

## Ball Aerospace to Implement Radiometer Mission for NASA Earth Science Cubesat Program

BOULDER, Colo., Dec. 16, 2015 /PRNewswire/ -- Ball Aerospace has been selected by NASA's Science Mission Directorate to build and test a complete radiometric instrument on a Cubesat for a space mission under the In-Space Validation of Earth Science Technologies (InVEST) program. Work will begin on the Compact Infrared Radiometer in Space (CIRiS) in February 2016. Launch is anticipated in early 2018 followed by three months of on-orbit operations.



CIRiS is an uncooled imaging infrared radiometer designed for high radiometric performance from LEO, including absolute on-orbit calibration. The Ball radiometer is one of four projects to receive funding from the latest round of the InVEST program in support of NASA's Earth Science Division. Instruments like CIRiS aboard inexpensive Cubesats could enable constellations that return significant scientific research and land use management data for NASA.

"Validating advanced technologies on micro-spacecraft for our customers is an innovative way to introduce new architectures and complete important science goals," said Jim Oschmann, vice president and general manager for Ball's Civil Space business unit.

Ball Aerospace principal investigator for CIRiS David Osterman stated the on-orbit phase of the project will validate data processing algorithms and calibration, and also verify radiometric performance. Potential future applications of Cubesats with the CIRiS design include studies of the hydrological cycle, urban climate and extreme storms; measurements to improve climate modeling; and support to land use management via vegetation monitoring and water absorption mapping.

NASA's InVEST program is targeted to small instruments and instrument subsystems that can advance technology to enable relevant Earth science measurements.

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### **Forward-Looking Statements**

This release contains "forward-looking" statements concerning future events and financial performance. Words such as "expects," "anticipates," "estimates" and similar expressions identify forward-looking statements. Such statements are subject to risks and uncertainties, which could cause actual results to differ materially from those expressed or implied. The company undertakes no obligation to publicly update or revise any forward-looking statements, whether as a result of new information,

future events or otherwise. Key risks and uncertainties are summarized in filings with the Securities and Exchange Commission, including Exhibit 99 in our Form 10-K, which are available on our website and at [www.sec.gov](http://www.sec.gov). Factors that might affect: a) our packaging segments include product demand fluctuations; availability/cost of raw materials; competitive packaging, pricing and substitution; changes in climate and weather; crop yields; competitive activity; failure to achieve productivity improvements or cost reductions; mandatory deposit or other restrictive packaging laws; customer and supplier consolidation, power and supply chain influence; changes in major customer or supplier contracts or loss of a major customer or supplier; political instability and sanctions; and changes in foreign exchange or tax rates; b) our aerospace segment include funding, authorization, availability and returns of government and commercial contracts; and delays, extensions and technical uncertainties affecting segment contracts; c) the company as a whole include those listed plus: changes in senior management; regulatory action or issues including tax, environmental, health and workplace safety, including U.S. FDA and other actions or public concerns affecting products filled in our containers, or chemicals or substances used in raw materials or in the manufacturing process; technological developments and innovations; litigation; strikes; labor cost changes; rates of return on assets of the company's defined benefit retirement plans; pension changes; uncertainties surrounding the U.S. government budget, sequestration and debt limit; reduced cash flow; ability to achieve cost-out initiatives; interest rates affecting our debt; and successful or unsuccessful acquisitions and divestitures, including, with respect to the proposed Rexam PLC acquisition, the effect of the announcement of the acquisition on our business relationships, operating results and business generally; the occurrence of any event or other circumstances that could give rise to the termination of our definitive agreement with Rexam PLC in respect of the acquisition; the outcome of any legal proceedings that may be instituted against us related to the definitive agreement with Rexam PLC; and the failure to satisfy conditions to completion of the acquisition of Rexam PLC, including the receipt of all regulatory approvals.

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