

# **CONTROL LEVEL 2 HUMAN SERA**

**CAT. NO. HEC200  
LOT NO. 720UE**





Carefully reconstitute each vial of lyophilized serum with exactly 5 mL of distilled water.

## INTENDED USE

**MedTest DX** Control Level 2 is lyophilized human based control sera for use in the quality control of diagnostic assays. Human-sera can be supplied as an assayed serum for control of accuracy or as a precision serum for control of reproducibility. Constituent concentrations are available at 2 levels.

## VALUE ASSIGNMENTS

Values are also collected from approximately 3000 laboratories worldwide and a value is assigned using a unique statistical analysis. 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. This results in an assayed serum with extremely accurate values, which may be confidently used by laboratories to ensure the accuracy of their methods.

## PREPARATION

### Procedure

1. Open the vial carefully, avoiding any loss of material.
2. Reconstitute in the appropriate accurately measured volume of distilled water at +20 to +25°C.
3. Replace the rubber stopper, close vial and let stand for 30 minutes out of bright light before use.
4. Ensure that contents are completely dissolved by swirling gently.
5. After 30 minutes, invert vial to ensure that all traces of dry material are dissolved.
6. Do not shake the vial.

The serum can then be used with the manual tests or with automated instruments. The serum should only be reconstituted using this procedure.

## STABILITY

The serum is stable for 4 years after date of manufacture when stored at a constant +4°C. The expiration date is illustrated on the side of each pack.

Once reconstituted, the components of the serum are stable for 8 hours at +25°C or 7 days at +4°C, and at least 1 month when frozen once at -20°C (see Limitations).

## LIMITATIONS

For Total & Prostatic Acid Phosphatase, the material should be stabilized by adding 1 drop (25 - 30  $\mu$ L) of 0.7 M Acetic acid solution to 1 mL of the serum. After stabilization, Total & Prostatic Acid Phosphatase is stable for at least 2 hours at +25°C, at least 2 days at +4°C, and at least 1 month 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 +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 at least 4 hours at +25°C and at least 8 hours at +4°C. DO NOT FREEZE.

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.

## **WARNINGS / PRECAUTIONS**

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.

Manufactured in the U.K. for



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# MEAN OF ALL INSTRUMENTS

COMPONENT	UNITS	TARGET	RANGE		METHOD
			LOW	HIGH	
Albumin	g/l	29.7	25.2	34.2	Bromocresol Green
	g/dl	2.97	2.52	3.42	
	g/l	27.8	23.6	32.0	Bromocresol Purple
	g/dl	2.78	2.36	3.20	
	g/l	27.6	23.4	31.8	Dry Chemistry
	g/dl	2.76	2.34	3.18	
Bicarbonate (CO2)	mmol/l	18.9	15.0	22.8	Differential Rate pH
	mmol/l	19.1	15.1	23.1	Enzymatic
	mmol/l	18.2	14.4	22.0	ISE
	mmol/l	20.7	16.4	25.0	Dry Chemistry
Bile Acids	μmol/l	50.9	40.7	61.1	4th Generation Colorimetric
	μmol/l	49.3	39.4	59.2	5th Generation Colorimetric
Direct Bilirubin	μmol/l	28.7	22.7	34.7	Diazo with Sulphanilic Acid
	mg/dl	1.68	1.33	2.03	
Total Bilirubin	μmol/l	95.9	75.8	116	Diazo with Dichloroaniline (DCA)
	mg/dl	5.61	4.43	6.79	
	μmol/l	93.5	73.9	113	Dichlorophenyl Diazonium (DPD)
	mg/dl	5.47	4.32	6.62	
	μmol/l	84.7	66.9	103	Diazo with Sulphanilic acid
	mg/dl	4.95	3.91	5.99	
	μmol/l	74.5	58.8	90.2	Dry Chemistry
	mg/dl	4.36	3.44	5.28	
Calcium	mmol/l	3.11	2.80	3.42	Arsenazo III
	mg/dl	12.5	11.2	13.8	
	mmol/l	3.10	2.79	3.41	Cresolphthalein
	mg/dl	12.4	11.2	13.6	
	mmol/l	3.05	2.75	3.35	ISE
	mg/dl	12.2	11.0	13.4	
	mmol/l	2.82	2.53	3.11	Methylthymol blue
	mg/dl	11.3	10.1	12.5	
Chloride mmol/l = mEq/l	mmol/l	113	104	122	Colorimetric
	mmol/l	113	104	122	ISE Direct
	mmol/l	111	102	120	ISE Indirect
	mmol/l	113	104	122	Dry Chemistry
Cholesterol	mmol/l	7.53	6.55	8.51	Cholesterol Oxidase (CHOD PAP)
	mg/dl	291	253	329	
	mmol/l	6.91	6.01	7.81	Dry Chemistry
	mg/dl	267	232	302	
Copper	μmol/l	28.7	23.0	34.4	Atomic Absorption
	μg/dl	183	146	220	
	μmol/l	28.0	22.4	33.6	Colorimetric
	μg/dl	178	142	214	
Creatinine	μmol/l	341	273	409	Alkaline picrate with deproteinization
	mg/dl	3.85	3.08	4.62	
	μmol/l	36	293	439	Alkaline picrate without deproteinization
	mg/dl	4.14	3.31	4.97	
	μmol/l	389	312	466	Enzymatic UV
	mg/dl	4.40	3.53	5.27	
	μmol/l	391	313	469	Creatinine PAP method
	mg/dl	4.4	3.54	5.30	
	μmol/l	386	309	463	Dry Chemistry
	mg/dl	4.36	3.49	5.23	

# MEAN OF ALL INSTRUMENTS

COMPONENT	UNITS	TARGET	RANGE		METHOD
			LOW	HIGH	
Glucose	mmol/l	15.6	13.3	17.9	Glucose dehydrogenase
	mg/dl	281	240	322	
	mmol/l	15.6	13.3	17.9	Hexokinase
	mg/dl	281	240	322	
	mmol/l	15.5	13.2	17.8	Oxygen electrode
	mg/dl	279	238	320	
	mmol/l	15.5	13.1	17.9	Glucose oxidase
	mg/dl	279	236	322	
	mmol/l	14.4	12.3	16.5	Dry Chemistry
	mg/dl	259	222	296	
D-3-Hydroxybutyrate	mmol/l	1.15	0.98	1.32	Tris Buffer 100mM pH8.5
Iron	μmol/l	38.5	31.6	45.4	Colorimetric with precipitation
	μg/dl	215	177	253	(Ferene/Ferrozine Method)
	μmol/l	38.7	31.7	45.7	Colorimetric without precipitation
	μg/dl	216	177	255	(Ferene/Ferrozine Method)
	μmol/l	40.7	33.4	48.0	Dry Chemistry
	μg/dl	228	187	269	
	μmol/l	51.3	40.6	62.0	Removal of Excess Free Iron
	μg/dl	287	227	347	
	μmol/l	55.5	43.8	67.2	Fe + UIBC (Saturation with Iron)
	μg/dl	310	245	375	
Lactate	mmol/l	5.56	4.56	6.56	Enzymatic Colorimetric
	mg/dl	50.1	41.1	59.1	
Lithium	mmol/l	2.12	1.87	2.37	Flame Photometry
	mmol/l = mEq/l	2.11	1.85	2.37	ISE
	mmol/l	2.37	2.09	2.65	Dry Chemistry
Magnesium	mmol/l	1.77	1.56	1.98	Calmagite
	mg/dl	4.30	3.79	4.81	
	mmol/l	1.81	1.59	2.03	Xylidyl Blue
	mg/dl	4.40	3.86	4.94	
	mmol/l	1.82	1.60	2.04	Dry Chemistry
	mg/dl	4.42	3.89	4.95	
NEFA	mmol/l	0.69	0.59	0.79	Colorimetric
Osmolality	mmol/kg	338	270	406	Calculated
	mmol/kg	377	301	453	Freezing Point depression
Phosphorus Inorganic	mmol/l	2.21	1.88	2.54	Phosphomolybdate Enzymatic
	mg/dl	6.85	5.83	7.87	
	mmol/l	2.20	1.87	2.53	Phosphomolybdate reduction UV
	mg/dl	6.82	5.80	7.84	
	mmol/l	2.23	1.90	2.56	Dry Chemistry
	mg/dl	6.91	5.89	7.93	
Potassium	mmol/l	5.87	5.40	6.34	Flame Photometry
	mmol/l = mEq/l	6.02	5.54	6.50	ISE Direct
	mmol/l	6.09	5.61	6.57	ISE Indirect
	mmol/l	6.00	5.52	6.48	Dry Chemistry
PSA	μg/l	35.0	26.2	43.8	Roche Elecsys Modular E170
	μg/l	34.0	25.5	42.5	Beckman Access Hybritech (TPSA)
	μg/l	32.4	24.3	40.5	Biomerieux Vidas (TPSA)
	μg/l	29.4	22.1	36.7	Siemens Advia Centaur
	μg/l	32.4	24.3	40.5	Biomerieux VIDAS
	μg/l	29.5	22.1	36.9	Abbott Architect
Sodium	mmol/l	156	148	164	ISE Direct
	mmol/l = mEq/l	157	149	165	ISE Indirect
	mmol/l	156	148	164	Flame Photometry
	mmol/l	155	147	163	Dry Chemistry

**MEAN OF ALL INSTRUMENTS**

COMPONENT	UNITS	TARGET	RANGE		METHOD
			LOW	HIGH	
Total Protein	g/l	46.0	36.8	55.2	Biuret reaction, endpoint
	g/dl	4.60	3.68	5.52	
	g/l	44.9	35.9	53.9	Biuret reaction, kinetic
	g/dl	4.49	3.59	5.39	
	g/l	44.6	35.7	53.5	Biuret reaction, CX4/5/7
	g/dl	4.46	3.57	5.35	
	g/l	46.5	37.2	55.8	Dry Chemistry
	g/dl	4.65	3.72	5.58	
Triglycerides	mmol/l	2.87	2.41	3.33	Lipase/GPO-PAP Color. without Glycerol Correction
	mg/dl	254	213	295	
	mmol/l	2.93	2.46	3.40	Lipase/Glycerol Dehydrogenase
	mg/dl	259	218	300	
	mmol/l	3.56	2.99	4.13	Dry Chemistry
	mg/dl	315	265	365	
Urea	mmol/l	18.5	15.7	21.3	BUN
	mg/dl	51.9	44.1	59.7	
	mmol/l	17.7	15.1	20.3	Urease, Endpoint
	mg/dl	106	90.8	121	
	mmol/l	18.5	15.7	21.3	Urease, kinetic
	mg/dl	111	94.4	128	
	mmol/l	19.0	16.2	21.8	Urease Berthelot
	mg/dl	114	97.4	131	
	mmol/l	17.5	14.9	20.1	Urease Hypochlorite
	mg/dl	105	89.5	121	
	mmol/l	17.5	14.9	20.1	Dry Chemistry
	mg/dl	105	89.5	121	
Uric Acid	mmol/l	0.54	0.47	0.61	Uricase, Catalase 340 nm
	mg/dl	9.11	7.93	10.3	
	mmol/l	0.55	0.48	0.63	Uricase peroxidase, with Ascorbate Oxidase, colorimetric
	mg/dl	9.29	8.08	10.5	
	mmol/l	0.55	0.48	0.62	Uricase peroxidase, without Oxidase, colorimetric
	mg/dl	9.17	7.98	10.4	
	mmol/l	0.55	0.48	0.62	Randox 546 nm/BM Uric Acid plus
	mg/dl	9.21	8.01	10.4	
	mmol/l	0.52	0.45	0.58	Dry Chemistry
	mg/dl	8.67	7.54	9.80	
Zinc	μmol/l	33.6	26.9	40.3	Colorimetric
	μg/dl	219	176	262	
Acid Phosphatase (Total)	U/l	35.9	24.1	47.7	1-Naphthyl Phosphate, Kinetic 37°C
	U/l	45.7	30.6	60.8	1-Naphthyl Phosphate, Kinetic with Pentane Diol Activation 37°C
Acid Phosphatase (Prostatic)	U/l	20.8	13.9	27.7	1-Naphthyl Phosphate, Kinetic 37°C
	U/l	35.1	23.5	46.7	1-Naphthyl Phosphate, Kinetic with Pentane Diol Activation 37°C
ALP	U/l	176	150	202	p-Nitrophenylphosphate, AMP, 37°C
	U/l	137	117	157	p-Nitrophenylphosphate, AMP, 30°C
	U/l	112	96	128	p-Nitrophenylphosphate, AMP, 25°C
	U/l	275	234	316	p-Nitrophenylphosphate, DEA, 37°C
	U/l	214	182	246	p-Nitrophenylphosphate, DEA, 30°C
	U/l	176	150	202	p-Nitrophenylphosphate, DEA, 25°C
	U/l	123	105	141	Dry Chemistry

# MEAN OF ALL INSTRUMENTS

COMPONENT	UNITS	TARGET	RANGE		METHOD
			LOW	HIGH	
ALT	U/l	136	109	163	SCE, 37°C
	U/l	101	81	121	SCE, 30°C
	U/l	77	61	93	SCE, 25°C
	U/l	178	142	214	IFCC with Pyridoxal 5 Phosphate, 37°C
	U/l	132	105	159	IFCC with Pyridoxal 5 Phosphate, 30°C
	U/l	100	80	120	IFCC with Pyridoxal 5 Phosphate, 25°C
	U/l	139	111	167	IFCC NO Pyridoxal 5 Phosphate, 37°C
	U/l	103	82	124	IFCC NO Pyridoxal 5 Phosphate, 30°C
	U/l	78	62	94	IFCC NO Pyridoxal 5 Phosphate, 25°C
Amylase	U/l	145	116	174	Dry Chemistry
	U/l	229	195	263	Polymedco Ethylidene Blocked, 37°C
	U/l	298	253	343	Randox EPS Liquid
	U/l	324	275	373	Siemens Blocked pNPG7 37°C
	U/l	284	241	327	Beckman CX 4/5/7 Maltotetraose 37°C
	U/l	259	220	298	Biomerieux Blocked pNPG7 37°C
	U/l	289	245	333	I.L. Blocked pNPG7 37°C
	U/l	266	226	306	Roche Liquid pNPG7 37°C
Pancreatic Amylase	U/l	162	138	186	Dry Chemistry
	U/l	270	230	310	Randox EPS Liquid, 37°C
AST	U/l	244	230	310	BM/Roche EPS Liquid, 37°C
	U/l	144	115	173	SCE, 37°C
	U/l	97	78	116	SCE, 30°C
	U/l	69	55	83	SCE, 25°C
	U/l	213	170	256	IFCC with Pyridoxal 5 Phosphate, 37°C
	U/l	144	115	173	IFCC with Pyridoxal 5 Phosphate, 30°C
	U/l	101	81	121	IFCC with Pyridoxal 5 Phosphate, 25°C
	U/l	149	119	179	IFCC NO Pyridoxal 5 Phosphate, 37°C
	U/l	101	80	122	IFCC NO Pyridoxal 5 Phosphate, 30°C
	U/l	71	57	85	IFCC NO Pyridoxal 5 Phosphate, 25°C
	U/l	193	154	232	Dry Chemistry
Cholinesterase	U/l	5123	4098	6148	Colorimetric Butyrylthiocholine 37°C
CK (CPK)	U/l	569	467	671	DGKC, serum start 37°C
	U/l	356	292	420	DGKC, serum start 30°C
	U/l	242	198	286	DGKC, serum start 25°C
	U/l	575	471	679	DGKC, substrate start 37°C
	U/l	360	295	425	DGKC, substrate start 30°C
	U/l	244	200	288	DGKC, substrate start 25°C
	U/l	583	478	688	IFCC 37°C
	U/l	365	299	431	IFCC 30°C
	U/l	248	203	293	IFCC 25°C
γ-GT	U/l	432	354	510	Dry Chemistry
	U/l	171	146	196	Gamma Glutamyl-3-Carboxy-4-nitroanilide, 37°C
	U/l	135	115	155	Gamma Glutamyl-3-Carboxy-4-nitroanilide, 30°C
	U/l	106	90	122	Gamma Glutamyl-3-Carboxy-4-nitroanilide, 25°C
	U/l	186	158	214	IFCC 37°C
	U/l	147	125	169	IFCC 30°C
	U/l	115	97	133	IFCC 25°C
	U/l	152	129	175	Gamma Glutamyl 4 nitroanilide, 37°C
	U/l	120	102	138	Gamma Glutamyl 4 nitroanilide, 30°C
	U/l	94	80	108	Gamma Glutamyl 4 nitroanilide, 25°C
	U/l	152	129	175	Randox Gamma Glutamyl. 3 carboxy-4-nitroanilide, 37°C
GLDH	U/l	120	102	138	Randox Gamma Glutamyl. 3 carboxy-4-nitroanilide, 30°C
	U/l	94	80	108	Randox Gamma Glutamyl. 3 carboxy-4-nitroanilide, 25°C
	U/l	221	187	255	Dry Chemistry
	U/l	27	21	33	DGKC 37°C
	U/l	21	16	26	DGKC 30°C
	U/l	17	13	21	DGKC 25°C

**MEAN OF ALL INSTRUMENTS**

COMPONENT	UNITS	TARGET	RANGE		METHOD
			LOW	HIGH	
$\alpha$ -HBDH	U/l	466	368	564	DGKC 37°C
	U/l	352	278	426	DGKC 30°C
	U/l	264	208	320	DGKC 25°C
LAP	U/l	14	12	16	NAGEL 37°C
LDH	U/l	722	613	831	P→L, DGKC, 37°C
	U/l	521	443	599	P→L, DGKC, 30°C
	U/l	366	311	421	P→L, DGKC, 25°C
	U/l	795	675	915	P→L, SCE 37°C
	U/l	574	487	661	P→L, SCE 30°C
	U/l	403	342	464	P→L, SCE 25°C
	U/l	736	625	847	P→L, SFBC 37°C
	U/l	531	451	611	P→L, SFBC 30°C
	U/l	373	317	429	P→L, SFBC 25°C
	U/l	369	314	424	L→P IFCC 37°C
	U/l	266	227	305	L→P IFCC 30°C
	U/l	187	159	215	L→P IFCC 25°C
	U/l	328	279	377	L→P 37°C
	U/l	237	201	273	L→P 30°C
	U/l	166	141	191	L→P 25°C
	U/l	1056	897	1215	Dry Chemistry
Lipase	U/l	84	67	101	Colorimetric 37°C
	U/l	438	351	525	Turbidimetric with Colipase 37°C
Cortisol	nmol/l	1002	752	1252	Roche Cobas E411
	µg/dl	36.1	27.1	45.1	
Digoxin	nmol/l	3.53	2.82	4.24	Immunoturbidimetric
	ng/ml	2.76	2.20	3.32	
Folate	nmol/l	24.9	18.9	30.9	Roche Cobas E411
	ng/ml	11.0	8.33	13.7	
Gentamycin	mg/l	8.51	6.79	10.2	Immunoturbidimetric
Paracetamol	mg/l	90.8	72.6	109	Colorimetric
Salicylate	mg/dl	11.4	9.11	13.7	Enzymatic
Theophylline	mg/dl	2.23	1.79	2.67	Immunoturbidimetric
Tobramycin	µg/dl	702	562	842	Immunoturbidimetric
Apolipoprotein A-1	mg/dl	94.6	77.6	112	Immunoturbidimetric
Apolipoprotein B-1	mg/dl	54.9	45.0	64.8	Immunoturbidimetric
IgA	g/l	1.57	1.18	1.96	Immunoturbidimetric
IgG	g/l	6.10	5.00	7.20	Immunoturbidimetric
IgM	g/l	0.62	0.49	0.74	Immunoturbidimetric
Thyroxine	nmol/l	241	181	301	Abbott Architect
	µg/dl	18.8	14.1	23.5	
Free Thyroxine (FreeT <sub>4</sub> )	pmol/l	52.4	39.3	65.5	Abbott Architect
	pg/ml	40.9	30.7	51.1	
Triiodothyronine	nmol/l	3.70	2.77	4.63	Abbott Architect
	ng/ml	2.41	1.80	3.02	
Transferrin	g/l	1.71	1.37	2.05	Immunoturbidimetric
Thyroid Stimulating Hormone (TSH)	µIU/ml	0.99	0.79	1.19	Abbott Architect
Vitamin B <sub>12</sub>	pmol/l	258	206	310	Roche Cobas E411
	pg/ml	350	279	421	
<b>Electrophoresis</b>					Beckman Capillary
Albumin		59.1	53.2	65.0	% of total Protein
Globulin		40.9	36.8	45.0	% of total Protein
$\alpha$ -1-globulin		7.8	5.9	9.7	% of total Protein
$\alpha$ -2-globulin		7.5	5.7	9.3	% of total Protein
$\beta$ -globulin		13.5	10.3	16.7	% of total Protein
$\gamma$ -globulin		12.1	9.2	15.0	% of total Protein



**SIEMENS DIMENSION<sup>®</sup>**

COMPONENT	UNITS	TARGET	RANGE		METHOD
			LOW	HIGH	
Albumin	g/l	27.8	23.6	32.0	Bromocresol Purple
	g/dl	2.78	2.36	3.20	
Direct Bilirubin	μmol/l	17.4	13.8	21.0	Diazo with Sulphanilic acid
	mg/dl	1.02	0.807	1.23	
Total Bilirubin	μmol/l	85.1	67.2	103	Diazo with Sulphanilic acid
	mg/dl	4.98	3.93	6.03	
Calcium	mmol/l	3.10	2.79	3.41	Cresolphthalein complexone
	mg/dl	12.4	11.2	13.6	
Chloride mmol/l = mEq/l	mmol/l	113	104	122	ISE
Cholesterol	mmol/l	7.06	6.14	7.98	Cholesterol Oxidase(CHODPAP)
	mg/dl	273	237	309	
Creatinine	μmol/l	398	318	478	Alkaline picrate without deproteinization
	mg/dl	4.50	3.59	5.41	
Glucose	mmol/l	15.6	13.3	17.9	Hexokinase
	mg/dl	281	240	322	
Iron	μmol/l	36.7	30.1	43.3	Colorimetric without precipitation, (Ferrozine/Ferene)
	μg/dl	205	168	242	
Magnesium	mmol/l	1.82	1.60	2.04	Methylthymol Blue
	mg/dl	4.42	3.89	4.95	
Phosphorus Inorganic	mmol/l	2.19	1.86	2.52	Phosphomolybdate reduction UV
	mg/dl	6.79	5.77	7.81	
Potassium mmol/l = mEq/l	mmol/l	6.07	5.58	6.56	ISE
Sodium mmol/l = mEq/l	mmol/l	157	149	165	ISE
Total Protein	g/l	47.4	37.9	56.9	Biuret reaction, endpoint
	g/dl	4.74	3.79	5.69	
Triglycerides	mmol/l	2.98	2.50	3.46	Lipase/Glycerol Dehydrogenase
	mg/dl	264	221	307	
Urea	mmol/l	18.8	16.0	21.6	BUN.
	mg/dl	52.8	44.9	60.7	
Uric Acid	mmol/l	0.55	0.47	0.62	Uricase peroxidase, Colorimetric
	mg/dl	9.16	7.96	10.4	
ALP	U/l	155	131	179	p-Nitrophenylphosphate, AMP, 37°C
ALT	U/l	145	116	174	IFCC with Pyridoxal 5 Phosphate, 37°C
Amylase	U/l	328	279	377	CNPG 37°C
AST	U/l	184	147	221	IFCC with Pyridoxal 5 Phosphate, 37°C
CK (CPK)	U/l	540	442	638	Modified Oliver/Rosalki 37°C
γ-GT	U/l	192	163	221	Modified IFCC 37°C
LDH	U/l	374	318	430	L→P 37°C

**POLYCHEM®**

COMPONENT/	UNITS	TARGET	RANGE		METHOD
			LOW	HIGH	
Albumin	g/l g/dl	30.0 3.00	25.5 2.55	34.5 3.45	Bromocresol Green
Bicarbonate	mmol/l	16.0	11.0	21.0	Enzymatic
Direct Bilirubin	µmol/l mg/dl	31.4 1.84	24.8 1.45	38.0 2.23	Diazo with Sulphanilic Acid
Total Bilirubin	µmol/l mg/dl	87.1 5.10	68.8 4.02	105 6.18	Diazo with Sulphanilic acid
Calcium	mmol/l mg/dl	3.06 12.3	2.75 11.1	3.37 13.5	Cresolphthalein complexone
Chloride mmol/l = mEq/l	mmol/l	109	100	118	ISE Direct
Cholesterol	mmol/l mg/dl	7.69 297	6.69 258	8.69 336	Cholesterol Oxidase (CHOD PAP)
Creatinine	µmol/l mg/dl	333 3.76	266 3.01	400 4.51	Alkaline picrate without deproteinization
Glucose	mmol/l	15.6	13.3	17.9	Hexokinase
	mg/dl	281	240	322	
	mmol/l	15.9	13.5	18.3	Glucose oxidase
	mg/dl	287	243	331	
Iron	µmol/l µg/dl	37.7 211	30.9 173	44.5 249	Colorimetric without precipitation, (Ferene/Ferrozine Method)
Magnesium	mmol/l	1.82	1.60	2.04	Xylidyl Blue
	mg/dl	4.42	3.89	4.95	
Phosphorus Inorganic	mmol/l mg/dl	2.25 6.98	1.91 5.92	2.59 8.04	Phosphomolybdate reduction UV
Potassium mmol/l = mEq/l	mmol/l	5.85	5.38	6.32	ISE Direct
Sodium mmol/l = mEq/l	mmol/l	156	148	164	ISE Direct
Total Protein	g/l g/dl	47.2 4.72	37.8 3.78	56.6 5.66	Biuret reaction, endpoint
Triglycerides	mmol/l mg/dl	2.85 252	2.39 212	3.31 292	Lipase/GPO-PAP Color. without Glycerol Correction
Urea	mmol/l	18.4	15.6	21.2	BUN
	mg/dl	51.6	43.9	59.3	
	mmol/l	18.4	15.6	21.2	Urease, Kinetic
	mg/dl	111	93.8	128	
Uric Acid	mmol/l mg/dl	0.56 9.39	0.49 8.16	0.63 10.6	Randox 546 nm/BM/Roche Uric Acid plus
ALP	U/l	177	150	204	p-Nitrophenylphosphate, AMP, 37°C
	U/l	323	275	371	p-Nitrophenylphosphate, DEA, 37°C
ALT	U/l	159	127	191	IFCC NO Pyridoxal 5 Phosphate, 37°C
Amylase	U/l	298	253	343	Randox EPS Liquid 37°C
AST (GOT)	U/l	168	134	202	IFCC NO Pyridoxal 5 Phosphate, 37°C
CK (CPK)	U/l	551	452	650	DGKC, substrate start 37°C
γ-GT	U/l	194	165	223	Gamma Glutamyl-3-Carboxy-4-nitroanilide, 37°C
LDH	U/l	747	635	859	P→L, DGKC, 37°C
	U/l	369	314	424	L→P 37°C

Lot Number: 720UE, Exp. Date: 2018-07

Component	Target	Range	Unit
Albumin	2.9	2.5-3.3	g/dl
ALP	160	112-208	U/L
ALT	134	107-161	U/L
Amylase	268	188-348	U/L
AST	144	115-173	U/L
BUN	54	43-65	mg/dl
Calcium	13.6	11.6-15.6	mg/dl
Cholesterol	277	222-332	mg/dl
CPK	369	258-480	U/L
Creatinine	4.22	3.21-5.23	mg/dl
GGT	190	152-228	U/L
Glucose	275	234-316	mg/dl
HDL-Cholesterol	91	64-118	mg/dl
LDH	273	218-328	U/L
Magnesium	4.2	3.2-5.3	mg/dl
Phosphorus	6.8	5.8-7.8	mg/dl
Total Bilirubin	4.9	3.9-5.9	mg/dl
Total Protein	4.8	3.8-5.8	g/dl
Triglyceride	166	125-208	mg/dl
Uric Acid	8.7	7.2-10.2	mg/dl

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