



Tyvek® for sterile packaging



Tiny Neotrend™ Probe Performs Giant Feats on Premature Infants ... with Some Packaging Help from Tyvek®

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When it comes to finding appropriate life-saving technology for premature infants, smaller

usually works better. Doctors at the All Saints Hospital in Chatham, Kent, England, recently experienced this up close when they successfully inserted an incredibly small catheter and probe with sensors — *the size of a human hair* — into the body of a premature 14-week-old baby boy.

Designed to monitor a premature infant's vital signs, the plastic catheter consists of three tiny sensors and a wire temperature probe. By continuously measuring the oxygen, carbon dioxide, pH (acidity) and blood temperature levels of the infant, the delicate instrument allows the medical team to respond immediately to any changes or fluctuations in the baby's body. This can help reduce the chance of brain damage, handicaps and organ damage from occurring. In some cases, the procedure can even save lives.

Although the procedure has been tested on eight babies at All Saints Hospital and four oth-

ers in the city of Leeds, the baby boy mentioned here is the tiniest to undergo the technique so far. At 1lb. 8 oz. and barely 12 inches long, he just about fit into his mother's palm.

Doctors inserted the Neotrend™ catheter and probe through his 2-mm-wide umbilical cord artery and eased the 0.5-mm probe up into the aorta. Developed by Diametrics Medical Ltd. of High Wycombe, Bucks, U.K., the Neotrend™ catheter and probe is then linked to a machine that gives constant readouts, telling doctors when critical, potentially life-saving adjustments need to be made.

Caregivers of premature babies must deal with challenges such as managing respiratory problems and metabolic disorders, maintaining body temperature stability and taking blood samples. With this technique, doctors and nurses don't have to take blood up to six times a day nor do they have to wait for readouts every four hours.

"These are the babies who are very much at risk," said Dr. Tony Ducker of the medical team at All Saints in a recent interview. "And knowing exactly what is happening at any one moment and being able to change things before they get out of hand, is a big step."

Packaging this revolutionary medical device required the same



degree of precision. So when Diametrics began evaluating the best possible packaging materials, team members knew they had to choose a lidding material that could provide the

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proper balance of toughness, durability and physical properties. What's more, the lidding had to stand up to a battery of cold-temperature tests used to simulate storage and transportation conditions, and offer good printability. Their choice was Tyvek®.

"Tyvek® was a real benefit to us," says Jon Church, Neotrend™ project manager. "We had had problems with a previous lidding configuration where we were affixing labels. During packing, air inside the blister pack could not be removed effectively; this weakened the adhesive and ultimately caused the seal to burst open."

As a result, Diametrics made the decision to use lidding made of Tyvek® on which they could print directly. The printability and breathability of Tyvek® completely eliminated the need for labels and the problem of bursting blister packs during packing.

"Tyvek® allowed us to modify atmosphere pack the Neotrend™ sensor with a precise gas concentration within the protective pouch," adds Church. "This ensures that the highest degree of accuracy is maintained on placement of a calibrated sensor into the baby."

"The characteristics of Tyvek® are particularly suitable for this demanding type of medical packaging," confirms Carl Marotta, president of Tolas Health Care Packaging, Feasterville, Pa., the company that applies a proprietary sealant coating selected for this application. "Tyvek® is a versatile material and retains its toughness and flexibility down to extremely low temperatures. It's also an excellent printing substrate."

Diametrics' tiny, miracle medical device has earned it a special place among British inventions.

It will join a number of other products produced in the United Kingdom to be featured in the Great British Inventions section

of the Millennium Dome. Located in Greenwich, the home of the Royal Observatory and Greenwich Mean Time, the Dome is a billion-dollar undertaking built especially for the Year 2000 celebra-

tion. In fact, the Neotrend™ package soon will bear the Millennium Products logo.

Secure packaging, neater appearance and a place in British history — it's all there to help make this tiny medical device a giant success.

"Tyvek® was a real benefit to us."

— Jon Church,

Neotrend™

project manager.

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