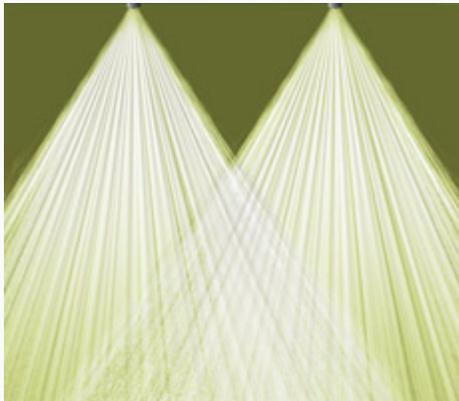




## Innovative New Uses for Soy

### Soy-Based Adhesives Provide Formaldehyde-Free Alternative for Interior Wood Products



While soy-based adhesives have been used in the manufacturing of wood products such as plywood for more than 70 years, environmental concerns and rising costs for petrochemical-based resins have renewed interest in these less toxic and more sustainable options. Consequently, Ashland Hercules Water Technologies' development of a completely formulated soy adhesive for use in wood composites, including particleboard and medium density fiberboard, presents furniture manufacturers and consumers with a safer alternative for adhesives used in producing interior furniture.

Ashland's line of Soyad adhesives contains no formaldehyde and low volatile organic compounds (VOCs). Typical interior wood products include urea formaldehyde (UF) in their

adhesives. Over time, UF releases free formaldehyde into the air as a carcinogenic gaseous form, which can be inhaled by humans.

Following recent legislation enacted to reduce formaldehyde emissions, the California Air Resources Board (CARB) adopted the United States' strictest emissions standards. Soyad adhesives meet both CARB Phase 2 standards and Leadership in Energy and Environmental Design (LEED) criteria, at a lower cost than other low-emitting alternatives. In recognition of utilizing renewable, natural soy flour with the principles of green chemistry, Ashland was jointly awarded the U.S. Environmental Protection Agency's Presidential Green Chemistry Challenge Award along with Columbia Forest Products and Kaichang Li, Ph.D., of Oregon State University.

"By the end of 2007, we had converted all seven of our hardwood plywood plants from urea formaldehyde based adhesive systems to a soy-based formulation, and since then, we have produced over 60 million 'PureBond®' hardwood plywood panels on a cost-neutral basis," says Steve Pung, vice president of technology at Columbia Forest Products.

"Our employees enjoy a healthier work environment and our customers have a product that produces no negative impact on indoor air quality, at no additional cost. In fact, they market that fact to their health-conscious customer base – both residential and commercial. Our soy-driven PureBond has been a win-win for all involved," added Pung.

The U.S. farmer-led United Soybean Board (USB), which conducts research and development of soy-based industrial and consumer products, partly funded the development of Soyad. With USB's help, manufacturers commercialize dozens of new soy-based products every year.

To learn more about Ashland's Soyad adhesives, visit <http://www.ashland.com/products/soyad-adhesives>. To learn more about Columbia Forest Products PureBond technology, visit <http://columbiaforestproducts.com/PureBond>. To learn more about new industrial uses for soy, visit <http://www.soynewuses.org>.