

## Synthesis of a novel clay-like modified electrode for waste water treatment with Heterogeneous Electro-Fenton process

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The Electro-Fenton process (EFP) is an electro-mediated advanced oxidation process considered as a cost-effective technology to eliminate pollutants from wastewater. However, the implementation of this process in large scale is still not competitive<sup>[1]</sup>. The development of a material acting simultaneously as a cathode and a heterogeneous catalyst would enable the reuse of catalyst (iron) and its straightforward separation from solution. In this ongoing study, a novel iron-rich clay-like material was used to coat carbon felt fibers. The synthesis of such material followed a procedure adapted from the literature<sup>[2-3]</sup>. The powder isolated from the reaction media was characterized by FTIR, XRD and XRF that confirmed the condensation of a 2:1 clay-like structure with pending phenylamino-propyl chains in the interlayer space. Images obtained by SEM revealed that this novel iron-rich clay-like material coated carbon felt fibers as a thin and continuous film, but unbound material was seen in between the fibers at the surface of the carbon felt piece being prone to mechanical fall-off. The coating remained stable upon submersion in aqueous solution, and iron concentration was below the detection limit of ICP-OES.

### References:

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