Syringe Cleaning

November 6, 2000

General Practice

It is best to segregate syringes and needles according to the type of solvent they dispense. This will reduce cleaning requirements. Nevertheless, fingerprints may still be present and hydrocarbons can be adsorbed from the air necessitating further cleaning.

Heavy inks, paints, and adhesives are best handled using disposable syringes and needles as they are intrinsically difficult to clean. For such materials not easily dissolved in alcohol or MEK, heating glass syringes (perhaps using the Hamilton apparatus) is useful. Often, though, it is more economical to simply dispose of such syringes rather than *show* they are truly clean.

Fine Cleaning

Fingerprints and small amounts of adsorbed hydrocarbons can be removed by the following simple procedure, which presumes the syringe at least *appears* clean to begin with. This procedure may be used with a piezo pump in place upon the syringe. Ordinary stainless steel needles may be installed also, but fine glass capillary needles must be removed.

1. Prepare about 50ml of methanol or denatured alcohol in a beaker. Remove the syringe plunger and wash its tip in the alcohol. Slowly pour the remainder of the alcohol through the syringe body (and pump and/or needle). This will flush the system of lightly adsorbed contaminants. If the alcohol does not drain through easily, fill the syringe body and then slowly insert the plunger to push it through. You want a one-way flow of alcohol into the top of the syringe, out its bottom, and through any attachments. The flushed alcohol should not go back into the original beaker.

2. Prepare 50ml of clean, disteilled water. Flush it through the syringe in exactly the same way as the alcohol. Do not put it back in the beaker.

3. Fill the syringe with additional clean water and run a surface tension test lasting 10 minutes. Take a movie over this period of time. The surface tension should remain constant, on average, over this time period. A decrease in surface tension indicates oils or other surfactants still present. A reasonable limit is a decrease of no more than 2mN/m in 10 minutes. It is possible to observe no drop beyond the noise level of the measurement.

4. Flush the water by pushing air through with the plunger, repeatedly removing and reinserting it. Remove the plunger and dry all in an oven at 50°C for four hours.

465 Dinwiddie Street • Portsmouth, Virginia 23704 • 1.757.393.1584 Fax: 1.757.393.3708
http://www.firsttenangstroms.com