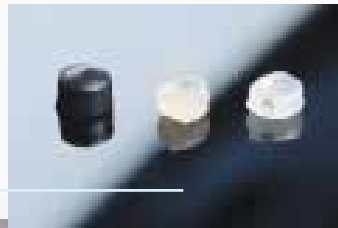


OCS - Optical Control Systems GmbH

As one of the world's leading manufacturers of optical quality control systems, OCS supplies customised and complete solutions in the fields of digital image processing, optical measurement and automation. Our systems ensure maximum product quality control. With the aid of precision cameras in conjunction with high performance online image processing, even the smallest defects in polymer products are detected, located and analysed in detail. The applications for OCS systems range from laboratory use to complete integration into the production process.

Leading manufacturers in the petrochemicals and polymer industries benefit from these features. In Europe and the USA, Canada, South America and Asia: everywhere in the world, our system solutions are successfully in service. With a highly expert and innovative team of development and production engineers, OCS supplies top level technology and know-how worldwide – always at the leading edge with our systematic research and development work. Our manufacturing processes, delivery, installation and user training are also state of the art. Service to our clients is our paramount aim: in no time we will repair damaged systems worldwide – guaranteed.



APLAIRS® – Replacing your QC-methods by only one technique



Optical Control Systems GmbH

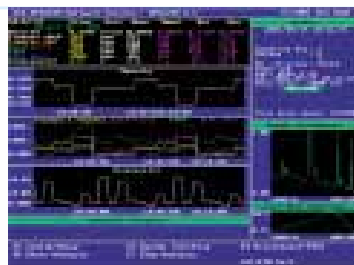
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 Tel.: +49 23 02/9 56 22-0
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Measuring principle

A continuous flow of cast or blown film runs through a special construction of the APLAIRS® system, which is equipped with an FTIR spectrometer and software for online control.

APLAIRS® focuses on performing measurements on the film, although infrared spectroscopy can also be applied to melt samples. Measuring in the film has more advantages than measuring in the melt:

- Films are closer to the end product and this links the technique more directly with standard QC analysis
- Physical properties not only depend on chemical components but also on the morphology of the resin. The morphology and chemical information can be abstracted from the spectra by APLAIRS® and linked with physical test data.
- Thickness of films can be determined accurately. In addition, it is possible to determine the composition and thickness of different layers in colaminates.
- Other analytical techniques can be linked far more easily to a film line, making the assembled configuration inexpensive.



Application

APLAIRS® can be applied to a whole range of polymers, co-polymers and blends: PS, PP, LDPE, LLDPE, HDPE, PMMA, EVA, NYLON, PC, ABS, PB, PET, EPDM, PE/PP, PC/ABS, PPO/PS/NYLON, PET/PE etc. to determine

- the chemical composition of the resins, varying from functional group analysis to co-polymer composition
- antioxidants, UV absorbers, slip agents, stabilisers, fillers, extenders, impact modifiers, speciality modifiers, processing aids, flame retardants and any other additives
- the extruded film thickness, and the thickness of separate films in multi-layered structures
- physical properties such as density, melt flow index, brittleness etc.

Software

The software utilised by APLAIRS® has numerous features that make for greater convenience:

- The calibration function is used to link spectral data with QC-lab data. The links which refer to the calibration models are tailored to customers' requirements. The calibration models are used to predict the QC data from the spectrum of the moving film.
- The QC data predicted is displayed in real-time on the monitor and can be depicted in flow charts. The flow chart enables the operator to follow the process precisely.
- In addition, the predicted data can be sent to the process computer for fully automatic closed-loop control.
- A Windows NT based Server Network Software package is available for remote control of several APLAIRS® workstations
- A Windows NT based Evaluation Software for offline evaluation of APLAIRS® data is available



Benefit

- Improvement of quality (elimination of non-standard product)
- Labour savings
- Savings of expensive additives
- Accurate and consistent automatic grading
- Reduction of customer returns and complaints
- Fast return on investment (ROI)

Perfect for online and laboratory applications.

