PolySeed®
Technical Report

Watertight Seal

The Water Seal Technique
When running a BOD5 test it is very important that each BOD incubation bottle maintain a watertight seal. Without a watertight seal, the bottle stopper will dry out, allowing an oxygen exchange between the contents of the BOD bottle and the atmosphere inside the incubator. Should this oxygen exchange occur (i.e. should air get inside the bottle) the solution inside the bottle will most likely evaporate and/or become contaminated, rendering test results invalid.

Various techniques to prevent bottle stoppers from drying out have been tried over the years. One early technique involved humidifying the incubator itself. Yet another technique involved keeping the BOD bottles completely immersed in a water bath throughout the incubation period. Although these methods worked, they were clumsy and unreliable. After much trial and error, it was determined that the best way to keep bottle stoppers adequately moist was to seal the flared-mouth BOD bottles with tapered glass stoppers and then protect the seals using plastic collar caps over the stoppers. This method is commonly referred to as "The Water Seal Technique". This technique creates a watertight seal that is very effective in preventing contamination and evaporation and is therefore the technique commonly recommended by Standard Methods.

To employ the Water Seal Technique most effectively and in accordance with *Standard Methods,* we recommend using Wheaton's 300-ml BOD bottles with tapered glass stoppers and plastic collar caps. In addition to using the right type of glassware, we recommend vigilance upkeep. Because even the right tools are not enough when poorly maintained, protect your laboratory's glassware investment through proper glassware cleaning techniques* and ensure that seals remain watertight for the duration of the incubation period by regularly replacing bottles that appear worn or chipped.

> **NOTE:** *please visit the FAQ section of our website to learn more about glassware cleaning techniques.*