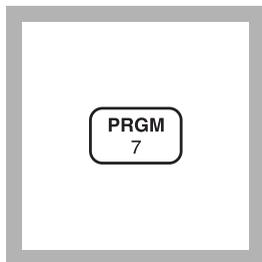


**TURBIDITY (0 to 1000 FAU)**

For water, wastewater, and seawater

**Absorptometric Method\***

1. Enter the stored program number for turbidity.

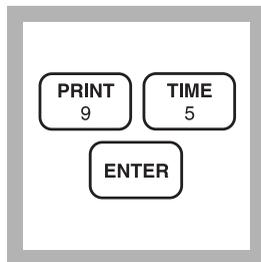
Press: **PRGM**

The display will show:

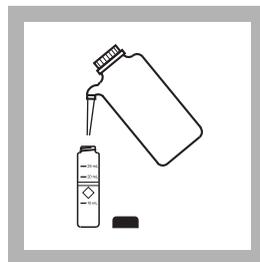
**PRGM ?**

**Note:**

1 FAU=1 NTU=1 FTU  
when measuring formazin.  
These are not equivalent  
when measuring other  
types of standards or  
samples.



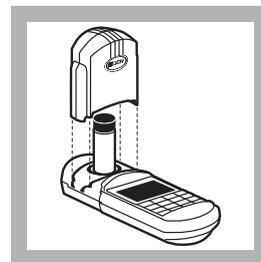
2. Press: **95 ENTER**  
The display will show  
**FAU** and the **ZERO**  
icon.



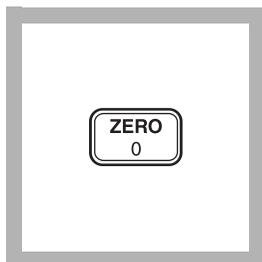
3. Fill a sample cell  
with 10 mL of deionized  
water (the blank).

*Note:* Wipe the surface of  
the cell with a soft cloth.

*Note:* For highly colored  
samples, use a filtered  
portion of sample in place  
of the deionized water.



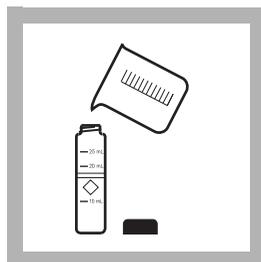
4. Place the blank into  
the cell holder. Tightly  
cover the sample cell with  
the instrument cap.



5. Press: **ZERO**

The cursor will move to  
the right, then the  
display will show:

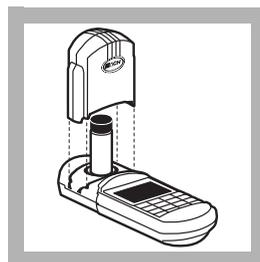
**0 FAU**



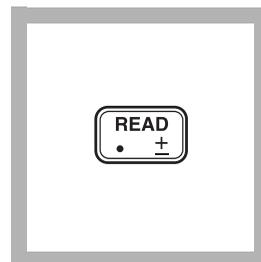
6. Fill another sample  
cell with 10 mL of  
sample.

*Note:* Mix the sample well  
before transferring it to the  
sample cell.

*Note:* Wipe the surface of  
the cell with a soft cloth.



7. Place the sample cell  
into the cell holder.  
Tightly cover the sample  
cell with the  
instrument cap.



8. Press: **READ**

The cursor will move to  
the right, then the result  
in Formazin Attenuation  
Units (FAU) will be  
displayed.

*Note:* Standard Adjust may  
be performed using a  
prepared standard (see  
Section I).

\* Adapted from FWPCA *Methods for Chemical Analysis of Water and Wastes*, 275 (1969)

# TURBIDITY, continued

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## Sampling and Storage

Collect samples in clean plastic or glass bottles. Analyze samples as soon as possible. Store samples up to 48 hours by cooling to 4 °C (39 °F). Analyze the sample at the same temperature as it was collected.

## Accuracy Check

### Standard Solution Method

The stored program has been calibrated using formazin, the primary standard for turbidity. A 200 FAU formazin solution for checking the accuracy of the test can be prepared using the following procedure.

1. Pipet 5.00 mL of a 4000 NTU Formazin stock solution into a 100-mL volumetric flask.
2. Dilute to the mark with deionized water. Prepare this daily.

Convenient stabilized turbidity stock solution (200 NTU StablCal™ Standard) is available from Hach.

### Standard Adjust

To adjust the calibration curve using the reading obtained with the 200 FAU formazin standard, press the **SETUP** key and scroll (using the arrow keys) to the STD setup option. Press **ENTER** to activate the standard adjust option. Then enter **200** to edit the standard concentration to match that of the standard used. Press **ENTER** to complete the adjustment. See *Section 1, Standard Curve Adjustment* for more information.

## Method Precision

### Precision

In a single laboratory, using a turbidity standard solution of 200 FAU with the instrument, a single operator obtained a standard deviation of  $\pm 2$  FAU.

### Estimated Detection Limit

The estimated detection limit for program 95 is 21 FAU. For more information on the estimated detection limit, see *Section 1*.

# TURBIDITY, continued

## Interferences

Interfering Substance	Interference Levels and Treatments
Air Bubbles	Interfere at all levels. Degass samples using the Degassing Kit or an ultrasonic bath.
Color	Interferes if the color absorbs light at 520 nm.
Temperature extremes	May interfere by changing the turbidity of the sample. Analyze samples as soon as possible after collection. Analyze at the same temperature as the original sample.

## Summary of Method

This turbidity test measures an optical property of the sample which results from scattering and absorption of light by particles in the sample. The amount of turbidity measured depends on variables such as the size, shape, color, and refractive properties of the particles.

This procedure is calibrated using formazin turbidity standards and the readings are in terms of Formazin Attenuation Units (FAU). This test cannot be used for USEPA reporting purposes, but it may be used for daily in-plant monitoring. One FAU is equivalent to one Nephelometric Turbidity Unit (NTU) of Formazin. However, the optical method of measurement for FAU is very different than the NTU method (1 NTU = 1 FTU = 1 FAU when traced to formazin primary standards.)

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## REQUIRED APPARATUS

Description	Quantity Required		Unit	Cat. No.
	Per Test			
Sample Cell, 10-20-25 mL, w/cap .....	2 .....	6/pkg .....	24019-06	

## REQUIRED REAGENTS

Description	Units	Cat. No.
Formazin Stock Solution, 4000 NTU .....	500 mL .....	2461-49
Silicone Oil .....	15 mL DB .....	1269-36
StablCal Stabilized Turbidity Standard, 200 NTU .....	500 mL .....	26604-49
Water, deionized .....	4 L .....	272-56

## TURBIDITY, continued

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### OPTIONAL APPARATUS

Description	Units	Cat. No.
Bath, ultrasonic .....	each.....	24895-00
Bottle, wash, 250 mL.....	each.....	620-31
Flask, volumetric, Class A, 100 mL .....	each.....	14574-42
Flask, filter, 500 mL.....	each.....	546-49
Filter Holder.....	each.....	13529-00
Filter Pump, aspirator .....	each.....	2131-00
Oiling cloth, for applying silicone oil.....	each.....	26873-00
Pipet Filler, safety bulb .....	each.....	14651-00
Pipet, volumetric, Class A, 5.0 mL.....	each.....	14515-37
Sample Degassing Kit.....	each.....	43975-00
Stopper, rubber, one-hole, No. 7 .....	6/pkg.....	2119-07
Tubing, rubber, 5/16" I.D.....	12 feet.....	560-19
Tweezers, plastic .....	each.....	14282-00

### *For Technical Assistance, Price and Ordering*

In the U.S.A.—Call 800-227-4224

Outside the U.S.A.—Contact the Hach office or distributor serving you.