

The Thann Plant, formerly owned by Cristal, is one of nine manufacturing sites that produce titanium dioxide for Tronox, the world's second largest producer of titanium dioxide. TiO<sub>2</sub> 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 TiO<sub>2</sub>. The plant produces TiO<sub>2</sub> through a sulfate-based process, a wet chemical process that uses sulfuric acid to extract and purify TiO<sub>2</sub> 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 TiO<sub>2</sub> products produced at Thann include titanium tetrachloride that is used in the manufacture of TiO<sub>2</sub>, in the automotive industry (pearlescent pigments for automotive paints) and also as a catalyst in the chemical industry. Another product, ultrafine TiO<sub>2</sub>, 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 240 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 400,000 euros
- An economic and territorial contribution and environmental royalties of 1.6 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 facility tours for students (e.g. Lycée Lavoisier, ENSIC Engineering School) and participation in employment forums (e.g. orientation and career day in Mulhouse).
- **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 and retired colleagues 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.
- **Philanthropy** – The company supports local cultural, artistic and sporting associations and events via our InTouch program. The main objective is to reinforce relations between employees, subcontractors, their families and the surrounding communities. The associations are brought forward by the site employees, often because of their own personal investment in them, then brought to the committee piloting the project, composed of around 20 site employees. The local associations are selected according to their proposed projects, whether it be cultural, sport,

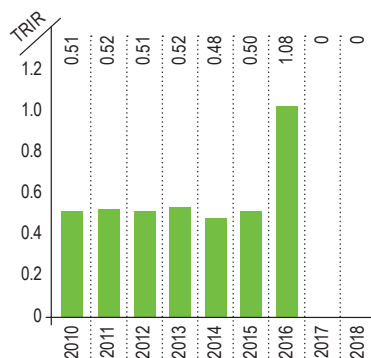


95 Rue du General De Gaulle -  
BP10059  
Thann F-68801, France

### EMPLOYEES

#### Frequency Rate Per OSHA Definition

Total number of accidents per  
200,000 hours worked

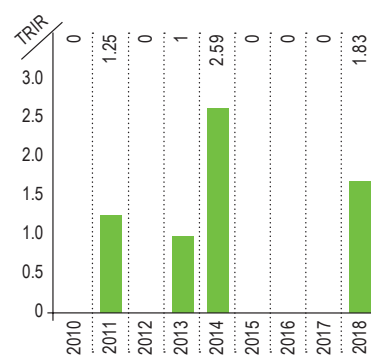


REPORTING YEAR

### CONTRACTORS

#### Frequency Rate Per OSHA Definition

Total number of accidents per  
200,000 hours worked



REPORTING YEAR

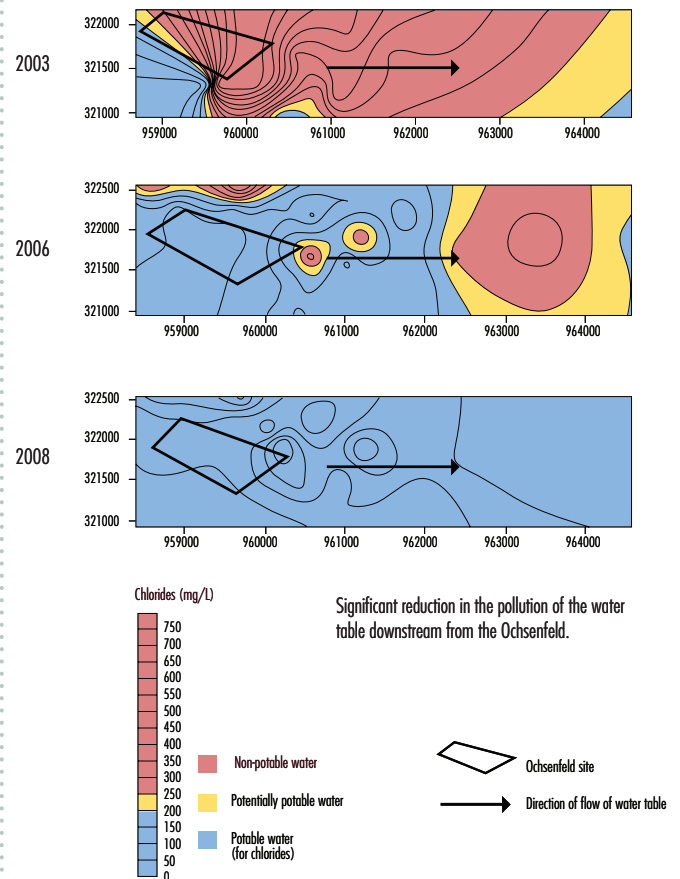
in favor of the handicapped, or to help those less fortunate in the local community. Different associations are selected each year according to what they propose to do with the donation, but all of them share the same values of solidarity and sharing that Tronox steadfastly defends. In 2018, 15 local associations each received a check for 1,000 euros to be able to put their proposed projects into action.

## 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** – In 2017, the plant won a company award for the best overall performance in HSE, and in March 2018 the site received an award for one million employee working hours without LTI. Programs and actions are in place to analyze and improve 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 SO<sub>2</sub> emissions by 75% since 1990. These results have been confirmed by the ASPA, the association which surveys the atmospheric pollution in Alsace. The ultrafine TiO<sub>2</sub> 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
  - CO<sub>2</sub> 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.



[www.tronox.com](http://www.tronox.com)

Tronox Holdings plc is one of the world's leading producers of high-quality titanium products, including titanium dioxide pigment, specialty-grade titanium dioxide products and high-purity titanium chemicals; and zircon. We mine titanium-bearing mineral sands and operate upgrading facilities that produce high-grade titanium feedstock materials, pig iron and other minerals. With nearly 7,000 employees across six continents, our rich diversity, and unparalleled operational and technical expertise across the value chain, position Tronox as the preeminent titanium dioxide producer in the world.

For more information about how our products add brightness and durability to paints, plastics, paper and other everyday products, visit [www.tronox.com](http://www.tronox.com).

**TRONOX**

Tronox  
 95 Rue du General De Gaulle -  
 BP10059  
 Thann F-68801  
 France  
 +33. 3. 89. 38. 47. 11