

Liquid nitrogen cell storage tank

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Liquid nitrogen vessels are designed to support long-term storage of samples at cryogenic temperatures (-196°C to -210°C). The process of cryo-preservation is widely used in clinical diagnostics, immunotherapy development, food and beverage, and semiconductor storage. Samples prepared with cryo-protectants, such as DMSO, can remain viable for up to a decade when stored in liquid nitrogen.

Benchtop liquid nitrogen containers are designed for point-of-use, short-term sample storage or transfer of LN2 into a shipping vessel or cold trap. Benchtop dewars store fewer than 10 liters of liquid nitrogen and do not include sample storage racks. Certain benchtop vessels include carrying handles for easy transport and vented lids to prevent over-pressurization.

Free-standing liquid nitrogen systems are optimal for long-term sample storage within a cryogenic environment. Select models include cryo-box racks for easy sample identification, low liquid level alarms to maintain cryo-preservation conditions, and locking lids for high-security areas. High-capacity, free-standing systems are designed to store more than 10,000 samples and over 300 liters of liquid nitrogen.

Long-term sample storage and retrieval systems include racks compatible with 81-cell or 100-cell cryogenic boxes to maximize sample capacity. Certain systems include locking lids for added sample protection and wheeled bases for easy transport. Low liquid level alarms alert users when an LN2 refill is required.

Benchtop transfer vessels are designed to transport liquid nitrogen from a holding tank to a sample storage system or shipping vessel. Select transfer vessels are compatible with pressurized liquid withdrawal devices to prevent LN2 spillage and evaporation.

Cryogenic storage systems utilize racks compatible with 81-cell or 100-cell cryo-boxes to maximize sample capacity. Samples are generally stored in 1.5 ml or 2 ml cryo-tubes or twist-cap vials. Low-capacity systems are designed to store fewer than 1,000 samples, while high-capacity containers store more than 10,000 samples.

For laboratories without a liquid nitrogen delivery service, cryogenic vessels are earmarked as long-term LN2 holding tanks to supply sample storage systems and cold traps used throughout the lab.

For labs purchasing an LN2 holding tank, a critical specification is liquid nitrogen storage capacity. Low-throughput systems store fewer than 50 liters of liquid nitrogen, while high-throughput tanks store more than 200 liters.

Static holding time is the length of time listed in days, during which the cryogenic tank retains the supplied volume of liquid nitrogen. This metric, however, presumes that the container is not accessed during the stated

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period of time. LN2 evaporation will occur each time the cryogenic tank is opened.

Certain cryogenic tanks, such as Thermo Fisher Locator Storage Systems, include ultrasonic level monitors with continuous digital LED readouts and audible/visual alarms when liquid nitrogen levels fall below set-point.

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