



Dissolved Oxygen Control by Pressurized Side Stream Ozone Contacting and Degassing

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ABSTRACT

The introduction and utilization of high concentration (10-15% wt.) oxygen fed ozone generators have been a break through in providing affordable ozone treatment for municipal and industrial water treatment applications. The dissolution of ozone in water by fine bubble diffusers, static mixers or venturi injectors is aided by the high gas phase ozone concentration following Henry's Law.

Unfortunately, the oxygen carrier gas present in high concentrations from any concentrated oxygen fed ozone generator is also transferred readily to solution at levels well above those typically found under ambient air conditions. The result can be oxygen supersaturation (15-50 mg/L) resulting in operational problems for down stream treatment processes and possible corrosion in distribution and at point-of-entry and point-of-use locations in homes and industry.

Side stream pressurized contacting for high ozone mass transfer followed by entrained, undissolved oxygen gas removal, before combination with the main flow, can provide a viable means to control dissolved oxygen levels. Examples of side stream ozone contacting and degassing systems relative to flow rate, side stream ratio, applied ozone dosage, ozone and oxygen concentrations will be reviewed including field performance data.
