Coil-to-can technology enables resealable aluminum bottles

New Coil-to-Can (C2C) technology from Exal Corp. and Alcoa Rigid Packaging allows for the manufacture of resealable, shaped aluminum bottles at substantially higher line speeds and with 30% to 40% less weight than previously achievable, making them a viable option for higher-volume beverage applications.

C2C combines traditional drawn and wall-ironed (DWI) canmaking technology on the front end with IE shaping capabilities on the back end, using a custom-designed 32-station, double-turret continuous necking machine from Frattini S.p.A. The necking machine, commissioned by Exal expressly for C2C, is engineered to handle the less-malleable materials for DWI cans at speeds up to 3000 bottles/min—a significant increase in speed from the 200 bottles/min produced with traditional IE technology.

http://www.greenerpackage.com

Thin film of vanadium enhances durability of tungsten carbide tools

Thin films in vanadium-doped WC/Co enable high durability for drilling bits in the mining industry and cutting tools for metalworking, say researchers at Chalmers University of Technology. Hard metal is a mixture of a tungsten carbide hard phase and a tougher cobalt phase. It is produced by sintering, in which fine powders of WC and Co are heated up so the cobalt melts and the material is pulled together by capillary force. The result is a hard skeleton of tungsten carbide grains surrounded by the tougher cobalt-rich cement phase.

The size of the tungsten carbide grains is key to the hardness of the composite: the smaller the grains, the harder and tougher the material. The great challenge is to control the growth of these grains during the sintering process. By doping the material with vanadium, growth can be limited to one ten-thousandth of a millimeter.

In the doped materials, an extremely thin vanadium layer only two atom layers thick can be developed on the tungsten carbide grains. Large grains with the composition of the film are thermodynamically unstable, but when the grains are extremely small the thin film is stabilized by strong bindings on the interface between the film and the cementing phase.

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Nanostructured steel technology designed for surface protection

Nanostructured steel bulk material can be applied as a surface technology for solving complex challenges in mainstream industries, according to a presentation by Daniel Branagan of the Nanosteel Company during the 2010 International Conference on Powder Metallurgy & Particulate Materials (PowderMet 2010).

The presentation covered the technology progression from very thin physical vapor deposition coatings to thin thermal spray coatings, and finally to thick weld overlays for hardfacing and wear plate. He linked key mechanisms to their enabling nanoscale structures, which provide commercially exploitable properties. These include a revolutionary high hardness/toughness combination that results in exceptional performance characteristics such as high resistance to corrosion, erosion and wear.

NanoSteel’s patented Super Hard Steel alloys for thermal spray coating and weld overlay for hardfacing and wear plate applications are examples of bulk materials nanotechnology applied to successful commercial products in mainstream industries.

http://www.mpif.org/Meetings/2010/10_gateway.htm; www.nanosteelco.com

All Techinologies Incorporated

has selected Siemens VAI Metals Technologies (Siemens Industry, Inc.) to design, engineer, and supply the hot-rolling mill for ATI Allegheny Ludlum’s new advanced specialty metals hot-rolling and processing facility in Brackenridge, Pa. As previously announced, the total cost of the facility, including the hot-rolling mill, is estimated to be approximately $1.16 billion and will take approximately four years to complete.

www.atimetals.com

Electralloy and the Board of Directors of G.O. Carlson Inc., announce the grand opening of their new Wrought Products facility. The state-of-the-art facility provides over 100,000 square feet of manufacturing space and 5,000 square feet of office space.

www.electralloy.com

NADCA recently filed a response to the International Trade Commission (ITC) in an effort to help lift ITC’s tariffs on imported magnesium alloy. NADCA is concerned about magnesium die casters having access to alloy magnesium in the U.S. at globally competitive prices. NADCA estimates that as many as 1675 direct jobs and 8000 supporting jobs have been lost in the die casting industry due to the imposition of these orders.

www.diecasting.org

Arcam AB, Sweden, is to supply an electron beam melting rapid manufacturing system for Walter Reed Army Medical Center for advanced patient-matched implants. The EBM process is carried out in vacuum at an elevated temperature allowing for first-class material properties, mechanically and chemically.

www.arcam.com

Veeeco Instruments Inc. introduces the Nexus Tamr Physical Vapor Deposition System for next-generation thermal assisted magnetic recording (TAMR), also known as heat assisted magnetic recording. The new system and Veecco’s proprietary process deposit a critical optical structure that conducts the heat source in the read-write head in the TAMR. Veecono also announced that a global hard disk drive manufacturer has placed an order for this PVD system to support its deployment of this key technology.

www.veecco.com