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Effect of air pressure on the electro-Fenton process at carbon felt electrodes

J.F. Perez, S. Sabatino, A. Galia, M.A. Rodrigo, J. Llanos, C. Sáez, O. Scialdone

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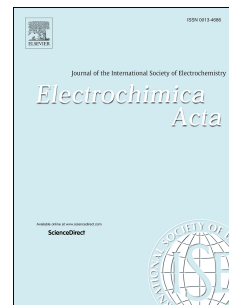
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4 J. F. Perez ^a, S. Sabatino ^b, A. Galia ^b, M. A. Rodrigo ^a, J. Llanos ^a, C. Sáez ^a, O.
5 Scialdone ^{b,*}

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7 ^a Department of Chemical Engineering, Faculty of Chemical Sciences & Technologies,
8 Ciudad Real, Universidad de Castilla-La Mancha, Ciudad Real 13071, Spain

9 ^b Dipartimento dell'Innovazione Industriale e Digitale, Ingegneria Chimica, Gestionale,
10 Informatica, Meccanica, Università degli Studi di Palermo, Palermo 90128, Italy

11 *onofrio.scialdone@unipa.it

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13 **Abstract**

14 The effect of air pressure on electro-Fenton (PrEF process) was evaluated using two
15 organic substances (maleic acid and Acid Orange 7) as model organic pollutants. First
16 experiments were performed using a conventional carbon felt (CF) cathode. At room
17 pressure, a slow removal of maleic acid was obtained, together with the generation of
18 formic acid. Conversely, using pressurized air, the removal of maleic acid was
19 dramatically accelerated and the formation of formic acid was not detected. The
20 utilization of a carbon felt modified by the deposition of carbon black + PTFE mixture
21 (MCF) and of pressurized air allowed to achieve even faster and almost total (> 95 %)
22 removal of total organic carbon (TOC). Interestingly, the abatement resulted higher
23 than the one obtained previously by direct anodic oxidation at boron doped diamond
24 under comparable conditions. Similarly, in the case of Acid Orange 7 (AO7) the

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