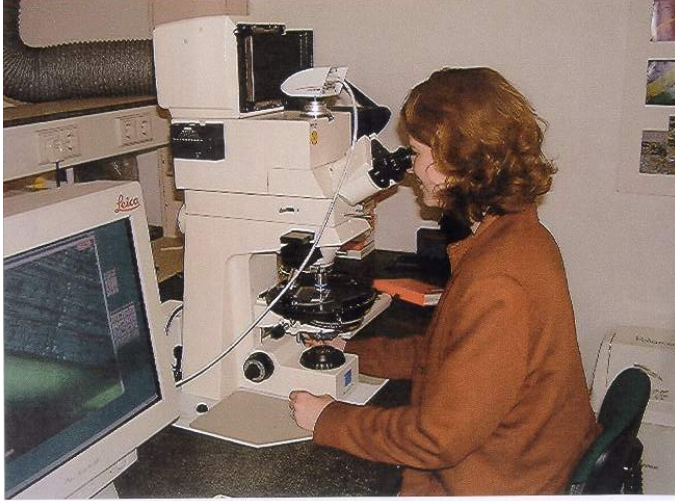
Resolve
SOLUTIONS BY ANALYSIS



Whodunnit?
Microscopy…. A silent Movie

Application note
Resolve 03-08

All DSM products, at all stages of their life cycle, ranging from research, development, production to application and recycling need support by the problem solving skill of and experienced microscopy group. The problem is generally best tackled by means of microscopy, beit that one might be interested in microscopical investigation down to deformation mechanisms of plastics at a submicron scale.

We use a wide variety of microscopical techniques:

Optical Microscopy:

Resolution: > 0.5 micron; density & refractive index fluctuations; orientation, Birefringence, crystal morphology, polymer morphology.

Scanning Electron Microscopy (SEM):

Resolution: > 20nm; morphology of polymers, fractographic investigation, powder morphology, EDX analysis of additives pollutants & pigments

Transmission Electron Microscopy (TEM):

Resolution >1 nm (polymers), Polymer Morphology, Electron Diffraction on nanometer scale crystals, deformation mechanism of thermoplastic materials.

Atomic Force Microscopy (AFM):

Resolution > 0.5 nm (polymers), Surface roughness, Polymer Morphology, Hardness on a submicron scale, deformation mechanisms of thermoplastic materials.

We possess a well developed network of expertise contacts and we have experience in structure property relations in polymers. We typically tackle questions like:

- Why do I see differences in the gloss at this surface and what causes them?
- What causes the black spots in this coating?
- How is the sizing of these glass fibres distributed? Is the wetting sufficient?
- Why does this part fail on a weld line?
- What is the refractive index of separate phase of a blend?
- Does the pigment distribution cause a decreased toughness?
- How good is the adhesion between two layers in a multilayer system?

Outside DSM our customers are predominantly found to be active in automotive, packaging, paper production, catalyst production... Do you have questions, would you like to discuss your specific problem or are you just interested in a convincing picture? Feel free to contact us.

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