

Emergency Removal of Frozen TDI From Unloading Lines and Reactor

Location: Central Georgia

Client: Major Chemical Company

Project Cost: Confidential

PROBLEM

A railcar of toluene diisocyanate (TDI) was mistakenly shipped as p-methylene diphenyl diisocyanate (MONDUR 489, pMDI) to a chemical manufacturing company and unloaded into their receiving facility. TDI froze in the unloading lines and transfer pump. Note (TDI freezes at 50°F and pMDI at 32°F). Ambient temperatures during the transfer ranged from 23 to 30°F.

SOLUTION

Remtech was engaged to remove the frozen TDI from the railcar's standpipe and receiving facility's lines, pump, and storage tank and restore normal operating conditions to the plant as soon as possible.

Drum heaters, heat tape, and steam were applied to external lines to thaw the frozen product. After 48 hours of heating, product was drained from the transfer lines. Product was pumped and pneumatically transferred from the storage tank and lines with vapors treated by two (2) Remtech off-gas carbon filtration systems connected in series. 65,000 lbs of TDI were removed from the system and transferred into two stainless steel tankers.

COST/BENEFITS

The frozen TDI was removed from fill lines, pump and tankage without system disassembling or rodding within 48 hours. Thawing and purging frozen TDI in place significantly reduced costs and lost time associated with the Chemical unloading facility.



TDI Froze in MDI Receiving System



TDI Thawed with Heat Tape, Drum Heaters, and Steam and Drained from System



Pneumatic Transfer of TDI to Stainless Tankers



Remtech Carbon Off-Gas Scrubbers