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Boris Tapah MEng (Hons) AMIChemE

Processing of Organic Materials in Sub and Supercritical Water

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About

Boris graduated from Aston University with an upper second class honours MEng (Hons) in Chemical Engineering with professional placement in 2009. He joined the Supercritical Fluids Research Group (/research/activity/chemical-engineering/energy-chemical/supercritical-fluid/index.aspx) on September 2009 at the University of Birmingham for full-time PhD study. Boris' research focuses on producing fuel gas, such as hydrogen and valuable chemicals, from organic materials, using supercritical water. His work is funded by the EPSRC.

Open all sections

Interests

Boris is interested in research related work, politics and sport.

Project Details

Water undergoes a significant change of properties in the supercritical region (e.g low dielectric constant, high ionic product). As a result, it is used as a powerful oxidant for the fast and efficient hydrothermal gasification of most organic materials, for the production of biobased products, including fuel gas (hydrogen), valuable chemicals (methanol, acetaldehyde) and energy. Water at supercritical conditions (>221 bar, >374 °C) is able to break most of the organic composite's structure, including lignocelluloses, something that is not possible with a number of other processes. In addition, this aqueous-based process would be favoured over vapour-phase processes as it overcomes the low volatility of carbohydrates and also negates the need for a dry feedstock, such as wood biomass, which would otherwise require an energy intensive drying step.

Skills

- Gas chromatography and high pressure equipment
- CAD/AutoCAD, Aspen Plus, Mainsaver/Event Engine, advanced IT knowledge
- Bilingual in English and French languages
- Microsoft Office - Word, Excel, Powerpoint, Project, OneNote, Outlook, Access

Presentations

Processing of Organic Materials in Sub and Supercritical Water

07-12 May 2012: 11th European Gasification Conference

Posters

Processing of Organic Materials in Sub and Supercritical Water

21-23 September 2010: Bioten Conference

Honors and Awards

“Learning Award” for successful completion of an MCSE program supporting MS-Windows 2000.

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