

HOW NITROGEN BLOWDOWN EVAPORATORS CAN ADDRESS YOUR LAB'S SPECIFIC NEEDS?

Nitrogen Blowdown Evaporation: How it Works

Evaporators are staples in chemistry and biochemistry laboratories. The most common types of evaporation systems found in laboratories are rotary evaporators, vortex evaporators, vacuum evaporators, centrifugal evaporators, and nitrogen blowdown evaporators.

When it comes to nitrogen blowdown evaporation, rather than using vacuum, centrifugal force, or vortex motion to evaporate samples, the evaporation is accomplished by directing a stream of nitrogen gas onto the sample. As the vapor pressure just above the surface of the liquid decreases, the constant gas flow pushes off the vapor-saturated layer of air, which prevents the vapor from returning to the liquid. This process greatly speeds up evaporation, especially for small volumes of volatile solvents.

Nitrogen blowdown evaporation has become a popular method for sample preparation in sectors as diverse as environment, agriculture, food and beverage, medicine, quality assurance, forensics, and oil and grease. For these industries and others, the benefits of nitrogen blowdown evaporation are three-fold: this method does not require consumables, when properly employed it is very gentle on the sample, and it is highly affordable compared to the alternative options.

Meeting the Needs of Your Lab

Every lab has its own evaporation needs that must be met by the system they choose. Whether those needs concern sample volume, batch size, or flexibility, there is a nitrogen blowdown evaporator that can address them. Find out how nitrogen blowdown evaporators can provide solutions to laboratories in the answers to some commonly asked questions below.



QUESTION

Is there an evaporation solution that is suitable for small samples and microplates?

ANSWER

Labs are often tasked with evaporating small sample volumes. One solution is Organomation's MICROVAP product line, which offers four different models that are well suited to small volume samples held in either tubes or microplates. For samples in tubes, the 6, 15 and 24 position MICROVAP evaporators are the ideal choice. These evaporators are compact and specifically designed for small batch solvent evaporations, such as concentrations of sample groups in microcentrifuge tubes or GC vials. For work involving 96 well microplates, single and triple position MICROVAP microplate evaporators are available. The triple position system enables evaporation of samples in up to three microplates simultaneously, maintaining consistent temperature across plates.



QUESTION

What is the best way to evaporate large batches of samples?

ANSWER

Certain applications require that samples be evaporated in large batches. Organomation's MULTIVAP product line is the best solution for those evaporating batches of up to 100 samples. All of the units in this line enable users to conserve nitrogen gas by allowing individual rows to be shut off when evaporating fewer than the maximum number of samples. High temperature dry block models that reach evaporative temperatures ranging from 30°C to 120°C are available for the 9, 30, 48, and 80 position MULTIVAP units, while the 64 and 100 position units use a heated water bath to reach evaporative temperatures ranging from 30°C to 100°C.



QUESTION

How can a single evaporation system accommodate multiple users and processes that involve different sample sizes and sample preparation methodologies?

ANSWER

A single lab will sometimes have a variety of evaporation requirements. Accordingly, Organomation's N-EVAP product line was developed with flexibility in mind. The design enables the evaporation of various sample types, of a range of sizes and with different gas flow requirements, all at once. Additionally, samples can be added or removed individually while others are still being processed. Units with 6, 12, 20, and 24, 34, and 45 positions are available.



BUYING TIPS

Those looking to purchase a new evaporator should consider a few additional factors before selecting a product. One can opt to buy a used system, which may save money upfront, or a new instrument, which is more likely to save money in the long run. Typically there will be the option to purchase an extended warranty on the parts and/ or labor. It is important to find out whether replacement parts for the evaporator are available, and if the company has technicians who will perform repairs. Certain companies have trade-in programs, where customers can put the value of a returned evaporator toward the purchase of a new one. Finally, companies sometimes offer custom instruments to meet the unique needs of their customers.

With these considerations in mind, you may be ready to purchase a nitrogen blowdown evaporator for your lab. In addition to their affordability and simplicity of use, nitrogen blowdown evaporators can benefit laboratories by enabling them to evaporate small samples, large batches of samples, and to run multiple sample preparation methods simultaneously.

Sources: Organomation Manufacturing, Inc. and Lab Manager

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