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## Corning and NiTech Demonstrate an Integrated Continuous-Flow Chemical Manufacturing Process

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Corning Incorporated (NYSE: GLW) and NiTech<sup>®</sup> Solutions Limited have successfully demonstrated a continuous processing system that integrates the Corning<sup>®</sup> Advanced-Flow<sup>™</sup> reactor (AFR<sup>™</sup>) and the NiTech<sup>®</sup> continuous crystallizer with Alconbury Weston Limited (AWL) continuous filtration equipment. This integrated system provides a global solution for continuous synthesis and downstream processes for pharmaceutical, fine, and specialty chemical companies. This successful demonstration proves intensification of chemical processes in continuous flow and is now industry ready.

"This joint demonstration answered a frequently asked question of whether we can achieve an entire continuous-flow manufacturing reaction and downstream steps such as crystallization and filtration," said Dr. Yi Jiang, global business director for Corning Reactor Technologies. "We not only proved this through our collaboration with NiTech<sup>®</sup> Solutions Limited but have also achieved seamless system integration with a very high yield."

Corning also demonstrated its capabilities by testing the crystallization and filtration of aspirin synthesis. Full conversion and high purification of aspirin were obtained at more than 60 grams per hour without further optimization.

After only a few days, the demonstration delivered high efficiency by combining a NiTech<sup>®</sup> crystallizer with Corning's Advanced-Flow<sup>™</sup> reactor technology. In addition, continuous filtration was also achieved using the AWL continuous filtration unit. The test was performed at lab scale using Corning's Advanced-Flow<sup>™</sup> G1 reactor and the DN15-Lite NiTech<sup>®</sup> crystallizer, and can be easily and seamlessly transferred to industrial production involving thousands of tons per year.

"Major change is underway in pharmaceutical manufacturing," said Paul Hodges, chairman of NiTech<sup>®</sup> Solutions Limited. "Our work with Corning demonstrates that safer, greener, faster, and cheaper solutions are now available."

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Corning reactor technologies enable cost optimization for the manufacture of high-quality chemicals for pharmaceutical, fine, and specialty chemical industries. Compared with traditional batch reactors, Corning<sup>®</sup> Advanced-Flow<sup>™</sup> reactors can enable at least 100 times enhancement in mixing, 1,000 times improvement in heat transfer performance, and seamless and efficient scale-up from the lab to full-scale production. Corning's proprietary reactor technologies are compact, adaptable, and seamlessly scalable.

Corning is working with its partners and customers around the world to develop various continuous-flow manufacturing systems that optimize synthesis and downstream processing results. Economic, environmental, and regulatory benefits are helping to make continuous-flow manufacturing mainstream.

NiTech<sup>®</sup> Solutions offers a wide range of continuous oscillatory baffled crystallizers from laboratory scale to production plant. Its DN15 laboratory range is available in various sizes from 1.25 L (DN15-Lite) to 3.5 L (DN15-Plus) of internal volume. Linked to an AWL continuous filtration unit, NiTech<sup>®</sup> Solutions' technology allows continuous crystallization and recovery of fine chemicals in high yield.

### **Forward-Looking and Cautionary Statements**

This press release contains "forward-looking statements" (within the meaning of the Private Securities Litigation Reform Act of 1995), which are based on current expectations and assumptions about Corning's financial results and business operations, that involve substantial risks and uncertainties that could cause actual results to differ materially. These risks and uncertainties include: the effect of global political, economic and business conditions; conditions in the financial and credit markets; currency fluctuations; tax rates; product demand and industry capacity; competition; reliance on a concentrated customer base; manufacturing efficiencies; cost reductions; availability of critical components and materials; new product commercialization; pricing fluctuations and changes in the mix of sales between premium and non-premium products; new plant start-up or restructuring costs; possible disruption in commercial activities due to terrorist activity,

armed conflict, political or financial instability, natural disasters, adverse weather conditions, or major health concerns; adequacy of insurance; equity company activities; acquisition and divestiture activities; the level of excess or obsolete inventory; the rate of technology change; the ability to enforce patents; product and components performance issues; retention of key personnel; stock price fluctuations; and adverse litigation or regulatory developments. These and other risk factors are detailed in Corning's filings with the Securities and Exchange Commission. Forward-looking statements speak only as of the day that they are made, and Corning undertakes no obligation to update them in light of new information or future events.

#### **About NiTech Solutions**

NiTech<sup>®</sup> Solutions ([www.nitecholutions.co.uk](http://www.nitecholutions.co.uk)) is an innovative developer of continuous oscillatory baffled reactor and crystallizer technology for the chemical, pharmaceutical and biotech sectors. NiTech<sup>®</sup> reactors and crystallizers replace stirred tank reactors (STR) by continuous production processes that are safer, faster, cheaper, greener and much more controllable, producing more consistent, lower-cost products in a fraction of the space required for typical STR installations. NiTech<sup>®</sup> is independently-owned and headquartered in Edinburgh (Scotland).

#### **About Alconbury Weston Limited**

Alconbury Weston Limited ([www.a-w-l.co.uk](http://www.a-w-l.co.uk)) is a company that specializes in developing continuous processing solutions and transforming concept to commercially viable solution. AWL is an independently-owned equipment manufacturer, headquartered in Stoke-on-Trent, England.

#### **About Corning Incorporated**

Corning ([www.corning.com](http://www.corning.com)) is one of the world's leading innovators in materials science. For more than 160 years, Corning has applied its unparalleled expertise in specialty glass, ceramics, and optical physics to develop products that have created new industries and transformed people's lives. Corning succeeds through sustained investment in R&D, a unique combination of material and process innovation, and close collaboration with customers to solve tough technology challenges. Corning's businesses and markets are constantly evolving. Today, Corning's products enable diverse industries such as consumer electronics, telecommunications, transportation, and life sciences. They include damage-resistant cover glass for smartphones and tablets; precision glass for advanced displays; optical fiber, wireless technologies, and connectivity solutions for high-speed communications networks; trusted products that accelerate drug discovery and manufacturing; and emissions-control products for cars, trucks, and off-road vehicles.