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Heraeus Gas Catalytic Infra-Red Improves Gas Tank Powder Coating

By installing a 10-zone gas catalytic infra-red oven from Heraeus Noblelight, a Mexican manufacturer of gas propane tanks has been able to switch from batch processing to in-line coating to meet increased sales demand, while at the same time improving coating quality and reducing energy and maintenance costs. Such was the success of the new system that return on investment was less than 18 months.

Metsa, of Nuevo Leon, Mexico, is a family-owned business, which has been involved in the manufacture, sales and distribution of propane tanks for over 50 years. However, when demand for their products increased, it was realized that their existing powder coating facility would have problems meeting this demand, as it required powder coatings to be applied by hand and then cured using a propane-powered, batch convection oven. Moreover, the convection oven was only partially curing larger tanks, as an uneven airflow caused large temperature differentials between the tank bottoms and tops, particularly around heavier collars and angular support feet. Potentially, this could lead to quality issues, poor resistance to sunlight and even colour variances.

Consequently, the decision was made to change from batch production to in-line production to meet the increased product demand and, after successful trials at Heraeus' Applications Centre in Georgia, to install a gas analytic infra-red oven to match the faster coating speed **and** to solve the curing problem. A further factor affecting the choice of the gas catalytic infra-red system was the fact that space was at a premium, so that it was not possible to extend the length of the convection oven.

The oven eventually installed on site is 10m long and features ten, individually controlled zones along its length, so that temperature can be controlled precisely from the bottom to the top of the oven as well as from the entrance to the exit. As a result, extra heat intensity can be applied to the bottom of the tank, where the angular feet are located, to prevent under-curing and over-baking.

The new in-line installation featuring the gas catalytic oven now allows faster process times, with reduced operating costs. Maintenance has been substantially reduced and by switching from propane to natural gas, monthly operating costs are now only 25% of previous costs. In addition, as the new IR system heats just the powder coating and not the complete tank, cool down times are much faster, which means that external fittings can now be added to the tanks while they are still on the production line.

Humberto Garza, CEO of Metsa, commented, "We give great attention to detail in selecting the best materials and equipment to ensure optimum quality and design for every tank we make. Heraeus was instrumental in setting up our new automated paint line and we look forward to working with them on other projects."

Heraeus specialises in the production and application of high quality energy sources covering the electro-magnetic spectrum from ultraviolet to infra-red. It has over 40 years experience in infra-red technology and offers the expertise, products and systems to provide efficient and effective solutions to drying, heating and curing problems throughout industry.

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The gas catalytic oven at Metsa