

Application of Mascoat Industrial-DTI at ConAgra Foods

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Participants:

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In November 2008, an application of Mascoat Industrial-DTI thermal insulating coating was started at ConAgra Food, parent company behind leading consumer food brands such as Healthy Choice, Chef Boyardee, Hunt's, Banquet and others. The coating was applied to Retort carbon steel cookers, which cook foods to be packaged and distributed. The reason for the installation of Mascoat Industrial-DTI was that the cookers had an unusual configuration and geometry that made conventional bat insulation very difficult to install and maintain. Prior to the coating, only 40% of the cookers' surface areas could be insulated. The applicator, Complete Industrial Insulation of Jordan, NY, had only a five-day window to complete the installation on 32 cookers.



Figure 1 - Cookers before coating

Advantages of Mascoat Industrial-DTI over conventional insulation:

- Total surface area (2,400 square feet) could be insulated
- Rapid application characteristics allowed for the applicator to meet the client's stringent time demands
- Could be applied while cookers were in service, maximizing production
- The coating reflects heat back into the cookers, reducing energy requirements
- Surface temperature of cookers would be greatly reduced, enhancing personnel protection efforts in the facility
- The coating meets current FDA/USDA requirements specifying a no-VOC product in the cooking area
- No overspray issues with surrounding equipment, as the product only has a 3 foot dry fall area
- Solved safety problem of a hot (270°F) metal surface in a working environment

The Retort carbon steel cookers are approximately 5 feet in diameter and 40 feet long each. They rotate inside of a cylinder and are heated to 270°F to properly cook the food. This heat would escape through non-insulated areas, making the environment extremely uncomfortable and energy inefficient. They were also beginning to show age in the form of rust on the exterior.



Figure 2 – Cooker in the process of heating to 270°F

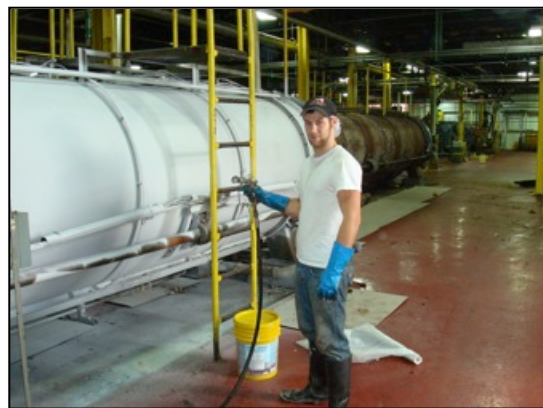


Figure 3 - Spraying Mascoat Industrial-DTI on one of the cookers

Some old insulation had to be taken off four of the cookers and then they were prepared and cleaned using degreasers and a high-pressure wash. Unlike conventional insulation, once Mascoat Industrial-DTI is applied, the surface of the substrate remains protected and cleaned, negating the need for follow-up maintenance. A 10-man crew then applied the coating. The first layer (20 mils or 0.5 mm) was applied with a Graco Spray Unit and a tip size 421. The coating was then allowed to set for an hour while the contractor started on another cooker. Employees on hand noticed a temperature difference after the first coat. Six more layers were applied at 20 mils each to reach a thickness of 140 mils, or 3.5 mm.



Figure 4 - Cookers after being coated with Mascoat Industrial-DTI



Figure 5 - Probe thermometer showing surface temperature of 128.7°F at 140 mils

ConAgra's cookers experienced much success with the application. The cookers' shell temperature uncoated was 270°F; however, after Mascoat Industrial-DTI was applied, the temperature was reduced to 128.7°F. And based upon the current cost of natural gas, the company will save approximately 280,000 USD per year in natural gas with Mascoat Industrial-DTI installed on 32 cookers.