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### **Titanium Demand for Non-Aerospace Industrial Markets**

Non-aerospace industrial markets will require significant volumes of titanium during the next five to seven years, according to forecasts given at Titanium 2008, the 24th annual conference and exhibition held Sept. 21-24 at Caesars Palace, Las Vegas. The International Titanium Association (Web site: [www.titanium.org](http://www.titanium.org)), Broomfield, CO, sponsors the event.

Projections by conference speakers were compiled just prior to the full realization of the unfolding global economic meltdown, which creates a considerable degree of uncertainty for all business sectors.

Michael Metz, president of VSMPO-Tirus U.S. Inc., Golden, CO, described titanium as the “performance enabler” that will be required for seawater desalinization plants in Saudi Arabia, power generators in India and and chemical processing facilities in China.

Dr. Markus Holz of ThyssenKrupp Titanium GmbH, Essen, Germany, defined tube and shell heat exchangers (currently at 8,800 metric tonnes increasing to 10,400 metric tonnes by 2015) and medical (2,200 metric tonnes to 3,000 metric tonnes) as “stable-growth” industrial sectors for titanium demand. Plate heat exchangers (6,100 metric tonnes to 10,400 metric tonnes), nuclear power plants (4,000 tonnes per year 2010 to 2012) and liquid natural gas (250 tonnes per plant and 20 tonnes per LNG carrier) were cited as “rapid-growth” segments.

Ulrich Fehlauer, GEA Ecoflex GmbH, Sarstedt Germany, outlined a major market opportunity for titanium use in plate heat exchangers (PHE), estimating the global PHE market to be nearly \$4 billion. New contracts are being negotiated for projects during the next three years, he said, and applications encompass PHEs for food, paper and chemical processing, power generation, refrigeration and ocean vessels.

Current titanium applications represent about 30 percent of the overall PHE market, but Fehlauer encouraged the titanium industry to push harder for a larger piece of the pie, noting that titanium has corrosion-resistance advantages compared with stainless steel and is preferred in PHE applications that involve seawater cooling. “My message to the titanium industry is that PHE is a strong market with good growth prospects and less volatility than other industrial markets,” he said.

Dennis J. Schumerth, director, business development, Valmet Inc., Anaheim, CA, said titanium is likely to find significant applications in the proposed new wave of nuclear power plants. A long-term projection offered by Schumerth noted global plans call for 160 new nuclear power plants during the next 15 years. Currently there are 440 nuclear plants operating around the world--104 in the United States. He estimated titanium use in 100 nuclear plants could translate into more than 34,470 metric tonnes of titanium, with annual purchases (beginning in the 2010-2012 timeframe) at 3630 metric tonnes. Nuclear plants currently account for 11 percent of the world’s electrical power generation (20 percent in the United States).

Hunter Dalton, president of ATI Allvac, Pittsburgh, said the automotive market for titanium demand currently stands at about 2,000 metric tonnes components, suspension springs, intake valves, connecting rods and turbochargers all represent existing titanium automotive application areas.

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