Sulfide

For water, wastewater and seawater **Methylene Blue Method**

Introduction

Sulfide is a poisonous by-product of the anaerobic decomposition of organic matter and commonly is found in sewage and industrial wastewaters. Sulfide can be present as the free sulfide ion (S^{2-}) or as dissolved hydrogen sulfide (H_2S and HS^-). The toxicity of hydrogen sulfide is equivalent to that of hydrogen cyanide, but its offensive odor is detectable long before toxic levels are reached. However, at high concentrations hydrogen sulfide quickly deadens the sense of smell; thus toxic levels may be present but undetected.

Chemical reactions

The sulfide test is based on the ability of hydrogen sulfide and acid-soluble metallic sulfides to convert N,N-dimethyl-p-phenylenediamine directly to methylene blue in the presence of a mild oxidizing agent (potassium dichromate). Intensity of the methylene blue color development is directly proportional to the amount of sulfide present in the original sample. A colorimetric measurement of this intensity provides an accurate means to determine the sulfide concentration. All necessary reagents are contained in Sulfide 1 Reagent and Sulfide 2 Reagent.

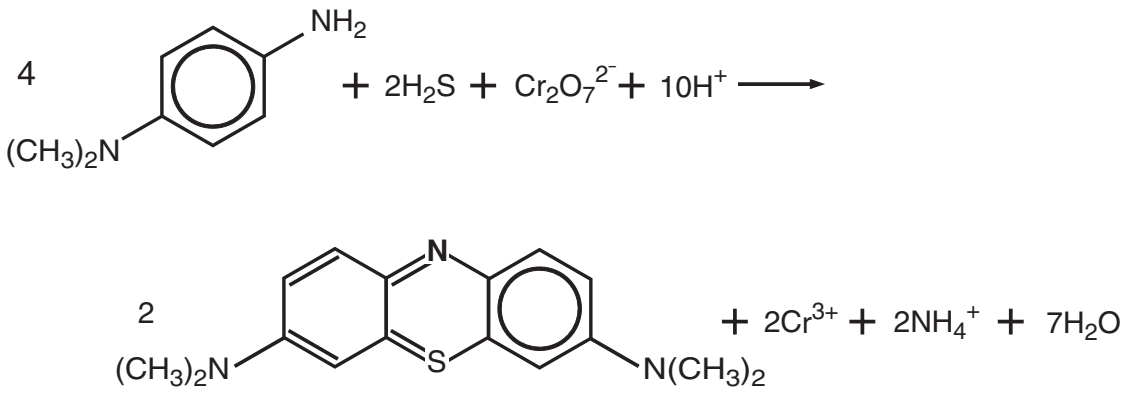

Figure 1 Chemical reaction for hydrogen sulfide using the Methylene Blue method