



Best Practices

MICROCENTRIFUGE TUBES

Microcentrifuge tubes (MCTs) are the workhorse of today's lab. Neptune's complete line of 0.6, 1.6, and 2.0 ml tubes were designed to meet the challenges of a wide array of lab procedures - from assays, to centrifugation, to sample storage. To ensure that these products perform as well in your hands as they do in ours, we've outlined some best practices for using PCR tubes in the lab.

Chemical Resistance

Neptune microcentrifuge tubes are made from medical grade polypropylene resin. This enables us to provide tubes without contaminating extractables, while maintaining high chemical resistance to a broad range of reagents and solvents. Before initiating use of these products for a new assay, please refer to the chemical resistance chart in the Neptune Product Catalog, or by going to www.neptunescientific.com.

Use in Centrifugation

MCTs from Neptune can withstand centrifugation up to 20,000 RCF. Before you use tubes for centrifugation, it is important to understand the difference between Revolutions Per Minute (RPM) and Relative Centrifugal Force (RCF). Of the two specifications, RCF, or G force, is a standard unit of measurement across all centrifuges and can be calculated using the formula provided here. Setting the RCF too high can cause a centrifuge tube to crack and shatter. Make sure that you are using the appropriate RCF speed, and not RPM.

Calculating RCF

$$RCF = 0.0001118 \times \text{radius of centrifuge rotor (cm)} \times \text{RPM}^2$$

Sample Storage in Freezer

Neptune MCT's can withstand freezing down to -80°C and are often used for shorter term storage of samples. Water density

expands by approximately $8\frac{1}{3}\%$ upon freezing, so be sure to have allowance for expansion when placing your samples in the tubes.

Avoiding Contamination

MCTs from Neptune are manufactured and tested to ensure the highest level of purity. Because they are certified as RNase, DNase, DNA, and endotoxin-free, it is not necessary to autoclave the tubes before use. In fact, there have been several published reports where autoclaves have introduced contamination to products, particularly in busy labs that share the same autoclave.

Always wear gloves when handling laboratory consumables. When removing MCTs from the product bag, never reach into the bag with your hands. Instead, pour the tubes out from the bag. This avoids contamination and the ziplock seal of the bag preserves the remaining tubes for future use.

If autoclaving is required by your lab protocol, please adhere to the following guidelines

- Pour MCTs into a sterile beaker
- Cover the beaker with aluminum foil and use a piece of autoclave indicator tape to secure the foil to the beaker
- Set autoclave for 121°C , 15 PSI (1 atm) for 15 minutes
- Unlike glassware, do not use a "dry cycle" as this may distort the plastic of the tubes
- Keep tube sealed in beaker until use