BS-480 Chemistry Analyzer

mindray

healthcare within reach

BS-480 Chemistry Analyzer

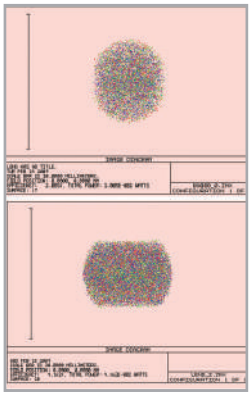
Robust hardware

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 Flatting 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

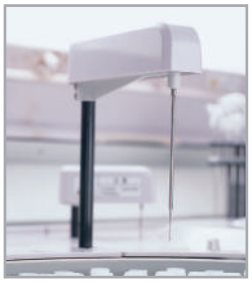


Easy to perform maintenance

- 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

for your lab

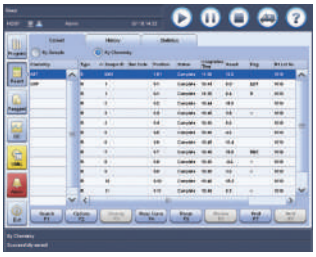
Advanced software

User-friendly Interface

- Uniform platform of BS-2000 series, BS-800 series, BS-480 and future instrument
- Real-time status monitoring between analytical unit and carousels
- Bi-directional LIS interface transmission

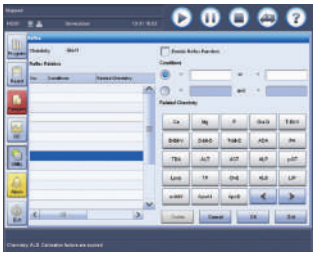
Real-time QC Status Monitoring

- Westgard Rules and Two-Control Evaluation
- Levy-Jennings chart and Twin-Plot chart
- Real-time alarm when QC result(s) is out of range
- Auto QC setup capability



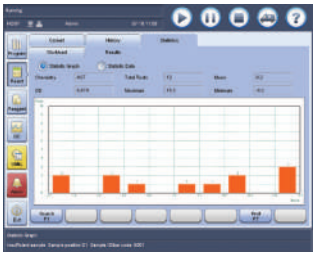
Traceable Test Results

- Reagent, calibrator and control data can be recalled from archive history
- User-friendly, intuitive software design, easy to recall from historical results



Reflex Function

- Pre-defined reflexive assays will be performed automatically when preset criteria is met
- Each assay may involve multiple reflexive criteria
- Each criteria may initiate up to a maximum of 20 relevant assays



Test Summary

- Test summary report calibration, QC, sample, validation test and rerun tests can be generated
- Facilitate computation of total test costs
- Error Log Export function -facilitate error report to engineers
- Results Archive can be transferred to engineers for evaluation

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

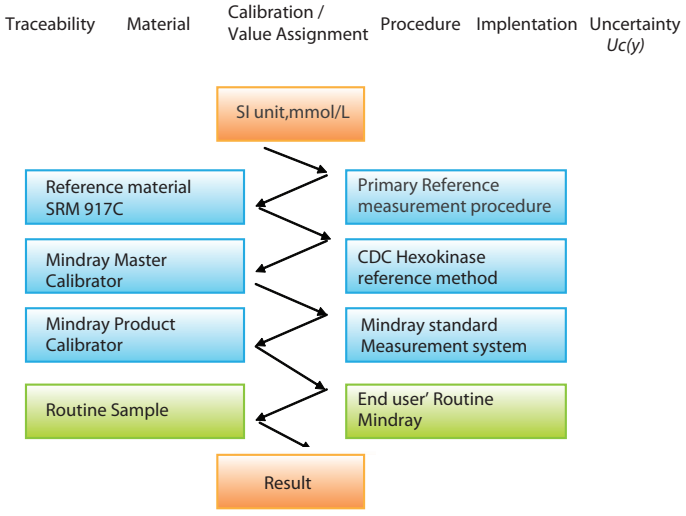
- Adopt JCTLM reference system
- IFCC primary method for enzyme, ID/MS method for substrate
- NIST, IRMM reference materials

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

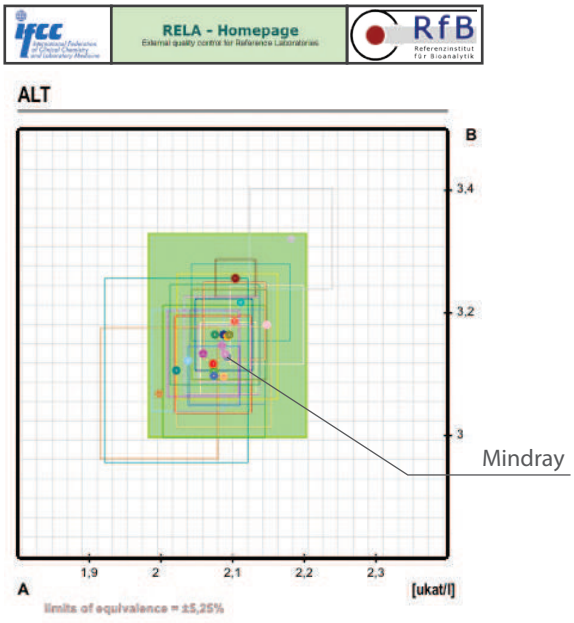
- Complete calibration hierarchy and traceability chain based on ISO standard (EN/ISO17511) from reference system to routine measurement system

Traceability chain of Mindray measurement system (Glu)



Proficiency testing for reference measurement

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



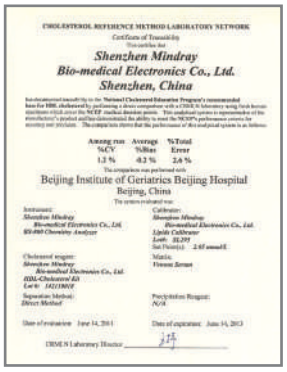
International standardization certification

- 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)

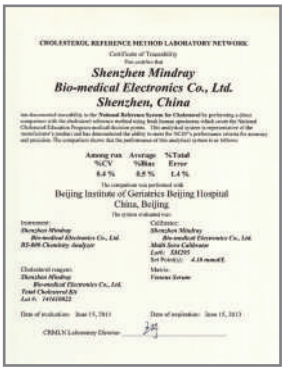

CHOLESTEROL REFERENCE METHOD LABORATORY NETWORK

Certificate of Traceability

Shenzhen Mindray
Bio-medical Electronics Co., Ltd.
Shenzhen, China

Among run %CV 1.2 % Average %Bias 4.2 % %Total Error 2.6 %

Beijing Institute of Geriatrics Beijing Hospital
Beijing, China


CHOLESTEROL REFERENCE METHOD LABORATORY NETWORK

Certificate of Traceability

Shenzhen Mindray
Bio-medical Electronics Co., Ltd.
Shenzhen, China

Among run %CV 6.0 % Average %Bias 8.5 % %Total Error 1.4 %

Beijing Institute of Geriatrics Beijing Hospital
China, Beijing.


University of Washington
Northwest Lipid Metabolism and Diabetes Research Laboratories
Seattle, Washington

ShenZhen Mindray Bio-Medical Electronics Co., Ltd.,
Nanshan, ShenZhen, GuangDong Province
P. R. China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NGSP

Certificate of Traceability

Manufacturer Certification

This certifies that Mindray using Enzymatic on BS-800 has participated in and successfully completed the NGSP certification for manufacturers and is traceable to the Diabetes Control and Complications Trial Reference method. The comparison was performed with: Reference Material Institute for Clinical Chemistry Standards (IfcCCS) ASRL#1

The system evaluated was:

Instrument:	Calibrator Lot:
Mindray BS-800	44612004
Reagent Lot: 44612004	Calibrator Assigned Values: 5.0%, 11.9%

Date of Certification: May 1, 2012 Certification Expires: May 1, 2013

NGSP Steering Committee Chair | NGSP Network Coordinator | IRL director supervisor

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)
Lipoportein(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) *

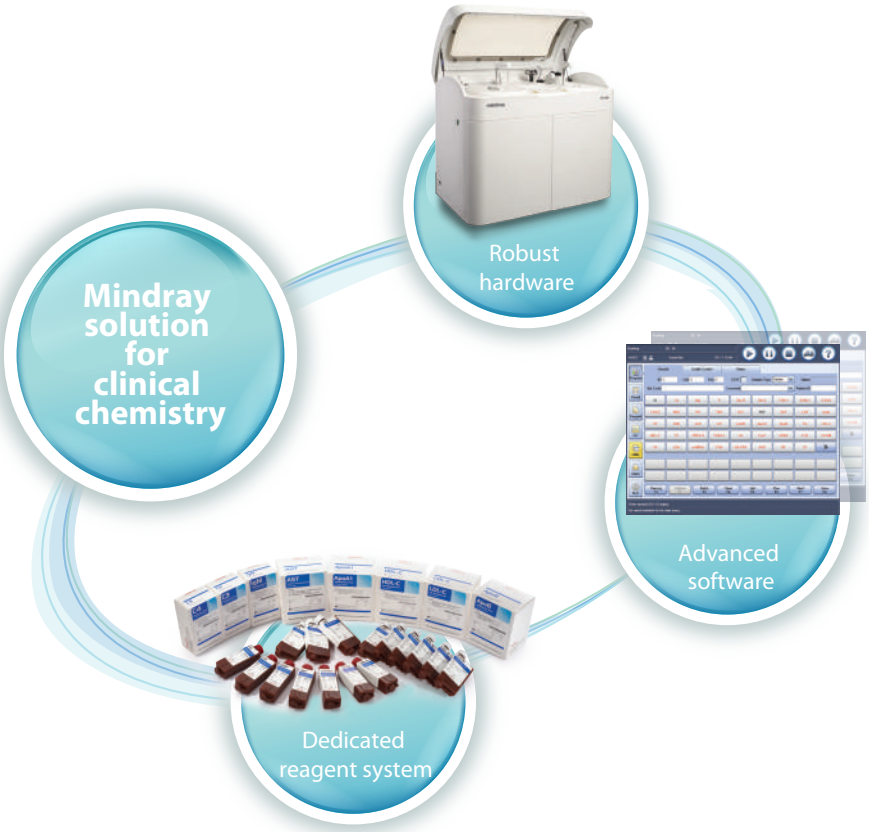
Inorganic ions

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

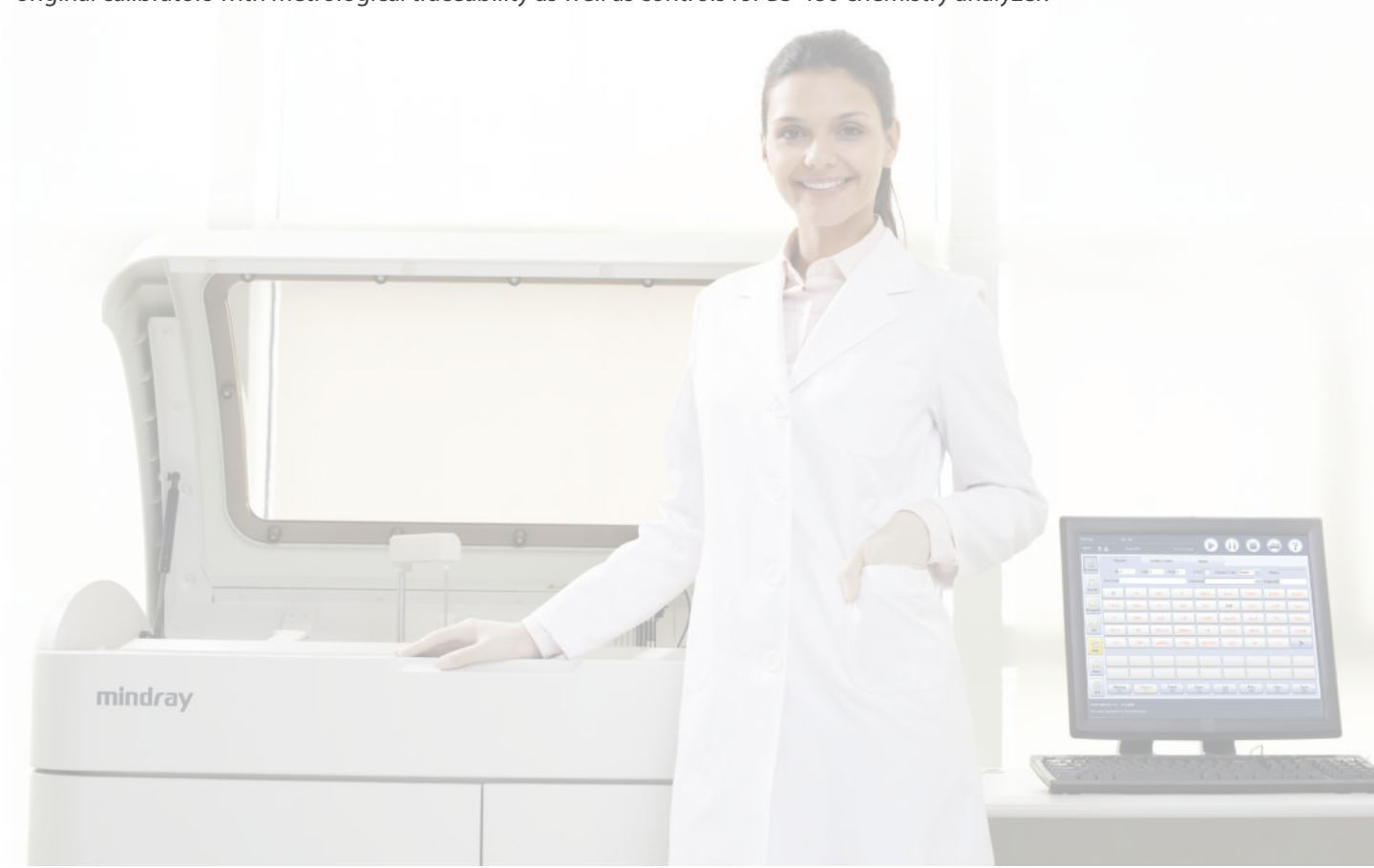
Electrolytes/ISE

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 immunalassays, 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 0.1µl
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^+, Na^+, Cl^-
Throughput: Up to 240 tests per hour

Reagent Handling

Reagent tray: 80 positions in refrigerated compartment (2~10°C)
Reagent volume: 10~350µl
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: 120~360µl
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"

P/N:ENG-BS-480-210285x8-20131010

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