

## Accepted Manuscript

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PII: S0013-4686(17)31543-8  
DOI: <http://dx.doi.org/doi:10.1016/j.electacta.2017.07.126>  
Reference: EA 29943

To appear in: *Electrochimica Acta*

Received date: 18-5-2017  
Revised date: 19-7-2017  
Accepted date: 21-7-2017

Please cite this article as: Feilong Zhou, Jinwei Chen, Yichun Wang, Jie Zhang, Rui Luo, Xiaoyang Wei, Gang Wang, Ruilin Wang, The study of platinum-tellurium intermetallic nanoparticles for formic acid electro-oxidation, *Electrochimica Acta* <http://dx.doi.org/10.1016/j.electacta.2017.07.126>

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## The study of platinum-tellurium intermetallic nanoparticles for formic acid electro-oxidation

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### Highlights

- The dealloyed PtTe-3 catalysts were prepared by electrochemical leaching.
- FAEO on all D- PtTe-3-700 catalyst occurs through dehydrogenation pathway.
- D-PtTe-3-700 possesses better acidic durability with high catalytic performance.

### Abstract

Intermetallic nanoparticles are one of promising electrocatalysts in fuel cells for controllable component and structure. Herein we discussed the optimal annealing temperature for synthesis of platinum-tellurium catalysts with combination of dealloying process. Compared with previous work about PtTe intermetallic nanoparticles, as-prepared dealloyed nanoparticles showed superior performance by tuning formic acid oxidation to occur through dehydrogenation pathway after electrochemical dealloying process. The dealloyed platinum-tellurium nanoparticles annealed at 700 °C possessed best acidic tolerance with only 19 % decline of mass

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