

USEPA Gravimetric Method^{1, 2}

Method 8271

Scope and application: For potable, surface and saline water and for domestic and industrial wastewater, brine solutions, produced waters and hydraulic fracturing waters.

¹ USEPA accepted.

² Adapted from *Standard Methods for the Examination of Water and Wastewater*, Section 2540B.



Test preparation

Before starting

If applicable, use the test result in Method 8276—Solids, Total Volatile and Fixed

Dry the aluminum dishes at 103–105 °C for 1 hour. Keep dried dishes in a desiccator.

For larger samples, use a steam bath and evaporating dishes as an alternative to the aluminum dishes.

Items to collect

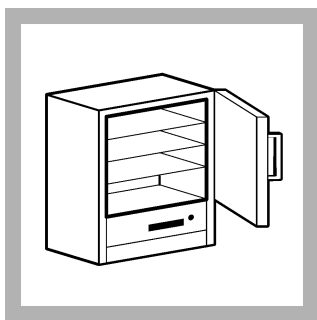
Description	Quantity
Weighing dish, aluminum	1
Drying oven	1
Cylinder, graduated, 50 mL	1
Desiccator with desiccant	1
Analytical balance	1
Tongs	1

Refer to [Consumables and replacement items](#) on page 3 for order information.

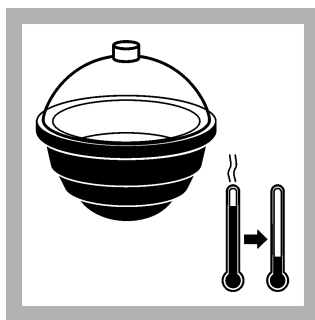
Sample collection and storage

- Collect samples in clean glass or plastic bottles.
- To preserve samples for later analysis, keep the samples at or below 6 °C (43 °F) for up to 7 days.
- Let the sample temperature increase to room temperature before analysis.

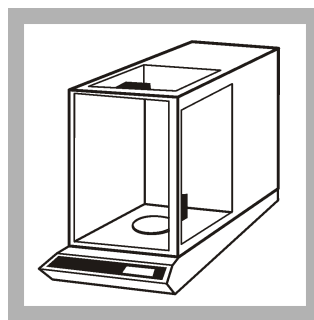
Test procedure



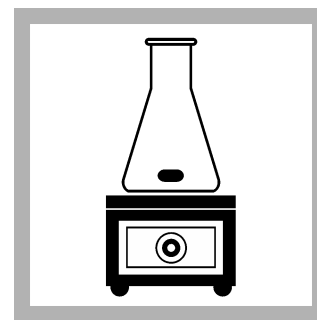
1. Put an aluminum dish in a drying oven at 103–105 °C (217–221 °C) for 1 hour.



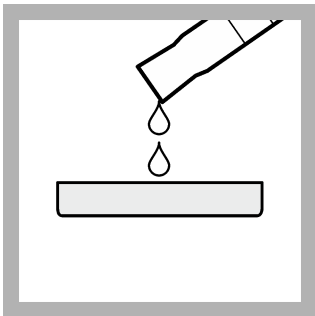
2. Remove the dish from the oven. Let the dish temperature decrease to room temperature in a desiccator.



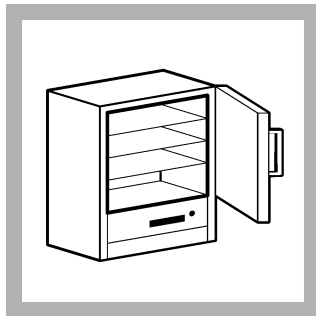
3. Use an analytical balance to weigh the dish to the nearest 0.1 mg (0.0001 g). Record this mg value as B.



4. Mix the sample. Use a blender or a beaker with stir bar and stir plate to mix the sample.

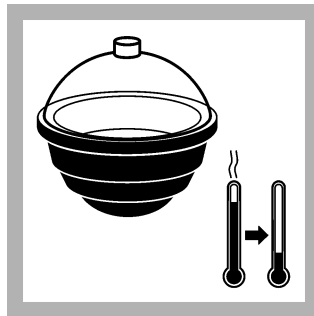


5. Use a graduated cylinder to add 50 mL of sample to the aluminum dish.

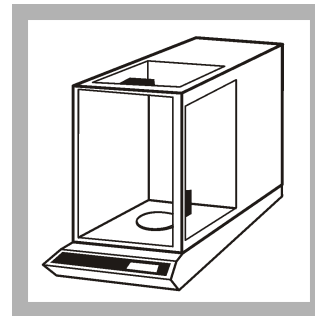


6. Put the sample in a preheated oven. Dry at 103–105 °C for approximately 6 hours. More time can be necessary for high mineralized water.

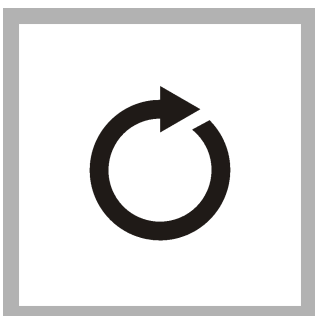
Note: For larger samples, use a steam bath and an evaporating dish as an alternative to the drying oven. After the sample is dried on the steam bath, dry the dish to constant weight in a 103–105 °C drying oven.



7. Remove the dish from the oven. Let the dish temperature decrease to room temperature in a desiccator.

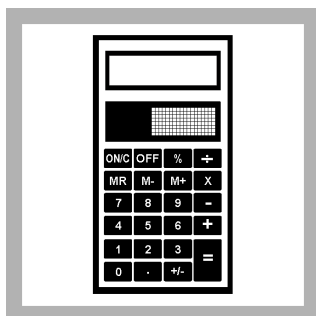


8. Use an analytical balance to weigh the dish to the nearest 0.1 mg (0.0001 g). Record this mg value as A.



9. Do steps 6–8 again until results do not change more than 0.4 mg.

Successive weight results that are identical for some wastewater samples are unlikely because of slow organic volatilization.



10. Calculate the test results:

$$[(A - B) \times 1000] \div \text{mL sample} = \text{mg/L Total Solids}$$

Where:

A = Weight (mg)¹ of sample + dish

B = Weight (mg) of dish

Note: If applicable, continue with Method 8276 for Volatile and Fixed Solids results.

Summary of method

A well-mixed sample is dried in a pre-weighed dish to a constant weight in an oven at 102–105 °C. The difference of weight between the empty dish and the dried dish shows the total solids of the sample.

¹ Weight in mg = grams × 1000

Consumables and replacement items

Required reagents and apparatus

Description	Quantity/test	Unit	Item no.
Balance, analytical, 115 VAC	1	each	2936801
Cylinder, graduated, 50 mL	1	each	50841
Desiccant, indicating Drierite	1	each	2088701
Desiccator, without stopcock	1	each	1428500
Desiccator plate, ceramic	1	each	1428400
Water, deionized	varies	4 L	27256
Oven, drying, 120 VAC	1	each	1428900
Oven, drying, 240 VAC	1	each	1428902
Tongs, crucible, 9 inch	1	each	56900

Optional reagents and apparatus

Description	Unit	Item No.
Blender, 1.2 liter, 120 VAC	each	2616100
Stirrer, magnetic	each	2881200
Digital stirring/hot plate 7 x 7 in., 230 VAC	each	2881602
Beaker, 250 mL	each	50046H
Stir bar, 22 x 8 mm	each	2095350
Steam bath, 8 inch diameter	each	2347900
Evaporating dish, porcelain, 120 mL	each	52561
Sampling bottle with cap, low density polyethylene, 500 mL	12/pkg	2087079



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