

# HI 3838 Formaldehyde Test Kit

**HANNA**  
instruments  
www.hannainst.com

Dear Customer,  
Thank you for choosing a Hanna Product.  
Please read the instruction sheet carefully before using the test kit. It will provide you with the necessary information for correct use of the kit. If you need additional information, do not hesitate to e-mail us at tech@hannainst.com.  
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:

- Alizarin Yellow R Indicator, 1 bottle (15 mL) with dropper;
- Sodium Sulfite, 1 bottle (30 g);
- HI 3838-0 Reagent Titrant Solution, 1 bottle (120 mL);
- Plastic spoon;
- Plastic bottle;
- Calibrated 10 mL vessel;
- Filter cartridge;
- Calibrated titration syringe
- Plungers.

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

ISTR3838RZ 10/02 PRINTED IN ITALY

## SPECIFICATIONS

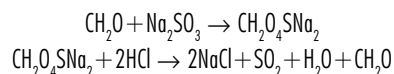
Range	0 to 1% Formaldehyde 0 to 10% Formaldehyde
Analysis Method	Acid titration using sodium sulfite and hydrochloric acid
Sample Size	0.5 mL and 5 mL
Number of Tests	110 (average)
Case Dimensions	260x120x60 mm (10.2x4.7x2.4")
Shipping Weight	910 g (2 lbs.)

## SIGNIFICANCE AND USE

Formaldehyde is used widely in industry. Its duties vary from holding dyes onto fabrics, to assisting in the electroplating of metals. Each application uses different levels of formaldehyde and requires monitoring to optimize its given purpose. The Hanna Formaldehyde Test Kit makes monitoring easy, quick and safe. The compact size gives the user the versatility to use the kit practically anywhere. The design of the kit makes it practically impossible to spill the reagents, thereby reducing the possibility of injury or damage to property.

## CHEMICAL REACTION

The formaldehyde concentration is determined by a simple acid titration. The formaldehyde, in the aqueous sample, reacts with Sodium Sulfite to form an alkaline product. This product is then titrated to a Yellow Alizarin R yellow endpoint, using a prestandardized hydrochloric acid solution:



## HEALTH AND SAFETY

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

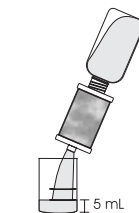
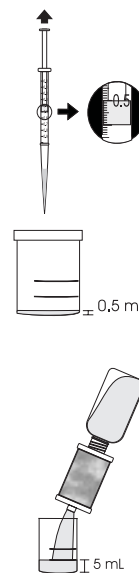
## REFERENCES

Reagent Chemicals, A.C.S., 7<sup>th</sup> Edition, page 301.

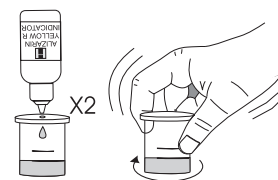
## INSTRUCTIONS

READ ALL THE INSTRUCTIONS BEFORE USING THE TEST KIT  
**HIGH RANGE - 0 to 10% Formaldehyde**

- Take the titration syringe and push plunger completely into the syringe. Insert tip into water sample and pull plunger out until the lower edge of the plunger seal is on the 0.5 mL mark of the syringe.
- Place syringe tip into the cap part of the plastic vessel and add the water sample.
- Fill the empty plastic bottle with tap water and insert the filter cartridge into the mouth of the bottle.
- Remove the cap from the vessel, add the water contained in the bottle to the 5 mL mark and replace the cap.



- Add 2 drops of **Alizarin Yellow R Indicator** through the cap port and mix carefully swirling the vessel in tight circles.



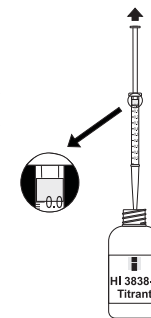
- If the solution is a red-orange color, then slowly add **HI 3838-0 Reagent Titrant Solution** dropwise, by means of the syringe, until the solution turns yellow.



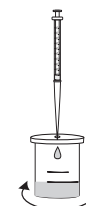
- If the solution is yellow, remove the cap. Add 2 scoops of **Sodium Sulfite** and mix until solids dissolve. If formaldehyde is present, the solution will be a red-orange color.



- Take the titration syringe and push plunger completely into the syringe. Insert tip into **HI 3838-0 Reagent Titrant Solution** and pull plunger out until the lower edge of the plunger seal is on the 0 mL mark of the syringe.



- Place syringe tip into the cap part of the plastic vessel and slowly add the titration solution dropwise, swirling to mix after each drop. Continue adding titration solution until the solution in the plastic vessel turns from red-orange to yellow.
- Read off the milliliters of titration solution from the syringe scale, and multiply by 10 to obtain % formaldehyde in the sample.



## LOW RANGE - 0 to 1% Formaldehyde

If result is lower than 1%, the precision of the test can be improved by following the steps below.

- Remove the cap from the plastic vessel. Rinse it with the water sample, fill to the 5 mL mark and replace the cap.
- Proceed with the titration as for the high range test.
- Read off the milliliters of titration solution from the syringe scale: this is the % formaldehyde in the sample.



**Note:** Push and twist pipet tip onto tapered end of syringe ensuring an air-tight fit.

## ACCESSORIES

HI 3838-100 Spare reagents (100 tests)

