



NEW CONTROLLED EVAPORATION  
AND VAPOR DIFFUSION MODULES!

# Crystal BREEDER

## DO MORE WITH LESS

### Enhance your early stage solid state screening with the CrystalBreeder bench-top system

**CrystalBreeder** is the next generation multi-reactor crystallization platform for medium-throughput solid-state research, operating at working volumes of 0.1 mL. Run rapid complete crystallization screens with as little as 1 mg of sample. **CrystalBreeder** provides real time turbidity readings for 32 parallel temperature controlled experiments. When early solubility information is essential, stop guessing and let **CrystalBreeder** put you in the lead.

#### New features

- Controlled evaporation
- Flexible Vapor Diffusion

#### Multiple crystallization modes

Cooling, evaporation, cooling evaporation, slurry, thermocycling, vapor diffusion, crystallization by layering technique

#### Up to 32 parallel reactors

Carry out a complete crystallization or polymorph screen overnight. Growing single crystals has never been easier

#### Minimal sample required

Less than 32 mg of sample for a complete screen

## Stay at the forefront

To decrease the time to market, effective innovation is vital. Early-stage solid-state screening is necessary to avoid costly developmental surprises later. Similarly, there is a requirement for salt screening early on in the development process, since changing salt form at a later stage may cause costly delays to the entire process. Technobis Crystallization Systems introduces the latest breakthrough in early-stage solid-state crystallization research: **CrystalBreeder**. Following in the tradition of the Crystal16 and the Crystalline, the **CrystalBreeder** was developed by experts in crystallization as an integrated solution for solid-state screening, enabling you to focus on your pipeline.



## Do more with less effort

The reaction vials are fully compatible with liquid handling and solid dosing robots, ensuring quick, easy and reproducible sample preparation. Using the handy **CrystalBreeder** caps, the reaction vials can be loaded into the **CrystalBreeder** with ease. With an intuitive software interface, the system controls and analyzes 32 reactors, with 8 independent temperature zones. Screening experiments are set up in less than a minute, using predefined protocols.

**“The CrystalBreeder allowed us to obtain single crystals of excellent quality within a few hours using less than a milligram of material.”**

*Professor at Zurich University, Switzerland*



Evaporation set-up



Multiple crystallization methods set-up

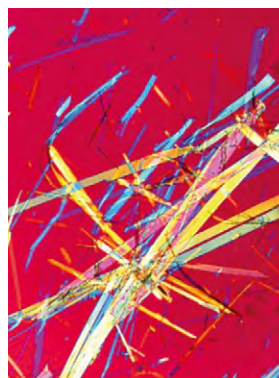


Vapor Diffusion set-up

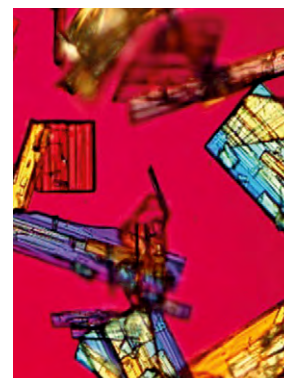
## More versatility with less hassle

Investigate small amounts of sample under controlled conditions, with **CrystalBreeder**: simply and reliably. Complete a salt screen with as little as 1 mg of compound at working volumes of 0.06 - 0.1 mL. Top stirring is now available with **CrystalBreeder** and was specifically developed to overcome attrition issues. Reaction conditions are more reproducible and realistic than in well-plate experiments, whilst in vial analytics measure turbidity in each reactor without physical contact with the sample. Real-time display of turbidity provides an immediate and reliable signal when a sample crystallizes.

## Crystal grown by sublimation under vacuum



Form 1



Form 2

## Controlled evaporation & vapor diffusion set ups

**CrystalBreeder** was designed with versatility in mind. Use overhead stirring with a unique hook design to mix thick slurries and viscous fluids. **CrystalBreeder's** Evaporation set-up facilitates fully controlled evaporation crystallization studies. You can also directly dry your samples without using a separate evaporator.

Vapor diffusion crystallization is now available, utilizing the unique vapor diffusion set-up. You are no longer limited by the boiling point and vapor pressure of the solvent and anti-solvent. This broadens the design space much more than classical vapor diffusion methods.

The new modules offer vapor diffusion and evaporation capabilities, increasing the instrument's versatility, and facilitating more advanced experiments.

The two modules sit on top of the **CrystalBreeder**, maintaining a compact footprint. Users control the temperature, heat/cool rate, stirring speed and evaporation pressure for all disposable block reactors with the software, generating accurate solubility and crystallization data in a short time.



Close up controlled evaporation and vapor diffusion set ups



## Get more for less

Advance your crystallization screening with **CrystalBreeder**, the multiple reactor system that allows you to screen small amounts of sample under finely controlled conditions.

A typical polymorph/crystallization screen of 32 experiments performed on **CrystalBreeder** would run using multiple crystallization methods as shown on the next page.

**CrystalBreeder** is an essential tool to perform automated and controlled solid state screens. Wide variation in experimental conditions and individual temperature blocks enable screening with less effort and time. Each screening can be designed to meet specific objectives whilst using small quantities of material.

Upgrading your crystallization workflow to take advantage of **CrystalBreeder** allows you to remove the guesswork from early-stage solid state screening. With additional capabilities, the complete **CrystalBreeder** set-up allows you to do more, with less.



## Control your crystallization parameters

Performing polymorph screens using **CrystalBreeder**, enables precise control of your samples temperature, cooling/heating rate, stirring rate, concentration and solvent. Additionally, **CrystalBreeder** allows you to perform evaporation crystallization or cooling evaporation with a controlled evaporation rate. This facilitates application of a wide variety of conditions, including the most favored crystallization methods.

Vapor diffusion crystallization onto solids or into liquids has never been easier. You can enlarge your design space and utilize high boiling point solvents as anti-solvents.

### Crystallization methods

- Cooling crystallization
- Temperature cycling
- Slurry experiments
- Cooling evaporation
- Vapor diffusion
- Evaporation crystallization
- Crystallization by layering

### Solubility Screening

Easily define temperature profiles, sampling rates & stir speeds

Determine cloud and clear points

Define zones of interest for scaling up to milliliter scale

### Single Crystal Growth

Multiple crystallization modes with different solvents

Slow evaporation (with or without stirring)

Slow cooling with overhead stirring

Thermo-cycling with non-linear temperature profiles

Vapor diffusion crystallization

Sublimation crystallization under vacuum



Specifications	CrystalBreeder
Feedback control	Yes
Reactors	32
Reactor type	Commercially available, glass
Optimal work volume (mL)	0.06 to 0.1
Temperature zones	8
Temperature range (°C)	-15 to 150 <sup>1</sup>
Temperature accuracy (°C)	0.1
Heating rate (°C/min)	0 - 20
Cooling rate (°C/min)	0 - 20
Stirring	Overhead or stirrer bar
Stirring speed (rpm)	0 - 1250
Evaporation option	Yes, with evaporation flow per block of 4 reactors
Vapor diffusion option	Yes
Turbidity (%)	Every reactor
Chiller necessary (°C)	No
Camera's	-
Camera resolution (µm/pixel)	-
Particle size information	-
Raman	-
Data export	CrystalClear, Word Report, XML
Footprint (DxWxH)	49x56x20

<sup>1</sup> Minimum temperature reached in 1 block reactor is -15°C, and -10°C when all 8 block reactors are in use.

### Technobis Crystallization Systems workflow



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