



## **BS-480 Chemistry Analyzer**

**mindray**  
healthcare within reach

# BS-480 Chemistry Analyzer

## Robust hardware

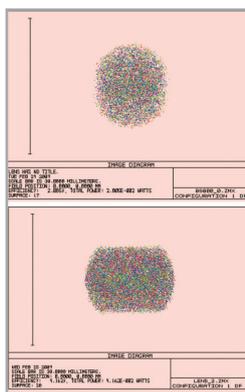
### Enhanced Liquid System

- Reagent and sample aspiration with extreme accuracy and precision
- Air bubble will be eliminated prior to washing
- High pressure interior probe wash
- Carry-over <0.05%



### Economy Usage

- Light-Spot Flattening Technology – an enhanced optical system facilitates lower reaction volume
- 24 hours non-stop refrigeration at 2-10°C
- Minimum sample volume: 1.5 µl
- Reagent volume: 10 ~ 350 µl



### Easy to perform maintenance

- All containers & maintenance kits are located in the front of the analyzer
- Easily accessible for part replacement, routine maintenance or troubleshooting
- Step-by-step maintenance guide built in the software design



### Intelligent functions and smart protection

- Support 4 reagents (R1, R2, R3 & R4)
- Vertical and horizontal collision protection
- Automatic System Recovery upon collision
- Liquid level detection, clot detection



Tailor made



## Accurate, Reliable Results

To ensure accuracy, reliability and correlation of diagnostic data, Mindray utilizes the International Standard in result reporting. To assure ease of report retrieving, Mindray establishes the Mindray Clinical Chemistry Measurement System for result traceability.



### Standard reference system

- Adopt JCTLM reference system
- IFCC primary method for enzyme, ID/MS method for substrate
- NIST, IRMM reference materials



JCTLM, Joint Committee On Traceability In Laboratory Medicine  
 NIST, National Institute of Standards and Technology, USA  
 IRMM, Institute for Reference Materials and Measurements, EU  
 IFCC, International Federation of Clinical Chemistry and Laboratory Medicine

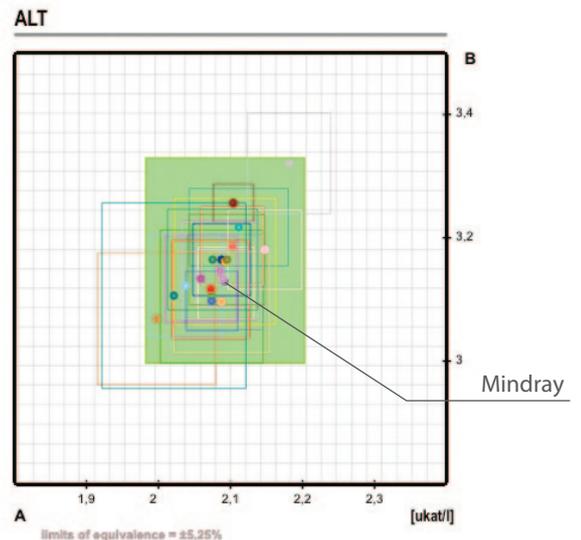
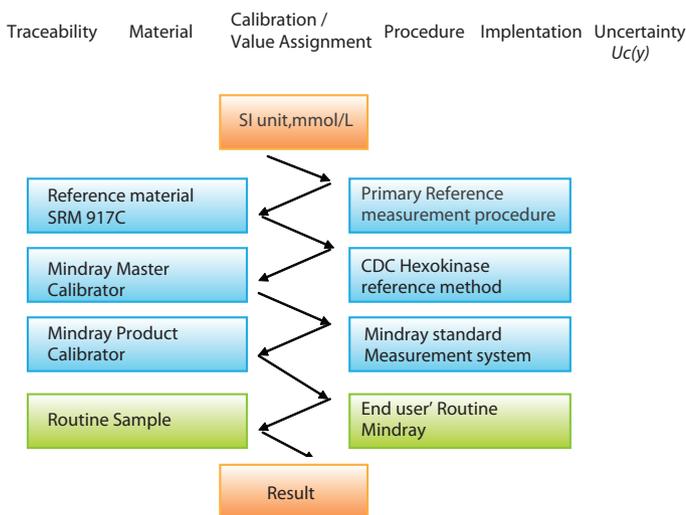
### Complete traceability process

- Complete calibration hierarchy and traceability chain based on ISO standard (EN/ISO17511) from reference system to routine measurement system

### Proficiency testing for reference measurement

- Participate RELA (External quality control for reference laboratory) to verify the accuracy of the value assignment procedure.

#### Traceability chain of Mindray measurement system (Glu)



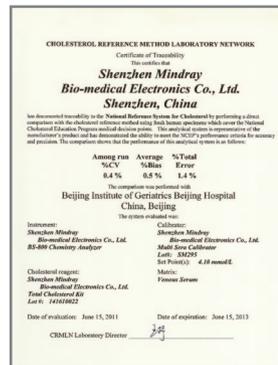
## International standardization certification

- International Standardization certificates of Cholesterol and HbA1c from CRMLN and NGSP.

More information refers to website (<http://www.cdc.gov>).

CRMLN (Cholesterol Reference Method of Laboratory Network)

NGSP(National glycosylated hemoglobin standardization program)

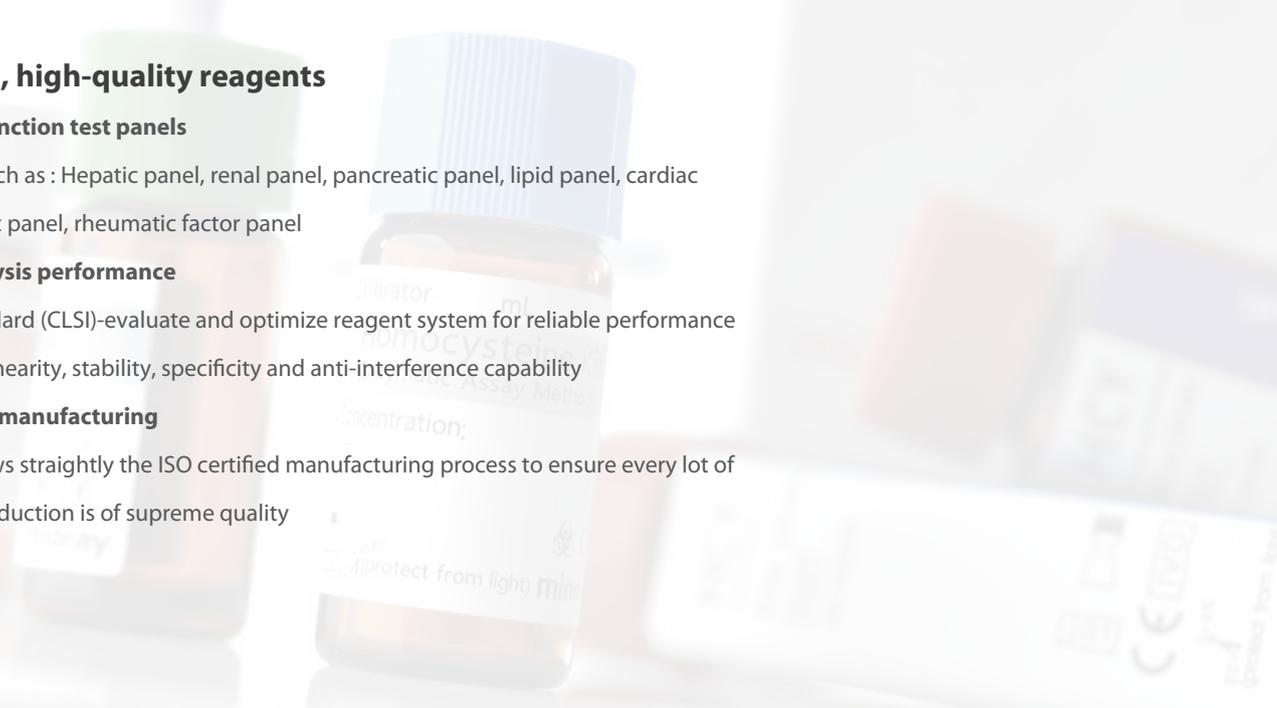


## Matched calibrators and controls

- Dedicated calibrators with traceability and specific target value
- Convenient design of multi items of calibrators and controls combined into one vial
- Long shelf life of lyophilized powder

## Dedicated, high-quality reagents

- Diagnostic function test panels**  
Test panels such as : Hepatic panel, renal panel, pancreatic panel, lipid panel, cardiac panel, diabetic panel, rheumatic factor panel
- Reliable analysis performance**  
EP series standard (CLSI)-evaluate and optimize reagent system for reliable performance in precision, linearity, stability, specificity and anti-interference capability
- ISO standard manufacturing**  
Mindray follows straightly the ISO certified manufacturing process to ensure every lot of reagent in production is of supreme quality



# Reagent Menu

## Enzymes

Alanine Aminotransferase (ALT)  
Aspartate Aminotransferase (AST)  
Alkaline Phosphatase (ALP)  
γ-Glutamyl Transferase (γ-GT)  
α-Amylase (α-AMY)  
Lactate Dehydrogenase (LDH)  
Lipase (LIP)  
Cholinesterase (CHE)  
Adenosine deaminase (ADA)  
α-L-fucosidase (AFU)  
5'-nucleotidase (5'-NT)  
Creatine Kinase (CK)  
Creatine Kinase-MB (CK-MB)  
α-Hydroxybutyrate Dehydrogenase (α-HBDH)  
Glucose-6-phosphate dehydrogenase (G6PD) \*  
Angiotensin converting enzyme (ACE) \*  
D3-hydroxybutyric acid (D3-HB) \*

## Specific Proteins

Immunoglobulin A (IgA)  
Immunoglobulin G (IgG)  
Immunoglobulin M (IgM)  
Immunoglobulin E (IgE) \*  
Complement C3 (C3)  
Complement C4 (C4)  
C-Reactive Protein (CRP)  
Lipoprotein(a) [LP(a)]  
Prealbumin (PA)  
High sensitivity C-reactive protein (hs-CRP)  
Rheumatoid Factor (RF)  
Antibodies Against Streptolysin O (ASO)  
Homocysteine (HCY)  
Ferritin (FER)  
Transferrin (TRF)  
Total iron binding capacity /  
unsaturated iron Binding capacity (TIBC/UIBC)  
Myoglobin\*  
D-dimer\*  
Retinol binding protein (RBP) \*

\* Coming soon

## Substrates

Total Cholesterol (TC)  
Triglycerides (TG)  
HDL-Cholesterol (HDL-C)  
LDL-Cholesterol (LDL-C)  
Apolipoprotein A1 (ApoA1)  
Apolipoprotein B (ApoB)  
Direct Bilirubin (D-Bil) DSA  
Direct Bilirubin (D-Bil) VOX  
Total Bilirubin (T-Bil) DSA  
Total Bilirubin (T-Bil) VOX  
Total Protein (TP)  
Albumin (ALB)  
Total Bile Acids (TBA)  
Glucose (Glu) GOD-POD  
Glucose (Glu) HK  
Urea (UREA)  
Creatinine (CREA) Modified Jaffé  
Creatinine (CREA) Enzymatic  
Uric Acid (UA)  
Carbon dioxide (CO2)  
Fructosamine (FUN)  
Hemoglobin A1c (HbA1c)  
Cystatin C (CysC)  
Microalbumin  
β2-Microglobulin (β2-MG) \*

## Inorganic ions

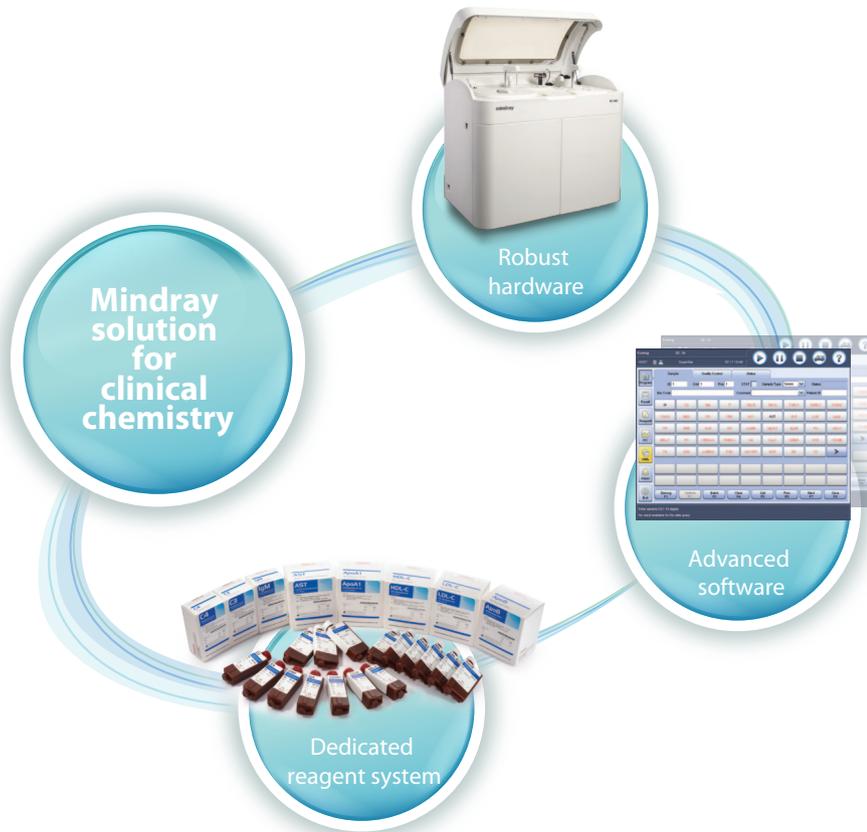
Calcium (Ca)  
Magnesium (Mg)  
Phosphate Inorganic (P)  
Iron (Fe)

## Electrolytes/ISE

Chloride(Cl)  
Potassium(K)  
Sodium(Na)



## Mindray solution for clinical chemistry



Mindray can now provide 60 parameters of dedicated reagents (more than 8 others are coming), covering hepatic, renal, cardiac, lipids, diabetes, pancreatitis, inorganic ions and immunoassays, etc., together with original calibrators with metrological traceability as well as controls for BS-480 chemistry analyzer.



# BS-480 Chemistry Analyzer

## Technical Specifications

### System function

Fully automated, discrete, random access,  
STAT, urine and homogeneous immunoassays; STAT sample priority  
Throughput: 400 photometric tests/hour, up to 240 tests/hour for ISE  
Measuring principles: Absorbance Photometry, Turbidimetry  
Methodology: End-point, Fixed-time, Kinetic, optional ISE  
Single/Dual/Triple/Quadruple reagent chemistries,  
Monochromatic/Bichromatic  
Programming: User defined profiles and calculation

### Sample Handling

Sample tray: 90 positions for primary or secondary tubes and sample cups  
Sample volume: 1.5~45 µl, step by 0.1 µl  
Sample probe: Liquid level detection, clot detection and collision protection  
Probe cleaning: Interior and exterior automatic probe washing  
carry-over < 0.05%  
Automatic sample dilution, Pre-dilution and post-dilution  
Dilution with ratio up to 1: 150  
Dilution vessel: Cuvette

### Internal bar code reader (optional)

Sample/Reagent barcode reading – applicable to various bar code systems including Codabar, ITF (Interleaved Two of Five), code128, code39, UPC/EAN, Code93; Bi-directional LIS Interface transmission

### ISE Module (optional)

Optional selection of K<sup>+</sup>, Na<sup>+</sup>, Cl<sup>-</sup>  
Throughput: Up to 240 tests per hour

### Reagent Handling

Reagent tray: 80 positions in refrigerated compartment (2~10°C)  
Reagent volume: 10~350 µl  
Reagent probe: Liquid level detection, collision protection and inventory check  
Probe cleaning: Interior and exterior automatic probe washing

### Reaction System

Reaction rotor: Rotating tray, 90 cuvettes with automatic washing  
Cuvette: Optical length 5mm  
Reaction volume: 120~360 µl  
Operating temperature: 37°C  
Temperature fluctuation: ±0.1°C  
Mixing system: 2 independent mixers

### Optical System

Light Source: Halogen-tungsten lamp  
Photometer: Reversed optics, grating photometry  
Wavelength: 340nm, 380nm, 412nm, 450nm, 505nm, 546nm, 570nm, 605nm, 660nm, 700nm, 740nm, 800nm  
Absorbance range: 0~3.3Abs (10mm conversion)  
Resolution: 0.0001Abs

### Control and Calibration

Calibration mode: Linear (one-point, two-point and multi-point), Logit-Log 4P, Logit-Log 5P, Spline, exponential, Polynomial, Parabola  
Control rules: Westgard multi-rule, Levy-Jennings, Cumulative sum check, twin plot

### Operation Unit

Operation system: Window XP Professional or Windows 7 Professional (32bit)  
Interface: RS-232, Network Port, USB/ parallel port

### Working Conditions

Power Supply: 200~240V, 50/60Hz, 1500VA or 110~130V, 60Hz, 1500VA  
Temperature: 15~30°C  
Humidity: 35~85%  
Water consumption: ≤20L/hour, De-ionized water  
Dimension: 1180mm x 710mm x 1150mm (W x D x H)  
Weight: 300 Kg

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Mindray is listed on the NYSE under the symbol "MR"

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