

Restarting Metalworking Systems after an Unplanned Shutdown

Overview

The purpose of this document is to provide information pertaining to restarting idled metalworking systems. Use this technical bulletin as a guideline to create a plan to return equipment back to service.

Metalworking Fluids-Water Soluble, Individual Machines

Water soluble metalworking fluids such as soluble oils, semi-synthetics and full synthetics operating in individual machines can quickly return to service after a few easy checks. Industrial parts washers using water-based cleaning solutions may also follow/adapt these steps to return to operation.

1. **Removal of tramp oil-** Prior to circulation, skim off any oil floating on top of the system with a skimmer.
2. **Replace filters-** Replace filters on the system, including auxiliary equipment such as high-pressure pumps, etc. that may have filters associated with it.
3. **Remove chips-** remove any chip build up from chip drags, fixtures, etc. Cycle the chip drags to remove chips within the machining area.
4. **Visually inspect-** If equipment doors remained closed during the idle period, examine machine for rust on componentry. If rust is present, it may need to be removed manually prior to production so that it does not affect machine tolerances.
5. **Circulate** – the coolant for several hours if possible.
6. **Check fluid** – with a refractometer (or a titration kit for cleaner systems) to ensure concentration is within recommended operational range.
7. **Add Concentrate-** Add a small amount of fluid concentrate (~1%) to the system to boost fluid components.
8. **Verify Concentration-** via refractometer (or a titration kit for cleaner systems) to ensure proper concentration.
9. **Sample system-** following appropriate site sampling procedures for submittal to Castrol LabCheck.

Metalworking Fluids-Neat Oil

Neat oil systems may be restarted after fewer checks than water-based systems. Without water present, these systems are less prone to issues.

1. **Ensure filtration system is operating** – verify filters are functioning properly per system requirements.
2. **Check flow** – ensure the system has the proper flow, and it free of blockages in the lines.
3. **Sample system** – following appropriate site sampling procedures for submittal to Castrol LabCheck.

Castrol LabCheck Sample Analysis

Knowing the condition of the fluid is key to maintaining performance. Fluid systems are dynamic in nature and performance can change during unplanned idle periods. It is important to sample the fluid before restarting and continue sampling at regular intervals.

For water-based metal working fluids, the following tests are performed as part of our routine analysis:

- Concentration
- pH
- Bacteria/Fungus
- Hardness
- Chlorides
- Dirt
- Other critical product components as needed

For neat oil metal working fluids and lubricants, the following tests are performed:

- Elemental product components
- Wear metals
- Atmospheric contaminants
- Elemental contaminants
- Viscosity
- Water contamination
- TAN
- Particle Count

By taking the time to check on these conditions, you help ensure that the product in use is operating at its full potential.

Sampling, Submitting, Testing

Once you have pulled a system sample, you can now send the sample to the lab for testing.

Below is a quick step by step guide:

- Pull system sample to be tested
- Properly label sample bottle with Customer Name, Customer Location, System/Unit Name, Product Name, Date Sample Pulled
- Tape the sample bottle lid and obtain the SDS for the product
- Fill out sample submittal form to submit with the sample
- Package up the sample, the SDS, and the sample submittal form and send to the address below:

Castrol Industrial LabCheck
2450 Hassell Road
Hoffman Estates, IL 60169

Once the package has been received, a Castrol Technologist will contact you to finalize the sampling process and set you up in our LabCheck sample analysis website. Once the sample tests are finished, you will receive a customized report in LabCheck emphasizing the results to the tests referenced above.

www.labcheckonline.net

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