



 **holodiag**  
solid state solutions

## Crystallization process development

Holodiag drives crystallization studies by rationalization of the physical phenomena by means of thermodynamics, heterogeneous equilibria and phase diagrams.



Rationalization allows to build optimized processes and to drive cost and time efficient studies.

Our answers are consistent, relevant and reliable.

## Screening

*Crystallization and characterization of the different solid states of a given API are fundamental steps for drug development.*

Holodiag performs screening of polymorphs, co-crystals, salts, resolving agents. Hundreds to thousands of crystallization tests can be performed in various conditions and followed by appropriate analytical characterization (X-ray powder diffraction, DSC, TGA...).



## Polymorphism

*The different pharmaceutical solid states (polymorph, solvates, co-crystal...) have major impacts on processes (yield, purity, solubility, drying, intellectual property...).*

Holodiag performs solid state characterization, establishes stability hierarchy and develops selective crystallization processes. Rationalization of the stability hierarchy of solid forms allows to develop secured processes freed from interfering crystallization.

## Enantiomer separation

*Access to pure enantiomer can be achieved by selective crystallization of diastereomers or preferential crystallization of enantiomers.*

Holodiag manages enantiomer separation from resolving agent screening to pure kilolab batches. Our specific knowhow allows process optimization to achieve the highest yields and optical purities.



## Scale-up

*Once solid phases of an API are crystallized and characterized, it is necessary to produce batches up to kilogram.*

Holodiag up-scales crystallization processes to deliver batches of the desired polymorph, co-crystal, salt, enantiomer...

## Solid state analyses

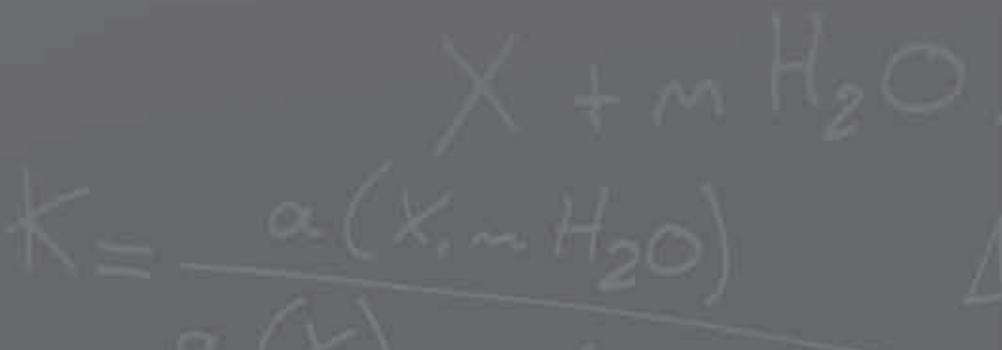
*Characterization of the pharmaceutical solid state is of first importance at various steps of drug development: pre-development, formulation, quality control, production...*

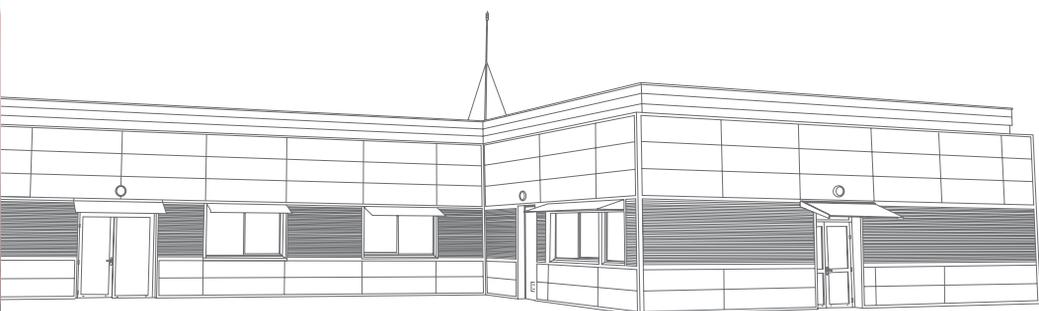
Holodiag provides comprehensive analytical solid state characterization services: X-ray powder diffraction, DSC, TGA. Many types of samples (powders, suspensions, tablets, capsules...) can be analyzed under various conditions.

## Pharmaceutical Solid State

Pharmaceutical industry faces hot topics regarding R&D, industrialization and intellectual property. To overcome these challenges, pharmaceutical solid state must be fully controlled.

Holodiag laboratories and research team are dedicated to solid state and make themselves available for pharmaceutical industry experts.





Voie de l'Innovation,  
Pharmaparc II,  
27100 Val de Reuil  
**phone** : +33(0)2 32 40 58 26  
**fax** : +33(0)2 32 25 29 02  
**contact@holodiag.com**  
[www.holodiag.com](http://www.holodiag.com)