

Thann Plant

95 Rue du General De Gaulle - BP10059
Thann F-68801
France

The Thann Plant is one of seven manufacturing sites that produce titanium dioxide for Cristal, the world's second largest producer of titanium dioxide. TiO₂ is a white pigment used to provide whiteness, brightness, opacity and durability to paint and coatings, plastics, paper and elastomers. Thann is in the Thur Valley in Alsace, France, near the border with Germany and Switzerland. The Thann Plant is located on a 15-hectare chemical complex. The Ochsenfeld site, the effluent treatment plant base, is on an 80-hectare landfill located three kilometers from Thann.

In 1922, the Thann Plant became the first in the world to produce TiO₂. The plant produces TiO₂ through a sulfate-based process, a wet chemical process that uses sulfuric acid to extract and purify TiO₂ in anatase crystal form. The raw pigment is then finished into a product with specific performance characteristics for particular end-use applications, essentially in the paper, paint, plastic and rubber markets. Specialty and high-performance TiO₂ products produced at Thann include titanium tetrachloride that is used in the manufacture of TiO₂, in the automotive industry (pearlescent pigments for automotive paints) and also as a catalyst in the chemical industry. Another product, ultrafine TiO₂, is primarily used to improve our environment (air and water pollution control) and in the design of self-cleaning surfaces (photocatalysis).

Performance Summary

The Thann Plant's commitment to sustainable growth balances the company's responsibility to provide economic value while respecting the social concerns of the community in which we operate and demonstrating care for the environment.

PROVIDING ECONOMIC VALUE

- Approximately 244 employees
- Annual payroll and benefits of almost 8.5 million euros
- Site purchases approximately 25.6 million euros of goods and services annually
- Annual property taxes of 272,000 euros
- Annual environmental and other taxes of 1.5 million euros

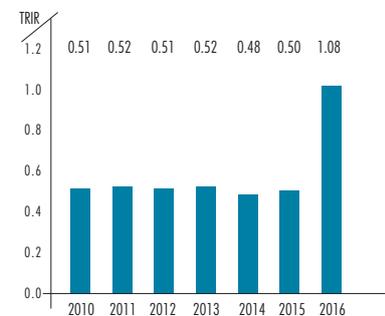
RESPECTING SOCIAL CONCERNS

We recognize that being a socially responsible member of the community requires maintaining an open door for dialogue with the community and actively working to support community needs.

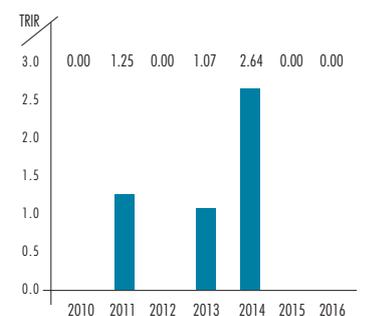
- **Education** – The site supports science education through partnership activities with local schools. Activities include career day, science fair participation and facility tours.
- **Community Outreach** – Plant management meets regularly with the mayors of surrounding cities to maintain an open dialogue on plant operations. The management team also meets with close neighbors to share information about the plant and to discuss community concerns or expectations. Additional public information sharing occurs through meetings organized with local and national journalists.



Employees: frequency rate per OSHA definition
(total number of accidents per 200,000 hours worked)



Contractors: frequency rate per OSHA definition
(total number of accidents per 200,000 hours worked)



- **Community Involvement** – The plant manager is a member of the steering committee of the local secondary school, Lycée Scheurer Kestner. Plant visits are organized regularly to introduce students to the chemical industry and discuss safety and environmental topics.
- **Volunteerism** – Employees are encouraged to volunteer their time to local community organizations. Many employees participate in improving the quality of life in their villages, including serving on the safety rescue team as volunteer firemen.
- **Philanthropy** – The company supports local sporting associations and local arts events.

JOURNEY TO ZERO

Our commitment as a socially responsible company means that we operate our facilities in a manner that protects people and the environment and preserves our world for future generations. At the Ochsenfeld facility, more than 40 million euros were spent over the period of 2000 – 2006 for improving the neutralization efficiency of our effluents, the historical landfill remediation; and for protecting the quality of the underground water and the neighboring river. The company is committed to the continuous improvement in safety, security, environmental performance, reliability and open communication.

- **Safety Performance** – Between 1998 and 2007, our employees experienced no accidents involving lost workday injuries. The plant was recognized in 2002 and 2006 with a safety award for the best results among 46 chemical plants in Alsace. Since 2006, a program has been developed to analyze and improve our performance. In industrial hygiene, action plans have been developed on the basis of the “Document Unique” (a risk evaluation document) in order to improve working conditions and risk control.
- **PSM** – Considered a high-hazard chemical plant located in a very sensitive environment, the site has developed a Major Accident Prevention Policy through its Process Safety Management (PSM) program to identify any potential dangers and to mitigate them with adequate procedures and maintenance programs. Several millions were spent, for instance, in the containment of the titanium tetrachloride plant.
- **Environmental** – The plant has reduced SO₂ emissions by 75% since 1990. These results have been confirmed by the ASPA, the association which surveys the atmospheric pollution in Alsace. The ultrafine TiO₂ produced at the site is used for elimination of nitrogen oxides from truck exhaust and power plant fumes, and also to eliminate sulfur in the refining of crude oil. In Ochsenfeld, a 3.5 km long slurry wall has been constructed to protect underground water aquifers in the region from the industrial pollution of the past.
- **Enhanced Value** – The plant reclaims or recycles its coproducts:
 - recycled ammonia
 - recycled and recovered hydrochloric acid
 - reclaimed iron sulphate and iron chlorosulfate
 - CO₂ recycled by PPC
 - white gypsum reclaimed for use in the cement industry
 - red gypsum recycled as roofing materials

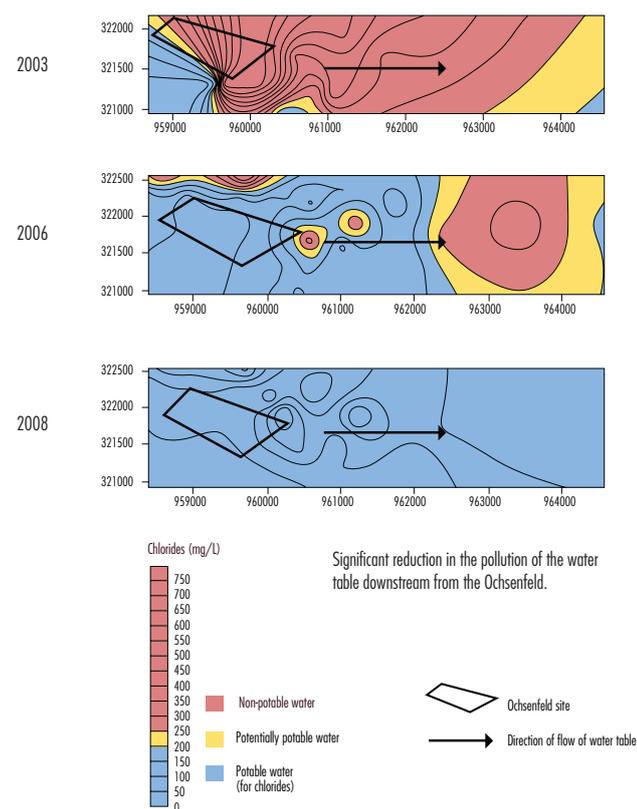
These activities contribute significantly to reducing our environmental impact.

- **Safety Procedures** – The site has a program in place to ensure the safe operation and maintenance of our processes so that accidental releases are prevented. A Failure Mode, Effects and Criticality Analysis (FMECA) program has been specifically developed. Risk analyses of the installations are periodically reviewed.

Cristal is one of the largest producers of titanium dioxide and a leading producer of titanium chemicals. Cristal is the world’s leading supplier of ultrafine titanium dioxide products and titanium chemicals and is a fast-growing producer of mineral sands and titanium metal powder. Cristal operates eight manufacturing plants in seven countries on five continents and employs nearly 3,400 people worldwide.

Visit www.cristal.com for more information about the company and its products.

Chloride content in the water table at Ochsenfeld



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