



February 9, 2012

Ashland chooses Web Industries to manufacture Rad-Sure™ blood irradiation indicators

Blood-supply safety device to be produced at higher quality and quantities thanks to improved manufacturing and testing methods

MARBOROUGH, Ma. and WILMINGTON, Del. – Ashland Specialty Ingredients, a commercial unit of Ashland Inc. (NYSE: ASH), has chosen [Web Industries, Inc.](#), a global leader in custom manufacturing and development services for flexible materials, to manufacture its [Rad-Sure](#) line of blood irradiation indicators. This partnership will allow Ashland to see increased production yields and reduced defect rates over the lifespan of the contract for the blood-supply safety devices.

Ashland's Rad-Sure blood irradiation indicators are used to quickly and clearly verify that blood components have been irradiated to protect patients from contracting transfusion-associated graft-versus-host disease (TA-GVHD). This is a rare, but potentially fatal, complication associated with blood transfusions in which the blood donor's lymphocytes engraft in the recipient. Certain categories of patients – such as those with solid tumors, acquired T-cell deficiencies and bone marrow transplant recipients – are more prone to contracting the disease. Proper irradiation of the blood before transfusion destroys the donor lymphocytes and prevents the immunoreaction that leads to TA-GVHD.

Rad-Sure is a complex, multi-layered laminate device that is affixed to transfusion blood bags. It features a gamma-ray or X-ray sensitive indicator that displays a clear "NOT IRRADIATED" message until exposed to the proper level of radiation. Once exposed, the "NOT" becomes obscured and the visual message reads "IRRADIATED," providing quick, positive visual verification.

To manufacture Rad-Sure, Web Industries' Hartford facility had to develop manufacturing methods to pre-process and combine multiple web-based raw materials into discrete subassemblies and then precisely combine those subassemblies to create the finished medical device. The final assembly process involves in-line lamination, fixed and variable-data printing using either thermal or flexographic processes, and precision die cutting and island placement. Web's manufacturing solution reduces risk with automated inspection and data logging, substantially increases capacity, and improves the yield of high-value input materials.

All assembly takes place on one of Web Industries' modular, programmable manufacturing lines in a medical Class 10,000 clean room environment. An automated vision inspection system capable of measuring tolerances down to $\pm .005$ inches and performing optical character recognition to verify the presence and accuracy of lot numbers and language keeps a watchful "eye" on the devices as they move through the process. This monitoring system inspects 100 percent of the critical-to-safety features of Rad-Sure, with real-time data monitoring and automatic detection and segregation of out-of-spec products onto a defect conveyor.

"With a medical device like Rad-Sure, any performance failure can result in serious patient safety concerns," said Dr. Xiang Yu, director, Advanced Materials, Ashland Specialty Ingredients. "Web Industries' manufacturing approach brings an extremely high level of quality assurance at a volume production rate. This combination will enable us to confidently meet the growing demand for these blood safety products and position us for worldwide growth."

"For Web Industries, the Rad-Sure project with Ashland represents a validation of our commitment to advanced flexible material manufacturing and quality control systems in the medical device market," said Donnie Romine, president and chief executive officer, Web Industries. "Working with Ashland, we've developed a robust and scalable manufacturing approach by combining medical-class quality with high-speed production and automation."

Web Industries' first shipment of Rad-Sure was delivered to Ashland's distribution center, where it was sent to medical facilities without additional assembly or inspection.

About Ashland

Ashland Specialty Ingredients is a world leader in specialty additives and functional ingredients that modify the physical properties of aqueous systems for products in key markets including personal care, pharmaceutical, food and beverage, coatings and energy. Using natural, synthetic and semi-synthetic polymers derived from plant and seed extract, cellulose ethers and vinyl pyrrolidones, Ashland Specialty Ingredients offers comprehensive and innovative solutions for today's demanding consumer and industrial applications.

In more than 100 countries, the people of Ashland Inc. (NYSE: ASH) provide the specialty chemicals, technologies and insights

to help customers create new and improved products for today and sustainable solutions for tomorrow. Our chemistry is at work every day in a wide variety of markets and applications, including architectural coatings, automotive, construction, energy, food and beverage, personal care, pharmaceutical, tissue and towel, and water treatment. Visit www.ashland.com to see the innovations we offer through our four commercial units – Ashland Specialty Ingredients, Ashland Water Technologies, Ashland Performance Materials and Ashland Consumer Markets.

About Web Industries

For over 40 years, Web Industries has been a leader in providing contract manufacturing and development services for products involving flexible materials, including slitting, spooling, printing, laminating, specialty extrusion, assembly, packaging and complete supply chain management. An employee-owned company, Web Industries has a long history of applying expertise, innovative thinking and creative problem solving to speed time to market and drive costs down in order to ensure our customers' product success.

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