

Linxens Technologies used to manufacture hundreds of millions of epoc[®] Test Cards



Rapid and comprehensive Point-of-Care Testing solution for critical care

In critical care - intensive care units, emergency departments, operating rooms or neonatology units - fast turnaround time for diagnostic test results have been correlated to improved patient outcomes. The ability to rapidly analyze a range of basic biomarkers in patient blood can be vital.

Siemens Healthineers' FDA and Health Canada approved epoc[®] Blood Analysis System, a so-called BGEM analyzer, was designed to specifically address these critical requirements.

It enables fast comprehensive analysis of blood gases (ie, pH, pCO₂, pO₂), electrolytes (ie, Na⁺, K⁺, Ca²⁺, Cl⁻), metabolites (ie, Glucose, Lactate, Urea, Creatinine) and Haematocrit. It is a patient-side testing solution that delivers a full menu of laboratory-accurate tests in less than a minute.

A mini, portable laboratory that tests 13 parameters simultaneously

The epoc system combines a reader and a single use Test Card (see figure 1). The Test Card is an electrochemical biosensor that incorporates an array of 14 electrodes (13 working and one reference), reagents, calibrators and microfluidic circuits.

When the Test Card is inserted into the reader, after a drop of blood has been placed within the Test Card, the reagents deposited on the electrodes enable electrochemical reactions.

The electroplated electrodes developed by Linxens, an alternative to standard Screen-Printed-Electrodes, also enable the reaction and capture the generated signals. These electrical signals are then analyzed by the reader. Laboratory-quality results are produced within a minute and immediately transmitted to the hospital information system through wireless protocols.



Mathias Ganzmann
General Manager of
Siemens Healthineers

"The epoc system is a world-leading fully diagnostic tool which has transformed critical healthcare, by enabling doctors to provide the right care in a very short time. Linxens has been integral to the development of this Point-of-Care solution and our research and development

teams continue to work closely together on next generation systems. The electrode array allows to perform 13 test parameters simultaneously with just one card whereas predicate devices need multiple cartridges. This helps to maximise hospital efficiency and reduce costs."

Linxens unique processes for creating biosensors

Linxens developed the electrodes which are the 'sensing' elements of the Siemens epoc® Test Card. The unique Linxens manufacturing process can be summarized with following few steps. Fourteen 0.75mm holes (or wells) are punched in a 110µm glass-epoxy substrate. A 35µm copper sheet is laminated on top of the substrate. It is then chemically etched to create the pattern of the connector side for electrical contact with the epoc reader. Finally, nickel and gold are electroplated on top of the copper on both sides. Thus, wells are formed and will receive in a latter process the reagents. The construction of the electrode array is an innovative feature. Linxens has manufactured hundreds of millions of electrode arrays for over 15 years, delivered in reel-to-reel format for cost-effective manufacturing of the Test Card.

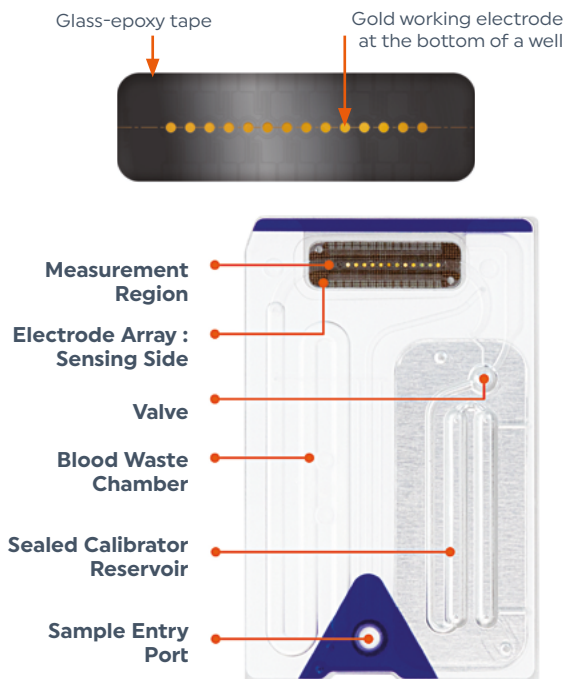


Christelle Robelin
Healthcare Marketing
Director Linxens

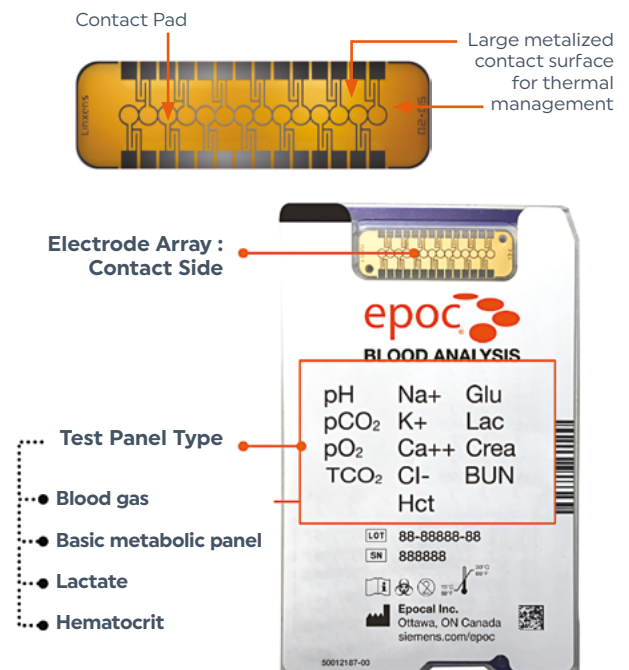
"Linxens is proud of the long-standing relationship it has built with Siemens Healthineers, developing innovative biosensing solutions. The quality of our electrodes contributes to the excellent precision and accuracy of the tests. Quality is a high priority for Linxens, and we are proud that our French industrial site in Mantes-la-Jolie recently received the ISO 13485: 2016 certification for the design, industrialization, and manufacture of sub-components for medical devices. This will enable Linxens to accelerate its development in the health sector, and to continue supporting Siemens Healthineers on future developments."

Figure 1

Test Card: Top



Test Card: Bottom



www.siemens-healthineers.com
customeradvocate.ca@siemens-healthineers.com



www.linxens.com
contact@linxens.com

