Best Practice Case Study

Lou-Rich Inc.: Coolant Recycling Program Achieves Waste Reduction

Company

Lou-Rich is a 100% employee-owned contract manufacturing company founded in 1972 in Albert Lea, Minnesota. It is a part of Innovance Inc., a collaborative group of four companies dedicated to improving manufacturing. Lou-Rich uses a wide range of machining processes to manufacture custom components used in numerous industries including aerospace, agriculture, construction, automotive, and medical technology.

LOU-RICH
Contract Manufacturing • Engineered for Success

Motivation

Lou-Rich is driven by a philosophy of continuous improvement on their production floor. As an employee-owned company, workers feel a unique sense of ownership and initiative to enact change, and their implemented projects often result in tangible benefits to the operators' everyday work. This strong company culture is a fundamental component for Lou-Rich's success in both their daily operations and long term strategy.

One operation in which Lou-Rich saw opportunity to improve was their machine coolant usage. Coolant is used in machine tools during turning, milling, and other cutting processes to provide lubricity and diffuse friction heat. Maintaining coolant quality (e.g. cleanliness, concentration, and pH) is essential for ensuring product quality while maximizing the lifetime of the cutting tool. However, as coolant is used and circulates within the machine tool, it will

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age and become contaminated with metal fines generated from cutting, tramp oils from the machine, and other soils entering the machine sump that may cause bacterial growth. Thus, the coolant eventually needs to be replaced and disposed, both of which are significant operation costs. Given the large number of machine tools at Lou-Rich, it was clear that reducing coolant waste would lead to significant cost savings.

Approach

After researching potential options to improve the efficiency of coolant usage, Lou-Rich determined that the best solution was to reclaim and recycle their coolant. The company was using a stable, highly engineered coolant that was compatible for repeated use. The fluid's resistance both to bacterial growth and emulsions formed with tramp oils was a critical ingredient for recycling to be feasible.

Lou-Rich worked with their coolant supplier, DuBois, to design the recycling system for cleaning their old coolant and implemented it in 2014. The first step requires the use of a mobile sump sucker to pump old coolant from the machines and transfer it to the recycling system's collection tank, where it is held until enough has accumulated for processing. The coolant is cleaned by a series of oil skimming, filtering, and coalescing processes to remove tramp oils and metal fines before entering a second holding tank. A return line allows the cleaned coolant to recharge machine sumps directly. Since the cleaning processes can deplete important additives in the fluid such as biocides, the recycled coolant is proportionally blended with virgin coolant before being returned to the machine.

Results

By implementing their coolant recycling program, Lou-Rich was able to reduce their annual coolant concentrate purchasing by one-third, while reducing their coolant waste by 11,000 gallons per year. The system provides an overall yearly savings of $25,000-$30,000 from saved coolant purchasing and disposal costs, which helps the company run a more sustainable operation while gaining a competitive advantage and improving their bottom line.

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