

Abstract Submitted
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Diagnostics of chemical composition of “plasma acid” generated in water using oxygen DBD plasma¹ DANIL DOBRYNIN, RYAN ROBINSON, ALEXANDER FRIDMAN, Drexel University — Plasma treated water has been studied recently by many groups due to its typically high oxidative properties that are interesting for a number applications, including biomedicine and agriculture. In the case of air-plasma treatments, water becomes acidic due to generation of nitric and nitrous acids, while oxidative properties are due to ROS and RNS, including •OH, •O, H₂O₂, NO₃⁻, ONOO⁻. Here, we report on identification of acidity source of oxygen DBD treated water, sometimes referred as “plasma acid”, with strong but temporary oxidizing properties. The conjugate base of this oxygen plasma-produced acid remained unidentified. The results presented here suggest that “plasma acid” contains unstable O₂⁻ and O₃⁻ as possible anion species.

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