	µmol/l	35.9	28.7	43.1	Colorimetric with deproteinisation
	µg/dl	234	187	281	

ASSAYED BOVINE MULTI-SERA - LEVEL 3 (BOV ASY CONTROL 3)

Cat. No. AE1032 Lot No. 340SE Size: 20 x 5 ml Expiry: 2017-01

Roche Cobas 6000 c501 e601

Range

Analyte	unit	target	low	high	methods
Albumin	g/l	51.1	43.4	58.8	Bromocresol Green
	g/dl	5.11	4.34	5.88	
Alkaline Phosphatase	U/l	231	196	266	p-Nitrophenylphosphate AMP 37°C
	U/l	180	153	207	p-Nitrophenylphosphate AMP 30°C
	U/l	148	125	171	p-Nitrophenylphosphate AMP 25°C
ALT (GPT)	U/l	123	98	148	Tris buffer without P5P 37°C
	U/l	91	73	110	Tris buffer without P5P 30°C
	U/l	69	55	83	Tris buffer without P5P 25°C
Amylase Total	U/l	420	357	483	Roche liquid stable pNPG7 37°C
AST (GOT)	U/l	189	151	227	Tris buffer without P5P 37°C
	U/l	128	102	153	Tris buffer without P5P 30°C
	U/l	90	72	108	Tris buffer without P5P 25°C
Bicarbonate	mmol/l	21.5	17.0	26.0	Enzymatic
Bilirubin Direct	µmol/l	23.4	18.5	28.3	Diazo with Sulphanilic Acid
	mg/dl	1.37	1.08	1.66	
Bilirubin Total	µmol/l	74.2	58.6	89.8	Diazo with Sulphanilic Acid
	mg/dl	4.34	3.43	5.25	
	µmol/l	72.3	57.1	87.5	Dichlorophenyl Diazonium (DPD)
	mg/dl	4.23	3.34	5.12	
Calcium	mmol/l	2.91	2.62	3.20	Arsenazo III
	mg/dl	11.7	10.5	12.8	
	mmol/l	2.99	2.69	3.29	Cresolphthalein complexone
	mg/dl	12.0	10.8	13.2	
Chloride	mmol/l	111	102	120	ISE indirect
Cholesterol	mmol/l	5.74	4.99	6.49	Cholesterol Oxidase
	mg/dl	222	193	251	
CK Total	U/l	483	396	570	CK-NAC substrate start (DGKC) 37°C
	U/l	302	248	357	CK-NAC substrate start (DGKC) 30°C
	U/l	205	168	242	CK-NAC substrate start (DGKC) 25°C
	U/l	457	375	539	CK-NAC (IFCC) 37°C
	U/l	286	235	337	CK-NAC (IFCC) 30°C
	U/l	194	159	229	CK-NAC (IFCC) 25°C
Creatinine	µmol/l	532	426	638	Alkaline picrate no deproteinization
	mg/dl	6.01	4.81	7.21	
Gamma-GT	U/l	118	100	136	Gamma glutamyl.-3-carboxy-4-nitroanilide 37°C
	U/l	93	79	107	Gamma glutamyl.-3-carboxy-4-nitroanilide 30°C
	U/l	73	62	84	Gamma glutamyl.-3-carboxy-4-nitroanilide 25°C
Glucose	mmol/l	14.7	12.5	16.9	Hexokinase
	mg/dl	265	225	305	
Iron	µmol/l	35.1	28.8	41.4	Colorimetric without ppt.
	µg/dl	196	161	231	
LD (LDH)	U/l	496	422	570	P->L German methods 37°C
	U/l	358	305	412	P->L German methods 30°C
	U/l	251	214	289	P->L German methods 25°C

ASSAYED BOVINE MULTI-SERA - LEVEL 3 (BOV ASY CONTROL 3)

Cat. No. AE1032 Lot No. 340SE Size: 20 x 5 ml Expiry: 2017-01

Roche Cobas 6000 c501 e601

Range

Analyte	unit	target	low	high	methods
Magnesium	mmol/l	1.38	1.21	1.55	Xylidyl Blue
	mg/dl	3.35	2.94	3.77	
Phosphate Inorganic	mmol/l	2.07	1.76	2.38	Phosphomolybdate UV
	mg/dl	6.42	5.46	7.38	
Potassium	mmol/l	6.15	5.66	6.64	ISE indirect
Protein Total	g/l	70.1	56.1	84.1	Biuret reaction end point
	g/dl	7.01	5.61	8.41	
Sodium	mmol/l	149	142	156	ISE indirect
Triglycerides	mmol/l	2.48	2.08	2.88	Lipase/GPO-PAP no correction
	mg/dl	219	184	255	
Urea	mmol/l	20.7	17.6	23.8	Urease kinetic
	mg/dl	124	106	143	
	mmol/l	20.7	17.6	23.8	BUN
	mg/dl	58.1	49.4	66.8	
Uric Acid (Urate)	mmol/l	0.505	0.440	0.570	Uricase peroxidase with ascorbate oxidase
	mg/dl	8.48	7.39	9.58	

ASSAYED BOVINE MULTI-SERA - LEVEL 3 (BOV ASY CONTROL 3)

Cat. No. AE1032 Lot No. 340SE Size: 20 x 5 ml Expiry: 2017-01

Roche Cobas C111®		Range			
Analyte	unit	target	low	high	methods
Albumin	g/l	49.4	42.0	56.8	Bromocresol Green
	g/dl	4.94	4.20	5.68	
Alkaline Phosphatase	U/l	256	218	294	p-Nitrophenylphosphate AMP 37°C
	U/l	199	170	229	p-Nitrophenylphosphate AMP 30°C
	U/l	164	139	188	p-Nitrophenylphosphate AMP 25°C
ALT (GPT)	U/l	121	97	145	Tris buffer without P5P 37°C
	U/l	90	72	107	Tris buffer without P5P 30°C
	U/l	68	55	82	Tris buffer without P5P 25°C
Amylase Total	U/l	425	361	489	Roche liquid stable pNPG7 37°C
AST (GOT)	U/l	176	141	211	Tris buffer without P5P 37°C
	U/l	119	95	143	Tris buffer without P5P 30°C
	U/l	84	67	100	Tris buffer without P5P 25°C
Bilirubin Total	µmol/l	74.3	58.7	89.9	Diazo with Sulphanilic Acid
	mg/dl	4.35	3.43	5.26	
Calcium	mmol/l	3.17	2.85	3.49	Cresolphthalein complexone
	mg/dl	12.7	11.4	14.0	
Chloride	mmol/l	113	104	122	ISE indirect
Cholesterol	mmol/l	6.06	5.27	6.85	Cholesterol Oxidase
	mg/dl	234	203	264	
CK Total	U/l	491	403	579	CK-NAC (IFCC) 37°C
	U/l	307	252	362	CK-NAC (IFCC) 30°C
	U/l	209	171	246	CK-NAC (IFCC) 25°C
Creatinine	µmol/l	459	367	551	Alkaline picrate no deproteinization
	mg/dl	5.19	4.15	6.23	
Gamma-GT	U/l	126	107	145	Gamma Glutamyl-3-Carboxy-4-nitroanilide (IFCC) 37°C
	U/l	99	84	114	Gamma Glutamyl-3-Carboxy-4-nitroanilide (IFCC) 30°C
	U/l	78	66	89	Gamma Glutamyl-3-Carboxy-4-nitroanilide (IFCC) 25°C
Glucose	mmol/l	15.1	12.8	17.4	Hexokinase
	mg/dl	272	231	314	
Magnesium	mmol/l	1.38	1.21	1.55	Chlorophosphonazo III
	mg/dl	3.35	2.94	3.77	
Phosphate Inorganic	mmol/l	2.15	1.83	2.47	Phosphomolybdate UV
	mg/dl	6.67	5.67	7.66	
Potassium	mmol/l	6.23	5.73	6.73	ISE indirect
Protein Total	g/l	74.2	59.4	89.0	Biuret reaction end point
	g/dl	7.42	5.94	8.90	
Sodium	mmol/l	151	143	159	ISE indirect
Triglycerides	mmol/l	2.57	2.16	2.98	Lipase/GPO-PAP no correction
	mg/dl	227	191	264	
Urea	mmol/l	22.0	18.7	25.3	Urease kinetic
	mg/dl	132	112	152	
	mmol/l	22.0	18.7	25.3	BUN
	mg/dl	61.7	52.4	71.0	

ASSAYED BOVINE MULTI-SERA - LEVEL 3 (BOV ASY CONTROL 3)

Cat. No. AE1032 Lot No. 340SE Size: 20 x 5 ml Expiry: 2017-01

Roche Cobas C111®		Range			
Analyte	unit	target	low	high	methods
Uric Acid (Urate)	mmol/l	0.530	0.460	0.600	Uricase peroxidase with ascorbate oxidase
	mg/dl	8.90	7.73	10.1	

ASSAYED BOVINE MULTI-SERA - LEVEL 3 (BOV ASY CONTROL 3)

Cat. No. AE1032 Lot No. 340SE Size: 20 x 5 ml Expiry: 2017-01

RX DAYTONA®/IMOLA®/SUZUKA®

Range

Analyte	unit	target	low	high	methods
Albumin	g/l	46.7	39.7	53.7	Bromocresol Green
	g/dl	4.67	3.97	5.37	
Alkaline Phosphatase	U/l	503	428	578	Diethanolamine buffer DEA 37°C
	U/l	331	281	381	AMP optimised to IFCC 37°C
ALT (GPT)	U/l	130	104	156	Tris buffer without P5P 37°C
Amylase Total	U/l	579	492	666	Randox liquid stable pNPG7 37°C
AST (GOT)	U/l	197	158	236	Tris buffer without P5P 37°C
Bicarbonate	mmol/l	24.5	19.4	29.6	Enzymatic
Bile Acids	µmol/l	85.2	68.2	102	5th Generation Colorimetric
Bilirubin Direct	µmol/l	26.7	21.1	32.3	Diazo with Sulphanilic Acid
	mg/dl	1.56	1.23	1.89	
Bilirubin Total	µmol/l	86.7	68.5	105	Diazo with Sulphanilic Acid
	mg/dl	5.07	4.01	6.13	
Calcium	mmol/l	2.97	2.67	3.27	Arsenazo III
	mg/dl	11.9	10.7	13.1	
Chloride	mmol/l	113	104	122	ISE direct
Cholesterol	mmol/l	5.80	5.05	6.55	Cholesterol Oxidase
	mg/dl	224	195	253	
CK Total	U/l	426	349	503	CK-NAC substrate start (DGKC) 37°C
	U/l	442	362	522	CK-NAC (IFCC) 37°C
Creatinine	µmol/l	465	372	558	Alkaline picrate no deproteinization
	mg/dl	5.25	4.20	6.30	
Gamma-GT	U/l	121	103	139	Gamma Glutamyl-3-Carboxy-4-nitroanilide (IFCC) 37°C
Glucose	mmol/l	15.2	12.9	17.5	Hexokinase
	mg/dl	274	232	316	
	mmol/l	15.7	13.3	18.1	Glucose oxidase
	mg/dl	283	240	326	
Iron	µmol/l	36.0	29.5	42.5	Colorimetric without ppt.
	µg/dl	201	165	237	
Lactate	mmol/l	6.22	5.10	7.34	Colorimetric Lactate Oxidase
	mg/dl	56.0	46.0	66.1	
LD (LDH)	U/l	720	612	828	P->L German methods 37°C
	U/l	411	349	473	L->P IFCC 37°C
Lipase	U/l	91	73	109	Randox Colorimetric 37°C
Lithium	mmol/l	1.76	1.55	1.97	Colorimetric
	mg/dl	1.22	1.08	1.37	
Magnesium	mmol/l	1.39	1.22	1.56	Xylidyl Blue
	mg/dl	3.38	2.96	3.80	
Phosphate Inorganic	mmol/l	2.18	1.85	2.51	Phosphomolybdate UV
	mg/dl	6.76	5.74	7.78	
Potassium	mmol/l	6.35	5.84	6.86	ISE direct
	mmol/l	6.09	5.60	6.58	Enzymatic

ASSAYED BOVINE MULTI-SERA - LEVEL 3 (BOV ASY CONTROL 3)

Cat. No. AE1032 Lot No. 340SE Size: 20 x 5 ml Expiry: 2017-01

RX DAYTONA®/IMOLA®/SUZUKA®

Range

Analyte	unit	target	low	high	methods
Protein Total	g/l	74.1	59.3	88.9	Biuret reaction end point
	g/dl	7.41	5.93	8.89	
Sodium	mmol/l	151	143	159	ISE direct
	mmol/l	151	143	159	Enzymatic
TIBC	μmol/l	44.7	35.3	54.1	Direct Colorimetric
	μg/dl	250	197	303	
Triglycerides	mmol/l	2.51	2.11	2.91	Lipase/GPO-PAP no correction
	mg/dl	222	187	257	
Urea	mmol/l	21.6	18.4	24.8	Urease kinetic
	mg/dl	130	111	149	
	mmol/l	21.6	18.4	24.8	BUN
	mg/dl	60.6	51.5	69.7	
Uric Acid (Urate)	mmol/l	0.500	0.440	0.570	Uricase peroxidase no ascorbate oxidase
	mg/dl	8.40	7.39	9.58	
	mmol/l	0.526	0.460	0.590	Uricase Peroxidase with ascorbate oxidase @ 546nm
	mg/dl	8.84	7.73	9.91	

ASSAYED BOVINE MULTI-SERA - LEVEL 3 (BOV ASY CONTROL 3)

Cat. No. AE1032 Lot No. 340SE Size: 20 x 5 ml Expiry: 2017-01

SIEMENS ADVIA 1200/1650/2400®

Range

Analyte	unit	target	low	high	methods
Albumin	g/l	46.4	39.4	53.4	Bromocresol Green
	g/dl	4.64	3.94	5.34	
Alkaline Phosphatase	U/l	311	264	358	p-Nitrophenylphosphate AMP 37°C
	U/l	431	366	496	Diethanolamine buffer DEA 37°C
ALT (GPT)	U/l	135	108	162	Tris buffer without P5P 37°C
Amylase Total	U/l	463	394	532	pNP Maltotrioxide substrates 37°C
AST (GOT)	U/l	188	150	226	Tris buffer without P5P 37°C
Bilirubin Direct	µmol/l	25.3	20.0	30.6	Vanadate Oxidation
	mg/dl	1.48	1.17	1.79	
Bilirubin Total	µmol/l	86.1	68.0	104	Vanadate Oxidation
	mg/dl	5.04	3.98	6.08	
Calcium	mmol/l	3.09	2.78	3.40	Cresolphthalein complexone
	mg/dl	12.4	11.1	13.7	
	mmol/l	2.97	2.67	3.27	Arsenazo III
	mg/dl	11.9	10.7	13.1	
Cholesterol	mmol/l	5.99	5.21	6.77	Cholesterol Oxidase
	mg/dl	231	201	261	
CK Total	U/l	427	350	504	CK-NAC serum start (DGKC) 37°C
Creatinine	µmol/l	495	396	594	Alkaline picrate no deproteinization
	mg/dl	5.59	4.47	6.71	
Gamma-GT	U/l	114	97	131	Gamma Glutamyl-3-Carboxy-4-nitroanilide (IFCC) 37°C
Glucose	mmol/l	15.9	13.5	18.3	Glucose oxidase
	mg/dl	287	243	331	
	mmol/l	15.5	13.2	17.8	Hexokinase
	mg/dl	279	238	321	
Iron	µmol/l	37.2	30.5	43.9	Colorimetric without ppt.
	µg/dl	208	170	246	
LD (LDH)	U/l	425	361	489	L->P 37°C
	U/l	556	473	639	P->L German methods 37°C
Magnesium	mmol/l	1.40	1.23	1.57	Xylidyl Blue
	mg/dl	3.40	2.99	3.81	
Phosphate Inorganic	mmol/l	2.12	1.80	2.44	Phosphomolybdate UV
	mg/dl	6.57	5.58	7.56	
Protein Total	g/l	74.2	59.4	89.0	Biuret reaction end point
	g/dl	7.42	5.94	8.90	
Triglycerides	mmol/l	2.57	2.16	2.98	Lipase/GPO-PAP no correction
	mg/dl	227	191	263	
Urea	mmol/l	23.0	19.6	26.5	Urease kinetic
	mg/dl	138	118	158	
	mmol/l	23.0	19.6	26.5	BUN
	mg/dl	64.6	54.9	74.3	
Uric Acid (Urate)	mmol/l	0.544	0.473	0.615	Uricase Peroxidase with ascorbate oxidase @ 546nm
	mg/dl	9.14	7.95	10.3	