# Carbon disulfide $CS_2$ NO.13


**Performance**

| | | | | |
|---|---|---|---|---|
| **Measuring Range** | 0.63 to 1.25 ppm | 1.25 to 2.5 ppm | 2.5 to 50 ppm | 50 to 100 ppm |
| **Number of Pump Stroke** | 4 | 2 | 1 | 1/2 |
| **Correction Factor** | 1/4 | 1/2 | 1 | 2 |
| **Sampling Time** | 3 minutes per pump stroke | | | |
| **Detecting Limit** | 0.3 ppm (n=4) | | | |
| **Colour Change** | Blue → Yellow | | | |
| **Reaction Principle** | Carbon disulfide is oxidized by nascent oxygen, which is generated by the reaction of chromic acid and sulphuric acid to sulphur dioxide. Sulphur dioxide neutralizes barium chloride, discolouring pH indicator to yellow.<br><br>$CS_2 + CrO_3 + H_2S_2O_7 \rightarrow SO_2 + CO_2$<br>$SO_2 + BaCl_2 + H_2O \rightarrow BaSO_3 + 2HCl$<br>HCl + Base → Chloride | | | |
| **Coefficient of Variation** | 10% (for 2.5 to 10 ppm), 5% (for 10 to 50 ppm) | | | |
| **Shelf Life** | 3 Years | | | |
| **Corrections for temperature & humidity** | Temperature correction is necessary | | | |
| **Store the tubes at cool and dark place.** | | | | |

**Possible coexisting substances and their interferences**

| Substance | Concentration | Interference | Changes colour by itself to |
|---|---|---|---|
| Ammonia | - | No effect | No discoloration |
| Hydrogen cyanide | ≥200ppm | No effect | No discoloration |
| Sulphur dioxide | ≥1/5 time | Plus error | Produces yellow stain |

**Calibration gas generation** Diffusion tube method

| TLV-TWA | TLV-STEL | Explosive range |
|---|---|---|
| 1ppm | - | 1.3 to 50% |