TSS Test

A Citizen Scientist Adaptation

Test Procedure

- Collect water sample
- Pre-dry and pre-weigh filter paper
- Filter a known volume of the sample
  (if from large sample, pull aliquot while agitating)
- Dry filter paper to constant weight
- Weigh using analytical balance
- Calculate TSS as mg of solids per liter of sample

TSS Test

- The test is straightforward.
- However, if useable results are to be obtained good lab technique is essential.
- A simple lab setup can be put together at a modest cost to give results approaching those from a professional lab.
- Parts which follow can be purchased on Amazon unless noted

Measure out aliquot of sample

Agitate sample well before measuring out an aliquot- **immediately**
May want different size graduated cylinders

by EISCO

Graduated Cylinder, 100ml - Polypropylene, Class B - Octagonal Base, Autoclavable - Industrial Quality, US Sourced Materials - Eisco Labs

4.5 out of 5 stars 46 customer reviews | 7 answered questions

Price: $8.49 prime FREE One-Day

New (2) from $8.49 prime

Specifications for this item

Filter Sample- Option A

- Follow as closely as possible standard TSS test protocol
- Filter paper of the glass fiber/non-binder type
- Filter paper should be pre-washed with de-ionized or distilled water
- Washed filter paper must be pre-dried till no further weight loss occurs before determining starting weight
- Equipment:
  - Filter funnel
  - Filter flask
  - Filter paper
  - Vacuum source

Filter Kit

by D DOLITY

D DOLITY 1000ml Filtration Apparatus Vacuum Lab Filtering Unit Flask Funnel and Clamp, Compatible with 42-60mm Membrane Filter Paper

Be the first to review this item

Price: $35.28 & **FREE Shipping**

New (1) from $35.28 & FREE shipping.

Specifications for this item

by Whatman

Whatman 1821-047 Glass Microfiber Binder Free Filter, 1 Micron, 12 s/100mL Flow Rate, Grade GF/B, 4.7cm Diameter (Pack of 100)

Be the first to review this item

Price: $104.75 ($1.05 / Filters) & **FREE Shipping**. Details

New (3) from $98.00 & FREE shipping.

Specifications for this item

Simsii PTFE Membrane Filter, Hydrophobic, Diameter 47 mm, Pore Size 0.45 µm, Pack of 200

by Simsii

Be the first to review this item

Price: $129.99 ($6.50 / 10 Items) & **FREE Shipping**

- Hydrophobic PTFE
- High chemical and temperature resistance
- Resistivity against all know solvents

Specifications for this item

Filter Paper
Example from Hach

TSS Glass Fiber Filter, Pore Size 1.5 µm, Diameter 47 mm, 100/pk

Overview | Details | Parameter/Reagent | Downloads | Accessories | Similar Products

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Product #: 253000

USD Price: $45.89

Available

Quantity 1

pick & ship™ One Time

Add to Cart

Very low cost Vacuum pump
About $75 on Amazon

Kozyvacu TA350 Single-Stage Rotary Vane Vacuum Pump for HVAC/Auto AC Refrigerant Recharging, Wine Degassing, Milking, Medical, Food Processing

Size:KZTA350001

Note- should provide a vacuum break

Filter Sample- Option B

- Recommend as fine filter paper as possible to get “reasonable” filtering times. Bill Ward has used 10 micron pore size.
- Filter paper MUST be pre-washed with de-ionized or distilled water to remove all water soluble materials
- Washed filter paper must be pre-dried till no further weight loss occurs before determining starting weight
- Equipment:
  - Buchner funnel
  - Filter flask
  - Vacuum source
  - Filter paper

Filter Flask and Buchner Funnel

Cost about $60

For safety tape vacuum flask with electrical tape in case of implosion

by Whatman

Whatman 1003-070 Quantitative Filter Paper Circles, 6 Micron, 26 s/100mL/sq inch Flow Rate, Grade 3, 70mm Diameter (Pack of 100)

Be the first to review this item

Was: ~~$31.69~~
Price: $23.79 ($0.24 / Filter Paper Circles) prime
FREE Shipping on orders over $25—or get **FREE Two-Day Shipping** with Amazon Prime
You Save: $7.90 (25%)

New (2) from $13.92 + $6.29 shipping

Super low cost vacuum source
About $25 on Amazon

Wash bottle for DI/Distilled water
About $5 on Amazon

Tweezers about $5-10 on Amazon

Never touch filter paper with fingers!!

Drying-Low cost air oven (About $500 on Amazon)

Determine conditions to dry filter/sample to constant weight at 105 C
Aluminum weighing dish/boat recommended (also on Amazon)

Super Low Cost Drying Equipment

- Oven in a kitchen
- Infrared heat lamp

Must determine conditions to dry filter/sample to constant weight

Dessicator for cooling dried samples and storage of prewashed and dried filters

Bel-Art"Space Saver" Polycarbonate Vacuum Desiccator with Clear Polycarbonate Bottom; 0.31 cu. ft. (F42027-0000)

Size:0.31 cu. ft.

Material Type:Polycarbonate with All-Clear Polycarbonate Bottom

$137 at Amazon

DRY&DRY Half(1/2) Gallon Replacement Desiccant Indicating Silica Gel Beads Reusable, Blue

4.5 out of 5 stars 26

$22.99

prime Get it as soon as **Tomorrow, Jun 5**

FREE Shipping by Amazon

Disposable Aluminum 70 mm Smooth Wall Weighing Dish- Pack of 100

4.5 out of 5 stars 3

$22.00 ($2.20/10 Items)

prime Get it as soon as **Thu, Jun 6**

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shipped by Amazon

Only 19 left in stock - order soon.

Analytical Balance
weigh to 0.1 mg
(About $500 on Amazon)

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120g 0.0001g 0.1mg Digital Analytical Balance Scale for Laboratories from U.S. Solid

★★★★★ ˅2

495^{11}

✓prime FREE delivery

TSS Calculation

Dry suspended solids weight = filter final weight – filter starting weight (convert to milligrams)

Convert sample volume in cc or ml to liters (divide by 1000)

TSS = solids weight/ liters of sample: units of mg/liter

Stroud Filtration membrane filter			0.45 micron Millipore		10 micron GFF filter		
Stroud Filter # ID	Vol Filtered (mL)	total mass sediment (mg)	mass corrected for balance drift	TSS (mg/L)	TSS (mg/L) (info from Bill Ward)	Volume Filtered (info from Bill Ward)	(10 um filter weight) / (0.45um filter weight)
M8315	255	19.85	20.00	78.43	56		0.714
M8324	294	13.93	13.58	46.19	33		0.71443299
M8325	122	92.34	92.98	762.13	654		0.858120026