endosafe®-pts

evolved.

charles river
accelerating drug development. exactly.

endosafe®-pts. evolved.

Endosafe®-PTS is a rapid, point-of-use test system providing quantitative LAL results in about 15 minutes.

Charles River Laboratories' revolutionary FDA-licensed endotoxin detection system, the Endosafe®-PTS, is a rapid, point-of-use test system that provides quantitative LAL results quickly. The PTS utilizes LAL reagents in a disposable test cartridge with a handheld reader for a completely contained, real-time endotoxin testing system. The PTS is in line with the FDA's initiative for Process Analytical Technology (PAT) contributing to improved quality, safety, and efficiency to the pharmaceutical manufacturing process.

The Endosafe®-PTS is licensed by the FDA as a testing method for in-process and final product release testing of pharmaceutical products.

The flexibility of the PTS allows it to be used in conventional, quality control testing laboratories as well as at the point of sample collection. The portability of the system and exceptionally fast results enhance testing programs and accelerate the development process.

PTS Instrument
The PTS instrument is a lightweight, incubating spectrophotometer that has many features, including:

- Rechargeable power block
- Easy-to-read display screen
- Keypad operation
- Storage of 100 test results
- Data transferability to standard reports and trending software applications
- Printable results
- Protective case with cover

Product Applications
The speed of the PTS method makes it especially effective for a range of product applications, including:

- Pharmaceutical products
- Biologicals
- Nuclear medicine samples
- Dialysis samples
- Stem cell materials
- Pharmaceutical water systems
- Cleaning validations
- Medical devices
- Biomedical products

In addition to in-process and release testing, the PTS can be used in the QC laboratory to get a quick read on raw materials and STAT samples that require immediate analysis.

Training of new users is fast and easy, as the PTS operates with the push of a button. Results are obtained quickly, preventing inconvenient and costly delays in production.

Data Analysis and Acceptance Criteria
With the PTS, data reporting is simple. At the conclusion of the test, the endotoxin measurement and the assay acceptance criteria are displayed on the screen.

Internally, the PTS reader measures the reaction time in each channel. An archived standard curve specific for each batch of cartridges is constructed using the log of the reaction time vs. the log of the concentration. The sample and spike values are calculated by interpolation of the standard curve using the reaction times.

The instrument can be used to detect endotoxin levels as high as 10 EU/mL and as low as 0.01 EU/mL. Charles River Laboratories' suitability requirements for a valid assay are: (a) spike recovery of the Positive Product Control must be within the FDA and compendial acceptable range of 50-200%, and (b) the Coefficients of Variation (CV) for reaction times for both the sample and PPC replicates must be less than 25%.

ENDOSAFE®-PTS SERVICE PROGRAMS
Warranty with Purchase
Charles River Laboratories warrants the Endosafe®-PTS instrument will meet stated specifications for a period of one year. The warranty period will start on the date of shipment by Charles River Laboratories.

During the warranty period, as the customer's sole remedy, Charles River Laboratories will repair the PTS instrument at no charge to the client for parts and labor. Charles River will provide a loaner instrument during the repair process. The client will be responsible for freight charges associated with the return of the instrument and the loaner.

Annual Calibration Certification
The factory calibration certified at the time of manufacture is valid for one year. Charles River offers an annual recalibration certification service. To request this service, the client must notify Charles River 60 days prior to the end of the calibration period to arrange for recertification.

Extended Warranty
Charles River offers an Extended Warranty option for the Endosafe®-PTS reader for an additional fee. The Extended Warranty is valid for four years after the initial one-year warranty period. It must be purchased within the first year of the date of purchase of the PTS.

Endosafe®-PTS Non-Licensed Products
The PTS technology is being employed in numerous other applications. Two products, the Endosafe®-PTS Gram ID and Endosafe®-PTS BCA are available presently. Other applications are currently in development.

Endosafe®-PTS Gram ID
The PTS Gram ID is a fast, simple test that measures the presence of cell walls in a microbial isolate. The measurement is interpreted by the software to indicate whether a sample contains Gram negative or positive bacteria or yeasts/molds.

The PTS Gram ID eliminates technician variability that can occur in a Gram stain determination that uses multiple reagent steps. The PTS also reduces the chances for incorrect or Gram-variable results that occur due to physiological properties of the cell wall. The PTS makes identifications of Gram negative or Gram positive based on the composition of the cell walls only, not the presence of dyes picked up by the cell walls. Over 70 different organisms have been tested with the PTS Gram ID for accuracy and specificity.

Endosafe®-PTS BCA
The PTS BCA™ system can be used to determine reproducible protein results down to 25 μg/mL in less than 20 minutes without having to prepare a standard curve. The disposable test cartridge is pre-loaded with precise amounts of BCA reagents. The assay relies on the reduction of Cu^{+2} to Cu^{+1} by protein in an alkaline medium (the biuret reaction), followed by complexation of Cu^{+1} with two equivalents of bicinchoninic acid in which the early onset of color is detected and measured at an absorbance of 562 nm by the PTS instrument.

PTS technology is being employed in numerous other applications. The Endosafe®-PTS Gram ID and Endosafe®-PTS BCA™ are available presently.

Test Technology

The PTS utilizes LAL kinetic chromogenic methodology to measure color intensity directly related to the endotoxin concentration in a sample. Each cartridge contains precise amounts of licensed LAL reagent, chromogenic substrate, and control standard endotoxin (CSE). The cartridges are manufactured according to rigid quality control procedures to ensure test accuracy and product stability.

FDA-Licensed LAL Assay

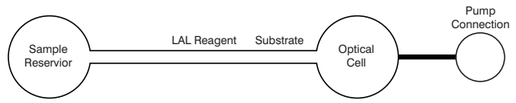
The Endosafe®-PTS is licensed by the FDA as an LAL testing method for in-process and final product release testing for pharmaceutical products. The PTS was designed to be compliant with global pharmacopoeial methods and meets the BET criteria for photometric techniques. Validation of the PTS can be accomplished by performing Inhibition/Enhancement testing on three batches of product.

Test Procedure

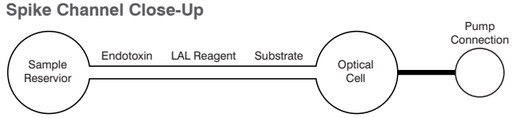
To perform the test, the user simply pipettes 25 µL of a sample into each of the four sample reservoirs of the cartridge (Figure 1). The reader draws and mixes the sample with the LAL reagent in two channels (the Sample Channels) and with the LAL reagent and Positive Product Control (PPC) in the other two channels (the Spike Channels). The sample is incubated and then combined with the chromogenic substrate. After mixing, the optical density of the wells is measured and analyzed against an internally-archived, batch-specific standard curve. The PTS simultaneously performs testing in duplicate and averages the results in keeping with USP guidelines.

Figure 1.

Sample Channel Close-Up



Spike Channel Close-Up



Endosafe®-PTS is licensed by the FDA as an LAL testing method for in-process and final product-release testing.

Endosafe®-PTS Instrument

Temperature control:	37°C ± 1°C
Data interface:	RS232 serial port
Printer support:	Thermal printer compatible
Data format:	Comma delimited ASC II
Data storage:	Last 99 tests are stored
Dimensions:	9.25” x 4.625” x 2.50”
Power:	90-240 V, 50-60 Hertz
Battery life:	4 hours of operation post-charge
Warm-up time:	< 5 minutes from 20°C start
Sleep mode:	Enters low-power, standby mode after 15 minutes of inactivity
Display:	Two lines of 16 characters
Operating temperature range:	Room temperature

Endosafe®-PTS FDA-Licensed Cartridge

Expiration date:	9 months from the date of manufacture if stored as packaged from manufacturer in 2 - 25°C conditions
Sensitivity:	1 - .01 EU/mL range, 5 - .05 EU/mL range, 10 - 0.1 EU/mL range
Standard curve:	Archived in ranges 1 - .01 EU/mL, 5 - .05 EU/mL, 10 - 0.1 EU/mL
Acceptable temperature:	37°C ± 1°C
Acceptable range for spike recovery:	50 - 200%
Approximate reaction time for test:	15 minutes
Sample requirement:	25 µL sample per channel; sample must be delivered to each sample port without contamination

Endosafe®-PTS Accessory Products

Pipettor:	Endosafe®-PTS mini pipettor 25 µL disposable unit with ±5% accuracy and ±3% precision at full stroke
Printer:	Seiko printer, battery powered, rechargeable thermal unit
Pipette tips:	Eppendorf® pipette tips 200 µL, individually wrapped, validated to .005 EU/mL
Reader case:	Solid plastic with handle for instruments and supplies

For additional information on Endosafe®-PTS, please visit our web site at www.criver.com or call Technical Assistance at 1-800-762-7016.

charles river
accelerating drug development. exactly.

251 Ballardvale Street
Wilmington, MA 01887
1.877.CRIVER.1 • www.criver.com