

From Cheese Byproducts To Natural Wood Finish

University of Vermont (UVM)



Standard wood finishes can create unhealthy indoor environments by releasing toxic volatile organic compounds (VOCs) into the air. VOCs have been linked to a variety of health problems, including headaches, allergies, and respiratory diseases. Some VOCs are even carcinogenic. A key ingredient in many oil-based wood finishes and paints is petroleum—a high-cost, non-renewable resource. To conserve petroleum and improve indoor air quality, a researcher at the University of Vermont has invented a natural wood finish that contains 25 percent fewer VOCs.

Ming Ruo Guo, a professor in the nutrition and food sciences department, has created a unique coating for wood from very pure whey protein, a byproduct from cheese manufacturing. Whey contains a high BOD (biochemical oxygen demand) that can increase the burden on waste treatment facilities and pollute water resources. The new coating, called PolyWhey, incorporates reformulated whey polymer proteins as the bonding agent.

PolyWhey has a cured hardness twice that of other water-based finishes. It also provides increased density and viscosity, better water resistance, greater coverage, shorter drying time, and lower production costs.

“ *By reformulating whey into a durable, natural wood finish, a potential waste product is not only taken out of the waste stream, but also put to a useful purpose.*

Disclosed in 2002, PolyWhey was licensed two years later to Vermont Natural Coatings, a University of Vermont startup based in Hardwick, Vermont, PolyWhey is being marketed to furniture and toy makers, wood manufacturers, architects, and contractors who are interested in using nontoxic, environmentally friendly products. Vermont Natural Coatings is continuing to research more green alternatives to petroleum-based products.

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