

CYANIDE ANALYSIS IN WATER

Cyanide is a reactive substance that can cause death if handled inappropriately. Cyanide is usually found joined with other chemicals to form compounds. Cyanide is naturally occurring in bacteria, fungi, algae, insects, and plants. In the body, cyanide combines with a chemical to form Vitamin B12. Cyanide is used in electroplating, metallurgy, chemicals, photography, plastics, pesticides, and mining. Examples of food containing cyanide compounds are cassava roots, lima beans, almonds, and other nuts.

Free Cyanide: Can be defined as the amount of cyanide titratable or re-actable with silver

- Preparation: None

Aquatic Free Cyanide: Defined as the amount of cyanide bound in the metal cyanide complexes that are easily dissociated into free cyanide ions at the pH of an aquatic environment

- Preparation: Sample is buffered at pH=6 or at the pH of the receiving water
- Detection: Gas diffusion/amperometric analysis

WAD Cyanide and Available Cyanide: WAD Cyanide is defined as “weak acid dissociable” cyanide and provides a conservative estimate of toxicity. Available Cyanide is considered bioavailable and is also known as “weak and dissociable” cyanide. Both are operationally defined.

- Preparation: Acetate buffer distillation by macro, midi, or micro; Ligand exchange
- Detection: Ag(NO₃) titration, colorimetric, ion selective probe; Gas diffusion/amperometric analysis

Total Cyanide: Defined as the amount of total recoverable cyanide

- Preparation: UV digestion or strong acid distillation by macro, midi, or micro
- Detection: Ag(NO₃) titration, colorimetric analysis, ion selective probe, ion chromatography, or gas diffusion/amperometric analysis

Cyanide Amenable to Chlorination: Definition—Two samples are analyzed for total cyanide. One sample is chlorinated and the other is not chlorinated and the difference is the amenable cyanide.

Inter-Mountain Labs has a full service lab providing the above cyanide analyses, for information contact:

Eric Brandjord (ebrandjord@imlinc.com) or Chris Johnston (cjohnston@imlinc.com)

Business Development • (307) 672-8945