# Online Cleaning: How to Keep Your Equipment Running Until the Scheduled Turnaround

In industrial settings like petrochemical plants and refineries, maintaining continuous operation is crucial. However, equipment fouling, buildup of hazardous materials, and declining efficiency can pose significant challenges, especially when a full system shutdown isn't scheduled for weeks or even months. Online cleaning has emerged as a critical practice to address these issues without disrupting operations.

## What Is Online Cleaning?

Online cleaning is the execution of chemical decontamination procedures on industrial equipment while it remains in service. This method avoids the production losses and safety risks associated with unplanned shutdowns by using application-specific industrial cleaning **chemicals** engineered to remove asphaltenic or paraffinic deposits under operating conditions.

*Company* has developed a range of proprietary chemistries and delivery methods that target contamination without compromising metallurgy, equipment integrity, or throughput. These are tailored to each plant's configuration and process constraints, whether the issue is hydrocarbon carryover, scale, or corrosion byproducts.

## Operational Advantages of Online Cleaning

Facilities that incorporate online cleaning as part of their asset care strategy report improvements in both reliability and process safety. Key benefits include:

- **Minimized unplanned downtime**: Enables continued operation during decontamination, maintaining production targets.
- **Enhanced process safety**: Reduces the presence of pyrophoric material, LELs, and toxic gases that pose ignition and exposure risks.
- **Improved thermal efficiency**: Restores heat transfer in exchangers and reduces backpressure in fouled vessels, supporting optimal system performance.
- **Reduced turnaround burden**: Units enter scheduled outages with lower contamination levels, allowing for more focused maintenance windows.

As an industrial cleaning solution, online cleaning supports long-term asset integrity while aligning with strict production schedules.

## Typical Applications in High-Throughput Units

Online cleaning is commonly used in several areas of refining and petrochemical operations.

Units that frequently benefit from this approach include:

- **Distillation columns** – removal of heavy hydrocarbon fouling
- **Heat exchangers and condensers** – restoration of thermal conductivity
- **Fin fan coolers** – mitigation of air-side fouling
- **Reactor systems** – neutralization of polymeric and coke deposits
- **Piping and process vessels** – flushing of residuals and volatile gases

For example, during an online cleaning of a vacuum tower bottoms exchanger system, *Company's* customized chemistry successfully removed persistent fouling and restored optimal flow without requiring a shutdown. This solution enabled the plant to maintain unit performance and defer cleaning to the next planned turnaround—an ideal scenario for facilities managing high-volume operations under tight scheduling constraints.

## Strategic Role in Turnaround Planning

Online cleaning is not a substitute for a full turnaround, but it is a critical tool for bridging the gap and optimizing pre-turnaround conditions. Decontaminating systems in advance reduces hazardous inventories, shortens outage timelines, and improves safety for entry and mechanical work.

## Best Practices for Online Cleaning

Effective online cleaning requires coordination between operations, process engineering, and third-party decontamination specialists. The following best practices are recommended:

- **Pre-cleaning analysis**: Review fouling patterns, operating data, and material compatibility to determine the optimal chemical formulation and flow strategy.
- **Controlled chemical injection**: Use metered dosing and engineered dispersion systems to ensure uniform contact and avoid channeling or thermal shock.
- **Real-time monitoring**: Track effluent concentrations (e.g., $H_2S$, VOCs, iron) to validate decontamination progress and adjust in real time.
- **Post-cleanout documentation**: Archive analytical data and operational impacts to inform future cleaning cycles and reliability-centered maintenance plans.

## Bridging the Gap: Cleaning for Long-Term Reliability

As the operational tempo of refining and petrochemical facilities intensifies, unplanned shutdowns due to fouling or contamination are no longer acceptable. Online cleaning enables technical teams to proactively manage equipment health, minimize risk, and stay on schedule—

without interrupting production.

For plants facing tight margins, strict emissions targets, or aging infrastructure, online cleaning is not just a maintenance tactic—it's a strategic enabler of long-term operational excellence.

**To explore how *Company's* customized online cleaning programs can support your plant's goals, connect with our team.** We bring over three decades of field-tested expertise to every engagement.