

## A Novel Barrier Coating Developed by Cerealus Holdings, LLC and the UMaine Pulp & Paper Process Development Center

Fluorinated chemicals are often used to impart grease and oil resistance to paper packaging for food items such as microwave popcorn, pizza, burgers, beverages and pet food. However, recent studies suggest that some fluorinated compounds break down to form perfluorooctanoic acid, a potentially toxic compound. Perfluorooctanoic acid is non-biodegradable and, therefore, persists in the environment. One study found traces of this compound in the bloodstreams of 90% of Americans sampled.

Cerealus Holdings, LLC of Waterville, Maine and the UMaine Process Development Center (PDC) have developed a non-toxic alternative that can potentially revolutionize paper-based food packaging products. With 'Seed Grant' support from the Maine Technology Institute (MTI) and innovative research by Anthony Jabar and PDC staff members, a new bio-based chemistry has been developed that can potentially replace fluorinated compounds in food grade paper and board packaging. Preliminary test results are very encouraging. Cerealus and UMaine plan to further develop this patent-pending technology.

The new polymer has many advantages over fluorinated compounds. Besides being non-toxic and biodegradable, the polymer is readily available from renewable plant-based materials, and since it is generally recognized as safe (GRAS), it has little regulatory burden.

The development of a biodegradable, non-toxic packaging comes at an important time for the paper industry, as alternatives to paper, such as plastics, pose a real threat to this market segment. The EPA, concerned about the toxicity and pervasiveness of fluorinated chemicals, has recently undertaken the largest review in its history to discover how these chemicals and their by-products have apparently bio-accumulated in humans. In addition, the Environmental Working Group (EWG) has requested that nine major fast food chains — including McDonalds, Burger King, and Krispy Cream, among others — disclose the use of fluorinated compounds in their packaging and eliminate their use in the future.

Cerealus and UMaine are currently in discussions with several potential development partners to accelerate the commercialization of this technology. If you would like to find out more about this project, or discuss other product development opportunities, please contact **Michael Bilodeau, Director of the Process Development Center, at 207/581-2387.**



*Pictured from left to right, Jonathan Spender, Research Assistant, Michael Bilodeau, Director, UMaine Pulp & Paper Process Development Center (standing), Dr. David Neivandt, Assistant Professor of Chemical & Biological Engineering and Director of Product Development and Tony Jabar, President, Cerealus Holdings, LLC.*