

**CAPABILITY SHEET**

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## Pyrophoric catalyst handling, vacuum unloading, and dense loading for refinery turnarounds

MAC Industrial provides specialized catalyst removal and installation services for hydrotreater, hydrocracker, and reformer reactors during planned turnarounds. Our crews are trained in pyrophoric material handling procedures and work under nitrogen blanket or passivation conditions as required by the catalyst manufacturer.

We execute blind-to-blind scope with full chain-of-custody documentation for all catalyst quantities removed and installed.

- Pyrophoric catalyst cooling and passivation coordination
  - Vacuum unloading with ex-proof equipment
  - Inert gas handling under nitrogen blanket
  - Dense loading and sock loading techniques
  - Catalyst screening and segregation
  - Blind installation and removal
  - Weight reconciliation and chain-of-custody documentation
  - Post-loading reactor internals inspection support
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- OSHA 1910.146 — Permit-Required Confined Space
  - OSHA 1910.119 — Process Safety Management (PSM)
  - API RP 577 — Welding Inspection and Metallurgy
  - Catalyst manufacturer's handling and loading procedures (project-specific)