

Press release

Alcan Aluminium Low Density Alloys selected as a critical material for the Orion Crew Exploration Vehicle

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Alcan Global Aerospace Transportation and Industry (Alcan Global ATI), part of Alcan Engineered Products – a business unit of Rio Tinto – is set to become the leading supplier of advanced aluminium-lithium (Al-Li) lightweight materials for the Orion crew exploration vehicle being built by Lockheed Martin as part of NASA's Constellation Program. Orion is being designed to carry astronauts to the International Space Station and other destinations, including the moon.

After a two-year materials study, which included composites, Alcan's Low Density Alloys were chosen for the Orion crew module at NASA's Orion Project preliminary design review in August 2009. The preliminary design review was one of a series of checkpoints that occurs in the design life cycle of a complex engineering project before hardware manufacturing can begin. The decision confirms that new alloys will be a key structural material in the Constellation Program, which is being designed by NASA and its contractors to replace the space shuttle for a new era of space exploration. Having selected materials, NASA will now proceed toward the critical design review phase of Orion.

Low density alloys' advantages include proven reliability and safety in space – vital in designing a module for astronauts – and less risk of program delays that might arise when certifying new materials. Al-Li alloys' inherent low density, high-specific stiffness, strength and excellent mechanical properties are expected to offer significant weight savings and predictable cost performance.

"The selection of Alcan as the leading supplier of Low Density Alloys for the Orion crew module confirms the great success story of Alcan's leading edge, innovative alloys and aluminium solutions," said Christophe Villemin, Alcan Global ATI President. "It also highlights Alcan's long and close partnership with Lockheed Martin in aerospace materials innovation," Villemin added.

"We are glad to extend use of these strong lightweight Alcan alloys to NASA's next generation spacecraft," said Jim Bray, Lockheed Martin director for Orion Crew and Service Module. "They are crucial for meeting mission objectives that include human travel to the moon and Mars."

Two alloys are base-lined to have a key role in construction of the crew module that will carry astronauts into space and return them safely to Earth.

Al-Li 2195 will be used for main, load-bearing structural components called longerons. The material is well proven in space applications, having been used on the space shuttle external tanks to boost America's shuttle into orbit since 1998.

Additionally, a new and innovative proprietary Al-Li alloy developed by Alcan, designated 2050, will be used for the very first time in space. Available in plate form and offering advantages of toughness and strength, combined with a 4 percent density reduction, it

will be used for other structural components including frames, ribs and window sections. Alloy 2050 has full Metallic Material Properties Development and Standardization, as well as Aerospace Material Specifications documentation.

Shipments of 2050 plate for Orion from Ravenswood, West Virginia, began in December 2009. Shipments of 2195 alloys from the Montreuil-Juigné and Issoire plants in France will take place early 2010.

Alcan Global ATI has a proven track record in space programmes, through its partnerships with NASA and their subcontractors and the European Space Agency (ESA). The space shuttle, Ariane 5 and future space exploration and launcher programs all will rely upon Alcan materials.

About Alcan Global ATI

Alcan Global ATI employs over 4.000 people and has manufacturing plants in Europe and North America. A world leader in the production of aerospace plates, Alcan Global ATI provides its customers with its entire portfolio of advanced lightweight aluminium solutions. Thanks to its global R&D, manufacturing and commercial reach, Alcan Global ATI is able to build long-term supply and innovative technology partnerships with major aerospace leaders.

About Alcan Engineered Products

Alcan Engineered Products is a global sector-leader strongly committed to developing innovative, value added aluminium products for a broad range of civil and defence markets and applications, including aerospace, mass transportation, automotive, packaging, energy and building. With around 11.000 employees located in over 30 countries and a commercial presence in more than 60 markets across Europe, the Middle East, Africa, the Americas and the Asia-Pacific region, Alcan Engineered Products is organised around businesses dedicated to performance materials in the areas of aluminium rolled products, extrusions and automotive structures, aluminium cable and international trade. Alcan Engineered Products is headquartered in Paris, France.

About Rio Tinto

Rio Tinto is a leading international mining group headquartered in the UK, combining Rio Tinto plc, a London and NYSE listed company, and Rio Tinto Limited, which is listed on the Australian Securities Exchange.

Rio Tinto's business is finding, mining, and processing mineral resources. Major products are aluminium, copper, diamonds, energy (coal and uranium), gold, industrial minerals (borax, titanium dioxide, salt, talc) and iron ore. Activities span the world but are strongly represented in Australia and North America with significant businesses in South America, Asia, Europe and southern Africa.

For further information, please contact:

Rio Tinto Alcan Media Relations, Europe

Thomas Cauvin (CLAI, PR agency)

Tel.: +33 1 44 69 54 03

thomas.cauvin@clai2.com

Mina Bishop

Tel.: +33 1 44 69 54 07

mina.bishop@clai2.com

Alcan Global ATI

Laura Berneri

Tel.: +33 1 57 00 21 34

laura.berneri@alcan.com

Rio Tinto Alcan Media Relations, Canada

Stefano Bertolli

Tel.: +1 514 848 8151

stefano.bertolli@riotinto.com

Alcan Global ATI, North America

Mark Zelazny

Tel.: + 1 304 273 6369

mark.zelazny@alcan.com

Website: www.riotintoalcan.com