

## 240 HCHO FORMALDEHYDE

0.05 - 1 ppm \ 180 Tests

*Oxidative Coupling Reaction with MBTH*

- Place 1 spoon of **HCHO-1** into a dry 16mmØ tube
- Carefully dissolve with a fully extended syringe (3.2ml) of sample
- Set aside for 10'
- Add 2 drops of **HCHO-2** and mix
- Set aside for a further 10'
- Switch on the Photometer 660
- Enter  and press  for 240 HCHO
- Set filter as indicated to 690nm and press
- Insert tube with plain water and press
- Insert tube with prepared sample and press
- Record values as Formaldehyde ppm (mg/l)

Anyone visiting a store with newly manufactured furniture in the 1970s will remember the lachrymatory exudations of gaseous formaldehyde (HCHO) emanating from chipboard, synthetic veneers and textile materials. Considered more of a nuisance at the time, formaldehyde belongs to those substances whose significance as a health hazard was not taken seriously until later. About threequarters of this cost-effectively synthesized chemical are used in the production of glues, paints and resins. *Formalin* is a 37% formaldehyde solution stabilized with 10% methanol, used in low concentrations as a disinfectant and an anti-oxidant for liquid body-care and cleaning preparations. Natural occurrences can be up to 10ppm HCHO in apples, 6ppm in tomatoes and small quantities produced in the body itself, all of which are quickly converted to harmless formates. Less than 1% of the formaldehyde escaping into the environment ends up in water, with potential sources being practically restricted to manufacturing industries. Formalin serves as a disinfectant in hospitals and in chemical toilets. *Besthorn* (1910) observed a coupling reaction evaluated later by *Hünig & Fritsch* (1957) between formaldehyde and 3-Methyl-2-Benzo-Thiazolone-Hydrazone (MBTH, reagent HCHO-1) type compounds. In the presence of Fe(III) (reagent HCHO-2) as oxidant these form blue tetra-Aza-pentamethine Cyanine dyes. *Sawicki et al.* used this reaction in 1961 to develop a colorimetric method. © *dr.bodart 0106*