

# MAGNESIUM SYSTEM PACK

B Auto 200, Unicorn 230, Unicorn 120 & Bonavera Chem 200  
( Fully Auto Biochemistry Analyzer)

Code	Product Name	Pack Size
BA227	Magnesium System Pack	4x20 ml

## INTENDED USE

Diagnostic reagent for quantitative *in vitro* determination of Magnesium in human serum.

## CLINICAL SIGNIFICANCE

Magnesium is an essential nutrient which is involved in many biochemical functions. It has a structural role in nucleic acids and ribosomal particles, required as an activator for many enzymes and has a role in energy producing oxidative phosphorylation.

Hypomagnesaemia results in the impairment of neuromuscular functions and may develop in severe prolonged diarrhoea, malabsorption syndromes, primary aldosteronism and diuretic therapy. Hypermagnesaemia is seen in renal glomerular failure and diabetic coma.

## PRINCIPLE

Magnesium reacts with Xylidyl Blue to form a colored compound in alkaline solution. The intensity of the color formed is proportional to the magnesium concentration in the specimen.

## REAGENT COMPOSITION

### Reagent 1 : Magnesium Reagent

Tris Buffer < 200 mmol/l  
Xylidyl Blue (I) >0.05 mmol/l

## REAGENT PREPARATION

Reagents are liquid. ready to use.

## STABILITY AND STORAGE

The unopened reagents are stable till the expiry date stated on the bottle and kit label when stored at 2–8°C.

On board stability: Min. 7 days if refrigerated (2-10 °) and not contaminated.

## SPECIMEN COLLECTION AND HANDLING

Use unheamolyse serum.  
It is recommended to follow NCCLS procedures (or similar standardized conditions).

### Stability in serum

7 days at 4-8°C  
1 year at -20°C

Discard contaminated specimens.

## CALIBRATION

Calibration with the Beacon Multicalibrator is recommended.

## QUALITY CONTROL

It's recommended to run normal and abnormal control sera to validate reagent performance

## UNIT CONVERSION

mg/dl x 0.4114 = mmol/L

## EXPECTED VALUES

### Serum

Men 1.8 - 2.6 mg/dl  
Women 1.9 - 2.5 mg/dl  
Children 1.5 - 2.3 mg/dl  
New Born 1.2 - 2.6 mg/dl

It is recommended that each laboratory verify this range or derives reference interval for the population it serves.



# BEACON

## PERFORMANCE DATA

Data contained within this section is representative of performance on Beacon systems.

Data obtained in your laboratory may differ from these values.

**Limit of quantification:** 0.16 mg/dl  
**Linearity:** 5.00 mg/dl  
**Measuring range:** 0.16 – 5.00 mg/dl

## PRECISION

Intra-assay precision Within run (n=20)	Mean (mg/dl)	SD (mg/dl)	CV (%)
Sample 1	2.15	0.03	1.23
Sample 2	3.93	0.05	1.30

Inter-assay precision Run to run (n=20)	Mean (mg/dl)	SD (mg/dl)	CV (%)
Sample 1	3.80	0.070	1.83

## COMPARISON

A comparison between Magnesium System Pack (y) and commercially available test (x) using 20 samples gave following results:

$y = 0.982x + 0.005$  mg/dl  
 $r = 0.992$

## INTERFERENCES

Following substances do not interfere:  
Bilirubin up to 40 mg/dl, triglycerides up to 2000 mg/dl.  
Haemoglobin interferes because magnesium is released by erythrocytes.

## WARNING AND PRECAUTIONS

For *in vitro* diagnostic use. To be handles by entitled and professionally educated person.

## WASTE MENAGEMENT

Please refer to local legal requirements.

Parameter For B Auto 200, Unicorn 230, Unicorn 120 &  
Bonavera Chem 200 ( Fully Auto Biochemistry Analyzer)

TEST NAME	Magnesium
FULL NAME	Magnesium
PRI WAVE	546 nm
SEC WAVE	-
ASSAY/POINT	1 Point end
START	-
END	17
DECIMAL	2
UNIT	mg/dl
LINEARITY RANGE LOW	0.16
LINEARITY RANGE HIGH	5
SAMPLE VOLUME	2 µl
REAGENT 1 (R1) VOLUME	200 µl
REAGENT 1 (R2) VOLUME	-
SUBSTRATE DEPLETED	-
LINEARITY	5 mg/dl
OUT OF LINEARITY RANGE	-
CALIBRATION TYPE	2 Point linear
POINTS	2
BLANK TYPE	Reagent
CONCENTRATION BLANK	0.00
CONCENTRATION STD	Refer calibrator value sheet.
SAMPLE VOLUME	2 µl

#### NOTE

The program is made as per the in house testing, it can be modified as per requirements.

#### REFERENCES

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3. Mann CK, Yoe JH. Spectrophotometric determination of magnesium with 1-Azo-2-hydroxy-3-(2,4-dimethyl-carboxanilido)-naphthalene-1'-(2-hydroxybenzene). Anal Chim Acta 1957;16: 155-60.
4. Bohoun C. Microdosage du magnesium dans divers milieux biologiques. Clin Chim Acta 1962;7:811-7.
5. Sitzmann FC. Normalwerte. Munchen: Hans Marseille Verlag GmbH; 1986.p.166.
6. Tietz Textbook of Clinical Chemistry and Molecular Diagnostics. Burtis, C.A., Ashwood, E.R., Bruns, D.D.; 5th edition, WB Saunders Comp., 2012



#### SYMBOLS USED ON LABELS

REF	Catalogue Number		Manufacturer		See Instruction for Use
LOT	Lot Number	CONT	Content		Storage Temperature
	Expiry Date	IVD	In Vitro Diagnostics		