

410 Zn ZINC

0.1 - 1.5 ppm \ 40 + 40 Tests

Zinc-thiocyanate - Dye Associate

- Fill 16mmØ tube with a fully extended syringe (3.2mℓ) of sample
- Fill a second tube with the same quantity of distilled water
- Add 1 drop each of **Zn-1** and mix well
- Add 3 drops each of **Zn-2** and mix
- Add 3 drops each of **Zn-3** and mix - Set aside for 3'
- Add 3 well-formed drops each of **Zn-4** and mix - Set aside for 1'
- Switch on the Photometer 660
- Enter and press for 410 Zn
- Set filter as indicated to 578nm and press
- Insert tube with distilled + reagents and press
- Insert tube with sample + reagents and press
- Record as Zinc ppm (mg/ℓ)

Being of much lower toxicity for humans than for primitive forms of life has lead organo-zinc preparations to be used externally as fungicides. As an essential trace element with an average of 80 ppm in rocks, the body maintains 2-4g of zinc with a daily intake of 10-15mg and discharge of 80-90%. Zinc reacts with a large number of "metal reagents", always with a low selectivity, which can at best be improved by masking some of the interfering metals with cyanide. A better way is the formation of a colourless complex with the much less toxic thiocyanate (Zn-3) for subsequent association with a basic triarylmethane dye (Zn-4). Whereas the latter is yellow in a medium acidified to pH 0.4 by sulfuric acid (Zn-2), it produces a blue associate in the presence of zinc thiocyanate with the formula $[Zn(SCN)_4]^{2-}[Dye]^{2+}$. Its colour corresponds to the alkaline form of the free dye that cannot form on its own at this pH-value. In practice a reaction-contrast from yellow- to blue-green is obtained. Reagent Zn-1 masks iron. Copper is tolerated in a 5-fold excess. In view of lacking of reports concerning zinc as a health hazard and the fact that new galvanized pipes can add several ppm to a water supply, enforced tolerance-levels are uncom-mon, with recommended maxima somewhere between 2 and 5ppm. A latent danger arises from lead- and cadmium traces, that technical zinc, especially of earlier manufacture, can contain as impurities. © dr.bodart 0106