DOC273.53.90693

EZ2500 Series – Total Cyanide

Additional information

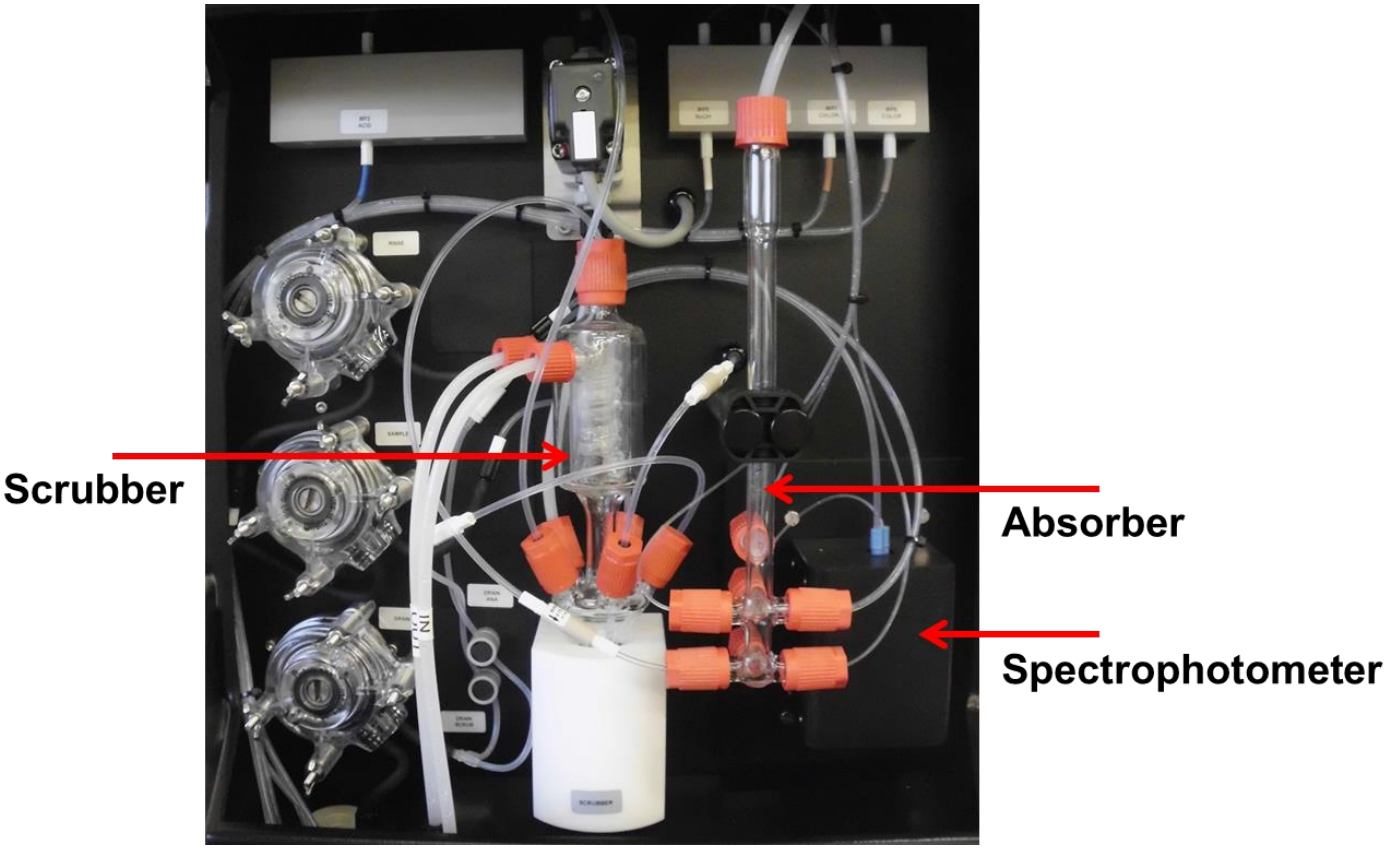
04/2019, Edition 1

Table of Contents

1. Cyanide toxicity

Cyanide (CN^-) is a highly poisonous ion that binds with the enzyme cytochrome C oxidase. This complex inhibits cellular respiration and energy production, resulting in cytotoxic hypoxia affecting the central nervous system (CNS) and heart. Death typically occurs from respiratory arrest following CNS failure

2. Analyser design



3. Cyanide toxicity

The analysis consist of 3 steps: the stripping, absorption process and colorimetric detection.

3.1 Stripping

The acid/catalyst solution is added to the sample and heated at a temperature of 120°C for 20 minutes. During this heating process the cyanide compounds are converted to HCN and stripped from the sample by continuous air flow. The air flow should be regulated to 1-2 bubbles/second. The needle valve is located on the inside of the analyzer. Turning the needle clockwise will increase, counterclockwise will decrease the airflow.

3.2 Absorption

The stripped HCN is absorbed in NaOH solution.

3.3 Colorimetric detection

The cyanide ions first react with chloramine-T to cyanogen chloride (pH < 8). Cyanogen chloride then reacts with ionicotinc-barbituric acid solution (pH = 5.2) and forms a red-blue colored complex (see picture below). The analysis ends by colorimetric determination at 578 nm and calculation of the cyanide concentration in sample.