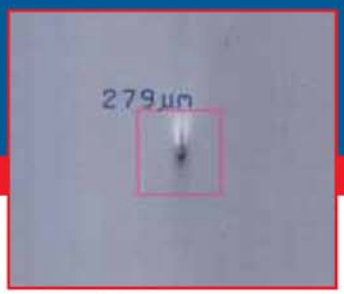
Brabender® CWB

FQA-PCI

Film Quality Analyzer



Evaluation of gel size

Film Quality Analyzer built into an extrusion line

… where quality is measured.

FQA-PCI

Evaluation

Each type of inhomogeneity has its own transparency characteristics. Obviously, a black speck shows another transparency value than a gel or fisheye. These differences in transparency are used to define typical grey levels for each type of inhomogeneity. The camera system recognizes the difference between the grey value level of the undisturbed film and that of inhomogeneities.

The evaluation software defines the type of a fault on the basis of its grey value, measures its height and width, calculates the area and a circle diameter corresponding to this area, and allocates it to the corresponding size class.

The pictures are marked automatically with colored rectangles corresponding to the different types of faults.

All these data as well as the time when the inhomogeneity occurred are saved in a database for further evaluation or transfer to Windows® Office applications.

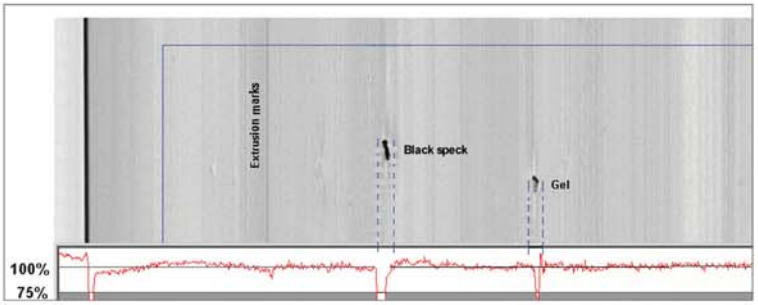
Principle

The instrument detects in-line, without blanks, inhomogeneities like gels, fisheyes, black specks, agglomerates, etc. in transparent and pigmented films. These inhomogeneities are classified according to their type and size into up to 9 size classes for each type.

Even strongly pigmented films with transparencies going down to 2 % can be checked by means of adaptive transparency and grey level evaluation. This enables quantitative in-line quality assessment on masterbatches by sizing and classification of agglomerates and pigment particles.

Hardware

The **Brabender® FQA-PCI** system consists of a high-speed CCD line scan camera with 2048 pixels, a halogen cold light source with waveguide, and a PC with at least 1 GHz frequency, 128 MB RAM, and 10 GB hard disk with integrated framegrabber and picture processing card.



Film inhomogeneitie types

The camera system can easily be integrated in existing Brabender® extrusion lines.

Resolution

The resolution depends on the ratio of the number of camera pixels to the film width as well as on the camera system configuration, the line scan frequency of the camera, and the take-off speed. The standard **FQA-PCI** system with a 2048 pixel camera and a frequency of 40 MHz allows for a resolution of 20 µm with a film width of 40 mm and a take-off speed of 30 m/min. Additional camera systems enable the inspection of wider films.

Data transfer

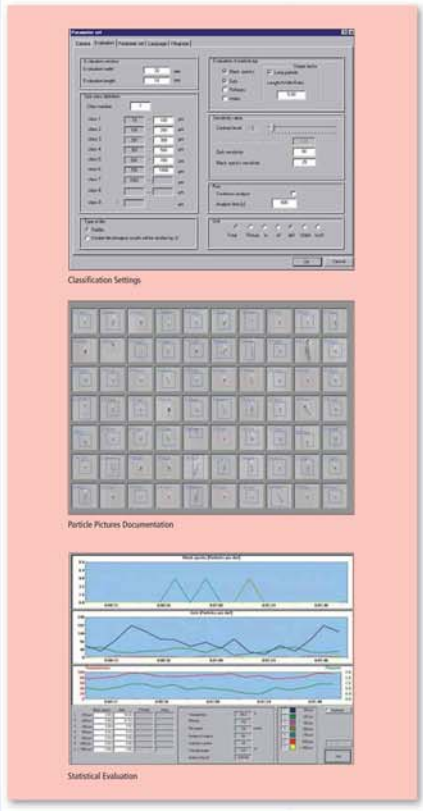
The image data are continuously sent to the PC, evaluated, and saved in a database.

The software package runs on Windows® 7 or higher and offers manifold features like definition of size classes, definition of film notes, statistical evaluations and much more.

Visualisation

Different displays can be chosen:

- Original video without marked inhomogeneities
- Original video with marked inhomogeneities
- Original video with marked inhomogeneities and particle pictures
- Particle pictures only
- Trend curves of the different inhomogeneities and transparency


Classification Settings

Particle Pictures Documentation

Statistical Evaluation

FQA-PCI	
CCD Line Scan Camera	2048 pixels, 40 MHz (option: 60 MHz), 30 kHz line scan frequency
Light Source	Halogen cold light source with optical waveguide
Resolution (dep. on film width and take-off speed)	Resolution / Film width / Take-off speed. 20 µm / 40 mm / 30 m/min 35 µm / 70 mm / 35 m/min
PC	1 GHz, 128 MB RAM, 10 GB harddisk, framegrabber card, PCI card or better

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