Wheaton CryoELITE™ Cryogenic Vials are Proven Superior for Protecting Sample Integrity

Discussion of Maintaining Sample Integrity

Background

The growing need to collect and store a wide range of biological samples for research has led to the creation of biorepositories. To ensure the viability of biospecimens being stored in biorepositories over long periods, the samples are placed in sterile plastic or glass vials and then immersed into the vapor phase of Liquid Nitrogen (LN_2). It is important that the content of the vials maintain sample integrity during storage at low temperatures as well as during the retrieval and thawing process. Vial leakage is the main source of sample contamination. If the biospecimen is contaminated, it is rendered useless for further scientific research.

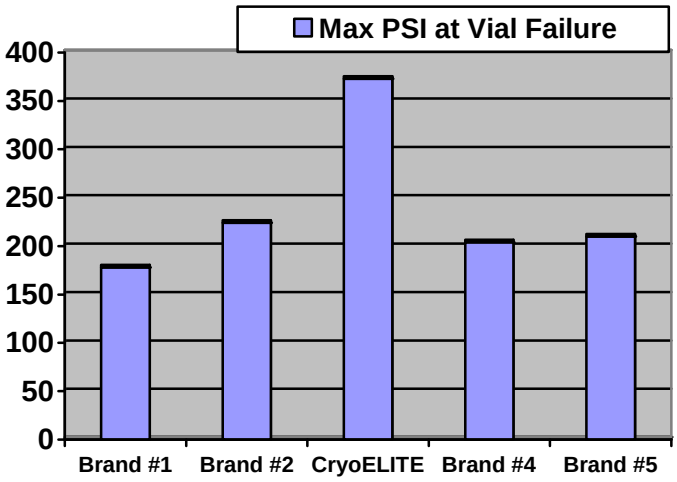
Cryogenic vial leakage is caused by the failure of the seal made by the cap and the vial. To overcome the leakage problems and subsequent contamination problems common to other commercially available cryogenic vials being sold for low temperature storage and shipping of biosamples, Wheaton has designed a patent pending vial and cap that provides more surface contact ensuring an absolute seal.

The seal of the CryoELITE cryogenic vial was comparison leak tested by an independent testing company and proven superior to other manufacturers' of externally threaded cryogenic vials.

Test Procedure

The cryogenic vials used in this procedure were externally threaded, plastic sterile vials. Each cap of each brand's vial was pierced in the center of cap with a 1/8" hose barb then sealed in place with J.B. Weld around the perimeter of the hose barb. Caps were allowed to cure for 48 hours. Each vial (ten per brand) was then filled with water and screwed onto a hydrostatic pump via the threads on the end of each hose barb. Caps were torqued to 3 lbs-in prior to installation on the hydrostatic pump. Pressure was slowly increased until failure occurred. Failure was defined as leakage at the vial threads.

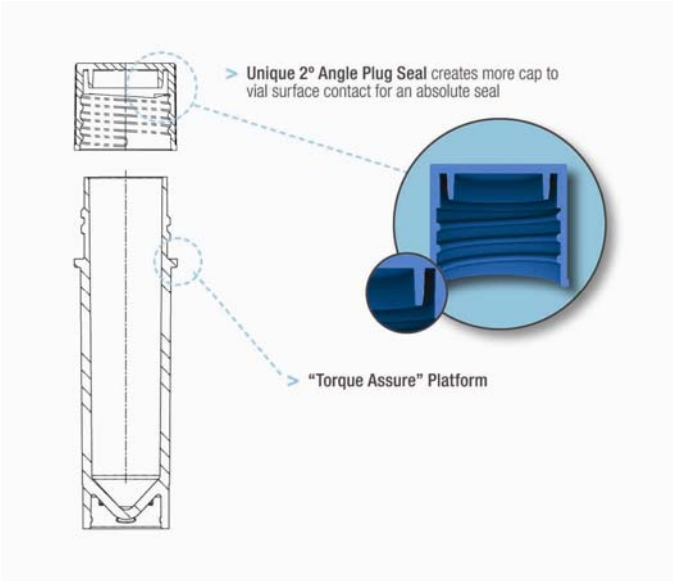
Graph #1



Ensured Integrity with the Wheaton CryoELITE Cryogenic Vial

As seen in Graph #1, the Wheaton CryoELITE cap tolerated greater than 50% more pressure than other companies tested before failure.

ILLUSTRATION #1



The CryoELITE's unique patent pending design is engineered to have four points of contact between the vial and the cap (see illustration #1). The first point of contact is between the outside of the vial and the cap, the second is between the vial threads and the cap threads. The third point of contact is the uniquely designed 2 degree angle plug seal on the cap which creates more cap to vial surface contact for an absolute seal. The final point of contact is the 'Torque Assure" platform. This is a failsafe stop molded into the vial to prevent over torquing.

In addition, the vial and the cap are made from compatible materials ensuring uniform thermal expansion over all working temperatures to minimize leakage. A CryoELITE vial features a permanent 2D Data Matrix bar coded bottom insert which is made from the same cryogenic radiation grade virgin polypropylene. The 2D Data Matrix bar code withstands cryogenic temperatures and is resistant against to harsh chemicals and UV light exposure.

In today's world of biobanking and biospecimen management, sample integrity means everything. Wheaton CryoELITE Cryogenic Vials are designed to ensure sample integrity. Your precious biospecimens are the foundation of your future research and development, protect them with the very best – Wheaton CryoELITE Cryogenic Vials.