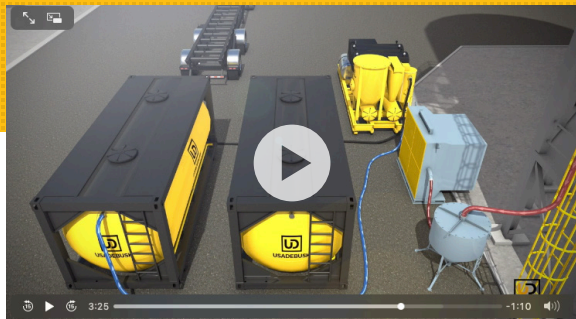


HOT CATALYST HANDLING

Advantages

- Fast removal and change-out
- Enhanced safety
- Savings on equilibrium catalyst expenses
- Reduced spent catalyst disposal costs
- Bulk transportation
- Transloading
- Environmental services and recycling
- Spent hopper dust control
- Catalyst storage, management and distribution



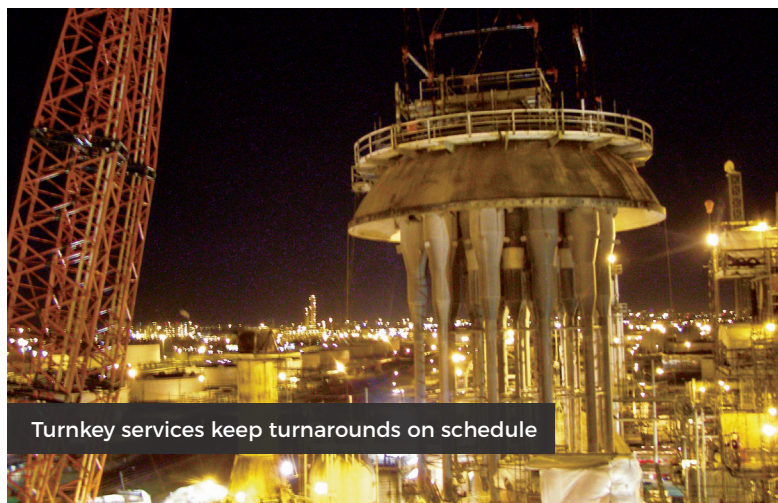
See our video at:
www.usadebusk.com/hot-catalyst

USA DeBusk provides residual catalyst removal during FCCU turnarounds. Proprietary techniques allow removal of catalyst during unit shutdown, eliminating wait time for cooling and expediting unit turnover to maintenance.

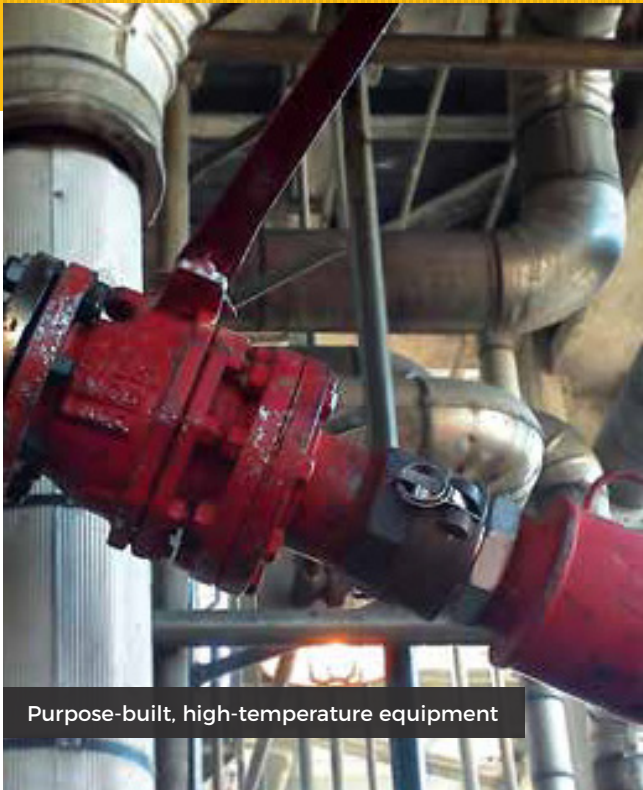
System highlights include:

- 1,250°F (648°C) vacuum technology
- High-temperature valves
- Stainless steel hoses for abrasive, hot materials
- High-strength hose clamps
- Purpose-built screen boxes and heat exchangers
- Spent hopper dust control
- Specially designed vacuum trailers

As part of a turnkey package of services, USA DeBusk also offers bulk transportation, transloading, environmental services and spent catalyst recycling, and secure storage for fresh or equilibrium catalyst.



Turnkey services keep turnarounds on schedule



Purpose-built, high-temperature equipment

HOT CATALYST REMOVAL

Specialized vacuum equipment handles materials up to 1,200°F (648°C), allowing crews to begin catalyst removal before the unit or product cools down. This capability cuts entire days from the shutdown schedule.

Crews begin vacuuming the catalyst as soon as the main air blower shuts down and before the unit's lockout/tagout (LOTO) and blinding procedures are finished. Spool pieces are bolted to draw points located on the bottom of the regenerator, reactor or spent catalyst-bottom.

While still at elevated temperature, catalyst is vacuumed from the draw points while operations personnel perform LOTO and blinding. This allows removal of a majority of the residual catalyst before entry is made. Once entry is granted, the remaining catalyst that could not be reached from the draw points is removed. Removing catalyst earlier in the process results in faster turnover for the plant.

TURNKEY SERVICES

USA DeBusk specializes in catalyst handling, transportation and storage. Material can be transloaded from vessels, containers, rail cars and other options.

- 1,200 and 1,600 cu. ft. pneumatic tank trucks
- Rail cars
- Chemically clean tankers
- Hazardous and non-hazardous transportation
- Wet or dry materials

RECYCLING

A full-spectrum reuse and recycling program for spent catalyst provides significant savings in catalyst purchase and disposal expenses.

Fresh and equilibrium catalyst products can be stored (bulk, super sack, sea container, or tote), managed and distributed from secured terminals.



Transloading and transportation services

HOT CATALYST HANDLING
SAVES ENTIRE DAYS
FROM TURNAROUND
SCHEDULES WHILE
RECOVERING CATALYST
FOR RE-USE