Title: Photocatalytic Performance of Highly Active Brookite in the Degradation of Hazardous Organic Compounds Compared to Anatase and Rutile

Author: Tran Thi Thuong Huyen Hendrik Kosslick Muhammad Farooq Ibad Christine Fischer Ursula Bentrup Vuong Thanh Huyen Nguyen Quang Liem Axel Schulz

PII: S0926-3373(16)30549-5
DOI: http://dx.doi.org/doi:10.1016/j.apcatb.2016.07.017
Reference: APCATB 14915

To appear in: *Applied Catalysis B: Environmental*

Received date: 3-5-2016
Revised date: 1-7-2016
Accepted date: 14-7-2016

Please cite this article as: Tran Thi Thuong Huyen, Hendrik Kosslick, Muhammad Farooq Ibad, Christine Fischer, Ursula Bentrup, Vuong Thanh Huyen, Nguyen Quang Liem, Axel Schulz, Photocatalytic Performance of Highly Active Brookite in the Degradation of Hazardous Organic Compounds Compared to Anatase and Rutile, Applied Catalysis B, Environmental http://dx.doi.org/10.1016/j.apcatb.2016.07.017

Photocatalytic Performance of Highly Active Brookite in the Degradation of Hazardous Organic Compounds Compared to Anatase and Rutile

Tran Thi Thuong Huyen[a,c], Hendrik Kosslick[a,b,*], Muhammad Farooq Ibad[a,b], Christine Fischer[b], Ursula Bentrup[b], Vuong Thanh Huyen[b], Nguyen Quang Liem[c], Axel Schulz[a,b,*]

[a] University of Rostock, Institute of Chemistry, Department of Inorganic Chemistry, Albert-Einstein-Str. 3a, Rostock, Germany

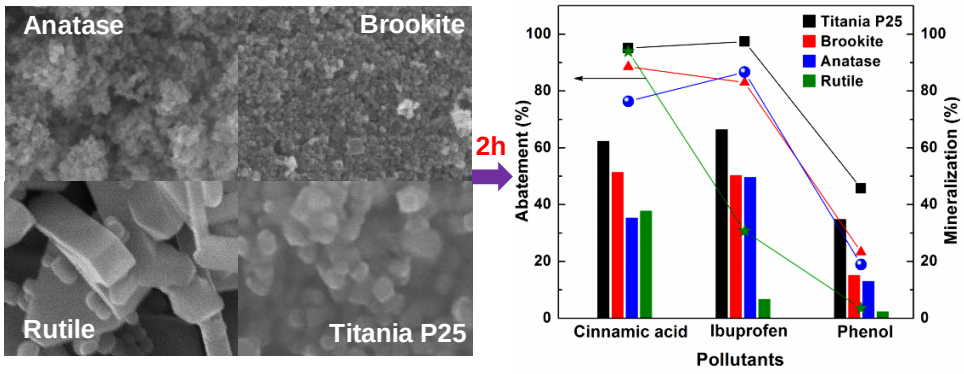
[b] Leibniz Institute of Catalysis e.V. (LIKAT), Albert-Einstein-Str. 29a, Rostock, Germany

[c] Institute of Materials Science (IMS), Vietnam Academy of Science and Technology (VAST), 18 Hoang Quoc Viet, Cau Giay, Hanoi, Vietnam

[*] Corresponding author. Tel.: +49 0381 498 6384; fax: +49 0381 498 6382.

E-mail address: axel.schulz@uni-rostock.de (A. Schulz), hendrik.kosslick@uni-rostock.de (H. Kosslick)

Graphical abstract



Highlights

- Less known highly crystalline nano-sized brookite was hydrothermally synthesized.
- Brookite is superior photocatalytic active under sunlight and high pollutant loading.
- Photocatalytic performance of brookite is compared with that of anatase and rutile.
- Mineralization of cinnamic acid, ibuprofen and phenol is studied by TOC.
- Formation of ibuprofen intermediates is studied with ESI-TOF-MS.