



# Precision Crystallization: Theory and Practice of Controlling Crystal Size

By Ingo Leubner

Download now

Read Online ➔

## Precision Crystallization: Theory and Practice of Controlling Crystal Size

By Ingo Leubner

Despite the fact that crystals make up an estimated 80% of chemical and pharmaceutical products, few resources exist that provide practical guidance on achieving precision control of their size and size distribution. Based on a model developed by the author and his colleagues, **Precision Crystallization: Theory and Practice of Controlling Crystal Size** presents scientists and product engineers with the tools to control crystal nucleation, enabling them to ultimately control crystal size and size distribution for batch and continuous crystallizations.

At the cutting edge of crystallization science and technology, this volume presents information never before available. Introducing the *Balanced Nucleation and Growth* (BNG) model, the book demonstrates how the results of the nucleation process are quantitatively related to practical experimental control values such as:

- reaction addition rate
- crystal solubility
- temperature
- residence time (continuous crystallizations)
- the effect of ripening agents (crystal supersizing) during nucleation
- the effect of crystal growth restrainers (crystal nanosizing) during nucleation
- control of renucleation

The author shows how the BNG theory predicts previously unknown phenomena and also how it corrects erroneous perceptions of the importance of reaction volume on the outcome of crystal nucleation. Going above and beyond classical nucleation theories which rely to a large extent on guesswork, the BNG model gives precise guidance to scientists working in a range of critical areas, leading to promising implications for research, quality control, product development, production processes, pilot plant operations, and manufacturing.

 [Download Precision Crystallization: Theory and Practice of ...pdf](#)

 [Read Online Precision Crystallization: Theory and Practice o ...pdf](#)

# Precision Crystallization: Theory and Practice of Controlling Crystal Size

*By Ingo Leubner*

**Precision Crystallization: Theory and Practice of Controlling Crystal Size** By Ingo Leubner

Despite the fact that crystals make up an estimated 80% of chemical and pharmaceutical products, few resources exist that provide practical guidance on achieving precision control of their size and size distribution. Based on a model developed by the author and his colleagues, **Precision Crystallization: Theory and Practice of Controlling Crystal Size** presents scientists and product engineers with the tools to control crystal nucleation, enabling them to ultimately control crystal size and size distribution for batch and continuous crystallizations.

At the cutting edge of crystallization science and technology, this volume presents information never before available. Introducing the *Balanced Nucleation and Growth* (BNG) model, the book demonstrates how the results of the nucleation process are quantitatively related to practical experimental control values such as:

- reaction addition rate
- crystal solubility
- temperature
- residence time (continuous crystallizations)
- the effect of ripening agents (crystal supersizing) during nucleation
- the effect of crystal growth restrainers (crystal nanosizing) during nucleation
- control of renucleation

The author shows how the BNG theory predicts previously unknown phenomena and also how it corrects erroneous perceptions of the importance of reaction volume on the outcome of crystal nucleation. Going above and beyond classical nucleation theories which rely to a large extent on guesswork, the BNG model gives precise guidance to scientists working in a range of critical areas, leading to promising implications for research, quality control, product development, production processes, pilot plant operations, and manufacturing.

## **Precision Crystallization: Theory and Practice of Controlling Crystal Size By Ingo Leubner Bibliography**

- Sales Rank: #3633406 in eBooks
- Published on: 2009-09-28
- Released on: 2009-09-28
- Format: Kindle eBook



[Download Precision Crystallization: Theory and Practice of ...pdf](#)



[Read Online Precision Crystallization: Theory and Practice o ...pdf](#)

## **Editorial Review**

### About the Author

**Ingo H. Leubner** received a PhD in physical chemistry from the Technical University in Munich, Germany, where he continued his studies with a postdoctoral fellowship. At Texas Christian University, Fort Worth, he held the postdoctoral position of R. Welch Fellow, studying and teaching photochemistry. From there, he accepted the position of senior research scientist at Eastman Kodak Company. His position required working in photographic and precipitation science and product development. His work on the use of silver halides for the development of photographic films and papers led to new insights, contributions to photographic science, and models for the control of crystal nucleation. For his published work he received the Fellowship and Service Awards, and the Lieven-Gevaert medal, the highest award in photographic science, from the Society for Imaging Science and Technology. As a team leader he guided the development of commercially successful products. As a result of his research, he became an experienced author, lecturer, scientist, and technical project manager. After separation from Eastman Kodak Company, he became founder and senior scientist for Crystallization Consulting, a company specializing in consulting, modeling, and teaching of advanced models for high-precision precipitations. His name is listed in *American Men and Women in Science* and in *Who's Who in Science and Engineering*. He is a fellow of Sigma Xi, a member of the American Chemical Society, the Society for Imaging Science and Technology, the American Association for the Advancement of Science, the American Geographical Union, the Rochester Academy of Science, and the Rochester Professional Consultants Network.

## **Users Review**

### **From reader reviews:**

#### **Anita Jones:**

Book is usually written, printed, or descriptive for everything. You can recognize everything you want by a guide. Book has a different type. To be sure that book is important point to bring us around the world. Adjacent to that you can your reading ability was fluently. A publication Precision Crystallization: Theory and Practice of Controlling Crystal Size will make you to always be smarter. You can feel considerably more confidence if you can know about every thing. But some of you think this open or reading some sort of book make you bored. It is far from make you fun. Why they may be thought like that? Have you in search of best book or suitable book with you?

#### **Arthur Bailey:**

The actual book Precision Crystallization: Theory and Practice of Controlling Crystal Size has a lot of information on it. So when you read this book you can get a lot of benefit. The book was compiled by the very famous author. Tom makes some research previous to write this book. This particular book very easy to read you can obtain the point easily after reading this article book.

**Josefina Roundtree:**

Do you like reading a guide? Confuse to looking for your favorite book? Or your book had been rare? Why so many problem for the book? But any kind of people feel that they enjoy for reading. Some people likes studying, not only science book but additionally novel and Precision Crystallization: Theory and Practice of Controlling Crystal Size or others sources were given knowledge for you. After you know how the great a book, you feel would like to read more and more. Science book was created for teacher or students especially. Those ebooks are helping them to increase their knowledge. In various other case, beside science reserve, any other book likes Precision Crystallization: Theory and Practice of Controlling Crystal Size to make your spare time considerably more colorful. Many types of book like this.

**Kimberly Casselman:**

What is your hobby? Have you heard that question when you got students? We believe that that concern was given by teacher for their students. Many kinds of hobby, Every individual has different hobby. And you also know that little person like reading or as reading through become their hobby. You have to know that reading is very important as well as book as to be the issue. Book is important thing to add you knowledge, except your current teacher or lecturer. You will find good news or update about something by book. Different categories of books that can you choose to use be your object. One of them is this Precision Crystallization: Theory and Practice of Controlling Crystal Size.

**Download and Read Online Precision Crystallization: Theory and Practice of Controlling Crystal Size By Ingo Leubner  
#H2XWL6N39PD**

# **Read Precision Crystallization: Theory and Practice of Controlling Crystal Size By Ingo Leubner for online ebook**

Precision Crystallization: Theory and Practice of Controlling Crystal Size By Ingo Leubner Free PDF d0wnl0ad, audio books, books to read, good books to read, cheap books, good books, online books, books online, book reviews epub, read books online, books to read online, online library, greatbooks to read, PDF best books to read, top books to read Precision Crystallization: Theory and Practice of Controlling Crystal Size By Ingo Leubner books to read online.

## **Online Precision Crystallization: Theory and Practice of Controlling Crystal Size By Ingo Leubner ebook PDF download**

**Precision Crystallization: Theory and Practice of Controlling Crystal Size By Ingo Leubner Doc**

**Precision Crystallization: Theory and Practice of Controlling Crystal Size By Ingo Leubner Mobipocket**

**Precision Crystallization: Theory and Practice of Controlling Crystal Size By Ingo Leubner EPub**

**H2XWL6N39PD: Precision Crystallization: Theory and Practice of Controlling Crystal Size By Ingo Leubner**