



CLEARWATERBAY TECHNOLOGY, INC.

The Process Development Company

• Shorter Development Time

• Lower Development Cost

**Software
Applications**

**Consulting
& Training**

• Better R&D Workflow

• Innovative Solutions

Technology Solutions from **Lab to Plant**

The Process Development Company

We offer technology solutions to the pharmaceutical, fine chemical, polymer, petrochemical, and refining industries to enable them to develop product and process ideas from the laboratory to the production plant. Our solutions include consulting services, technology training courses, and software solutions.

Our core strengths are the areas of process synthesis & design, reaction engineering, crystallization, solids processing, and energy management. We have a proven track record of delivering value throughout the lifecycles of products and processes.

The Value We Deliver

- Improved Process R&D Workflow for Future Growth
- Shorter Development Time for Reduction in Time-To-Market
- Lower Development Cost for Higher Profits
- Better Processes for Efficient Operation
- Innovative Solutions for A Stronger IP Position

"Strategic alliance with CWB Tech through consulting, training, and software solutions has helped us in developing more cost effective processes quickly. We are confident that our relationship will provide us the edge to stay ahead of the competition."

- Dr. Yasukazu Ogino
General Manager
Business Development Division
API Corporation, Japan

Consulting

"As result-oriented technology consultants, our goal is to deliver substantial economic and technological improvements in the shortest time with the lowest R&D budget. To achieve this goal, we have pioneered an approach called Multi-Scale Objective-Oriented Process Development (MOPD). We tackle problems by defining the right objectives and using the right level of detail at different scales of operation."

-Dr. Lionel O'Young
President
ClearWaterBay Technology

We offer technology consulting services ranging from feasibility studies to commercial development of products and processes. Our team of consultants has several years of experience in developing and using various chemical engineering technologies to solve industrial problems. Their expertise and skills span a broad spectrum of areas including reaction engineering, separations, solids handling, and energy integration.

Our consultants are trained to build a collaborative effort with your in-house experts. The aim of these efforts is to quickly zoom in on the most important issues and develop solutions that will lead you to a clearer understanding of your process and to a higher level of performance.

Through consulting collaborations we have not only saved our clients millions of dollars, but have also developed some really novel and innovative technologies. Several of these innovations have led to successful patents, enhancing the IP positions of our clients.

Areas of Expertise

- Crystallization
- Solids Processing
- Separations
- Reaction Engineering & Reactor Design
- Polymer Production & Processing
- Energy Integration & Optimization
- Total Site Utility Modeling

Services

- Economic & Technological Feasibility Studies
- Conceptual Design
- Scale-up & Development
- Detailed Modeling & Simulation
- De-bottlenecking & Retrofit Analysis
- Workflow Solutions
- IP Positioning & Protection

Software Solutions

"With the advent of high value-added products, interest in crystallization-based separations has increased dramatically. However, until now, development of these processes had suffered from a lack of knowledge about the information needed and a lack of tools to utilize the available information. SLEEK provides a systematic framework to address both these issues."

*-Dr. Ketan D. Samant
SLEEK Product Manager
ClearWaterBay Technology*

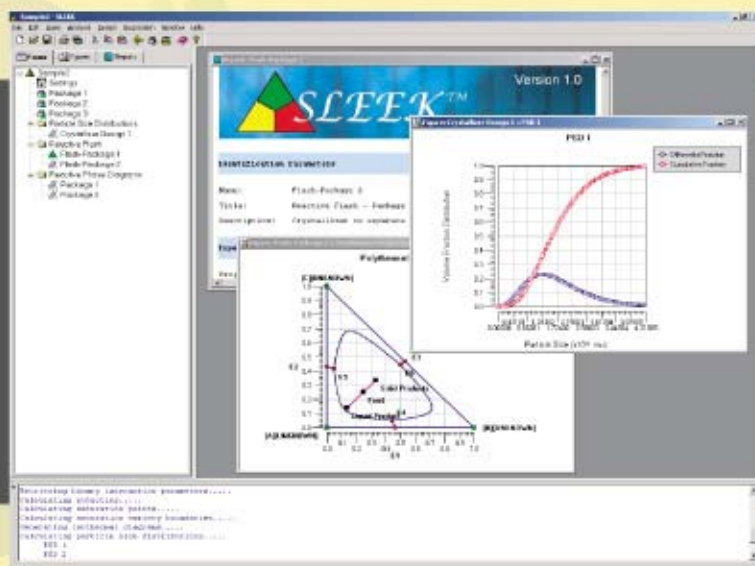
SLEEK is our new process development software application that is specifically targeted to assist chemists and process engineers in understanding and effectively developing crystallization-based separation processes.

Development of crystallization-based processes involves experiments, analysis, and design tasks. These tasks are interdependent and involve different levels of detail. Understanding the underlying principles of the process is the key to successful completion of these tasks. SLEEK provides a team of chemists and process engineers the flexibility and the technology they need to work together in order to understand the process principles, to quickly and accurately identify process alternatives, and to implement the optimal decisions.

The SLEEK Technology

SLEEK provides you the following technology features:

- Thermodynamic database access and management
- Data regression for solid-liquid equilibrium
- Ability to handle polymorphs, solid-complexes, and liquid phase reactions
- Interactive visual representation of solid-liquid phase diagrams
- Design & sensitivity analysis for continuous crystallizers
- Particle size distribution (PSD) calculations with fines dissolution and product classification capabilities
- Operating policies, design, and PSD calculations for batch crystallizers
- User friendly architecture and interface



"SLEEK provides cutting-edge technology for the design of crystallization processes. We are confident that SLEEK will give us the boost we need to make our process development effort more efficient."

*- Dr. Masashi Inaba
General Manager
Research & Technology
Development Division
Mitsubishi Chemical Group, Japan*

The SLEEK technology has been evaluated by several leading chemical and pharmaceutical companies. SLEEK is now available for purchase. To place an order, or to obtain more information, please write to us at sales@cwbttech.com.

Training CWB Tech

We regularly offer public and private short courses on technology training. In these courses, the participants get an opportunity to master emerging process development technologies via informative lectures and hands-on workshops.

Our private training courses are conducted in a closed environment with only your group in attendance. In these courses, we discuss examples related to actual problems you are facing. The course structure and contents are tailored to suit your needs.

For an up-to-date listing of our upcoming short courses, visit us on the web at www.cwbtech.com/short_courses.html.

Short Course Features

To make your learning experience interesting and informative, our courses provide the following features:

- Knowledgeable Instructors
- Excellent Instruction Methods
- Well-prepared Handouts
- Hands-on Workshops

"...the material presented was very relevant to both the industry and the academia."

"...very informative. I especially liked the interaction with the audience during lectures & workshops."

- Training Course Attendees

Our Short Courses Go a Long Way!



Our recent short course on Crystallization & Solids Processing was a big success! In this course we discussed the following topics:

- Solid-liquid equilibrium (SLE) phase behavior and phase diagrams
- Systematic methods for generating and evaluating crystallization process alternatives using SLE phase diagrams
- Experimental methods, data, and regression tools for generating the SLE phase diagrams
- Workflow for efficient development of crystallization processes and software solutions
- Development of crystallizer downstream processes

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