A valuable tool for pharmaceutical chemical development

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While historical application of Lasentec® FBRM® at Janssen Pharma has been in research and troubleshooting of crystallization processes, FBRM® was recently used to monitor heterogeneous reactions, emulsions, etc., in the chemical development pilot plant.

FBRM® results were analyzed for three different processes:

- Development phase - a heterogeneous reaction with Zn catalyst and its crystallization (drowning out)
- Upscaling - reactive crystallization with emulsion phase
- Troubleshooting particle size - crystallization by cooling of the commercial product

Figure 1 shows FBRM® data from the start of crystallization during the upscaling process. Low (green line), moderate (orange line), and high (red line) stirring rates were compared, FBRM® showed that the higher the stirring rate, the earlier the start of crystallization.
The greatest advantage of using FBRM® in the pilot plant has been the gain in process knowledge. FBRM® data gives a “fingerprint” of the process, resulting in faster and more controlled development or troubleshooting of the crystallization processes and heterogeneous reactions. In addition, the use of FBRM® in the Lasentec® fixed beaker stand has proven quite valuable in offline analyses of solids (catalysts filter aids, etc.).