



## Identification of minerals in plastic products

### Application note Resolve 03-03

Minerals are often added to plastic materials as fillers. They partly determine the properties of these materials in applications. For materials researchers, analysis of competitor materials, including identification of the fillers used, is an important tool for evaluating the status of their own development work. In the case of filler analysis both the type and the amount of mineral present are important parameters.

DSM Research has developed a procedure which, via combination of a series of analyses, provides data on the mineral package in a plastic material. The characterization techniques used, which are applied according to a standardized route, are:

- Infrared spectroscopy
- Raman spectroscopy
- X-ray fluorescence
- X-ray diffraction
- Wet chemical analysis

Examples of minerals that can be identified according to the routine procedure are clay, mica, chalk, talc and glass. It is possible to determine which specific type of e.g. clay or mica is added to the plastic under investigation because every kind of mineral in a certain class of minerals has a specific 'fingerprint', which can be taken using one of the above-mentioned analysis techniques. In the case of talc we can even establish which company supplied it using a talc library based on X-ray diffraction data. Of course, minerals other than the ones mentioned here can be identified as well.

If you have any questions concerning the identification of fillers in plastic materials, our experts will be glad to help you.

For more information:  
info.resolve@dsm.com  
tel: (31) 46 476 0100  
fax: (31) 46 476 1200

