

Instruction Manual

HI 93754A-25 LR
HI 93754B-25 MR
HI 93754C-25 HR

COD

Chemical Oxygen Demand Reagents

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Dear Customer,
Thank you for choosing a Hanna product. Please read this instruction manual carefully before using the reagent. This manual will provide you with the necessary information for the correct use of the reagents. If you need additional information, do not hesitate to mail us at tech@hannainst.com.

PRELIMINARY EXAMINATION

Remove the product from the packing material and examine it carefully to make sure that no damage has occurred during shipment. If there is any damage, notify your Dealer.

Each kit is supplied complete with:

- COD test tubes (25 pcs);
- 2 graduated syringes (1 ml) with tip;
- Instruction Manual.

Note: save all packing material: any defective item must be returned in its original packing with the supplied accessories.

GENERAL DESCRIPTION

Three reagent kits are available, according to different COD ranges:

- HI 93754A-25 LR: COD Low Range (0 to 150 mg/L)
Vial cap color: RED.
- HI 93754B-25 MR: COD Medium Range (0 to 1500 mg/L)
Vial cap color: WHITE.
- HI 93754C-25 HR: COD High Range (0 to 15000 mg/L)
Vial cap color: GREEN.

Each kit contains 25 ready-to-use vials with premeasured reagents: just add sample to the vial and tightly cap it before digestion. Different range vials may be easily distinguished by mean of the cap color.

METHOD

Adaptation of the EPA 410.4 approved method. 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.

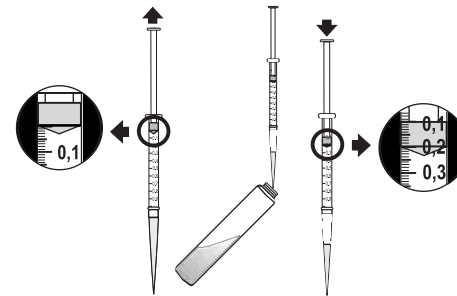
INSTRUCTIONS



Before starting to use these reagent kits it is important to read carefully this manual and the Health & Safety Data Sheet (HSDS). Pay particular attention to all warnings, cautions, and notes. Failure to do so may result in serious injury to the operator.

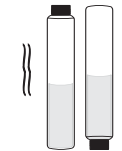
- 1 - Samples containing settleable solids need to be homogenized with a blender.
- 2 - For sample digestion use a block heater reactor with holes to accommodate digestion vials. Use of the optional safety shield is strongly recommended. Preheat the reactor to 150 °C (302°F). For correct use of the reactor follow Reactor 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 container and in a refrigerator if possible.
- 4 - Use the supplied syringe and add 2 ml (for LR and MR test) or 0.2 ml (for HR test) of sample to the vial, while keeping the vial at a 45-degree angle. This is the sample.

Range	Reagent code	Vial cap color	Sample q.ty
0-150 mg/L	HI 93754A-25	red	2.0 mL
0-1500 mg/L	HI 93754B-25	white	2.0 mL
0-15000 mg/L	HI 93754C-25	green	0.2 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.

- 5 - Replace the cap tightly and mix by inverting the vial a couple of times. **Warning:** as the vial becomes very hot during mixing, be careful in handling it.

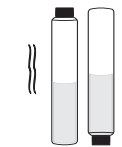


- 6 - Using the other **clean** syringe, add to another reagent vial deionized water repeating steps 4 and 5 (2 ml for LR and MR, and 0.2 ml for HR). This is the blank. **Note:** for an accurate measurement, run a blank with each set of samples and use the same box of reagents for blank and samples.

- 7 - Insert the vials into the reactor* and heat them for 2 hours at 150°C.



- 8 - At the end of the digestion period, turn the reactor off (if you are using the Hanna Reactor, it will automatically switch off). Wait for twenty 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 HI 740216 rack. **Warning:** as the vials are still hot, be careful in handling them.

10 - Leave the vials in the tube rack to cool to room temperature. Do not shake or invert them anymore otherwise the samples may become turbid.

11 - For colorimetric determination of COD, follow the procedure described in the Photometer Instruction Manual*.

* **Note:** for best results in readings use the Hanna equipment: C9800 Reactor and C99 or C214 Photometers.

INTERFERENCES:

chlorides LR > 2000 mg/L (ppm)
MR > 2000 mg/L (ppm)
HR > 20000 mg/L (ppm)

Samples with higher chloride concentration should be diluted.

HEALTH & SAFETY



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.

ACCESSORIES

C 9800-01 Hanna Reactor (115 VAC)
C 9800-02 Hanna Reactor (230 VAC)
C 99 Hanna Photometer (for Laboratories)
C214 Hanna Photometer (for Wastewater Treatment Application)
HI 740142 1 mL graduated syringe
HI 740143 1 mL graduated syringe (6 pcs)
HI 740216 Test tube cooling rack (25 holes)
HI 740217 Laboratory bench safety shield