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

Cat. No. AE1032 **Lot No.** 345SE
Size: 20 x 5 ml **Expiry:** 2019-09

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 ±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.

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

Cat. No. AE1032 Lot No. 345SE Size: 20 x 5 ml Expiry: 2019-09

Beckman Coulter AU Series®			Range		
Analyte	**unit**	**Target**	**low**	**high**	**methods**
Albumin	g/l	44.4	37.7	51.1	Bromocresol Green
	g/dl	4.44	3.77	5.11	
Alkaline Phosphatase	U/l	400	340	460	AMP optimised to IFCC 37°C
ALT (GPT)	U/l	125	100	150	Tris buffer without P5P 37°C
AST (GOT)	U/l	180	144	216	Tris buffer without P5P 37°C
Bicarbonate	mmol/l	32.6	25.9	39.3	Enzymatic
Bilirubin Direct	µmol/l	23.1	18.2	28.0	Diazo with Sulphanilic Acid
	mg/dl	1.35	1.06	1.64	
Bilirubin Total	µmol/l	80.2	63.4	97.0	Dichlorophenyl Diazonium (DPD)
	mg/dl	4.69	3.71	5.67	
Calcium	mmol/l	3.15	2.84	3.47	Arsenazo III
	mg/dl	12.6	11.4	13.8	
Chloride	mmol/l	114	105	123	ISE indirect
CK Total	U/l	492	403	581	CK-NAC (IFCC) 37°C
Creatinine	µmol/l	507	406	608	Jaffe rate blanked
	mg/dl	5.73	4.59	6.87	
Gamma-GT	U/l	126	107	145	Gamma Glutamyl-3-Carboxy-4-nitroanilide (IFCC) 37°C
Glucose	mmol/l	15.4	13.1	17.7	Hexokinase
	mg/dl	278	236	320	
Iron	µmol/l	36.1	29.6	42.6	Colorimetric without ppt.
	µg/dl	202	165	239	
LD (LDH)	U/l	330	281	380	L->P IFCC 37°C
Magnesium	mmol/l	1.47	1.29	1.65	Xylidyl Blue
	mg/dl	3.57	3.13	4.01	
Phosphate Inorganic	mmol/l	2.20	1.87	2.53	Phosphomolybdate UV
	mg/dl	6.82	5.80	7.84	
Potassium	mmol/l	6.22	5.72	6.72	ISE indirect
Protein Total	g/l	70.6	56.5	84.7	Biuret reaction end point
	g/dl	7.06	5.65	8.47	
Sodium	mmol/l	151	143	159	ISE indirect
Urea	mmol/l	21.7	18.4	25.0	Urease kinetic
	mg/dl	130	111	149	
	mmol/l	21.7	18.4	25.0	BUN
	mg/dl	60.9	51.8	70.0	
Uric Acid (Urate)	mmol/l	0.596	0.520	0.670	Uricase peroxidase with ascorbate oxidase
	mg/dl	10.0	8.74	11.3	

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

Cat. No. AE1032 Lot No. 345SE Size: 20 x 5 ml Expiry: 2019-09

HITACHI SERIES®			Range		
Analyte	**unit**	**Target**	**low**	**high**	**methods**
Acid Phosphatase (non-prostatic)	U/l	13.7	9.18	18.2	1-Naphthyl Phosphate substrate Kinetic 37°C
	U/l	12.0	8.04	16.0	1-Naphthyl Phosphate, Kinetic with Pentane diol Activation 37°C
Acid Phosphatase (Prostatic)	U/l	29.8	20.0	39.6	1-Naphthyl Phosphate substrate Kinetic 37°C
	U/l	50.6	33.9	67.3	1-Naphthyl Phosphate, Kinetic with Pentane diol Activation 37°C
Acid Phosphatase (Total)	U/l	43.5	29.1	57.9	1-Naphthyl Phosphate substrate Kinetic 37°C
	U/l	62.6	41.9	83.3	1-Naphthyl Phosphate, Kinetic with Pentane diol Activation 37°C
Albumin	g/l	50.0	42.5	57.5	Bromocresol Green
	g/dl	5.00	4.25	5.75	
Alkaline Phosphatase	U/l	201	171	231	p-Nitrophenylphosphate AMP 37°C
	U/l	157	133	181	p-Nitrophenylphosphate AMP 30°C
	U/l	128	109	147	p-Nitrophenylphosphate AMP 25°C
	U/l	343	292	394	Randox AMP 37°C
	U/l	267	227	307	Randox AMP 30°C
	U/l	219	187	252	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	456	388	524	Roche liquid stable pNPG7 37°C
	U/l	567	482	652	Randox liquid stable pNPG7 37°C
AST (GOT)	U/l	180	144	216	Tris buffer without P5P 37°C
	U/l	122	97	147	Tris buffer without P5P 30°C
	U/l	86	69	103	Tris buffer without P5P 25°C
Bicarbonate	mmol/l	27.6	21.9	33.3	Enzymatic
Bile Acids	µmol/l	89.1	71.3	107	5th Generation Colorimetric
Bilirubin Direct	µmol/l	26.5	20.9	32.1	Oxidation to Biliverdin
	mg/dl	1.55	1.22	1.88	
Bilirubin Total	µmol/l	79.1	62.5	95.7	Dichlorophenyl Diazonium (DPD)
	mg/dl	4.63	3.66	5.60	
Calcium	mmol/l	3.19	2.87	3.51	Cresolphthalein complexone
	mg/dl	12.8	11.5	14.1	
Chloride	mmol/l	112	103	121	ISE indirect
Cholesterol	mmol/l	6.35	5.52	7.18	Cholesterol Oxidase
	mg/dl	245	213	277	
CK Total	U/l	425	349	502	CK-NAC (IFCC) 37°C
	U/l	266	218	314	CK-NAC (IFCC) 30°C
	U/l	181	148	214	CK-NAC (IFCC) 25°C
Creatinine	µmol/l	509	407	611	Alkaline picrate no deproteinization
	mg/dl	5.75	4.60	6.90	
Gamma-GT	U/l	124	105	143	Gamma Glutamyl-3-Carboxy-4-nitroanilide (IFCC) 37°C
	U/l	98	83	113	Gamma Glutamyl-3-Carboxy-4-nitroanilide (IFCC) 30°C
	U/l	77	65	89	Gamma Glutamyl-3-Carboxy-4-nitroanilide (IFCC) 25°C
Glucose	mmol/l	15.7	13.3	18.1	Glucose oxidase
	mg/dl	283	240	326	

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

Cat. No. AE1032 Lot No. 345SE Size: 20 x 5 ml Expiry: 2019-09

HITACHI SERIES®			Range		
Analyte	**unit**	**Target**	**low**	**high**	**methods**
Iron	µmol/l	34.0	27.9	40.1	Colorimetric without ppt.
	µg/dl	190	156	224	
LD (LDH)	U/l	642	546	738	P->L German methods 37°C
	U/l	464	394	534	P->L German methods 30°C
	U/l	325	277	373	P->L German methods 25°C
Lipase	U/l	95	76	114	Randox Colorimetric 37°C
Magnesium	mmol/l	1.45	1.28	1.62	Xylidyl Blue
	mg/dl	3.52	3.11	3.93	
Phosphate Inorganic	mmol/l	2.08	1.77	2.39	Phosphomolybdate UV
	mg/dl	6.45	5.49	7.41	
Potassium	mmol/l	6.36	5.85	6.87	ISE indirect
Protein Total	g/l	69.3	55.4	83.2	Biuret reaction end point
	g/dl	6.93	5.54	8.32	
Sodium	mmol/l	152	144	160	ISE indirect
TIBC	µmol/l	56.2	44.4	68.0	Randox Direct
	µg/dl	314	248	380	
Triglycerides	mmol/l	2.53	2.13	2.93	Lipase/GPO-PAP no correction
	mg/dl	224	189	259	
Urea	mmol/l	22.2	18.9	25.5	Urease kinetic
	mg/dl	133	114	152	
	mmol/l	22.2	18.9	25.5	BUN
	mg/dl	62.3	53.0	71.6	
Uric Acid (Urate)	mmol/l	0.552	0.480	0.624	Uricase peroxidase with ascorbate oxidase
	mg/dl	9.27	8.06	10.5	

%

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

Cat. No. AE1032 Lot No. 345SE Size: 20 x 5 ml Expiry: 2019-09

MEAN OF ALL INSTRUMENTS			Range		
Analyte	**unit**	**Target**	**low**	**high**	**methods**
Alpha-HBDH	U/l	398	314	482	Oxobutyrate < 10 mmol/l 37°C
	U/l	300	237	364	Oxobutyrate < 10 mmol/l 30°C
	U/l	225	178	273	Oxobutyrate < 10 mmol/l 25°C
Acid Phosphatase (non-prostatic)	U/l	13.7	9.18	18.2	1-Naphthyl Phosphate substrate Kinetic 37°C
	U/l	12.0	8.04	16.0	1-Naphthyl Phosphate, Kinetic with Pentane diol Activation 37°C
Acid Phosphatase (Prostatic)	U/l	29.8	20.0	39.6	1-Naphthyl Phosphate substrate Kinetic 37°C
	U/l	50.6	33.9	67.3	1-Naphthyl Phosphate, Kinetic with Pentane diol Activation 37°C
Acid Phosphatase (Total)	U/l	43.5	29.1	57.9	1-Naphthyl Phosphate substrate Kinetic 37°C
	U/l	62.6	41.9	83.3	1-Naphthyl Phosphate, Kinetic with Pentane diol Activation 37°C
Albumin	g/l	46.7	39.7	53.7	Bromocresol Green
	g/dl	4.67	3.97	5.37	
Alkaline Phosphatase	U/l	343	292	394	p-Nitrophenylphosphate AMP 37°C
	U/l	267	227	307	p-Nitrophenylphosphate AMP 30°C
	U/l	219	187	251	p-Nitrophenylphosphate AMP 25°C
	U/l	545	463	627	Diethanolamine buffer DEA 37°C
	U/l	425	361	489	Diethanolamine buffer DEA 30°C
	U/l	348	296	400	Diethanolamine buffer DEA 25°C
ALT (GPT)	U/l	158	126	190	Tris buffer with P5P 37°C
	U/l	117	93	141	Tris buffer with P5P 30°C
	U/l	89	71	107	Tris buffer with P5P 25°C
	U/l	130	104	156	Tris buffer without P5P 37°C
	U/l	96	77	115	Tris buffer without P5P 30°C
	U/l	73	59	87	Tris buffer without P5P 25°C
Amylase Total	U/l	557	473	641	Randox - Ethylidene pNPG7 37°C
	U/l	567	482	652	Randox liquid stable pNPG7 37°C
	U/l	456	388	524	Roche liquid stable pNPG7 37°C
AST (GOT)	U/l	238	190	286	Tris buffer with P5P 37°C
	U/l	161	128	194	Tris buffer with P5P 30°C
	U/l	113	90	136	Tris buffer with P5P 25°C
	U/l	182	146	218	Tris buffer without P5P 37°C
	U/l	123	99	147	Tris buffer without P5P 30°C
	U/l	87	69	105	Tris buffer without P5P 25°C
Bicarbonate	mmol/l	30.1	23.9	36.3	Enzymatic
Bile Acids	µmol/l	119	95.2	143	4th Generation Colorimetric
	µmol/l	90.7	72.6	109	5th Generation Colorimetric
Bilirubin Direct	µmol/l	33.7	26.6	40.8	Diazo with Sulphanilic Acid
	mg/dl	1.97	1.56	2.38	
	µmol/l	30.1	23.8	36.4	Vanadate Oxidation
	mg/dl	1.76	1.39	2.13	
	µmol/l	26.7	21.1	32.3	Modified Jendrassik
	mg/dl	1.56	1.23	1.89	
Bilirubin Total	µmol/l	87.9	69.4	106	Diazo with Sulphanilic Acid
	mg/dl	5.14	4.06	6.22	

%

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

Cat. No. AE1032 Lot No. 345SE Size: 20 x 5 ml Expiry: 2019-09

MEAN OF ALL INSTRUMENTS			Range		
Analyte	**unit**	**Target**	**low**	**high**	**methods**
Bilirubin Total	µmol/l	94.6	74.7	114	Dichlorophenyl Diazonium (DPD)
	mg/dl	5.53	4.37	6.69	
	µmol/l	95.4	75.4	115	Diazo with Dichloroaniline (DCA)
	mg/dl	5.58	4.41	6.73	
	µmol/l	86.7	68.5	105	Vanadate Oxidation
	mg/dl	5.07	4.01	6.13	
	µmol/l	97.7	77.2	118	Modified Jendrassik
	mg/dl	5.72	4.52	6.90	
Calcium	mmol/l	3.12	2.81	3.43	Arsenazo III
	mg/dl	12.5	11.3	13.7	
	mmol/l	3.14	2.83	3.45	Cresolphthalein complexone
	mg/dl	12.6	11.3	13.9	
Chloride	mmol/l	110	101	119	Colorimetric
	mmol/l	113	104	122	ISE indirect
	mmol/l	112	103	121	ISE direct
Cholesterol	mmol/l	6.43	5.59	7.27	Cholesterol Oxidase
	mg/dl	248	216	280	
CK Total	U/l	437	358	516	CK-NAC substrate start (DGKC) 37°C
	U/l	274	224	324	CK-NAC substrate start (DGKC) 30°C
	U/l	186	152	220	CK-NAC substrate start (DGKC) 25°C
	U/l	465	381	549	CK-NAC (IFCC) 37°C
	U/l	291	239	343	CK-NAC (IFCC) 30°C
	U/l	198	162	234	CK-NAC (IFCC) 25°C
Copper	µmol/l	27.0	21.6	32.4	Colorimetric
	µg/dl	172	137	207	
Cortisol	nmol/l	690	518	863	Roche Cobas E411
	µg/dl	24.8	18.6	31.0	
Creatinine	µmol/l	434	347	521	Alkaline picrate no deproteinization
	mg/dl	4.90	3.92	5.88	
	µmol/l	498	398	598	Randox Enzymatic UV method
	mg/dl	5.63	4.50	6.76	
	µmol/l	507	406	608	Jaffe rate blanked
	mg/dl	5.73	4.59	6.87	
	µmol/l	486	389	583	Jaffe rate blanked comp. (-26 µmol/l)
	mg/dl	5.49	4.40	6.59	
D-3-Hydroxybutyrate	mmol/l	2.45	2.08	2.82	Tris buffer 100mmol pH 8.5
Free T4	pmol/l	68.7	51.5	85.9	Roche Cobas E411
	ng/dl	5.36	4.02	6.70	
	pg/ml	53.6	40.2	67.0	
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	90	Gamma Glutamyl-3-Carboxy-4-nitroanilide (IFCC) 25°C
	U/l	135	115	155	Randox Gamma glutamyl.-3-carboxy-4-nitroanilide 37°C
	U/l	106	91	122	Randox Gamma glutamyl.-3-carboxy-4-nitroanilide 30°C
	U/l	83	71	96	Randox Gamma glutamyl.-3-carboxy-4-nitroanilide 25°C

%

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

Cat. No. AE1032 Lot No. 345SE Size: 20 x 5 ml Expiry: 2019-09

MEAN OF ALL INSTRUMENTS			Range		
Analyte	**unit**	**Target**	**low**	**high**	**methods**
GLDH	U/l	23	18	28	Triethanolamine buffer 50 mmol 37°C
	U/l	18	14	22	Triethanolamine buffer 50 mmol 30°C
	U/l	14	11	17	Triethanolamine buffer 50 mmol 25°C
Glucose	mmol/l	15.1	12.8	17.4	Hexokinase
	mg/dl	272	231	313	
	mmol/l	15.3	13.0	17.6	Glucose oxidase
	mg/dl	276	234	318	
Iron	µmol/l	34.7	28.5	40.9	Colorimetric without ppt.
	µg/dl	194	159	229	
Lactate	mmol/l	5.23	4.29	6.17	Colorimetric Lactate Oxidase
	mg/dl	47.1	38.7	55.6	
LD (LDH)	U/l	650	553	748	P->L German methods 37°C
	U/l	469	399	539	P->L German methods 30°C
	U/l	330	280	380	P->L German methods 25°C
	U/l	330	281	380	L->P IFCC 37°C
	U/l	238	203	274	L->P IFCC 30°C
	U/l	167	142	193	L->P IFCC 25°C
Lipase	U/l	95	76	114	Randox Colorimetric 37°C
	U/l	586	470	702	Randox Turbidimetric with colipase 37°C
Lithium	mmol/l	1.84	1.62	2.06	Randox Colorimetric
	mg/dl	1.28	1.12	1.43	
Magnesium	mmol/l	1.42	1.25	1.59	Xylidyl Blue
	mg/dl	3.45	3.04	3.86	
NEFA	mmol/l	2.74	2.33	3.15	Colorimetric
Osmolality	mOsm/kg	447	358	536	Freezing point depression
Phosphate Inorganic	mmol/l	2.18	1.85	2.51	Phosphomolybdate UV
	mg/dl	6.76	5.74	7.78	
Potassium	mmol/l	6.36	5.85	6.87	Enzymatic
	mmol/l	6.20	5.70	6.70	ISE direct
	mmol/l	6.29	5.79	6.79	ISE indirect
Protein Total	g/l	71.0	56.8	85.2	Biuret reaction end point
	g/dl	7.10	5.68	8.52	
PSA Total	ng/ml = µg/l	55.5	41.6	69.4	Roche Cobas E411
Sodium	mmol/l	152	144	160	Enzymatic
	mmol/l	154	146	162	ISE direct
	mmol/l	152	144	160	ISE indirect
TIBC	µmol/l	56.2	44.4	68.0	Randox Direct
	µg/dl	314	248	380	
Total T3	nmol/l	3.70	2.78	4.63	Roche Cobas E411
	ng/ml	2.41	1.81	3.01	
	ng/dl	241	181	301	
Total T4	nmol/l	187	140	234	Roche Cobas E411
	µg/dl	14.6	10.9	18.3	
	ng/ml	146	109	183	
Triglycerides	mmol/l	2.56	2.15	2.97	Lipase/GPO-PAP no correction
	mg/dl	227	190	264	

%

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

Cat. No. AE1032 Lot No. 345SE Size: 20 x 5 ml Expiry: 2019-09

MEAN OF ALL INSTRUMENTS			Range		
Analyte	**unit**	**Target**	**low**	**high**	**methods**
Urea	mmol/l	22.0	18.7	25.3	Urease kinetic
	mg/dl	132	112	152	
	mmol/l	22.6	19.2	26.0	Urease hypochlorite
	mg/dl	136	115	157	
	mmol/l	9.99	8.49	11.5	Urease Berthelot
	mg/dl	60.0	51.0	69.1	
	mmol/l	22.0	18.7	25.3	BUN
	mg/dl	61.7	52.4	71.0	
Uric Acid (Urate)	mmol/l	0.560	0.487	0.633	Uricase Peroxidase with ascorbate oxidase @ 546nm
	mg/dl	9.41	8.18	10.6	
	mmol/l	0.548	0.477	0.619	Uricase peroxidase no ascorbate oxidase
	mg/dl	9.21	8.01	10.4	
	mmol/l	0.574	0.499	0.649	Uricase peroxidase with ascorbate oxidase
	mg/dl	9.64	8.38	10.9	
Vitamin B12	pmol/l	158	126	190	Roche Cobas E411
	pg/ml	214	171	257	
Zinc	µmol/l	35.3	28.2	42.4	Colorimetric with deproteinisation
	µg/dl	231	184	278	

%

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

Cat. No. AE1032 Lot No. 345SE Size: 20 x 5 ml Expiry: 2019-09

RX SERIES®			Range		
Analyte	**unit**	**Target**	**low**	**high**	**methods**
Albumin	g/l	46.0	39.1	52.9	Bromocresol Green
	g/dl	4.60	3.91	5.29	
Alkaline Phosphatase	U/l	545	463	627	Diethanolamine buffer DEA 37°C
	U/l	343	292	394	AMP optimised to IFCC 37°C
ALT (GPT)	U/l	141	113	169	Tris buffer without P5P 37°C
Amylase Total	U/l	567	482	652	Randox liquid stable pNPG7 37°C
AST (GOT)	U/l	187	150	224	Tris buffer without P5P 37°C
Bicarbonate	mmol/l	30.2	23.9	36.5	Enzymatic
Bile Acids	µmol/l	92.2	73.8	111	5th Generation Colorimetric
Bilirubin Direct	µmol/l	28.8	22.8	34.8	Diazo with Sulphanilic Acid
	mg/dl	1.68	1.33	2.03	
	µmol/l	28.6	22.6	34.6	Vanadate Oxidation
	mg/dl	1.67	1.32	2.02	
Bilirubin Total	µmol/l	92.2	72.8	112	Diazo with Sulphanilic Acid
	mg/dl	5.39	4.26	6.52	
	µmol/l	87.7	69.3	106	Vanadate Oxidation
	mg/dl	5.13	4.05	6.20	
Calcium	mmol/l	3.09	2.78	3.40	Arsenazo III
	mg/dl	12.4	11.1	13.7	
Chloride	mmol/l	112	103	121	ISE direct
Cholesterol	mmol/l	6.52	5.67	7.37	Cholesterol Oxidase
	mg/dl	252	219	285	
CK Total	U/l	437	358	516	CK-NAC substrate start (DGKC) 37°C
	U/l	478	392	564	CK-NAC (IFCC) 37°C
Creatinine	µmol/l	434	347	521	Alkaline picrate no deproteinization
	mg/dl	4.90	3.92	5.88	
	µmol/l	498	398	598	Randox Enzymatic UV method
	mg/dl	5.63	4.50	6.76	
Gamma-GT	U/l	135	115	155	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	15.8	13.4	18.2	Glucose oxidase
	mg/dl	285	241	329	
Iron	µmol/l	34.3	28.1	40.5	Colorimetric without ppt.
	µg/dl	192	157	227	
Lactate	mmol/l	5.23	4.29	6.17	Colorimetric Lactate Oxidase
	mg/dl	47.1	38.7	55.6	
LD (LDH)	U/l	679	577	781	P->L German methods 37°C
	U/l	330	281	380	L->P IFCC 37°C
Lipase	U/l	95	76	114	Randox Colorimetric 37°C
Lithium	mmol/l	1.83	1.61	2.05	Colorimetric
	mg/dl	1.27	1.12	1.42	

%

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

Cat. No. AE1032 Lot No. 345SE Size: 20 x 5 ml Expiry: 2019-09

RX SERIES®			Range		
Analyte	**unit**	**Target**	**low**	**high**	**methods**
Magnesium	mmol/l	1.43	1.26	1.60	Xylidyl Blue
	mg/dl	3.47	3.06	3.88	
Phosphate Inorganic	mmol/l	2.19	1.86	2.52	Phosphomolybdate UV
	mg/dl	6.79	5.77	7.81	
Potassium	mmol/l	6.43	5.92	6.94	Enzymatic
	mmol/l	6.20	5.70	6.70	ISE direct
Protein Total	g/l	72.6	58.1	87.1	Biuret reaction end point
	g/dl	7.26	5.81	8.71	
Sodium	mmol/l	152	144	160	Enzymatic
	mmol/l	154	146	162	ISE direct
TIBC	µmol/l	56.2	44.4	68.0	Direct Colorimetric
	µg/dl	314	248	380	
Triglycerides	mmol/l	2.47	2.07	2.87	Lipase/GPO-PAP no correction
	mg/dl	219	183	255	
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	0.548	0.480	0.620	Uricase peroxidase no ascorbate oxidase
	mg/dl	9.21	8.06	10.4	
	mmol/l	0.567	0.490	0.640	Uricase Peroxidase with ascorbate oxidase @ 546nm
	mg/dl	9.53	8.23	10.8	

RANDOX

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

Cat. No. AE1032 Lot No. 345SE Size: 20 x 5 ml Expiry: 2019-09

SIEMENS ADVIA 1200/1650/1800/2400® **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	348	296	400	p-Nitrophenylphosphate AMP 37°C
	U/l	465	395	535	Diethanolamine buffer DEA 37°C
ALT (GPT)	U/l	128	102	154	Tris buffer without P5P 37°C
Amylase Total	U/l	483	411	555	pNP Maltotrioside substrates 37°C
AST (GOT)	U/l	182	146	218	Tris buffer without P5P 37°C
Bilirubin Direct	µmol/l	31.5	24.9	38.1	Vanadate Oxidation
	mg/dl	1.84	1.46	2.23	
Bilirubin Total	µmol/l	85.7	67.7	104	Vanadate Oxidation
	mg/dl	5.01	3.96	6.08	
Calcium	mmol/l	3.09	2.78	3.40	Cresolphthalein complexone
	mg/dl	12.4	11.1	13.7	
	mmol/l	3.13	2.82	3.44	Arsenazo III
	mg/dl	12.5	11.3	13.8	
Cholesterol	mmol/l	6.42	5.59	7.25	Cholesterol Oxidase
	mg/dl	248	216	280	
CK Total	U/l	418	343	493	CK-NAC serum start (DGKC) 37°C
Creatinine	µmol/l	486	389	583	Jaffe rate blanked comp. (-26 µmol/l)
	mg/dl	5.49	4.40	6.59	
Gamma-GT	U/l	127	108	146	Gamma Glutamyl-3-Carboxy-4-nitroanilide (IFCC) 37°C
Glucose	mmol/l	14.5	12.3	16.7	Glucose oxidase
	mg/dl	261	222	300	
	mmol/l	14.7	12.5	16.9	Hexokinase
	mg/dl	265	225	305	
Iron	µmol/l	34.5	28.3	40.7	Colorimetric without ppt.
	µg/dl	193	158	228	
LD (LDH)	U/l	322	274	370	L->P 37°C
	U/l	628	534	722	P->L German methods 37°C
Magnesium	mmol/l	1.31	1.15	1.47	Xylidyl Blue
	mg/dl	3.18	2.79	3.57	
Phosphate Inorganic	mmol/l	2.24	1.90	2.58	Phosphomolybdate UV
	mg/dl	6.94	5.89	7.99	
Protein Total	g/l	71.5	57.2	85.8	Biuret reaction end point
	g/dl	7.15	5.72	8.58	
Triglycerides	mmol/l	2.67	2.24	3.10	Lipase/GPO-PAP no correction
	mg/dl	236	198	274	
Urea	mmol/l	21.9	18.6	25.2	Urease kinetic
	mg/dl	132	112	152	
	mmol/l	21.9	18.6	25.2	BUN
	mg/dl	61.5	52.3	70.7	
Uric Acid (Urate)	mmol/l	0.552	0.480	0.624	Uricase Peroxidase with ascorbate oxidase @ 546nm
	mg/dl	9.27	8.06	10.5	