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Great Chemistry at Scale: a Review of Industrial Ozone Applications

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PURPOSE OF THE ABSTRACT

Ozone is formed from oxygen by the mean of electrical discharges splitting oxygen molecules (O2) into oxygen atoms (O) that further combine with oxygen molecules to form ozone (O3). It is a green chemical if using electricity from renewable sources and a very strong oxidant, actually the strongest available in the industry.
Hundreds tons of ozone are produced and used everyday at many different industrial locations globally. It is for example commonly used in the pulp and paper industry to limit the need for polluting chemical coumpounds during the bleaching process, in the pharmaceutical industry to reduce toxicity of effluents and micropollutants emissions, in the power industry to limit nitrogen oxides discharge in flue gas.
The present article intends sharing information on modern ozone production at industrial scale, and economic insights with the related costs. Some specific applications will be addressed with real cases to illustrate how green chemicals like ozone are already implemented in the industry and in fact ready for an extended use.

FIGURES

FIGURE 1

FIGURE 2

KEYWORDS
ozone | sustainability | industry | emissions

BIBLIOGRAPHY