STUDY GOAL AND OBJECTIVES

This report provides the industry executives with strategically significant competitor information, analysis, insight and projection on the competitive pattern and key companies in the industry, crucial to the development and implementation of effective business, marketing and R&D programs.

REPORT OBJECTIVES

- To establish a comprehensive, factual, annually updated and cost-effective information base on market size, competition patterns, market segments, goals and strategies of the leading players in the market, reviews and forecasts.
- To assist potential market entrants in evaluating prospective acquisition and joint venture candidates.
- To complement the organizations’ internal competitor information gathering efforts with strategic analysis, data interpretation and insight.
- To suggest for concerned investors in line with the current development of this industry as well as the development tendency.
- To help company to succeed in a competitive market, and

METHODOLOGY

Both primary and secondary research methodologies were used in preparing this study. Initially, a comprehensive and exhaustive search of the literature on this industry was conducted. These sources included related books and journals, trade literature, marketing literature, other product/promotional literature, annual reports, security analyst reports, and other publications. Subsequently, telephone interviews or email correspondence was conducted with marketing executives etc. Other sources included related magazines, academics, and consulting companies.

INFORMATION SOURCES

The primary information sources include Company Reports, and National Bureau of Statistics of China etc.
Abstract

Titanium dioxide is one of the best white pigments on the market in terms of performance. Over the past decade, the global titanium dioxide market has been growing steadily, with an AAGR of about 5.0%. In 2015, the global titanium dioxide market size hit EUR10.17 billion, up 3.7% year on year. In 2016-2020, the global market size is expected to present a CAGR of around 4.5% and reach nearly EUR13 billion in 2020.

China is one of major producing countries of titanium dioxide worldwide. In 2015, China produced 2.323 million tons of titanium dioxide, down 4.6% year on year. Due to falling prices, shrinking demand and fierce market competition, China’s output of titanium dioxide has declined for the first time in the past five years. However, the annual output is expected to climb up in 2016 thanks to rising product prices and the rebounding market.

By production process, titanium dioxide preparation is divided into two main methods: sulfuric acid and chlorination, wherein the titanium dioxide made from chlorination process shows better performance. China’s capacity from chlorination process only accounts for 6.5% of the total capacity, far below the global average of 49%. Therefore, Chinese companies represented by Henan Billions Chemicals, Pangang Group Vanadium Titanium & Resources and Luohe City Xingmao Titanium Industry are stepping up the building of the related capacity.

Chemours, the world’s largest manufacturer of titanium dioxide, completely (100%) adopts chlorination process. In 2015, the titanium dioxide business triggered the revenue of USD1.8 billion, of which 32% came from the Asia-Pacific region. Starting from August 2015, the company shut down Edge Moor Plant and Johnsonville Plant’s No. 3 titanium dioxide production line, while centralized titanium dioxide production in the factories with cutting-edge technologies.

Huntsman holds both sulphuration and chlorination methods, but chlorination process only contributes 1/4. Because of the deteriorated titanium dioxide performance over recent years, the company closed a titanium dioxide plant in South Africa in July 2016, sold three Europe-based additive factories to Innospec in August 2016, so as to strip the titanium dioxide business entirely.

Henan Billions Chemicals became China's largest manufacturer of titanium dioxide after acquiring Sichuan Lomon, with the annual capacity of 610,000 tons (including 60,000 tons of titanium dioxide produced by chlorination process). In July 2016, the company and Allightec Co., Ltd. signed a “framework agreement” to reach a long-term partnership in the field of functional titanium dioxide, lithium titanate functional modifications, zirconium structure functional materials, aerospace wave-absorbing coating materials and the like.
Pangang Group Vanadium Titanium & Resources produced 85,000 tons and sold 80,000 tons of titanium dioxide in 2015, with a sales-output rate of 93.8%. It invested RMB110 million in building a 15kt/a chlorination process titanium dioxide oxidation test equipment project in December 2015, and the project is planned to be put into trial operation at the end of December 2016.

From the perspective of applications, titanium dioxide has been used in some emerging fields apart from traditional applications such as coatings, plastics, paper making, etc., which brings new market opportunities to enterprises.

**Automobile** - Polycarbonate (automotive lightweight material) uses titanium dioxide for surface modification to improve scratch resistance eventually;

**Artificial bones and joints** - The titanium alloy covered with a layer of mesoporous-structure titanium dioxide on surface is ideal for artificial bones and joints;

**Food additives** - Nano titanium dioxide can boost the body's absorption as a food additive;

**Batteries** - Nano titanium dioxide can accelerate charging compared with the graphite electrodes of lithium batteries;

**Optical microscopes** - Super-lenses made of nano titanium dioxide particles can significantly heighten the resolution of optical microscopes;

**Environmental protection** - Nano titanium dioxide catalyst can decompose of polychlorinated biphenyls in industrial waste water;

**Medical** - Nano titanium dioxide can deactivate cancer cells.

Global and China Titanium Dioxide Industry Report, 2016-2020 highlights the followings:
- Development environment, market size, market structure, competitive landscape and so on of global titanium dioxide industry;
- Development environment, supply, demand, market structure, competitive pattern, import& export, market prices, etc. of China's titanium dioxide industry;
- Development of the upstream titanium tetrachloride, high titanium slag, titanium ores, sulfuric acid, chlorine and others;
- Applications and market situation of the downstream paint, plastics, paper making, denitration, titanium alloy, electronic materials, cosmetics, medicine and other fields;
- Operation, titanium dioxide business, development in China, etc. of 15 key Chinese titanium dioxide producers and 5 major titanium dioxide players in the world.
## Capacity of Major Titanium Dioxide Manufacturers in China, As of June 2016

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<tr>
<th>Company</th>
<th>Total Capacity</th>
<th>Chlorination Method Capacity</th>
<th>Chlorination Method Capacity under Construction</th>
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<td>Shandong Doguide</td>
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<td>Pangang Group Vanadium Titanium &amp; Resources</td>
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<td>Anhui Annada Titanium Industry</td>
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<td>Luohe City Xingmao Titanium Industry</td>
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<tr>
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<td>From the introduction of foreign technologies to independent R &amp; D</td>
<td>Germany Ti-cons</td>
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<tr>
<td>Yunnan Metallurgical Xintian Titanium Industry</td>
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**Total:** 1,610 210 75

Source: ResearchInChina
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