LEAD

PAR METHOD • CODE 4031

QUANTITY	CONTENTS	CODE
250 mL	Ammonium Chloride Buffer	4032-K
15 mL	*Sodium Cyanide, 10%	*6565-E
30 mL	PAR Indicator	4033-G
30 mL	Stabilizing Reagent	4022-G
15 mL	DDC Reagent	4034-E
1	Syringe, 5 mL, plastic	0807
2	Pipet, 0.5 mL, plastic	0353

*WARNING: Reagents marked with an * are considered hazardous substances. To view or print a Material Safety Data Sheet (MSDS) for these reagents see MSDS CD or our web site. To obtain a printed copy, contact us by e-mail, phone or fax.

The average concentration of lead is 0.003 ppm in streams and less than 0.1 ppm in groundwater. Lead in a water supply may come from mine and smelter discharges or from industrial waste. Lead is used in the production of batteries, solder, pigments, insecticides, ammunition and alloys. Tetraethyl Lead has been used for years as an anti-knock reagent in gasoline. Lead may also enter water supplies when corrosive water dissolves pipes, plumbing fixtures and materials containing lead. Lead accumulates in the body and is toxic by ingestion.

APPLICATION: Drinking and surface waters; domestic and industrial wastewater.

RANGE: 0.00–5.00 Lead

METHOD: Lead and calcium ions form a red complex with PAR (4- [2'-pyridylazo] resorcinol), at a pH of about 10. When sodium diethyldithiocarbamate is added, the lead/PAR complex is destroyed leaving the calcium/PAR complex. The difference between the two measurements is due to the lead concentration.

SAMPLE HANDLING & PRESERVATION: Analyze sample as soon as possible. If sample must be stored, acidify with nitric acid to a pH of below 2.

INTERFERENCES: Calcium greater than 100 ppm (250 ppm $CaCO_3$) will interfere. Low concentrations of cerium, iron, manganese, magnesium, sulfur, tin, and EDTA will also interfere.

PROCEDURE

1. Press and hold **ON** button until colorimeter turns on.
2. Press **ENTER** to start.
3. Press **ENTER** to select TESTING MENU.
4. Select ALL TESTS (or another sequence containing 54 Lead) from TESTING MENU.
5. Scroll to and select 54 Lead from menu.
6. Rinse a tube (0290) with sample water. Fill to 10 mL with sample.
7. Insert the tube into chamber, close lid and select SCAN BLANK.
8. Remove the tube from colorimeter. Use the Syringe (0807) to remove 5mL of sample from tube. Discard remaining sample.
9. Add the 5 mL of sample in the syringe to the tube. Add 5 mL Ammonium Chloride Buffer (4032) to fill the tube to the 10 mL line. Swirl to mix.
10. Add 3 drops *Sodium Cyanide, 10% (6565). Swirl to mix.
11. Use the 0.5 mL pipet (0353) to add 0.5 mL PAR Indicator (4033). Swirl to mix.
12. Use the 0.5 mL pipet (0353) to add 0.5 mL Stabilizing Reagent (4022). Cap and mix.
13. Insert tube into chamber, close lid and select SCAN SAMPLE. Record result in ppm as Reading A.
14. Remove tube from colorimeter. Add 3 drops DDC Reagent (4034). Cap and mix.
15. Insert tube into chamber, close lid and select SCAN SAMPLE. Record result in ppm as Reading B.
16. Calculate result:

Lead (ppm) = Reading A – Reading B

17. Press **OFF** button to turn the colorimeter off or press **EXIT** button to exit to a previous menu or make another menu selection.

☑ NOTE: For best possible results, a reagent blank should be determined to account for any contribution to the test result by the reagent system. To determine the reagent blank, follow the above test procedure to scan a distilled or deionized water blank. Then follow the above procedure to perform the test on a distilled or deionized water sample. This test result is the reagent blank. Subtract the reagent blank from all subsequent test results of unknown samples. It is necessary to determine the reagent blank only when a new lot number of reagents are obtained.