

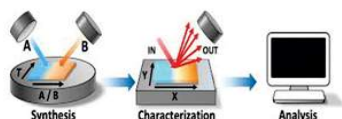
Turn-key Solutions on Physical Characterization

A Cotecna Group company

Shiva Analyticals is proud to be a part of the Cotecna Group. Founded in Switzerland in 1974, Cotecna is a global provider of testing, inspection and certification services with over 3,000 employees in more than 100 offices across 50 countries.

Cotecna offers solutions to facilitate trade and make supply chains safer and more efficient for its clients across four key sectors:

- > Agriculture and Food
- > Government and Trade
- > Minerals and Metals
- > General Cargo



SHIVA ANALYTICALS (INDIA) PRIVATE LIMITED

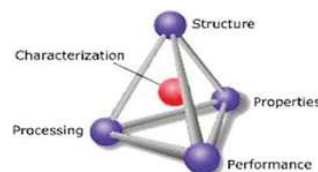
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www.shivaanalyticals.com

Shiva Analyticals (India) Private Limited, offers testing services on physical characterization with regard to the physical and structural traits of any pharmaceutical product (APIs, intermediates, excipients, finished products etc.)

We cater on following essential physical parameters viz.,

- > Morphology,
- > Melting point,
- > Glass Transition temperature
- > Decomposition temperature
- > Enthalpy of fusion
- > Polymorphism studies
- > Crystallinity properties
- > Functional group identification
- > Peak purity by overlapping with reference spectra



Details on such parameters helps the manufacturer to decide the course on formulation developments.

Also, availability of such data on characterization during the development (R&D) stage in APIs, intermediates and excipients enables the product development process to focus precisely on the requirements.

Nevertheless, this information about physical properties of a pharmaceutical product significantly contributes towards advancements in meeting the regulatory requirements more precisely.

Shiva Analyticals (India) Private Limited, has the fleet of instruments as below;

Fully Automated Powder X-ray Diffractometer System (XRD) from Bruker, D8 Advance capable of;

- > Phase Identification,
- > Quantitative Phase Analysis,
- > Micro-Structure And Crystal Structure Analysis,
- > Residual Stress And Texture Investigations,
- > X-Ray Reflectometry, and
- > Micro-Diffraction



Simultaneous DSC-TGA from TA Instruments, Discovery SDT 650, capable of ;

- > Simultaneous measurement of heat flow (DSC) and weight change (TGA)
- > Sample transition capacities from ambient to 1500°C
- > Evaluation of kinetic parameters using Discrete Fourier Transformation



BET Surface Area - Gemini VII 2390t Automatic Physisorption Analyzer

- > Single and multi-point BET surface area
- > Adsorption and desorption isotherms
- > Total pore volume
- > Heat of adsorption



Fourier Transform Infrared Spectroscopy - Agilent Cary 630 capable of;

- > Advanced Attenuated total reflectance (ATR) technique for rapid measurements of liquids, solids, powders, semisolids, and pastes
- > Identify unknown substances and determine levels of sample constituents
- > Identification of drug products, incoming goods and packaging materials as per regulatory requirements
- > Aligned for evaluations as per;
 - European Pharmacopeia (Ph. Eur.) 2.2.24;
 - USP 854;
 - IP 2.4.6;
 - JP 2.25



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