

From paints and coatings to self-cleaning surfaces

Titanium dioxide (TiO₂): A truly smart material



FIGURE: UTILIZATION RATES AT TITANIUM DIOXIDE PROCESSORS ARE EXPECTED TO RECOVER FROM 2012 TROUGH

Source: SAM

Titanium dioxide (TiO₂) can be found in a lot more products than one might think. Owing to its bright white color, its most widespread use is as a pigment in the majority of white paints to be found in retail stores. Its efficient absorption of UV light makes it a stabilizer for plastics and finds it used as a common ingredient in sun creams. In its more purified form, TiO₂ provides the required thickness to toothpastes, creams, pills, inks and several other consumer products. And finally, at a molecular level, this naturally-occurring material shows exciting properties which may contribute to meaningful product demand in the future: if TiO₂ nanoparticles are dispersed on the surface of cement or of a window, for example, they catalyze the chemical breakdown of atmospheric dirt absorbed on that surface, making it self-cleaning.

Historically, titanium dioxide demand has grown in strong correlation with global GDP. The supply chain is relatively simple: Ore miners extract the mineral; processors purify it into refined forms; industrial users apply it to products such as paints. When some processing capacity was permanently shut down in 2009, the balance between supply and demand tightened and TiO₂ prices began to spike. Since capacity expansions are costly and expensive, rising prices and a perception of material scarcity pushed industrial users to increase

their stocks. However, as GDP faltered during 2012, industrial users started depleting their inventories; TiO₂ prices eased and processing capacity utilization collapsed.

Recent market information supports evidence that inventory digestion will soon finish. Economic growth, especially in China and in North America as the construction sector continues to recover, will prompt supply to again balance demand, as meaningful capacity expansion is not in sight for the foreseeable future. Recovering capacity utilization is likely to benefit TiO₂ processors, especially those positioned in the lowest part of the production cost curve, such as Du Pont, and suppliers of specialty TiO₂ grades, such as Rockwood Holdings.

“We believe TiO₂ processors are likely to benefit from an extended period of growing operating margins in a disciplined and consolidated industry.”



Andrea Ricci, PhD
SAM Smart Materials
Senior Analyst

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