

1.2: Spot Tests

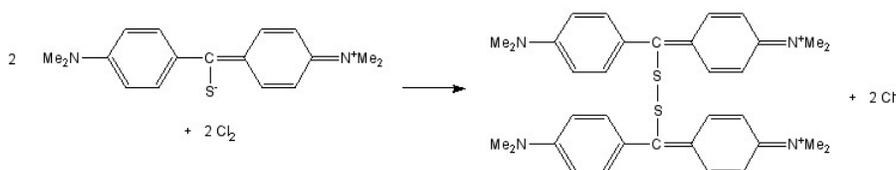
Spot tests (spot analysis) are simple chemical procedures that uniquely identify a substance. They can be performed on small samples, even microscopic samples of matter with no preliminary separation. The first report of a spot test was in 1859 by Hugo Schiff for the detection of uric acid. In a typical spot test, a drop of chemical reagent is added to a drop of an unknown mixture. If the substance under study is present, it produces a chemical reaction characterized by one or more unique observables, e.g., a color change.

Detection of Chlorine

A typical example of a spot test is the detection of chlorine in the gas phase by the exposure to paper impregnated with 0.1% 4-4'-bis-dimethylamino-thiobenzophenone (thio-Michler's ketone) dissolved in benzene. In the presence of chlorine the paper will change from yellow to blue. The mechanism involves the zwitterionic form of the thioketone



This, in turn, undergoes an oxidation reaction and subsequent disulfide coupling



Bibliography

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