

FIRE-RATED WIRING SOLUTION FOR THE FORMOSA PETROCHEMICAL CORPORATION REFINERY

PROJECT DETAILS

Client:	Formosa Petrochemical Corporation
Location:	Taiwan
Completion Date:	September, 2013
Contract Scope:	Site Measurement, Material Supply, and On-site Construction for Fire-Rated Wiring System
Applications:	Hydrocarbon Fire Protection for Wiring Circuits of Critical MOV Actuators
Technology:	Mineral Insulated Fire-Rated Wiring Cable and Intumescent Epoxy Fire ProtectionProject Details



KEY CHALLENGES

Constructed in 1992, the Formosa Petrochemical Corporation's plant's processing equipment had begun to deteriorate. With the high salinity of the sea breeze, the facility in Taiwan suffered from frequent on-site fires due to substantial pipeline corrosion. Processing light oil, heavy oil, and naphtha, all of which are highly combustible, posed a very serious safety hazard to both the plant staff and equipment. Formosa's issue was that the original MOV actuator wiring utilized a combination of armored cables, flame retardant cables, and fireproof tapes, none of which can withstand the heat of a hydrocarbon fire. In the event that there was a fire and the

wiring circuits were damaged, the critical equipment and devices would not operate properly.

SOLUTION

nVent offered a complete nVent RAYCHEM Pyrotenax Fire Proof Wiring System for the Formosa Petrochemical Corporation project to ensure all intact system circuits would work properly in the event of a fire-based emergency. The Pyrotenax system was the ideal solution for Formosa as all MI Fire-Rated cables and connections pass the UL2196 and UL1709 fire tests, a critical requirement for increased safety on-site.

nVent took into full consideration all of the possible equipment faults and location specific requirements when coming up with this solution.

With copper and other low-nickel stainless steel materials immediately excluded, MI Fire-Rated cables were the only option available for ensuring protection from salt corrosion while offering sufficient chemical resistance.

With respect to fire resistance, the most critical parameter to be controlled, the end user required compliance with the international standard – UL1709 – for the Fire-Rated cables, splices, junction boxes and equipment. This was to ensure a uniform performance standard for any portion of the circuit, from the power distribution panel to the on-site MOV.

PRODUCTS

To meet the needs of this challenging application, nVent offered a Fire-Rated Wiring System which includes:

- Mineral Insulated (MI) Fire-Rated Wiring Cable
- Fire Proof Splice
- Fire Proof Junction Box
- Hub Protector

BENEFITS

The Pyrotenax Fire-Rated Wiring System enhanced the fire safety of critical equipments and devices at the Formosa Petrochemical Corporation's plant and provided protection against the risk of a hydrocarbon fire. The rugged construction and complete system proved to be reliable in the hazardous conditions. The system has high ampacity, and a low profile, and is conduit free, saving Formosa installation cost and space. With the new system in place there is an increase in safety at the site for both personnel and critical processing equipment.



With decades of experience in designing, manufacturing and installing heat management systems, nVent was able to provide a comprehensive solution to Formosa Petrochemical Corporation's Refinery plants. The use of Fire Rated Wiring Cable and Fire Proof Splice and Junction Boxes ultimately led to the success of this project.

nVent provides unique solutions for various applications and offers a full suite of optimization strategies customized for a given application resulting in the highest reliability and performance at a reduced CAPEX/OPEX for the project.

North America

Tel +1.800.545.6258
Fax +1.800.527.5703
thermal.info@nvent.com

Europe, Middle East, Africa

Tel +32.16.213.511
Fax +32.16.213.603
thermal.info@nvent.com

Asia Pacific

Tel +86.21.2412.1688
Fax +86.21.5426.3167
cn.thermal.info@nvent.com

Latin America

Tel +1.713.868.4800
Fax +1.713.868.2333
thermal.info@nvent.com



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