

Cyanide

For water, wastewater and seawater

Pyridine-Pyrazolone Method

Introduction

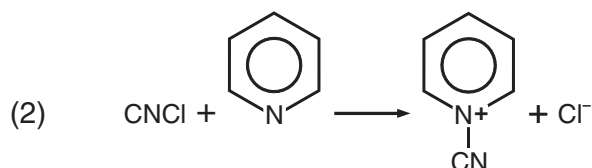
Cyanide is extremely toxic and occurs primarily in industrial effluents. Metal-cleaning and electroplating baths, gas scrubbers, gas works, coke ovens and other chemical treatments are the main sources of the cyanide found in industrial wastes. Natural waters do not contain cyanide; its presence usually indicates contamination from an industrial source. Proper neutral or alkaline chlorination of cyanide-containing wastewaters will reduce the level well below toxic limits.

Chemical reactions

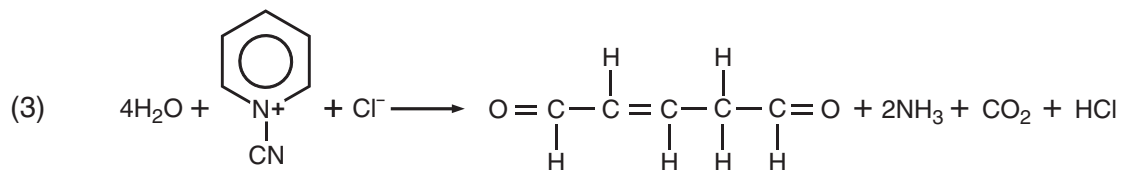
The cyanide test involves the following 4 steps:



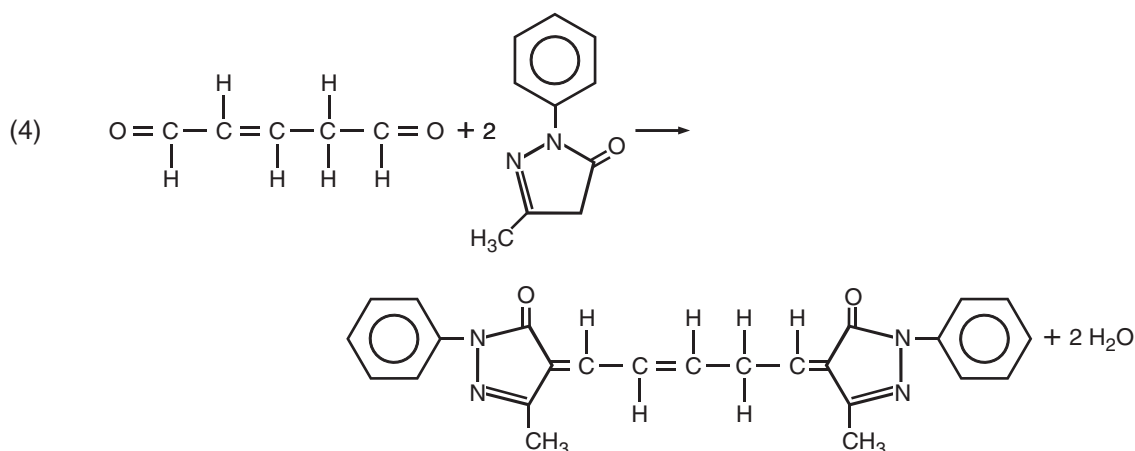
Cyanide is reacted with chlorine to produce cyanogen chloride (CNCl); the chlorine is provided by CyaniVer™ 3 Reagent.



An intermediate nitrile is then formed by the addition of pyridine; the pyridine is provided by the addition of CyaniVer 4 Reagent. Excess chlorine is destroyed at this point.



The nitrile is hydrolyzed to glutaconaldehyde; the reagent is provided in the CyaniVer 4 Reagent from the previous step.



Finally, CyaniVer 5 Reagent, containing an excess of pyralozone, is added. The reaction with the glutaconaldehyde results in a blue color. The intensity of the color is directly proportional to the amount of cyanide present in the sample.