

## j. Total Solids

### i. Why is this test important? What does it measure?

In this test, two factors are considered, the solids that are dissolved in the water and the solids that do not dissolve in the water. The un-dissolved solids may be soil, plankton or industrial waste and sewage. Dissolved solids may include: salts, minerals, iron, sulfur, and other ions found in water. Un-dissolved solids might be leaves, soil, or decayed plant and animal matter. High concentrations of dissolved solids can lead to unpleasant taste and laxative effects in drinking water (other effects may be: reduced water clarity, decrease in photosynthesis, binding with toxic compounds and heavy metals, and increased water temperature through greater absorption of sunlight). Low concentrations of dissolved solids may limit growth of aquatic organisms (and the effects of such decreases). Total solids is a combination of total dissolved solids (TDS) and total suspended solids (TSS). TDS is all the substances in a solution in ionized or molecular form. TSS are the substances that can be captured by a filter. The term "settleable solids" refers to material of any size that will not remain suspended or dissolved in a holding tank not subject to motion, and excludes both TDS and TSS.

### ii. Water Quality Standards

There are no surface water quality standards for total solids in Michigan.

### iii. How to conduct the test

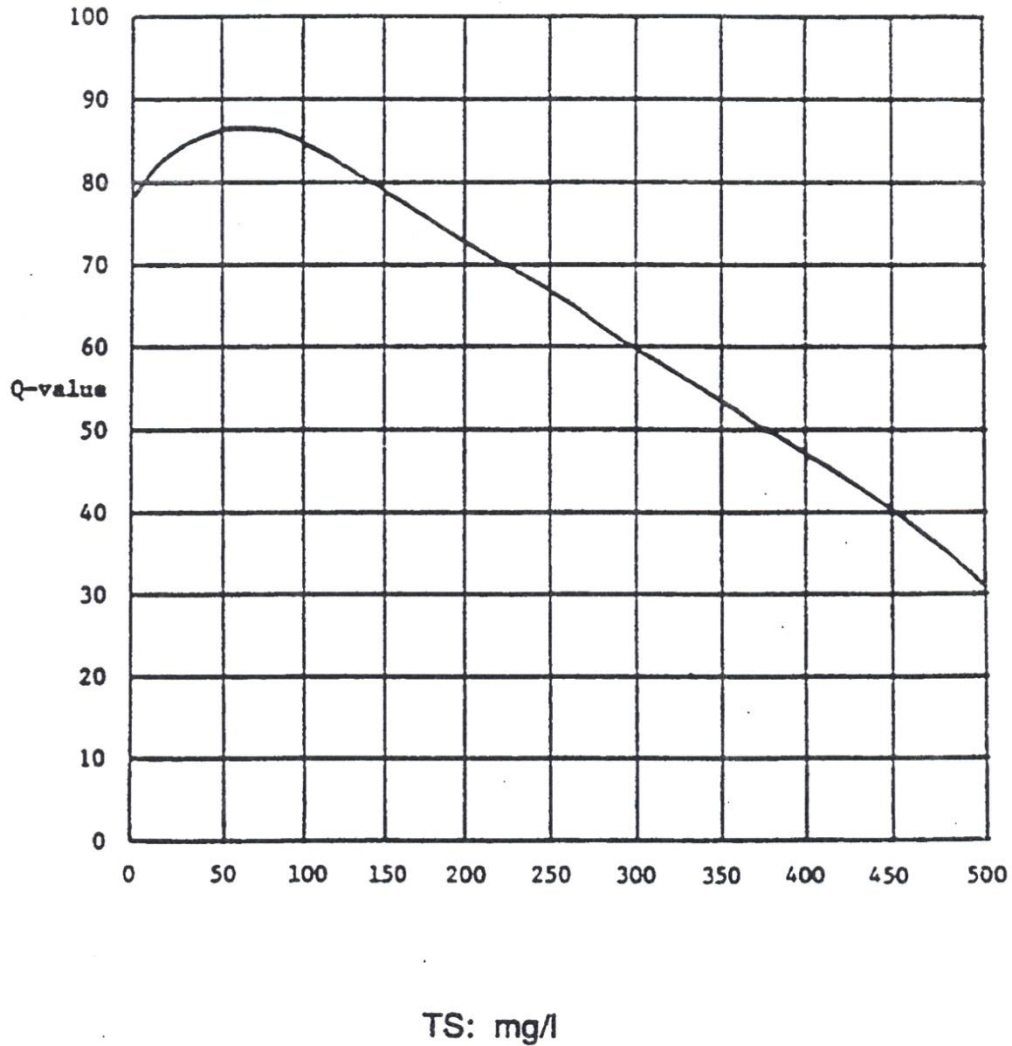
- Label your sample container with the following information:
  - Date Sample was taken.
  - School Name
  - Teacher's Name
  - Type of Test "Total Solids"
  - Water body sampled & place it was sampled.
- Place a fresh sample of at least 250 mL taken from the middle depths of the river into a glass or plastic bottle.
- Sample is to be bottled and placed on ice until stored in a refrigerator. Sample needs to be at less than or equal to 6 °C (6 degrees Celsius).
- Sample must be tested within 7 days.
- For testing pick-up Mentors assist teachers with delivering samples to the Genesee Intermediate School District to either Larry Casler and/or Lisa Hook.
- The WPC will retrieve the samples for testing.
- Testing results are sent to the Flint River Watershed Coalition (FRWC) for distribution to the teachers.

**Note: It is important that your sample be fresh. Because solid particles suspended in a sample that has been sitting for a while will have settled to the bottom of the sample over time—preventing you from receiving a representative**

**sample. Remove any large floating particles or submerged masses from your sample and put the cap on it.**

**iv. Q Value**

Chart 9: Total Solids (TS) Test Results



Note: if TS>500.0, Q=20.0

## **v. What to Watch Out For: Common Mistakes**

- The most common mistake in the total solids test is getting water that is contaminated by other students who have been walking in the stream.
- Attempt to collect the sample for this test from an undisturbed portion of the stream.
- Be careful not to use the sample bottle for the Total Phosphate test which is treated with Sulfuric Acid.

## **vi. Consistency When Doing Multiple Tests**

- Because this test is usually done by one sample submitted to labs at GM, multiple tests is not an issue for this test.

## **vii. How to Analyze Why The Results is Good or Bad**

- Like turbidity, total solids can vary widely depending on recent weather. Recent rainfall or snowmelt events can greatly increase total solids.
- If there has not been a recent rain or snow event, readings of greater than 100mg/L might be cause for more investigation.