

255 Montcalm North  
Candiac, QC J5R 3L6

## **Water Sample Evaluation - DAF/Filtration**

Tests are carried out on both raw sample and upon the clarified water. Samples are evaluated to assess Flotation (by injection of dissolved air), the Total Suspended Solids before and after Flotation. In addition a microscopic qualitative evaluation of raw and clarified sample is conducted. This also assists in the selection of an appropriate filtration media (i.e. screen mesh) that may be pertinent to the ultimate plan for the reuse of the clarified and/or filtered water.

### **Flotation**

A representative water sample is injected with dissolved air and allowed to sit for a period of time representative to the dwell time in the Dur-flote DAF (4 minutes). The clarified water is collected.

### **Total Suspended Solids Loading (TSS):**

Both the Raw sample and a sample of the Clarified Water are filtered through a 47mm filter pad having a tight filtration matrix - this is done to capture the maximum weight of particles on the filter pad in an effort to minimize "under estimation" of possible Filtration requirements. The filter pad is dried and weighed both before and after sampling. The volume of water filtered is noted for each case. The difference in weight before and after weighing is noted and calculations are made to present the results in mg/Liter of Total Suspended Solids. Solids which are primarily organic in nature weight substantially less than solids that are primarily inorganic in nature.

Measuring of the level of TSS removed provides a good indication of the Fiber Recovery capability in a Dur-flote DAF , since the bubble size generated and the actual dwell time can be well simulated. Further evaluation can be done with various polymers (flocculants) and/or two component systems (flocculant + coagulant) as required. Typically Paper machine chemistry is tested to minimize chemical usage in the full scale operation of a DAF. A determination of whether Dissolved Air only or a combination of Dissolved Air along with Chemicals will be required.

Values greater than 10 mg/L (or ppm) for organic solids present a very heavy filtration load for a Filter. Normally a Filtomat MCFM filter is recommended for this level of TSS and for Fiber removal ahead of Shower applications.

### **Microscopic Observations:**

Both the Raw and Filtered samples are examined, in a petrie dish, under a microscope to evaluate the following:

- 1 - **Type of contaminant** - algae, sand, fiber length and type, rust, clays/fillers
- 2 - **Classify** - to determine the average size range of the contaminants
- 3 - **Qualify the filtration process** - what is left behind for a given micron rated screen
- 4 - **Qualify the results of coagulants/flocculants** on filtration or DAF