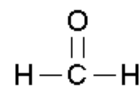


47608 Formaldehyde Solution (Aldehyde C₁, Formalin)

CAS Number: 50-00-0

Product Description:

Molecular Formula:	CH ₂ O
Molecular Weight:	30.03 g/mol
pH:	2.8 - 4.0 ¹
Molarity:	>13 M
bp:	96 °C ¹
Specific Gravity:	1.081-1.085 at 25 °C ¹
Refractive Index:	1.3746 at 20 °C ¹



This product is a solution of approximately 37% by weight of formaldehyde gas in water. The product contains 10% methanol as a stabilizer to prevent polymerization. But it can anyway contain precipitate from paraformaldehyde. Solutions may become cloudy on standing (especially in the cold), and upon exposure to very low temperatures, a precipitate of trioxymethylene may form. In the air, this product slowly oxidizes to formic acid. When evaporated, some formaldehyde escapes, but most of it is changed to trioxymethylene.¹

Solubility /Stability:

This product is soluble in water. Dilute solutions are stable at 2 °C for 1 week.⁴

Applications:

It is designated as a molecular biology reagent, tested for electrophoresis of RNA in agarose gels. Is particular free of DNase, RNase, Proteases and Phosphatases.⁵

When used as a bactericidal agent, the relative humidity of the environment is critical for optimal activity of this product.²

To raise the pH of the formaldehyde solution above pH 4, treat it with a small amount of mixed bed resin (Prod. No. M8032). Do not simply try to raise the pH with base such as NaOH. The pH of the formaldehyde solution is raised to above pH 4, since there is no breakdown of RNA above pH 4 compared to a solution at or below 4.

There are several recipes for fixatives. In general a 10-fold dilution is made for fixation of cells.³ Schiff's Reagent (Prod. No. 84655) can be used to detect trace formaldehyde in wash water: Mix 1 ml water or test solution plus 0.2 ml reagent, flush with nitrogen and seal. A purple color develops at a rate roughly related to the concentration of formaldehyde, and the detection level is at 3-5 ppm. Color develops in about 3 minutes if 5 ppm, about 5 minutes if at 3 ppm. No reaction if less than 3 ppm formaldehyde.

References

1. The Merck Index, 12th ed., Entry# 4262.
2. Disinfection, Sterilization and Preservation, 4th ed., Block, S.S., ed., Lea & Febiger (Philadelphia, PA: 1991), pp. 582-583.
3. Staining Procedures, 4th ed., Clark, G., ed., Williams and Wilkins (Baltimore, MD: 1981), pp. 13-14.
4. Dawson, R.M.C., et al., Data for Biochemical Research, 3rd ed., p. 39., Oxford University Press, New York, (1986).
5. Sigma-Aldrich quality control

Precautions and Disclaimer

This product is for R&D use only, not for drug, household, or other uses. Please consult the Material Safety Data Sheet for information regarding hazards and safe handling practices.

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