

INSTRUCTION MANUAL

HI93754A-25 LR
HI93754B-25 MR
HI93754C-25 HR
HI93754J-25 UHR

COD Chemical Oxygen Demand Reagents



Dear Customer,

Thank you for choosing a Hanna Instruments product. Please read this instruction manual carefully before using the kits. For more information about Hanna Instruments and our products, visit www.hannainst.com or e-mail us at sales@hannainst.com.

For technical support, contact your local Hanna Instruments Office or e-mail us at tech@hannainst.com.

Preliminary Examination

Remove the product from the packing material and examine it carefully. If you require any further information, please contact Hanna Instruments technical support team.

Each kit is supplied with:

- COD test vials (25 pcs.)
- 1 mL graduated syringe with tip (2 pcs.)
- Instruction manual

Note: Save all packing material. Any damaged or defective item must be returned in its original packing material with the supplied accessories.

General Description

The HI93754A_B_C_J are barcode reagent vials that follow the EPA approved method for the low, high, medium and ultra high range determination of chemical oxygen demand (COD) using a compatible benchtop photometer.

- **HI93754A-25 LR:** COD Low Range (0 to 150 mg/L)
Vial identification color: RED
- **HI93754B-25 MR:** COD Medium Range (0 to 1500 mg/L)
Vial identification color: WHITE
- **HI93754C-25 HR:** COD High Range (0 to 15000 mg/L)
Vial identification color: GREEN
- **HI93754J-25 UHR:** COD Ultra High Range (0.0 to 60.0 g/L)
Vial identification color: BLUE

Each kit contains 25 ready-to-use vials with pre-dosed reagents. Simply choose the best range for the application, add the sample to the vial and tightly cap it before digestion.

Method

Adaptation of the EPA 410.4 approved method for the COD Determination of Surface Waters and Wastewaters. This method covers the determination of COD in surface water, domestic and industrial wastes.

The sample is digested in the presence of dichromate at 150 °C for 2 hours. Oxidizable organic compounds reduce the dichromate (orange) ion to the chromic (green) ion.

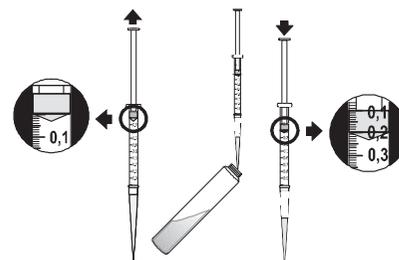
Procedure



Before using the reagent kit carefully read all the instructions and the Safety Data Sheets (SDS). Pay particular attention to all warnings, cautions, and notes. Failure to do so may result in serious injury to the operator.

1. Choose a homogeneous sample. Samples containing solids capable of settling need to be homogenized with a blender.
2. For sample digestion use a block heater reactor with holes to accommodate digestion vials. Use of the optional safety shield is strongly recommended.
Preheat the reactor to 150 °C (302 °F). For correct use of the reactor follow [HI839800](#) Instruction Manual*.
Do not use an oven or microwave because leaking samples can generate a corrosive and possibly explosive atmosphere.
3. Remove the cap from a reagent vial for the required COD range.
Note: The reagent is light sensitive, thus store the unused vials in their packaging in a cool and dark place.
4. Use the supplied syringe and add 2 mL (LR and MR), 0.2 mL (HR) or 0.1 mL (UHR) of sample to the vial, while keeping the vial at a 45-degree angle. This is the sample.

Range	Reagent code	Vial color	Sample q.ty
0-150 mg/L (as O ₂)	HI93754A-25	RED	2.0 mL
0-1500 mg/L	HI93754B-25	WHITE	2.0 mL
0-15000 mg/L	HI93754C-25	GREEN	0.2 mL
0.0-60.0 g/L	HI93754J-25	BLUE	0.1 mL



Note: To measure exactly 0.2 mL of sample with the syringe, push the plunger completely into the syringe and insert the tip into sample. Pull the plunger out until the lower edge of the seal is on the 0.0 mL mark of the syringe. Insert the syringe into the vial and push the sample out until the lower edge of the seal is on the 0.2 mL mark. For measuring 0.1 mL sample use the same approach as described above.

5. Replace the cap tightly and invert several times to mix.
Warning: The vials will become hot during mixing, use caution when handling.
6. Use supplied syringe #2 and add to another reagent vial deionized water repeating steps 4 and 5 (2 mL for LR and MR, 0.2 mL for HR and 0.1 mL for UHR). This is the blank.
Note: For an accurate measurement, run a blank with each set of samples and use the same box of reagents for blank and samples.
7. Insert the vials into the reactor* and heat them for 2 hours at 150 °C.
8. At the end of the digestion period, switch off the reactor (Hanna® reactor automatically switches off). Wait 20 minutes to allow the vials to cool to about 120 °C.
9. Invert each vial several times while still warm, then place them in the [HI740216](#) test tube rack.
Warning: The vials are still hot, use caution when handling.
10. Leave the vials in the tube rack to cool to room temperature. Do not shake or invert them, the samples may become turbid.

11. For colorimetric determination of COD, follow the procedure described in the Photometers or Spectrophotometer Instruction Manual*.

***Note:** For best results use HI839800 Hanna reactor and HI83399, HI83314 multiparameter photometers or HI801 Iris Visible spectrophotometer.

Interferences:

Chlorides LR < 2000 mg/L (ppm)
MR < 2000 mg/L (ppm)
HR < 20000 mg/L (ppm)
UHR < 20000 mg/L (ppm)

Samples with higher chloride concentration should be diluted.

Safety Measures



The chemicals contained in these kits may be hazardous if improperly handled. Read the Health & Safety Data Sheet before performing tests.

Safety equipment: Wear suitable eye protection and clothing, and follow instructions carefully.

Reagent spills: If reagent spillage occurs, wipe up immediately and rinse with plenty of water.

If reagent contacts skin, rinse the affected area thoroughly with water. Avoid breathing released vapors.

Reagent vial disposal: Reagents contain different waste pollutants. After use dispose of the reagent vials according to the local regulations.

Compatible Hanna Products

HI839800-01	Hanna® Reactor (115 Vac)
HI839800-02	Hanna Reactor (230 Vac)
HI801-01	Iris Visible Spectrophotometer (115 V)
HI801-02	Iris Visible Spectrophotometer (230 V)
HI83314-01	Multiparameter Photometer with COD for Wastewater (115 V)
HI83314-02	Multiparameter Photometer with COD for Wastewater (230 V)
HI83399-01	Multiparameter Photometer with COD for Water and Wastewater (115 V)
HI83399-02	Multiparameter Photometer with COD for Water and Wastewater (230 V)

Accessories

HI740142P	1 mL graduated syringe (10 pcs.)
HI740143	1 mL graduated syringe (6 pcs.)
HI740216	Test tube cooling rack (25 holes)
HI740217	Laboratory bench safety shield