

# VST inc

## Digital Refractometer

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## Syringe Filter Safety and Operating Instructions

**CAUTION:** High pressures can be obtained when operating a Syringe with a Syringe Filter.

**DO NOT USE EXCESSIVE FORCE WHEN APPLYING PRESSURE TO OPERATE A SYRINGE**

**IMPORTANT: Syringe Filters are NON-STERILE DO NOT DRINK FILTERED ESPRESSO**

### General Notes and Recommendations

Espresso includes both dissolved and undissolved (or suspended) brew solids. Refractometers measure Total Dissolved Solids. Syringe filters are used to remove suspended solids that can interfere with refractive index readings. Before taking a TDS measurement, suspended solids must be removed from the espresso, the clarified sample allowed to cool and time permitted for CO<sub>2</sub> to diffuse out of solution, according to the procedures, below. Following these procedures will ensure accurate, repeatable results.

**Note:** When comparing % TDS measurements made with a refractometer to those taken by a dehydration method, the espresso beverage sample to be dehydrated must also be filtered first, using a method similar to that recommended, below.

One filter is required for each measurement. Do not force more liquid through a filter that has reached its maximum capacity, or bursting of the device may occur resulting in loss of sample or personal injury. You only need to filter 3-4 mL per measurement.

Note the glass or cup should be at ROOM TEMPERATURE to cool the clarified espresso sample.

### Sampling Procedure



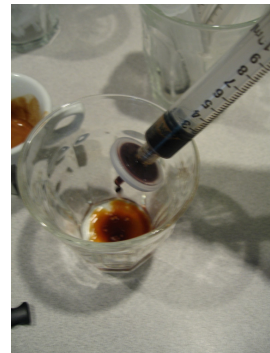
Allow 1 minute for espresso to cool and CO<sub>2</sub> to diffuse out of solution. Stir the sample.



Place the syringe tip under the crema, above the bottom and draw 3-4 mL of espresso.

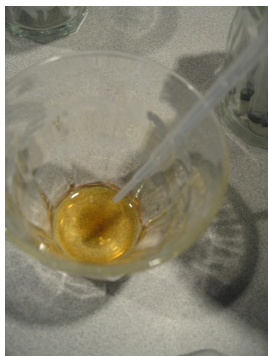


Attach a syringe filter approx a quarter-turn until snug. Do not over tighten.

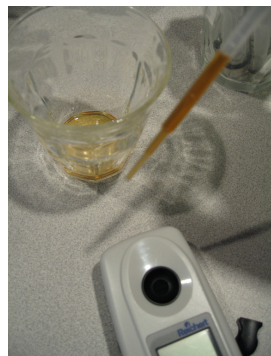


Slowly express about 2-mL into clean, dry glass. Allow 30-seconds to cool.

### Measurement Procedure



Draw a 0.2 - 0.4 mL sample.



Transfer to Sample Well.



Allow 30-seconds to equilibrate.



Measurement in % TDS.  
(12.1 %)