- **DMSO, DMF, WATER** can be evaporated with **NO BUMPING**
- Solvent removal directly from **HPLC / LC / GC** vials
- Sample evaporation after fractionation, NMR measurement, etc.

# Smart Evaporator

MADE IN JAPAN

## Trusted by Over 10,000 Scientists–And Counting

## Up to 90% Less Energy Than Rotary Evaporators

| | | |
|---|---|---|
| 2021 | New Technonlogy Businness Promote Prize | The 55nd GOOD COMPANY Award (The Medium and Small Business Research Institute) |
| 2017 | Grand Prize | The 42nd Invention Award (the Japan Society for the Advancement of Inventions) |
| 2016 | Grand Prize | The 7th Kanagawa "Industrial Navi Award" (Kanagawa Welfare Foundation for Entrepreneurs, Japan) |

BC BioChromato

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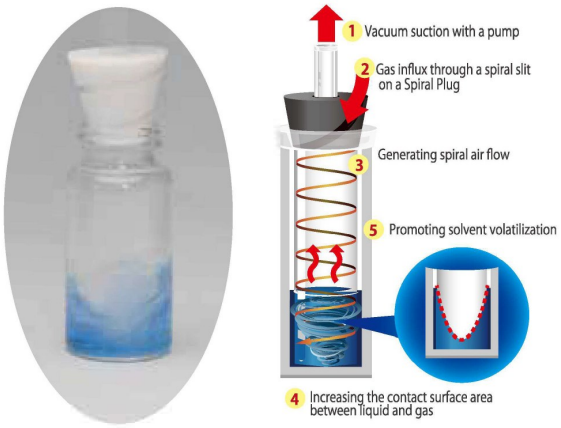
# Innovative Evaporator

## Vacuum Vortex Concentration




## Fast and Effective Evaporation

| Solvent / Capacity | Flow rate | 40℃ | 70℃ |
|---|---|---|---|
| Hexane / 5 mL (20 mL vial) | 15L/min | 3 min | 3 min |
| Acetone / 5 mL (20 mL vial) | 15L/min | 4 min | 3 min |
| Ethyl acetate / 5 mL (20 mL vial) | 15L/min | 6 min | 5 min |
| Acetonitrile/ 5 mL (20 mL vial) | 15L/min | 9 min | 8 min |
| Methanol / 5 mL (20 mL vial) | 15L/min | 10 min | 6 min |
| Ethanol /5 mL (20 mL vial) | 15L/min | 10 min | 6 min |
| *Deionized Water / 5 mL (20 mL vial) | 29~30L/min | 49 min | 28 min |
| *DMF / 5 mL (20 mL vial) | 20~30L/min | 43 min | 24 min |
| *DMSO / 5 mL (20 mL vial) | 23~30L/min | 195 min | 69 min |
| *NMP / 5 mL (20 mL vial) | 25~30L/min | N/A | 71 min |

* Gas purge data

## DMSO, DMF, Water

The Smart Evaporator enables efficient evaporation of high-boiling point solvents - even DMSO, DMF, and water.
All models are with the heating function, and the covered models* allow the use of inert gas, which accelerates faster evaporation.(*C1 and C10)

## Bump Free Technology

The novel Spiral Plug technology generates a helical flow of air over the surface of the solvent, thereby increasing the surface area. Since the container isn't under high vacuum, there is no risk of bumping or splashing.

## In Vial Evaporation

The Spiral Plugs come in various sizes to fit to container mouth inner diameter from 4mm to 32mm. With the aluminum beads on the bottom*, various sizes and shapes of tubes / vials are applicable for evaporation.
Containers from other instruments or storage can be used directly, minimizing the loss by sample transfer (*features for C1 and K4)

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# Successful Applications with the Smart Evaporator

"The Smart Evaporator has cut down the time I produce product by 75%.
For my esearch, I have to do chemical synthesis to conjugate two products together.
– Ms.Teodora "Tia" Nedic, Pharmaceutical Sciences, UC Irvine

"Smart Evaporator solved the critical challenge of DMSO removal, enabling efficient drying of pharmaceutical samples and expanding applications like peptide purification."
– Dr. Davisson / Dr. Fujii, Purdue University Department of Medicinal Chemistry and Molecular Pharmacology

"Smart Evaporator enabled faster evaporation and reduced monitoring workload while protecting sensitive analytes through low-temperature concentration."
– Mr. Kasel, Donaldson Filtration Solutions

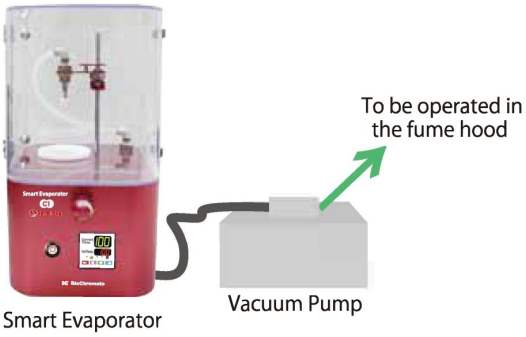
## Users' Fields

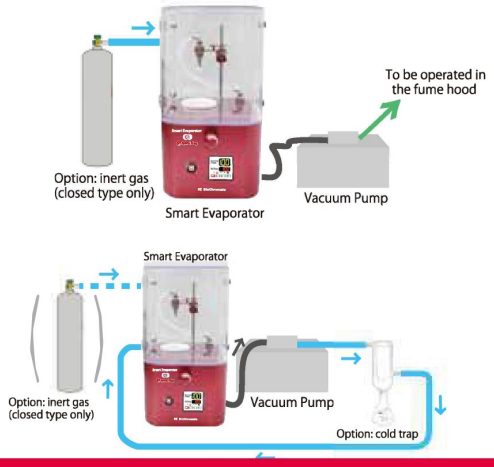
Bioimaging, Biomaterial, Chemical Biology, Chemical Bioscience, Molecular Biology, Nuclear Medicine, Forensic Medicine, Drug Assay, Organic Synthesis, Pharmacognosy, Archaeometry, Natural Products Chemistry, Nutritional Biochemistry, Food Analysis, Catalyst Chemistry, Surface Chemistry, Complex Chemistry, Inorganic, Chemistry, Particle Chemistry, Material Chemistry, Metalorganic Chemistry, Analytical Chemistry,

## Application Examples

- Solvent removal (for substitution)after HPLC,LC/MS,GC/MS
- Sample concentration after preparative fraction
- Solvent removal after NMR measurement
- Concentration of natural product extract
- Concentration after solid phase extraction
- Concentration of radioisotope labeled compounds
- Concentration of surfactant solutions
- Pretreatment for multiple sample in drug analysis
- Pretreatment for analysis of photosynthetic pigment

## Installation example

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# Smart Evaporator – models, accessories & specs

| | Smart Evaporator C1 |
|---|---|
| Catalog code | ASY~C1B~SK |
| Size | W220 x D227 x H382 mm |
| Weight | 4.3kg |
| Heating | Room temp. ~ 100C |
| Heating cup | Round shape / φ69mm |
| Color | 2 (Sun, Sky) |
| Gas purge | Yes |
| CE marking | Yes |

*Colors may vary depending on the country.
Please contact us for details.

| | Smart Evaporator K4 | Smart Evaporator C10 |
|---|---|---|
| Catalog code | CEK4-SU-P (plug size 1-5) | ASY~C10~SK |
| Size | W434 x D156 x H414.2mm | |
| Weight | 4.8kg | |
| Heating | Room temp. ~ 100C | |
| Heating cup | Rectangle / W226 x D55mm | Round shape / with vial holder |
| Color | 1 (Sun) | |
| Gas purge | No (special order possible) | Yes |
| CE marking | Yes | Yes |

| | Spiral Plug SP-S series | Spiral Plug SP-V series | Spiral Plug E series |
|---|---|---|---|
| Catalog code | SP-P (plug size No. 1-5) | SP-V (plug size No. 1-5) | SP-E(plug size No. 1-2) |
| Plug Material | PTFE | fluoroelastomer (FKM) | PTFE |
| Size No. (Inner φ of container) | 1 (4~7mm) 2 (7~11mm) 3 (11~17mm) 4 (15~24mm) 5 (24~32mm) | | E1 (1.5mL microtube) E2 (5.0mL microtube) |

| | Filter for C1 |
|---|---|
| Catalog code | CEV-F-00 |
| Size | L110 x φ26 mm |
| Connection | R1/4 (male) |
| Filter material | Polyethylene |

| | 4Kit for C1 |
|---|---|
| Catalog code | UW4-C1B |
| Parts Included | 4-channel head<br>3-Way Vial Holder<br>4 x SP-P1<br>4 x SP-P2<br>4 x 2ml Vial<br>4 x 4ml Vial<br>4 x 6ml Vial |
| | One kit converts C1 to 4 position that accommodates vials of 3 sizes |

## Pump Information

All Smart Evaporators need to be connected to a DIAPHRAGM VACUUM pump for operation*. The pump has to be capable of continuous suction at atmospheric pressure; and should reach the pressure of -40kPa (61.3 x $10^3$ Pa) ~ -50kPa (51.3 x $10^3$ Pa) or more.
The reference flow rate per plug size (= container mouth inner diameter) is as shown below. For multi-channel models, multiply the flow rate by the number of the channel.
*Please contact us for more detail and recommendations.

| Inner diameter of containar | Plug Size | Reference suction flow rate |
|---|---|---|
| 4~7mm | Plug Size:1 | 13L/min |
| 7~11mm | Plug Size:2 | 15L/min |
| 11~17mm | Plug Size:3 | 30~33L/min |
| 15~24mm | Plug Size:4 | 50L/min |
| 24~32mm | Plug Size:5 | 58L/min |


■Distributor

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**Ask us about the DrySyn Spiral Evaporator too...**


■Manufacturer

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*Mining ideas, Aiding laboratories*

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