PITT-CHAR® XP Case Study
The ultimate solution for extreme hydrocarbon fire scenarios

The Owner
Compañía Española de Petroleos S.A (CEPSA)

The Contractor
Julio Crespo Canarias

The Location
Santa Cruz de Tenerife, Canary Islands, Spain

The Challenge
Protect steel gas storage sphere from corrosive environment, cryogenic temperatures and fire while maintaining an aesthetic appearance.

The Solution
SIGMACOVER™ 522 (epoxy primer)
PITT-CHAR® XP (passive fire protective/PFP coating)
SIGMADUR™ 1800 (polyurethane finish)

The Benefits
• Unique flexible epoxy intumescent coating
• Superior fire and corrosion protection
• Suitable for cryogenic exposure

The Result
• Flexible and tough epoxy barrier forms an insulating char for fire protection
• Anti-Corrosive epoxy protects in a saline seacoast environment
• Protect storage tanks from cryogenic temperatures and fire

The Challenge
The Compañía Española de Petroleos S.A (CEPSA) refinery in Santa Cruz de Tenerife, Canary Islands, Spain, was the company’s first refinery built in 1930. Its strategic island location makes it possible for CEPSA to supply oil derivatives to various locations around the world such as the Canary Islands, Mainland Spain, Africa and North and South America. The CEPSA refinery capacity is 4,500,000 tons annually.

The Challenge
The steel propane storage spheres at the CEPSA refinery in Santa Cruz are located directly adjacent to the ocean and are exposed to the highly corrosive effects of the saline seacoast environment. Protecting the propane containing spheres and their supporting legs from cryogenic temperatures, the risk of fire and the seacoast environment is essential. The refinery requirements for the sphere included fire protection for 120 minutes with a critical temperature of 400°C/752°F. The sphere legs required 180 minutes with a critical temperature of 450°C/842°F. CEPSA also wanted to do this in an aesthetically appealing finish that would exhibit excellent color and gloss retention over time.
The Solution

To meet the challenges of protecting the CEPSA propane sphere from corrosion, cryogenic temperatures, and hydrocarbon fire in an aesthetic manner, paint applicators prepared the sphere surfaces by abrasive blasting to Sa 2 according to ISO 8501-1. Then they applied a layer of SIGMACOVER 522 primer to 75-100 microns/3-4 mils. FOAMGLAS® was then installed to insulate and protect the tank against cryogenic temperatures of -170°C/-274°F due to the propane gas storage. For fire protection, the legs and sphere were covered with PITT-CHAR XP. An artistic finish in a marine design was painted on the spheres using SIGMADUR 1800 polyurethane at a thickness of 80 microns /3.1 mils.

The Benefits

PITT-CHAR XP effectively stands up to many different environmental factors including atmospheric salt spray, heat and humidity while offering steel assets the ultimate in hydrocarbon fire protection. Propane containing spheres such as those at CEPSA’s refinery in Tenerife, are exposed to environmental temperature changes and potential cryogenic temperatures which required the additional FOAMGLAS® insulation. PITT-CHAR XP easily applied to the FOAMGLAS® encased sphere providing fire protection of 120 minutes and protects the steel legs supporting the sphere with 180 minutes of fire protection. SIGMADUR 1800’s excellent resistance to atmospheric exposure conditions such as salt air and daily doses of intense sunlight give the artistic design on the sphere exterior the color and gloss retention required to maintain the aesthetic appearance of the artist’s design.

The Result

The preparation and application of the PITT-CHAR XP and FOAMGLAS® insulation was successfully completed in April and May of 2011 providing the steel legs and sphere with outstanding fire and cryogenic protection as well as an aesthetic appearance that blended with the seacoast environment. Additionally, the PITT-CHAR XP system will show excellent corrosion protection and durability in the saline and high UV coastal conditions of Santa Cruz de Tenerife.