

Clinical Chemistry Analyzer

UMDNS

16298 Analyzers, Laboratory, Clinical Chemistry, Automated

GMDN

35918 Laboratory urine analyser IVD, automated
56676 Laboratory multichannel clinical chemistry analyser IVD, automated

Other common names:

Biochemistry analyzer

Health problem addressed _____

Perform tests on whole blood, serum, plasma, or urine samples to determine concentrations of analytes (e.g., cholesterol, electrolytes, glucose, calcium), to provide certain hematology values (e.g., hemoglobin concentrations, prothrombin times), and to assay certain therapeutic drugs (e.g., theophylline), which helps diagnose and treat numerous diseases, including diabetes, cancer, HIV, STD, hepatitis, kidney conditions, fertility, and thyroid problems.

Product description _____

Chemistry analyzers can be benchtop devices or placed on a cart; other systems require floor space. They are used to determine the concentration of certain metabolites, electrolytes, proteins, and/or drugs in samples of serum, plasma, urine, cerebrospinal fluid, and/or other body fluids. Samples are inserted in a slot or loaded onto a tray, and tests are programmed via a keypad or bar-code scanner. Reagents may be stored within the analyzer, and it may require a water supply to wash internal parts. Results are displayed on a screen, and typically there are ports to connect to a printer and/or computer.

Principles of operation _____

After the tray is loaded with samples, a pipette aspirates a precisely measured aliquot of sample and discharges it into the reaction vessel; a measured volume of diluent rinses the pipette. Reagents are dispensed into the reaction vessel. After the solution is mixed (and incubated, if necessary), it is either passed through a colorimeter, which measures its absorbance while it is still in its reaction vessel, or aspirated into a flow cell, where its absorbance is measured by a flow-through colorimeter. The analyzer then calculates the analyte's chemical concentrations.

Operating steps _____

The operator loads sample tubes into the analyzer; reagents may need to be loaded or may already be stored in the instrument. A bar-code scanner will read the test orders off the label on each test tube, or the operator may have to program the desired tests. After the required test(s) are run, the results can be displayed on-screen, printed out, stored in the analyzer's internal memory, and/or transferred to a computer.

Reported problems _____

Operators should be aware of the risk of exposure to potentially infectious bloodborne pathogens during testing procedures and should use universal precautions, including wearing gloves, face shields or masks, and gowns.



Use and maintenance _____

User(s): Laboratory technician

Maintenance: Laboratory technician; biomedical or clinical engineer

Training: Initial training by manufacturer and manuals

Environment of use _____

Settings of use: Clinical laboratory

Requirements: Adequate benchtop or floor space, water supply, line power, biohazard disposal

Product specifications _____

Approx. dimensions (mm): 500 x 700 x 1,000

Approx. weight (kg): 30-700

Consumables: Reagents, sample cells

Price range (USD): 10,000 - 465,000

Typical product life time (years): 5-7

Shelf life (consumables): Reagents: 1-2 years

Types and variations _____

Some chemistry analyzers can be interfaced to an automated immunoassay analyzer to decrease operator intervention and possibly improve workflow.

