CASE STUDY

Tata Chemicals achieves great project results with Octave's design solutions

Key facts:

Company:
Tata Chemicals Ltd.

Website:
www.tatachemicals.com

Industry: Chemicals

Country: India

Octave products used:
Forte 3DWorx *(CADWorx Plant Professional)*, Forte ReviewWorx *(CADWorx Design Review)*

Tata Chemicals Limited is part of Tata Group, India's largest business group with US$70 billion in annual revenue with manufacturing in Asia, Europe, Africa and North America. The world's second-largest soda ash producer, it also provides key ingredients for glass and detergents, urea, phosphates for fertilizers, insecticides and pesticides. Tata also introduced a low cost, nanotechnology-based water purifier that provides affordable and safe drinking water to the masses and are also India's leader in branded iodized salt, producing 0.8 million tons annually.

Identifying goals

To meet growing demand, Tata Chemicals decided to build a new 900-tons-per-day green field vacuum evaporated salt plant and do so within an aggressive 21-month schedule. The plant was to include a seven-floor steel structure and cover 2,500 square meters with a total plant area of 65,000 square meters. The project required 1,900 metric tons of structural steel, 20,300 titanium tubes; 105 metric tons of titanium plates; 125 metric tons of stainless steel plate; 500 metric tons of mild steel plate; 14 kilometers of carbon, stainless steel, and fiberglass reinforced piping; 5,000 cubic meters of concrete and 150 pieces of equipment. Equipment included six large titanium evaporator bodies, heater sections, three condensers, 12 pre-heaters, 17 tanks, 70 pumps and a 600 meter pipe rack. Tata Chemicals performed engineering in-house and produced all equipment, piping drawings and fabrication drawings and even performed in-house fabrication of the equipment.

Key benefits:

- Expedited design and reviews using Forte 3DWorx for 3D modeling
- Avoided rework and costly design surprises
- Achieved timely project completion

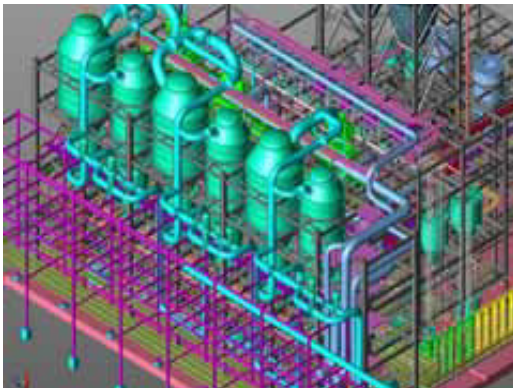
Overcoming challenges

When Tata Chemicals first chose Forte 3DWorx for 3D modeling, it had employees trained and productive within three days. Recognizing the software's capabilities and easy adoption, it used Forte 3DWorx for the complete facility modeling, including structures, equipment, piping, electrical, instruments and routings.

A major advantage came during reviews. With the 3D model, all stakeholders could clearly visualize and discuss the facility's dense and congested piping areas, correcting any issues. This could not have been possible with 2D drawings.

Realizing results

A major benefit of Forte 3DWorx was avoiding surprises that detected later might prove costly later. For example, when it neared completion of structural modeling and were adding braces, it noticed several clashes with tanks, piping and other equipment. Since most tanks were already installed and piping and cable trays drawings released for construction, it just reshaped and redesigned the bracings before the erection of piping. This avoided costly rework. Because of the tight schedule, Tata Chemicals operated two shifts and modeled equipment in 3D to be uploaded into the main Forte 3DWorx model. From the model, it produced more than 520 isometric drawings for piping.



The company also produced process flow and process and instrumentation diagrams (P&IDs). By using Forte 3DWorx and overlapping activities, it completed modeling and all drawings in four months with just five draftsmen, making a schedule that would have otherwise been difficult. Tata also avoided time delays in placing orders and procurement, keeping the project on schedule for commissioning.

About Octave

Octave is a leader in enterprise software, turning data into decisive action and intelligence into your edge. Our software solves for and simplifies complexity, from the design and build to operations and protection of people, property and assets – for any scope, at any scale. For decades, we've partnered with customers to sharpen performance, elevate efficiency and amplify results. From factory floors to entire cities, our solutions are tuned to scale up what's possible from day one onward.

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