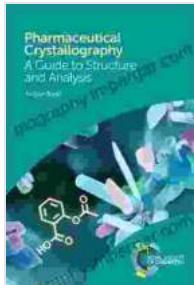


Pharmaceutical Crystallography: The Ultimate Guide to Structure and Analysis

Welcome to the fascinating world of pharmaceutical crystallography, where the structure and properties of crystalline drug substances are meticulously analyzed and optimized. This comprehensive guide is your gateway to unlocking the secrets of pharmaceutical crystallography, empowering you with the knowledge and techniques to delve deeper into this highly specialized field.



Pharmaceutical Crystallography: A Guide to Structure and Analysis by William Jordan

 4.4 out of 5

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Text-to-Speech : Enabled

Enhanced typesetting : Enabled

Word Wise : Enabled

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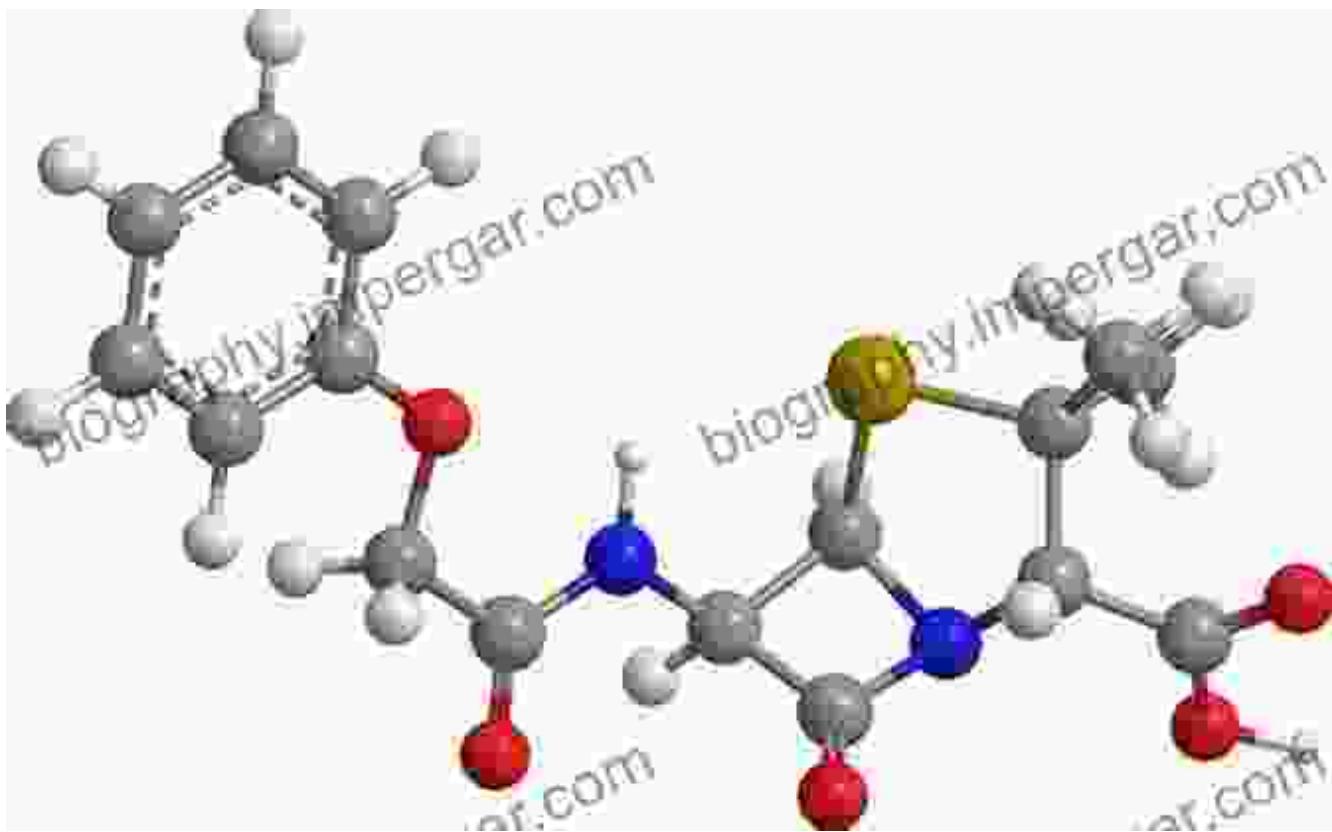
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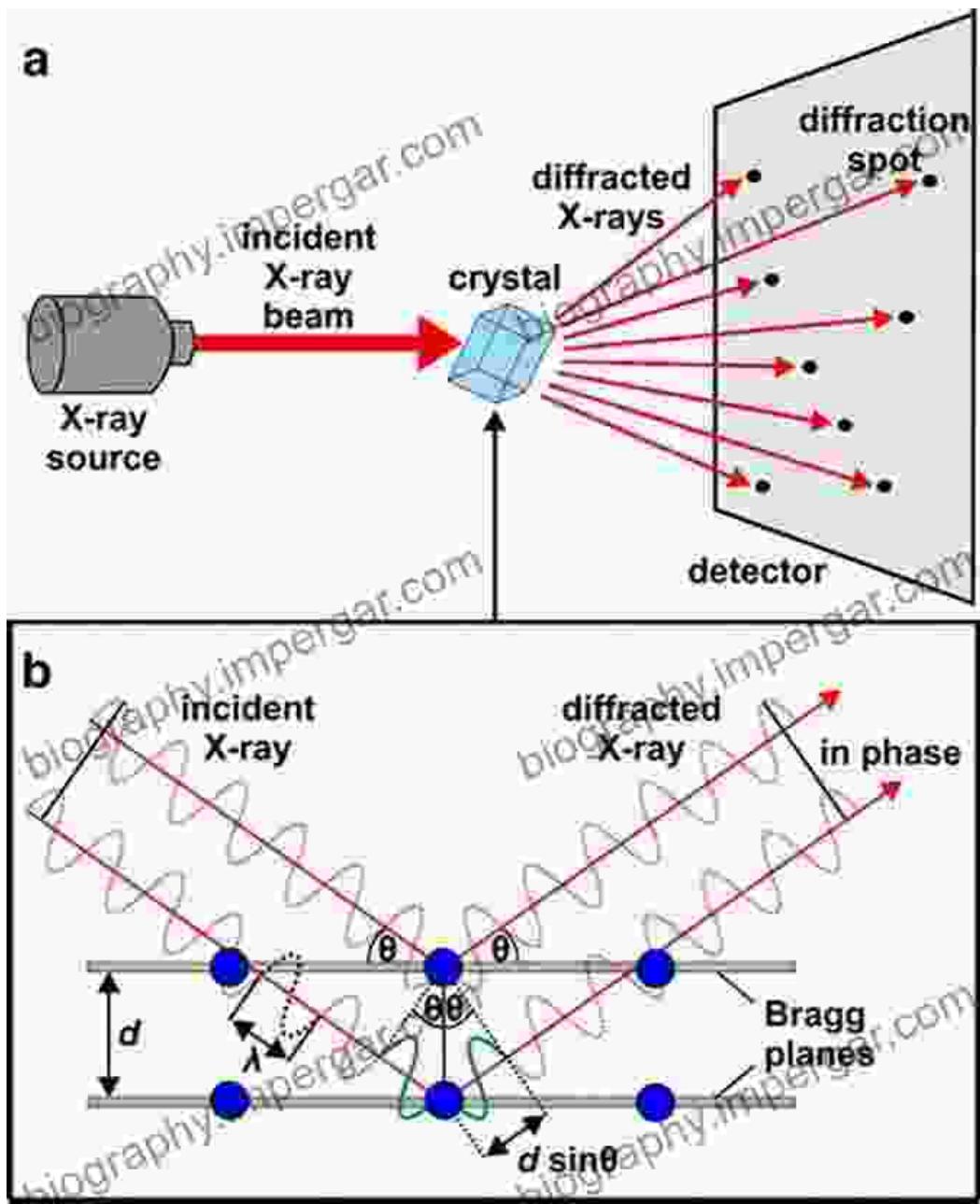
Chapter 1: The Fundamentals of Crystallography

Embark on an in-depth journey into the fundamentals of crystallography, exploring the basic concepts and principles that govern the formation and properties of crystals. Discover the various crystal systems, lattice types, and symmetry operations that shape the structural diversity of crystalline materials.



Chapter 2: X-Ray Diffraction: A Window into Crystal Structure

Delve into the realm of X-ray diffraction, the primary technique employed to determine the crystal structure of pharmaceutical compounds. Uncover the principles behind X-ray diffraction, unraveling the secrets of how X-rays interact with crystals to reveal their structural details.

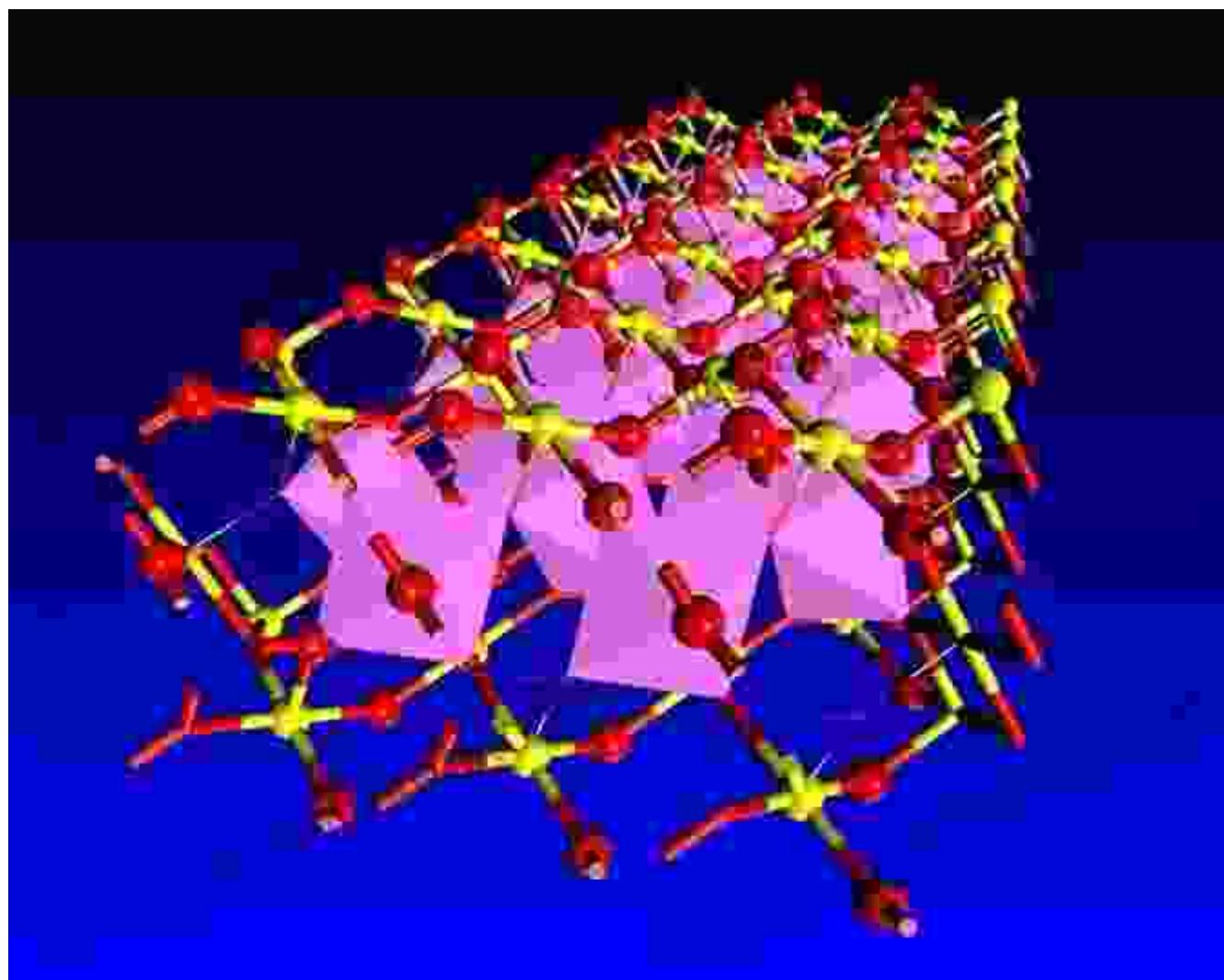


Witnessing the power of X-ray diffraction in elucidating crystal structure.

Chapter 3: Crystal Analysis and Structure Refinement

Master the art of crystal analysis and structure refinement, the meticulous process of interpreting X-ray diffraction data to derive the precise atomic arrangement within a crystal. Explore techniques such as structure solution

methods, electron density mapping, and least-squares refinement, gaining a deep understanding of how crystal structures are determined.

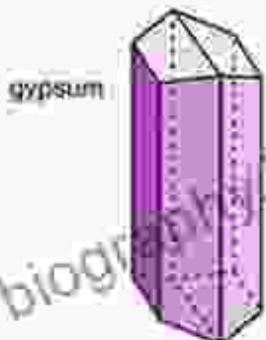


Chapter 4: Polymorphism and Crystal Engineering

Uncover the fascinating world of polymorphism, where the same pharmaceutical compound can exist in multiple crystal forms with distinct structures and properties. Delve into the principles of crystal engineering, learning how to design and manipulate crystal structures to optimize drug performance.

Examples of well-shaped crystals

monoclinic crystal



crystal class: $2/m$

symmetry content: $\bar{1}$, $1A_2$,
 $1m$

tetragonal crystal

Wulfenite

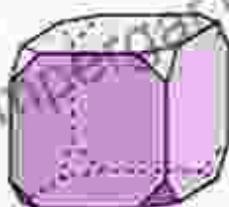


crystal class: $4/m$

symmetry content: $\bar{4}$, $1A_1$,
 $1m$

isometric crystal

halite



crystal class: $4/m\ 3\ 2/m$

symmetry content: $3A_2$, $4A_1$, $6A_2$,
 $9m$

m = number of unique mirror planes

$\bar{1}$ = centre of symmetry

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Exploring the diverse crystal forms of a pharmaceutical compound.

Chapter 5: Pharmaceutical Applications and Case Studies

Witness the practical applications of pharmaceutical crystallography in the development and optimization of drug substances. Study real-world case studies that showcase how crystallography has revolutionized the pharmaceutical industry, improving drug stability, solubility, and bioavailability.

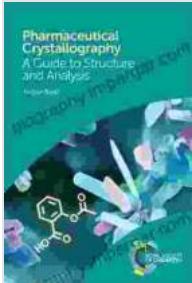


This Pharmaceutical Crystallography Guide To Structure And Analysis is your indispensable companion in the realm of crystallography. It equips you with a deep understanding of the principles, techniques, and applications of pharmaceutical crystallography, empowering you to make groundbreaking contributions to drug discovery and development. Embrace the power of crystallography and unlock the secrets of pharmaceutical compounds, paving the way for safer, more effective, and innovative therapies.

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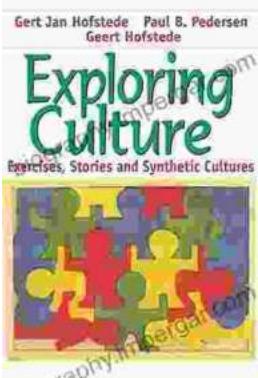
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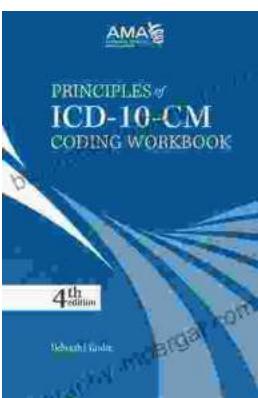
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