



Porifera

**Sudden**  
COFFEE



## A REVOLUTION IN FLAVOR RETENTION

### A COMPLEX FLAVOR CHALLENGE

Instant coffee is a product that's been around for a century. As a category, instant coffee gives consumers easy access to the drink, but it has earned a reputation for bitterness as the complex blend of flavors and aromas are a challenge to capture and preserve.

Sudden Coffee set out to make great coffee accessible to more people and manufacture a high quality instant product to revitalize instant coffee's reputation. The company's biggest technical challenge was finding a way to concentrate coffee without impacting flavor. They experienced high product demand and needed a production method that was high quality, low energy, and inexpensive.

The unique sensory experience provided by a quality cup of coffee is based on a wide variety of factors. To use traditional processing technologies would provide the typical, bitter flavor results that gave instant coffee its poor reputation in the first place. In order to preserve the delicate flavor and aroma profiles of each different variety of coffee, a more gentle extraction process would be required.



### PORIFERA'S GENTLE CONCENTRATION APPROACH



**4x**  
Per Unit  
Production  
energy  
savings

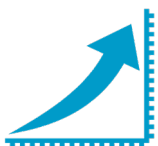
Porifera's membrane system removes water from the product in a novel way without freezing, heating, evaporating, or using pressure; Porifera uses a **natural osmotic concentration process** to remove the water and squeeze **all the original nutrients, flavors, aromas, and colors into a volume that's 10x smaller**. This gentle processing technology could capture and preserve the diversity of characteristics of each individual coffee variety.



**4x**  
Increase in  
output

The PFO Concentrator System enabled Sudden Coffee to **remove 85% of the water** from coffee before entering the drying process. Freeze drying removes water from the coffee and crystallizes it to preserve the best flavor notes. Freeze drying is a very energy intensive process. The way to make freeze drying more efficient is to remove water from coffee before freeze drying it.

As a result, this reduced volume allowed the company to **increase output by 4x** without damaging quality and also **reduce its most energy-intensive process by 4x**.



**10x**  
sales  
increase  
from  
resulting  
benefits

Porifera's equipment resulted in considerable energy savings per unit product produced, enabling the company to reduce their fleet of 80 small freeze driers to 20 because of Porifera's concentration system.

Implementation of Porifera's technology **increased capacity** which **provided a new opportunity** to also produce instant coffee for other coffee companies from their beans. Sudden Coffee produced instant coffee products for 34 coffee companies, including Equator Coffee, Ritual Coffee, and Intelligentsia. Products produced by Sudden Coffee are sold everywhere from airports to Whole Foods grocery stores.