



Pharmaceutical Sciences

FACTSHEET



Drug Product

Mapping and Image Studies

On a micron or sub-micron scale, solid samples such as powders, pressed tablets or cast films typically exhibit non-homogeneous mixing of components. This results in regions that are disproportionately more concentrated in individual components, which can have major impact on stability, delivery and other physical properties of the product. Our powerful analytical techniques provide a wealth of chemical and physical information on specific microscopic regions of solid samples. Some of the most prominent techniques are:

- Infrared spectroscopy (FTIR)
- Raman spectroscopy
- Near infrared spectroscopy (NIR)
- X-ray powder diffraction (XRPD)
- Electron diffraction (EDS)

FTIR Imaging

FTIR is well accepted as a methodology for chemical and structural imaging utilizing the ability of IR to provide a unique “fingerprint” spectrum of each molecule.

Raman Mapping

Raman does not suffer the material limitations inherent to infrared spectroscopy giving this technique broad applicability. Each Raman spectrum represents an area as small as 1 μm .

NIR Imaging

Near infrared spectroscopy offers many of the advantages of FTIR and Raman, and overcomes some of the limitations. Each NIR spectrum represents an area as small as 1 μm .

X-ray Powder Diffraction Mapping

An XRPD mapping study can, for example, provide information about the solid form composition at different regions in a tablet or identify the presence of a trace amount of a particular solid form. Each diffractogram represents an area as small as 50 μm . XRPD offers limited chemical information as compared to FTIR, Raman or NIR.

Additional Aptuit Capabilities

Aptuit offers a comprehensive suite of drug development services that range from candidate selection through to market, including consultancy services, API development and manufacture, preclinical and clinical technologies, pharmaceutical services, large and small scale manufacturing, IVRS, and clinical packaging and logistics, across a wide range of compounds, dosage forms and delivery systems.

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