

Biodegradable Dissolved Organic Carbon



Australian
Water
Quality
Centre

Sample Requirements:

- One Litre glass bottle
- No air gap
- Transport & store at 4°C
- Should be received within 24 hrs of collection for unpreserved samples
- Or filter through pre-rinsed 0.45um filter to reduce biodegradation in transit
- Advise AWQC if residual disinfectant present
- Advance notice required due to limited analysis capacity



Biodegradable Dissolved Organic Carbon (BDOC) represents the fraction of dissolved organic carbon (DOC) that can be mineralised by bacteria.

Natural Organic Matter

Natural organic matter (NOM) present in raw waters can cause various problems in drinking water if not removed during the treatment process. Biodegradable Dissolved Organic Carbon (BDOC) represents the fraction of dissolved organic carbon (DOC) that can be mineralised by bacteria. The reduction of BDOC in drinking water is an important part of the water treatment process as even low concentrations are sufficient to support bacterial growth in the distribution system..



Method

The BDOC method measures the amount of organic matter that is biodegraded by a bacterial inoculum. The inoculum is biologically active sand (sand colonised by bacteria) originating from a water treatment plant filter. A 900 mL water sample is inoculated with 300 g of sand and aerated for the duration of the experiment. DOC is measured at the beginning and then approximately every second day until a minimum value is reached (approx. 10 days). BDOC concentration is derived from the difference between the initial and minimum DOC values. The limit of reporting is 0.2 mg/L.

Application

Treatment plant operators can use these results to optimise water treatment processes for removal of BDOC, minimise disinfection requirements and reduce disinfection by-products.

Biodegradation Curve

