Exhibition schedule

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Titanium dioxide industry to explore the development of the "14th Five-Year Plan"

Break through the chlorination process and optimize the product structure to enter the international market

"During the '14th Five-Year Plan' period, the titanium dioxide industry should accelerate its transition from a traditional industry to an advanced manufacturing industry, and optimize the product structure of chlorination and sulfuric acid processes. In addition, with the wave of domestic titanium dioxide reconstruction and expansion, supply may exceed demand, It has become a must for domestic titanium dioxide to go to the international market." On March 29, at the 2021 sulfur industry chain market exchange meeting held by the China Sulfuric Acid Industry Association in Beijing, Fu Yijiang, deputy secretary-general of the Titanium Dioxide Branch of the China Coatings Industry Association made the above statement judge.

Coexistence of Two Processes Product Structure Optimization

The "14th Five-Year Plan" titanium dioxide industry plan mentioned that it is necessary to actively promote industrial upgrading, optimize the product structure of chlorination and sulfuric acid; increase investment in scientific research and technological transformation, and continue to improve the overall competitiveness of the product market; The level of resource utilization of by-products; expand international cooperation and exchanges, and enhance the ability to resist risks in the development process of the industry.

Among them, optimizing the product structure of the chlorination method and the sulfuric acid method is a matter of particular concern to the current industry. As early as 2007, titanium dioxide by sulfuric acid process was included in the ranks of high energy consumption and high pollution. Not only that, but the catalog for guiding industrial structure adjustment also clearly listed titanium dioxide by sulfuric acid process as a restricted industry. At the same time, the encouragement of imported technology and product catalogs also mentions the need to vigorously develop chlorination titanium dioxide. However, in the face of the fact that the current chloride titanium dioxide technology is not mature enough and sulfuric acid titanium dioxide still occupies a dominant position, industry insiders are more worried about whether the market for sulfuric acid titanium dioxide will be restricted.

In this regard, Fu Yijiang said: "Although sulfuric acid titanium dioxide has been included in the restricted list, from the analysis of the current situation, it is expected that during the '14th Five-Year' or even the '15th Five-Year' period, sulfuric acid titanium dioxide will not It will be eliminated immediately. The country's mineral resources and the construction of new and expanded equipment determine that sulfuric acid titanium dioxide is still the mainstream. Therefore, under the current circumstances, sulfuric acid titanium dioxide and chloride titanium dioxide will still coexist. But In the future, the industry should pay attention to the research and development of chlorination titanium dioxide process, and strive to make chlorination titanium dioxide a strong point."

The sulfuric acid method finds the crux and the chlorination method seeks a breakthrough

Titanium dioxide by sulfuric acid method and titanium dioxide by chloride method will coexi: for a long time, but how should they develop in the later stage? Fu Yijiang pointed out that during the "14th Five-Year Plan" period, the industry must find the crux of the sulfuric acid titanium dioxide and make improvements so that it can better develop green factories and green products. In terms of chlorinated titanium dioxide, it is necessary to make breakthroughs, promote the structural reform of the supply side of the industry, promote the healthy development of my country's titanium industry chain, and effectively improve the technological and industrial innovation capabilities of my country's titanium dioxide industry.

Fu Yijiang said: "The current disadvantages of sulfuric acid titanium dioxide and the crux of the impact on industrial development are mainly manifested in the following five aspects: First, the intermittent production mode of the process, with a low degree of automation; labor-intensive production mode, low labor productivity .Secondly, the degree of informatization is low, and the management method is relatively backward. Thirdly, the process management of material and energy is extensive, and the resource consumption and energy consumption of titanium dioxide are high. Fourthly, the level of clean production is low, and the discharge of "three wastes" is large. Fifthly, titanium There is a gap in the quality, performance and application requirements of white powder products, and the industry's technological development capabilities are insufficient."

In this regard, Fu Yijiang believes that the industry should reengineer the process of each link of sulfuric acid titanium dioxide, so as to realize the continuous production of each main process and provide a basis for automatic control of the process. For example, carry out continuous production and automatic production transformation on the main process of titanium dioxide; carry out continuous automatic production transformation on each operation unit; carry out control system transformation on equipment, adopt integrated control and information management technology; carry out automatic transformation on production workshop and titanium dioxide production Linkage control management; automatic production transformation of environmental protection devices, continuous monitoring of waste water and waste gas emissions, etc.

Fu Yijiang especially emphasized that in order to promote industrial upgrading and make the industry reach the level of advanced manufacturing in an all-round way, it is necessary to introduce and use advanced technology and equipment to provide a basis for the implementation of DCS. At the same time, the development of automatic control of titanium dioxide production can not only improve production capacity and level, but also realize intelligence and improve production efficiency. Combined with ERP, management and operation efficiency can be improved.

New production capacity is difficult to digest and going international is inevitable

Fu Yijiang also introduced the status quo of my country's titanium dioxide industry. During the "13th Five-Year Plan" period, the concentration of my country's titanium dioxide industry has increased, and there are 40 full-process manufacturers above the scale with normal production conditions. Among them, there is 1 super-large enterprise with an effective production capacity of 1 million tons/year or more; 11 large-scale enterprises with a production capacity of 100,000 tons/year and above; 10 medium-sized enterprises with a production capacity of 50,000 to 80,000 tons/year; the rest The 19 manufacturers are small and micro enterprises.

After more than 10 years of hard work, the current production technology of titanium dioxide by chloride method has made a breakthrough. In 2020, the production capacity will reach 600,000 tons, and the output will reach 330,000 tons, accounting for 10% of the total output of titanium dioxide in the country.

From the perspective of the titanium dioxide market, the demand for consumer goods and real estate-related commodities at home and abroad will greatly stimulate the increase in China's titanium dioxide production. Titanium dioxide is a product that is just in demand in many fields. Judging from the current global market, titanium dioxide will still be in the stage of "supply exceeds demand" in the short term.

However, Fu Yijiang pointed out that the new wave of reconstruction and expansion may have a certain impact on the industry. According to incomplete statistics, domestic titanium dioxide projects under construction, construction preparation and expansion will add 1.96 million tons/year of new production capacity, of which more than 400,000 tons/year will be produced by the chlorination method. Such a large new production capacity is difficult to digest in terms of the current domestic market. Once the actual production capacity is formed, it will quickly break the balance of supply and demand in the domestic market. In the future, it will become a must for China's titanium dioxide to go to the world.

钛白粉行业探索“十四五”发展

突破氯化法工艺优化产品结构进军国际市场

“‘十四五’期间，钛白粉产业应加快由传统产业向先进制造业迈进，优化氯化法与硫酸法产品结构。此外，随着国内钛白粉改扩建浪潮来袭，供应或大于需求，国内钛白粉走向国际市场成为必选项。”3月29日，由中国硫酸工业协会在北京举办的2021年硫产业链市场交流会上，中国涂料工业协会钛白分会副秘书长付一江作出如上判断。

两种工艺并存产品结构优化

“十四五”钛白粉行业规划提到，要积极推进产业升级，优化氯化法与硫酸法产品结构；加大科研技改投入，持续提升产品市场综合竞争力；坚持环保绿色发展，提升废副产品资源化利用水平；扩大国际合作交流，增强行业发展过程抗风险能力。

其中的优化氯化法与硫酸法产品结构是当前行业尤为关注的问题。早在2007年硫酸法钛白粉就被列入高耗能高污染的行列之中，不仅如此，产业结构调整指导目录也明确将硫酸法钛白粉列为限制类产业。同时，鼓励进口技术和产品目录更是提到要大力发展氯化法钛白粉。但面对当前氯化法钛白粉技术还不够成熟、硫酸法钛白粉仍占据主导地位的实际情况，业内人士对硫酸法钛白粉的市场是否会受到限制比较担忧。

对此，付一江表示：“虽然硫酸法钛白粉已经被列入限制目录，但从目前的形势分析，预计在‘十四五’甚至是‘十五五’期间，硫酸法钛白粉都不会被立即淘汰。国家的矿产资源情况以及新建和扩建装置的建设情况决定了硫酸法钛白粉依然是主流。因此，在当前情况下，硫酸法钛白粉和氯化法钛白粉仍然会并存。但未来行业要关注氯化法钛白粉工艺的研发，努力将氯化法钛白粉变成强项。”

硫酸法找症结氯化法谋突破

硫酸法钛白粉和氯化法钛白粉会长期并存，但后期两者该如何发展？付一江指出，“十四五”期间，行业要找到硫酸法钛白粉的症结并进行改进，使其能够更好地发展绿色工厂、绿色产品。在氯化法钛白粉方面，则要努力突破，推进行业供给侧结构性改革，促使我国钛产业链的健康发展，切实提高我国钛白粉行业科技和产业的创新能力。

付一江表示：“当前硫酸法钛白粉存在的弊端和影响产业发展的症结主要表现在以下五方面：一是工艺过程的间歇式生产方式，自动化程度低；劳动密集型生产方式，劳动生产率低。二是信息化程度低，管理方式较落后。三是物质与能量的工艺管理粗放，钛白粉资源消耗与能源消耗居高。四是清洁生产水平低，”三废“排放量大。五是钛白粉产品质量、性能与应用要求存在差距，行业的技术开发能力不足。”

对此，付一江认为，行业要对硫酸法钛白粉的各环节进行流程再造，以此实现各主要工序的连续生产，为工艺过程自动控制提供基础。例如，对钛白粉主要工序进行连续生产、自动化生产改造；对各操作单元进行连续自动生产改造；对设备进行控制系统改造，采取集成控制与信息管理技术；对生产车间进行自动化改造以及钛白粉生产联动控制管理；对环保装置进行自动化生产改造，废水、废气排放进行连续监测等。

付一江特别强调，要想推动产业升级，使行业全面达到先进制造业水平，就要对先进工艺技与装备进行引进和使用，为DCS的实施提供基础。同时，发展钛白粉生产自动化控制，这样

仅可以提高生产能力与水平，还可以实现智能化，提高生产效率，再结合ERP，可以提高管理与运行效率。

新增产能难消化走向国际成必然

付一江还介绍了我国钛白粉行业的现状。“十三五”期间，我国钛白粉行业集中度提升，具有正常生产条件、规模以上的全流程型生产商共有40家。其中，有效产能达到100万吨/年以上的特大型企业1家；产能达到10万吨/年及以上的大型企业11家；产能达到5万~8万吨/年的中型企业10家；其余19家生产商均为小微型企业。

经过10多年的努力，目前氯化法钛白粉生产技术已经取得突破。在2020年产能达到60万吨，产量达到33万吨，占全国钛白粉总产量的10%。

从钛白粉市场来看，国内外消费品和房地产相关商品的需求，将大力刺激中国钛白粉产量的提升。而钛白粉是多领域的刚需产品，从目前全球市场来看，钛白粉短期尚会处于“供不应求”的阶段。

不过，付一江指出，新一轮改扩建浪潮或给行业带来一定影响。据不完全统计，国内正在新建、筹建及改扩建的钛白粉项目将新增产能196万吨/年，其中氯化法40余万吨/年。如此大的新增产能，就目前国内市场而言很难消化，一旦形成事实产能，将会迅速打破国内市场供需平衡，未来中国钛白粉走向世界成必选项。