

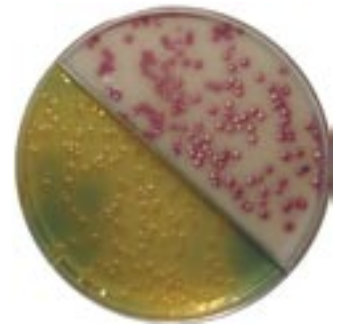
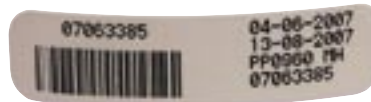
Inter Company Co-operation

Huge changes have occurred within the commercial microbiology laboratory business sector over the last ten years. With routine food, water and environmental samples being so competitively priced, laboratory automation has become a necessity.

Clinical laboratories in the UK are also experiencing change as the NHS restructures and drives through the efficiencies to meet the ever demanding government budgets. E&O have been monitoring the situation for some time and building relationships with like-minded companies to help develop products, systems and services to meet customer expectations in an evolving and highly competitive market place.

E&O signed up to a strategic alliance with Kiestra Laboratory Automation from Holland back in 2006. Through close co-operation we have enhanced product traceability from the patient sample back to batch raw materials. E&O is the first approved supplier to deliver commercial poured plates with individual bar coded dishes to an NHS trust hospital. The bar code is an essential automatic link between the media batch number and the patient sample and is fully compliant with CPA accreditation. The overall improvements are instant product trace ability, sample allocation, digital image patient result archiving and manpower cost reduction. "It's the sample that moves!" concept will influence laboratory managers and procurement departments for many years to come.

Fulfilling customer requirements – E&O lead the field!



- Integrated file transfer
- Individual bar coded dishes
- Full production trace ability
- Digital quality control images
- Pre-delivery electronic file transfer
- On-line access

BarcodA Technology

The alliance between Holland and Scotland is still on going with investment in time, equipment and expertise to deliver a superior product, with a fully documented digital file transfer. BarcodA equipment has been integrated with E&O's production software to deliver an individually labelled dish for each patient sample. This vital step ensures that the right product is used for the sample procedure with instant full trace ability back to a production date, expiry date, lot number, product code and all raw material data.

All bar coded stock is stored in a separate area in the cold store prior to pick, pack and shipping for standing order amendments. Once the shipment is completed, the file merges with quality control batch data images and can be accessed over the web using the customer's secure identity pin number.

CamerA Technology

A full set of digital images is recorded from each batch of media during the quality control phase of production. Sterility images are also used as a cross-reference for media colour, while examples of product inhibition, fertility and recorded zone sizes can also be assessed for long-term trend analysis as well as routine audit data.



Innovation in Service and Quality Assurance

Continual Investment in Manufacture

Bulk Media Sterilisation

E&O poured their first plates back in 1995, using a traditional 10 litre Jouan preparator and a New Brunswick stacker. The plates were dried in a lamina flow and then individually hand labelled using a "corner shop pricing applicator gun" before being shrunk wrapped, labelled and transferred to a 4°C refrigerated area prior to releasing after quality control. Although the core principles are still very much the same, all modern high volume sterilisation vessels are designed to heat and cool huge volumes of media in the most efficient manner. The combination of a very accurate electronic processor to control the steam valves is then complemented by pre-heated cooling water circulation which aids the reduction of any heat fluctuation during the pouring process after the addition of sensitive antibiotic supplements.

As the business has grown, E&O has invested in both new pouring lines and sterilisation vessels. Large volume media batches are prepared in 60, 100, 150 and 350 litre vessels. Molten agars are poured through twelve pouring lines with automatic ink-jetting before being stacked prior to packaging. This investment has guaranteed our customer base continuity of supply and our peace of mind during any breakdown scenarios.

- Accurate media sterilisation - From 2 - 350 litre batch sizes
- Clean-room extension - 1000sq ft of sterile production area
- Speciality equipment - Round, square and bi-plate pouring
- 4-lane dual pump - Back-up equipment

Poured Plate Conditioning

Packaging has become one of the most important components with regard to the conditioning of media during transportation and post production refrigeration. Many years ago the fashion was to cool media as fast as possible to 4°C and bag it in an impermeable PVC or polythene film. Now we use the principle of dehumidification through an air handling system to air dry the plates while they move in long tunnels prior to finally setting. The plates are then moved via a conveyer to a fully automated sleeving machine which cuts out any manual handling and the opportunity for contamination. The sleeving film is cellulose which allows moisture to evaporate whilst protecting the media from any bacterial contaminants. Once the packets of plates leave the clean-room environment, they are labelled and transferred to a controlled environment of 10°C where further slow drying occurs through the permeable packaging. This slow cooling/drying process ensures that laboratories receive a consistently high quality media to perform all required bacteriological tests. Following the receipt of poured plates, it is advised that customers store their media at 4°C for the remainder of the recommended shelf-life.

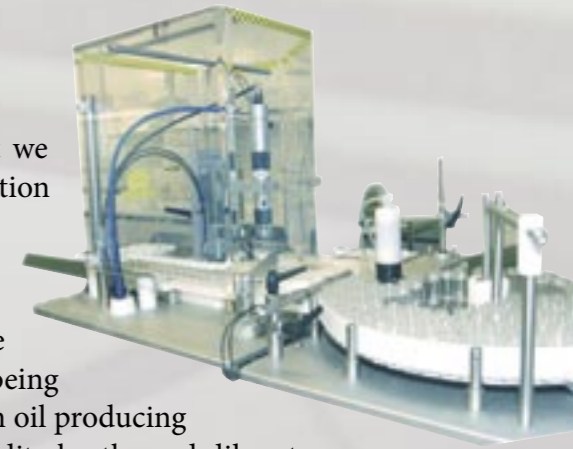
Pouring On-line

America has lead the world in commercially poured media for many years with Online Engineering Inc. supplying the specialised pouring equipment for commercial manufacturers in almost all developed countries. E & O started with a single lane machine before progressing to three lane and then on to a five lane which has the capacity to pour over four and a half thousand dishes per hour. As the business grew we also invested in more specialised equipment for the pouring of bi-plates, contact plates and the large 120mm square and 140mm round dishes.



Bottled Media

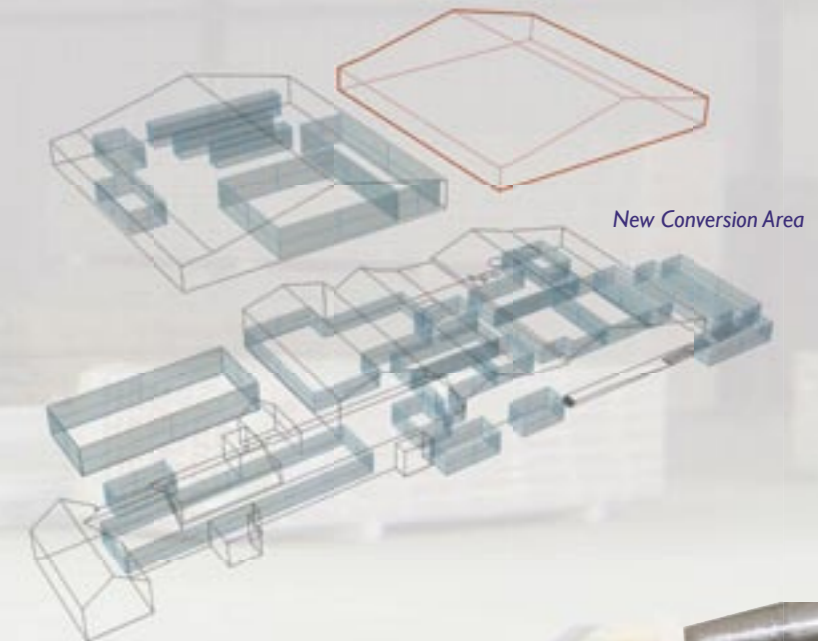
Storage space was always a big issue with bottled media and now that we have finished the conversion of the warehouse, it has allowed production to manufacture a higher level of stock so customers have even more flexibility in last minute ordering. Again we have investment plans for further automating bottling systems and introducing more efficient ways of handling aseptic product lines. As the plastics industry develops more innovative films for the production of bagged media, it is constantly being threatened by the price of raw materials with the prevailing uncertainty in oil producing nations. Glass is still the most cost effective way of transporting commodity broths and diluents from commercial manufacturers to the end user laboratories.



Automatic dispensing/capping

Further Expansion Plans

One of the biggest advantages we have at E&O is the ability to control our development projects and ultimate business growth. Back in 1995 we had to make the decision to either convert the existing farm buildings or move the core production into an industrial site. This was a huge turning point in the company's destiny. By keeping everything on the farm it has allowed us to control costs and grow without outside financial assistance. Having converted one of the main animal housing units into a modular clean air production area and the other into, extensive cold and ambient storage combining warehouse and distribution, we are now planning a further 10,000 square feet for intensive manufacturing. It is essential that we automate processes to stay competitive and at the same time invest in research and development for both products and services. The enormity of this planned new area will allow us to diversify into new product ranges as well as providing additional space for administration and related services.



New Conversion Area

Disaster Strategy

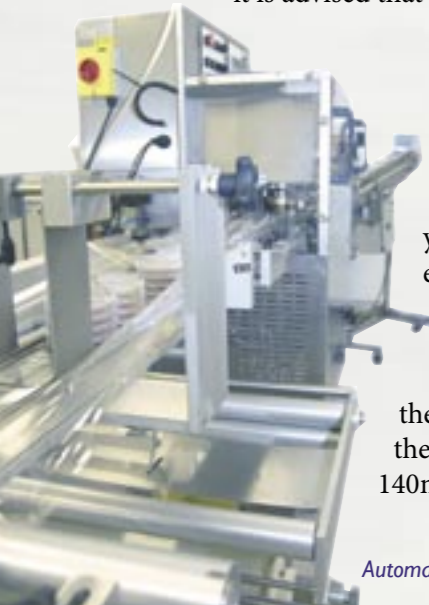
Ten years ago the words "Disaster Strategy" were never at the forefront of any government tender documentation with regard to microbiology media products. With more and more uncertainty in both the public and private domain, proof of common sense is now a necessity. E&O has been through some challenging times in its growth but has always planned sensible back-up strategies to ensure customers receive their orders on time. We operate with reserve power, steam and air equipment and have adequate water storage for up to 48 hours. The Engineering Department is fully stocked with replacement parts for all service requirements to key process equipment. Our engineers integrate fully with production to repair, replace and advise in design automation. Trust and responsibility are essential when delivering not just a product but a service to the NHS, the food industry sector and important veterinary and pharmaceutical accounts.



Back-up steam boiler



350 litre media prep



Automatic sleever

ELECTRICAL

MECHANICAL

ENVIRONMENT

STRUCTURAL

ENGINEERING

Meeting the Standards

E&O's technical up-date

Jonathan Horwood joined the E&O Group back in January as **Technical Manager**. With extensive previous experience in clinical microbiology and latterly quality assurance, he has brought a wealth of expertise to our technical department. The team have been working very hard with both quality assurance and quality control to up-date and validate new methods to test the complete product range in line with the International ISO 11133 standard. All of our products are now tested in accordance with the guidelines of:

ISO 11133 – 1 :2000

(Quality Assurance of Culture Media)

ISO/TS 11133 – 2 :2003

(Performance Testing of Culture Media)

- Sterility
- Productivity, Selectivity & Specificity
- pH, Moisture, Fill Quantity & Appearance
- First generation NCTC and/or ATCC strains
- Quantitative and Qualitative analysis
- Relative Growth Index, minimum 70% for non-selective media & 50% for selective media
- Batch to Batch Comparison



Dr Douglas Cameron and Jonathan Horwood

E&O's product development will be further enhanced as new formulations can be tested more rigorously. Essential accurate trend analysis data will also help the production team to determine the ideal batch size when manufacturing more heat sensitive formulations. This essential step forward will benefit and grow our customer base for many years to come. If you have any routine or special requests please do not hesitate to contact either: Jonathan Horwood - Technical Manager or Eddie Scott – Compliance Manager

News from the Sales Department - Exhibition dates

New Scottish Sales Manager joins the team:

Lyndi Ford-McNicol

Lyndi is looking forward to meeting with customers and enhancing communication between sales, customer service, technical and production. She will be welcoming you at the following exhibitions with territory Account Managers, **Suzanne Forster** and **Sarah Lowdon**

IBMS

Biomedical Science Congress
ICC Birmingham
24th - 26th September 2007
Stand 808

MEDICA

International Trade Fair
Dusseldorf Germany
14th – 17th November 2007

WAM

Scottish Development International Stand-Hall 1
Wessex Applied Microbiologists Conference
Novotel, Southampton
18th – 20th April 2008



E & O Laboratories Limited

Burnhouse, Bonnybridge, Scotland FK4 2HH

Telephone: 01324 840404

Fax: 01324 841314

E-mail: info@eolabs.com

Web site: <http://www.eolabs.com>

