

## Accumulation of organics in a water supply reservoir: Its cause, characteristics and implication on water quality management

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### ABSTRACT

The COD accumulation has been observed in reservoirs in Korea, and the cause of accumulation was investigated in this study. Samples were taken from various sources affecting the water quality of reservoir and leaching test was performed. The results indicated that the soil sample from forest area showed greater NBD COD discharge as much as 700 kg COD/ha/y than other samples. Further, NOM in the reservoir water during dry period normally represented 40% of hydrophilic and 60% of hydrophobic nature, but it was found the hydrophobicity dramatically increased to 80% during wet weather flow. The forest soil under leaching tests also showed considerably higher hydrophobic nature. This result clearly indicates the COD accumulation is significantly contributed by forest area as a diffuse source. NOM has been known as a precursor of DBP, but fortunately THM and HAA levels in drinking water in Korea are in a range of 20 µg/L and 4 µg/L, respectively, suggesting the current COD standard for source water must be adjusted.

*Keywords:* Accumulation of NBD COD; Diffuse source; DOC; Hydrophobicity; NOM; Source water standard

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