

Formaldehyde Quantification with Fluorometer 360/460nm

FORMALDEHYDE (methanal) is widely employed in industry. Formaldehyde is also used as a disinfectant and is a commonly utilized tissue fixative and embalming agent. Formaldehyde is naturally present in all tissues and body fluids. Recently it has been shown that some cancer types exhibit elevated formaldehyde levels. Amisience's Formaldehyde Assay Kit provides a convenient fluorimetric means to measure formaldehyde. In the assay, formaldehyde is derivatized with acetoacetanilide in the presence of ammonia. The resulting fluorescent product is then quantified fluorimetrically ($\lambda_{ex/em} = 360nm/460nm$) using our convenient handheld fluorometer.

Samples: Formaldehyde extracted from biological, food, and environmental samples.

Assay Performance:

Linear Detection Range: 0 to 100 μ M (0 - 3,000 ppb).

Detection Limit: 0.9 μ M (27 ppb).

Typical Precision (CV%): <4% at 100 μ M; <4% at 30 μ M.

Assay Procedure:

Important: Prior to assay, bring the assay reagents (*cat# FFOR-100*) to room temperature.

1. Standard. First prepare a 35 mM Formaldehyde stock by diluting 4 μ L of the provided Standard with 1490 μ L H₂O. Next, dilute 4 μ L of the 35 mM Formaldehyde with 1396 μ L H₂O to make a 100 μ M Standard.

2. Prepare enough Working Reagent by combining the following per tube: 33 μ L Reagent A and 22 μ L Reagent B. In separate mini-glass tubes, add 50 μ L H₂O Blank, 50 μ L 100 μ M Standard, and 50 μ L Sample. Then add 50 μ L Working Reagent mix by pipetting. Incubate for 30 min in the dark.

3. Calibrate fluorometer. Place the "Blank" tube into the sample holder. Press "Calibrate", "Assay *n*" (*n*=user select), then "Blank". Fluorometer starts Measuring. Press number setting keys in "< - + >" until the window shows "100.00". Place the 100 μ M Standard into the Sample holder. Press "Measure Std". The reader shows "Calibration Finished". The fluorometer is now calibrated. Press "Return".

4. Measure. Place the sample tube into the Sample Holder. Press "Measure", "Assay *n*", "Measure". The formaldehyde concentration (μ M) will be displayed in the window. Press "Save" to save the data for later retrieval, press "Measure" for the next sample. Alternatively, note down the data and press "Return" to measure a next sample.

5. If the measured concentration is >100 μ M, dilute the sample in H₂O and repeat assay. Multiply the results by the dilution factor.

6. Samples high in protein (cell lysate, serum, etc.) need to be deproteinated and neutralized prior to assaying. To deproteinate, add 50 μ L 10% TCA per 100 μ L sample. Vortex and centrifuge for 5 min at 14000 rpm. Transfer 100 μ L of clear supernatant to a clean tube and neutralize with 25 μ L neutralizer. Note: Measured concentration for deproteinated samples need to be multiplied by 1.875 to compensate for the resulting dilution of the sample.

Product Information:

Products are for Research Use Only.

• **Formaldehyde Assay Kit:** (*cat# FFOR-100*), sufficient for approximately 100 assays.

Kit contents: 5 mL Reagent A, 3 mL reagent B, 50 μ L Standard, 5 mL 10% TCA, 2x1.5 mL Neutralizer. 100pcs mini-glass tube.

• **Fluorometer** (*cat# FQ-360/460-A*): The Fluorometer comes with a 5VDC power adapter, a USB cable, manual and data management software CD.

• **Additional 100 mini glass tubes** (*cat# GTB-6x30-100*).

Avoid contact and inhalation. Standard laboratory safety procedures should be followed when handling this product.

Safety procedures include wearing OSHA approved safety glasses, gloves and protective clothing.

Shipping and storage: The kit is shipped at room temperature.

Store all reagents at 4°C. Shelf life: 18 months.

