

Take advantage of downtime for heat transfer system maintenance

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Production downtimes provide an excellent opportunity to perform important maintenance on your heat transfer system.

Safety

Downtime maintenance is important to the safety of your HTF unit.

- **Leak repairs**—Repair wet insulation and underlying leaks to help avoid potential fires. Repack valve stems, replace gaskets and make repairs to flange pairs where temporary injectable sealant was used.
- **Equipment repairs or replacement**—Use process-entry and lockout/tagout permitting procedures to properly prepare equipment for repair or replacement.
- **Sample port installation**—This requires tie-points for high-pressure inlet and low-pressure return and a way to cool fluid for collection.
- **Fire safety equipment checks**—Check handheld fire extinguishers, monitor nozzles, safety showers, sprinkler systems and the gas sparge for the heater firebox.
- **Restock safety supplies**—Replace used spill response kits and oil-drying media, gloves and first-aid supplies. Ensure supplies are in good condition and not expired.

Preventive maintenance

- **Inspections**—Evaluate area switch gear, pressure relief devices, heater coils or burners, thin-walled expansion joints or flex-hose, utility systems such as cooling water, instrument air or nitrogen, barrier fluid systems, lubricant checks and top-ups. For pumps and heaters, see the manufacturer-issued inspection and maintenance guidance.
- **Calibrations**—Conduct periodic checks of liquid level instruments and flowmeters, critical interlocks, pressure sensors and transmitters to ensure proper control of fluid temperatures and to protect fluid life.
- **Mechanical integrity**—Check vibration monitoring and repair, vessel inspections for corrosion and wall thickness, and proper operation of the inert-gas blanketing system.

- **Alignments**—Check alignment for motor shafts of rotating equipment, including pumps, blowers and fans.
- **System flushes and cleaning**—Poor performance may be due to system deposits. Consult the fluid manufacturer for the best cleaning option. For fluid side cleaning, keep fluid and system compatibility in mind. If this requires outside resources, schedule appointments in advance.

Fluid servicing

Discuss recent fluid analysis results with your fluid technical expert in advance of shutdowns to determine what actions might be needed to ensure optimal operations. Look for elevated acidity, unusual or large amounts of solids or contaminants, and a degree of thermal degradation.

- **Fluid sampling**—Collect a well-circulated, representative sample. Cool to less than 200°F and promptly seal for proper analysis. Review proper sample collection with the fluid manufacturer and discuss sample results and recommendations in case action is required.
- **Filters/strainers**—Filters operate full-time and continually collect debris. Replace or clean filter elements and pump-suction strainers, if needed. Examine the debris for any materials that are incompatible with the fluid. For systems without filters, commercial filtration services are available. If connections to and from the heat transfer system are required, identify connection points, or plan to have them added.
- **Fluid quality improvement via partial to full replacement**—Poor fluid quality may require venting, drying of excess moisture, filtration, dilution or even replacement. Get your analysis prior to shutting down so it's easier to fix problems before restarting. If new fluid or support services are required, make arrangements during shutdown.
- **Dispose of "light ends"**—Organic vent condensate from heat transfer systems require drumming out and proper disposal. Consult with site waste management supervision for assistance.

General

Downtimes let you catch up on area maintenance.

- **Housekeeping**—To improve operational effectiveness, oily residues should be cleaned from walkways, structural steel, siding, equipment and piping to reduce fire risk. Put tools, buckets, hose and other equipment back in place.
- **Line labeling**—Pipe racks can become congested, which makes tracing pipeline routes difficult. Line labeling and direction-of-flow arrows can help. This includes HTF piping as well as process and utility piping. Order labels in advance.
- **Equipment/valve labels and tags**—Vessel labeling is an OSHA requirement, but labeling of valves and minor equipment can also be helpful to operators and mechanics, as well as an aid in training programs.
- **Tie-ins for future needs**—Potential needs for piping modifications can include tie-points for new circuits, piping upgrades, additional or new instrumentation, repairs to old piping and the addition of thermal expansion loops. These require engineering planning in advance of the shutdown to ensure system specifications are met.
- **Training**—Operator training should involve an in-depth review of the system, its components, flows and controls while the system is down.

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