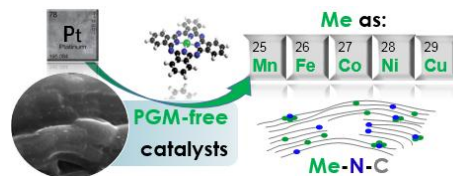




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DEADLINE: December 15th, 2018

Unravelling the Degradation Mechanisms of Non-Precious Metal Oxygen Reduction Reaction Catalysts in PEMFC Cathode Relevant Conditions

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One of the most mature class of non-precious metal catalysts for the electroreduction of oxygen (ORR) in PEMFCs is pyrolysed metal-nitrogen-carbon materials (Metal-N-C). Herein, six Metal-N-C catalysts were prepared and characterized by different physicochemical analyses before/after ageing in PEMFC operating conditions (load-cycling or start-up/shutdown protocol, 80°C, 10 k cycles) [1]. This results provided important correlations between structure, ORR activity and durability of the Metal-N-C catalysts.

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References

[1] Kumar, K.; Gairola, P.; Lions, M.; Ranjbar-Sahraie, N.; Mermoux, M.; Dubau, L.; Zitolo, A.; Jaouen, F.; Maillard, F., Physical and Chemical Considerations for Improving Catalytic Activity and Stability of Non-Precious-Metal Oxygen Reduction Reaction Catalysts. ACS Catalysis 8 (2018) 11264-11276.