

MAPtest 3050 analyser

Food packaging atmosphere analyser

- Proven technology from gas analyser experts
- Suitable for all O₂ – CO₂ – N₂ mixtures
- Auto calibration
- Choice of sampling
- Datalogging and download software

Applications

- Food packaging
- Modified atmosphere packaging (MAP)
- Controlled atmosphere packaging (CAP)
- Equilibrium modified atmosphere packaging (EMAP)



Modified atmosphere packaging is a technique for extending shelf life for most food products. It is an accurate description as the 'normal atmosphere' is approximately 80/20 nitrogen/oxygen with less than 1% carbon dioxide. This ratio is modified in different ways depending on the foodstuff, e.g. red meat is packed in an oxygen rich atmosphere. It is important to ensure that the correct gas mixture is used to ensure the forecast shelf life is achieved, so gas analysis must be included in all Quality Assurance programmes.

Oxygen causes oxidative degeneration of food but there are also reasons why it might be included (e.g. maintaining colour and respiration, inhibiting anaerobic organisms). Hitech use a zirconia sensor which is non-depleting, fast responding and accurate over the full range of applications. This is a significant advantage over electrochemical fuel cells (as used in handheld instruments) which are slower to respond, less accurate and require regular replacement.

Carbon dioxide inhibits growth of most aerobic bacteria and moulds. Generally the higher the level of CO₂ the longer the shelf life but excess levels can cause flavour tainting and pack collapse. Hitech use a thermal conductivity sensor to measure carbon dioxide. Although non-specific (not a problem in this strictly three gas atmosphere) the thermal conductivity sensor is not subject to the same degradation that can occur with infrared sensor light sources and will require less servicing.

Nitrogen is an inert gas and is used as the 'filler' gas once the other two gas levels are optimised. Nitrogen has no dedicated sensor and is calculated as the balance after oxygen and carbon dioxide are measured.

A choice of sampling methods is provided. The built-in pump can be used to withdraw a sample from a pack using the probe supplied. It is designed for single handed operation and the pump can be programmed to withdraw

volumes from 5-90ml. Alternatively a manual sample can be taken by syringe and injected into a septum sample port. Using this method sample flow is automatically detected and the analysis automatically produced 5 seconds after end of sample delivery.

The MAPtest 3050 is supplied with a complete set of accessories and consumables for both sampling methods. 1000 results are stored in the instrument and these can be transferred to a PC using optional MAPlog software or there is an optional stand alone printer.

Service contracts are available and include test and calibration certificates to satisfy regulatory authorities.

The MAPtest 3050 is a versatile workhorse giving you many years of use. Hitech MAP analysers are used and recommended by Air Products.

SPECIFICATION

Display

4-line, graphical, illuminated LCD

Data Storage

1000 results (Optional MAPlog software available for downloading data to standard P.C.)

Ranges

Oxygen, carbon dioxide and nitrogen all 0/100%

Accuracy

Oxygen: $\pm 2\%$ reading or 0.5% whichever is smaller

Carbon dioxide: $\pm 1\%$ of span

Nitrogen: Sum of CO₂ and O₂

Speed of response

5 seconds from completion of sampling

Sample volume

5ml minimum: 20ml optimum

Maximum pumped volume

90ml

Outputs

Serial RS232 for computer link

Optional Printer

24 column plain paper desk-top model

Ambient temperature

-5°C to +40°C

Power requirements

110/120V or 220/240V

50/60Hz at 100VA

Dimensions (approximate)

325mm(w) x 280mm(d) x 135mm(h)

Weight

6.5kg

ORDERING INFORMATION

Accessories

Sample Probe Assembly 237-0031

Desktop Printer (24 column, plain paper) 419-0092

Consumables

Inlet Filter 422-4001

Printer Paper Rolls (Pack of 10) 419-0002

Printer Ribbons 419-0003

Septa Rubber Inserts (Pack of 100) 243-0098

Sticky Foam Sealing Pads (Pack of 140) 428-0026

0.9mm Needles for sample probe (Pack of 5) 428-0016

0.5mm Needles for syringe sampling (Pack of 5) 428-0005

Plastic 20ml Syringe 428-0003

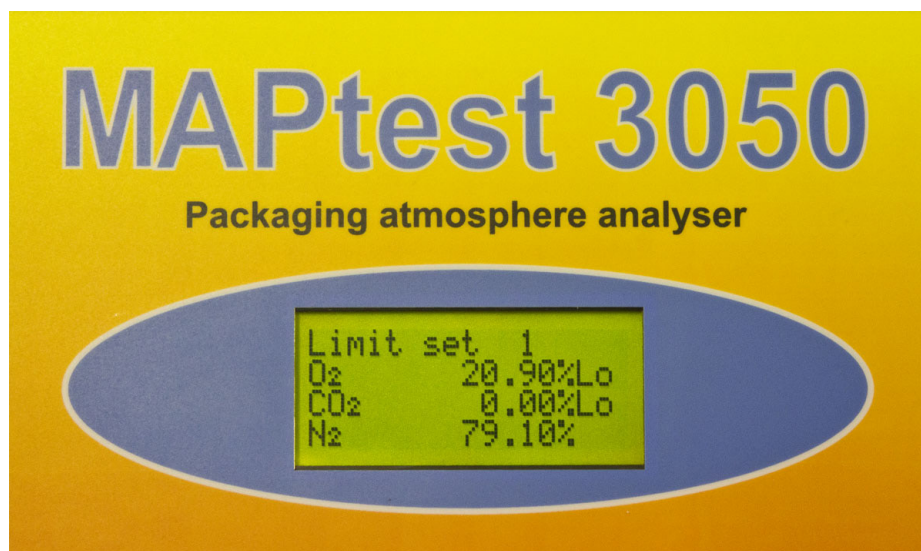


Figure 1 - Close-up of display showing results of an analysis