

Hydro Dynamics, Inc.

Harnessing the Power of Cavitation



January 16, 2012

Contact: Doug Mancosky
dmancosky@hydrodynamics.com
706-234-4111 x116
www.hydrodynamics.com

For Immediate Release

Dr. Douglas Mancosky Presents at Light Green Machine Conference

Dr. Douglas Mancosky, Director of Application Development at Hydro Dynamics, Inc. (HDI) gave a presentation entitled, “*Controlled cavitation technology for scale-free heating and increased mass transfer applications in pulp and paper*” at the Light Green Machine Institute (LGMI) Conference on January 15, 2012. LGMI (<http://papermachine2025.ning.com>) is a group dedicated to advancing discussions related to paradigm shifts in technology for the pulp and paper industry.

This ShockWave Power Reactor (SPR) technology has been harnessed for use in several areas of the pulp and paper process where scale-free heating or increased mass transfer can be of benefit. Hydro Dynamics has developed technologies related to black liquor including heat value reduction application (allowing a mill to increase boiler production up to 7%), black liquor polishing (allowing Na_2S can be reduced to non-detectable levels) and black liquor preheating by oxidation (allowing up to 98% of the scale to be eliminated). White liquor oxidation has also been tested.

Oxygen Delignification is also an excellent use of cavitation. Excellent delignification results can be achieved with minimal residence time, as low as 5 minutes, and physical properties are not negatively impacted. Cavitation provides excellent mass transfer, small oxygen bubbles and a pressure fluctuation that helps remove fragmented lignin. An MCO system can usually be incorporated into an existing brownstock washing line without additional washing. This same principle has also been applied to peroxide and ozone bleaching. The technology has also been tested for hydration of paper machine chemicals and sizing as well as de-inking.

The conference was a great success and the organizers offered the following response to HDI’s presentation:

“The Light Green Machine Institute was very pleased to have Dr. Mancosky of Hydro Dynamics present on the Shockwave cavitation mixing applications to pulp mills and chemical

recovery. This technology has significant implications to the pulp & paper industry; this mixer could assist with many age old issues that process engineers encounter with our unit operations.”

Dr. Brian N. Brogdon
Executive Director
Light Green Machine Institute

HDI is also very excited about future developments focusing on pulp and paper plants as bio-refineries capable of many additional products such as chemicals and advanced biofuels. The SPR is a proven biodiesel reactor that could be used for the transesterification of tall oils and its extraction capabilities could also be used to enhance cellulosic ethanol production

About Hydro Dynamics

Hydro Dynamics is the developer of a patented process intensification technology enabling customers to solve critical mixing and heating problems. Reactors are operating on four continents in applications ranging from increasing biofuel production yields to more efficient mixing of chemical substrates. The ShockWave Power Reactor allows customers to significantly decrease operational and capital costs and increase profits while reducing the environmental impact of many processes. Learn more at: www.hydrodynamics.com.