# Instruction Manual

# HI 3864
# Phenols
# Test Kit

HANNA instruments

www.hannainst.com

Dear Customer,

Thank you for choosing a Hanna Instruments Product.

Please read the instructions carefully before using the chemical test kit. It will provide you with the necessary information for correct use of the kit.

Remove the chemical test kit from the packing material and examine it carefully to make sure that no damage has occurred during shipping. If there is any noticeable damage, notify your Dealer or the nearest Hanna office immediately.

Each kit is supplied with:

- **HI 3864A-0** Phenol Reagent A, packets (100 pcs.);
- **HI 3864B-0** Phenol Reagent B, packets (100 pcs.);
- 1 checker disc (with 2 discs, LR and HR);
- 2 glass vials with caps;
- 1 mirror.

**Note:** Any damaged or defective item must be returned in its original packing materials.

ISTR3864 07/13

## Specifications

| | |
|---|---|
| Range | 0 to 1.00 mg/L (ppm) as Phenols LR<br>0.5 to 5.0 mg/L (ppm) as Phenols HR |
| Smallest Increment | 0.02 mg/L (ppm) Phenols LR<br>0.1 mg/L (ppm) Phenols HR |
| Analysis Method | Colorimetric |
| Sample Size | 10 mL |
| Number of Tests | 100 |
| Case Dimensions | 235 x 175 x 115 mm (9.2 x 6.9 x 4.5") |
| Shipping Weight | 573 g (20.2 oz.) |

## Significance and Use

Phenols are widely used in pharmaceuticals, dyes and indicators and as general disinfectants. They may occur in household and industrial wastewaters and in natural waters; they can also enter potable water supplies and chlorination of such waters results in malodorous chlorophenol products that are detectable from 0.001 mg/L (1 ppb). The HANNA colorimetric method determines phenol and all ortho and para substituted phenols. Since substitution generally lowers the response, the readable value obtained by this method is the minimum concentration of phenolic compounds present. Natural water usually contains less than 0.001 mg/L (ppb) of phenols, but sometimes values up to 0.02 mg/L (20 ppb) also occur.

Since the concentration of phenols in wastewater is generally subjected to biological and chemical degradation, preserve samples in the refrigerator and analyze within 4 hours after collection.

**Note:** mg/L is equivalent to ppm (parts per million), ppb means parts per billion.

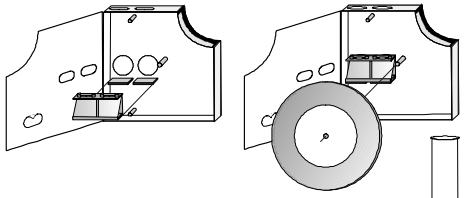
## Chemical Reaction

Phenolic compounds react to form a yellow to orange dye with 4-amino antipyrine in alkaline solution buffered at pH about 10. The absorbance of this colored product is proportional to the concentration of phenols present in the aqueous sample.

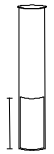
## Instructions

READ THE ENTIRE INSTRUCTIONS BEFORE USING THE KIT

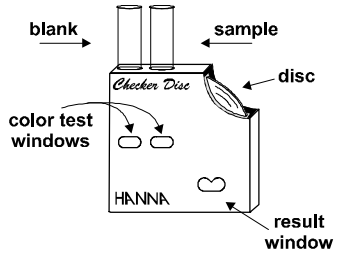
- Verify if the mirror and the LR (0÷1 mg/L) disc are already pre-installed in the checker. If not, install both as shown in the figure.



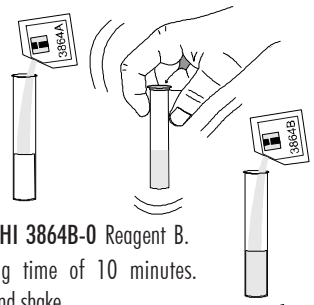
- Fill each glass vial with 10 mL of sample, up to the mark.



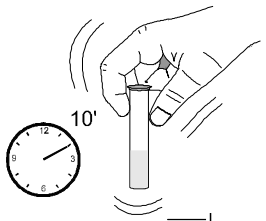

- Insert one of them into the left hand opening of the checker disc. This is the blank.



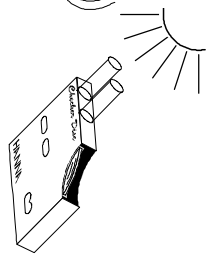

- Add to the other glass vial 1 packet of **HI 3864A-0** Reagent A. Replace the cap and mix.



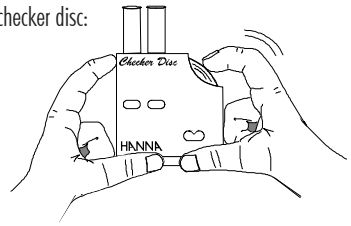

- Add 1 packet of **HI 3864B-0** Reagent B.
- Start the waiting time of 10 minutes. Replace the cap and shake the vial until the powder has totally dissolved. The solution will turn a color yellow to orange. This is the reacted sample.




- Remove the cap and insert the reacted sample into the right hand opening of the checker disc.
- Hold the checker disc so that a light source illuminates the samples from the top.

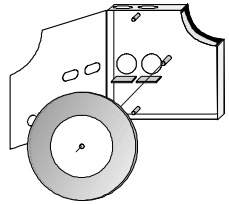


- After the 10 minutes have passed, rotate the disc while looking at the color test windows and stop when you find the color match. Read the value in the result window and record it in mg/L (or ppm) of Phenols.
- If the color of the sample is too intense to make a color match with the mirror installed, then remove from the checker disc:

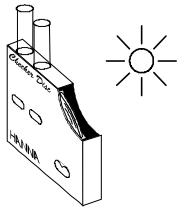



*i. the glass vials*
*ii. the LR disc*
*iii. the mirror and its holder.*

- Install the HR (0.5÷5 mg/L) disc and replace the glass vials in the checker disc.



- Hold the checker disc so that a light source illuminates the samples from the back windows.
- Rotate the disc while looking at the color test windows and stop when you find the color match. Read the value in the result window and record it in mg/L (or ppm) of Phenols.



**For best results:** Intensely colored samples will make the color matching difficult and they should be adequately treated before performing the test. Suspended matter in large amounts should be removed by prior filtration.

**Caution:** Ultraviolet radiation may cause fading of colors. When not in use, keep the disc protected from light, in a cool and dry place.

## Accessories

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|---|---|
| **HI 3864-100** | Replacement kit (100 tests) |

## References

Standard Methods for the Examination of Water and Wastewater, 18th edition, 1992.

## Health and Safety Data Sheets

The chemicals contained in this kit may be hazardous if improperly handled. Read Health and Safety Data Sheet before performing this test.