

Tips on Storing Teflon® Stopcock-Equipped Glassware

Since the thermal expansion of Teflon® is significantly different from that of glass, special techniques are required when an apparatus is to be used in a cold room (0-5°C). The Teflon® plug will contract more than the glass barrel on cooling. Thus, the stopcock will give a good tight seal at room temperature, but eventually will leak when stored in a cold room. Conversely, the stopcock can be tightened in the cold room to give a tight seal, but on warming to room temperature, the Teflon® expands, freezing the stopcock.

The best solution to the above problem is to retighten the stopcock in the cold room after the apparatus has cooled for about 15 minutes. Thereafter, open and close the stopcock only in the cold room. Do not attempt to turn the stopcock after it has warmed to room temperature. Teflon® will cold flow slowly with time. Therefore, unattended long-term storage of a tightened stopcock is not recommended. The stopcock should be turned from time to time (at least once every month) to check if a tight seal is still maintained, regardless of where stored.

Storage in a freezer (-20°C or below) presents special problems. If a Teflon® stopcock is tightened in a freezer, then allowed to warm to room temperature unattended, the expanding Teflon® can break the glass barrel. Obviously, this problem can be avoided by using only all-glass stopcocks in a freezer. Alternatively, it is possible to manually loosen the Teflon® plug while continuously turning the stopcock as the apparatus warms. This process can be accelerated by warming the glass barrel with the hand while turning the stopcock.