



How to Increase Profits by Recycling Metalworking Fluids

By: Darrell Milton,
Eriez® Director of Heavy Industry
and Ron Wendt,
Eriez® Fluid Recycling Product Manager



Chips and solids are captured in a large basket.

How to Increase Profits by Recycling Metalworking Fluids -
White Paper

The leaders in metalworking and metal forming industries understand fluid recycling can have a positive effect on their bottom line.

Recycling Can Save 60 Percent in Coolant Costs

Coolants have improved significantly and are now better than those available 10 or 15 years ago. They last longer, but the cost has also increased. Depending where a business is located, shop managers may pay up to \$50 per gallon for coolant. Disposal costs also vary significantly, anywhere from 25 cents to \$6 per gallon.

A coolant can be up to 10% concentrate, mixed with 90% water. Companies often pay to haul the used coolant away and refill machines with brand new coolant, greatly adding to the cost of maintaining the equipment.

Metalworking shops have a “cradle to grave” responsibility for coolant, even if a certified company is hired to dispose of their used coolant. Federal and state authorities can hold the generator of the waste accountable for clean-up costs if coolant is not disposed of properly. This can be expensive and damage a company’s reputation.

This is where fluid recycling is valuable. Companies can save up to 60 percent of the coolant concentrate by removing tramp oils and solids. While this is a sizable payback, there are additional factors that contribute to potential return on investment (ROI).

Enhance Machine Tool Performance

Removing tramp oil from the manufacturing process is critical as removal improves fluid performance and longevity, air quality, bacterial resistance, corrosion resistance and tool life. Removing small fines will lead to better tool life, better part finish and reduced machine tool wear.



Sump cleaners easily move from machine to machine.



50-gallon electric sump cleaner.



Dirty coolant is vacuumed from the machine's sump.



Clean coolant is returned to the machine tool.

Improve Air Quality

Fluid recycling can limit liability and increase the health and safety of the individuals working in the shop. Removing tramp oil from coolant on a regular basis results in less oil mist in the air, which improves air quality. Keeping the working area cleaner also reduces the amount of slippery moisture on floors, contributing to a safer atmosphere for shop workers. A fluid recycling program also helps companies achieve and maintain ISO 14000 status.

Eliminate Bacteria and Minimize Odors

While most machines have a system to remove a majority of the chips, smaller fines left behind settle in the tank. Because the residue is full of anaerobic bacteria, these leftover fines often form as smelly, greasy sludge on the bottom of the tank. There is no effective process or coolant additive to penetrate the sludge and kill the bacteria. It must be physically removed on a regular basis. Using a sump cleaner, a CNC machine tool sump with 50 gallons of coolant and 20 pounds of sludge can be completely cleaned in just 10 to 15 minutes, with the filtered coolant returned to the sump for re-use.

A sump cleaner filters the fluid it removes from the sump, making it possible to pump the filtered fluid back into the sump. This reduces both the need for new coolant concentrate purchase and disposal. Customers using a sump cleaner typically see an ROI in just a few months and continue to accumulate savings.

Cleaning Coolant on Regular Basis Pays Off

Disposing of coolant without cleaning the machine afterwards results in downtime and worker intervention. New coolant immediately mixes with bacteria and, therefore, lasts a shorter time. Cleaning machine tool sumps and the coolant on a regular basis improves the life of the coolant and reduces costs.

Fluid Recycling Approaches

Acceptable solutions and the accompanying equipment to keep fluids clean are numerous and depend on the complexity of machinery and the manufacturing process. Choice of fluid recycling equipment include sump cleaners, coolant recycling systems, high speed centrifuges, coalescers, oil skimmers, permanent magnet filters, and magnetic chip conveyors.

Fluid recycling equipment can be portable to treat fluid at the machine, or a centrally located coolant recycling system can be used based on customer needs and desires.



Eriez coalescers are positioned next to a sump to remove tramp oils.

For example, companies can achieve an excellent ROI with a simple sump cleaner instead of the traditional time-consuming methods used to dispose of fine particulates. A sump cleaner is a portable, powerful filter that helps shops clean machines efficiently and faster than a Shop-Vac® or a shovel and rake. A sump cleaner reduces labor and downtime for cleaning the machine.

Summary

The economic benefits of recycling metalworking coolant are enormous. The larger the shop, the larger the potential savings. Each time the coolant is reused, money is saved through decreased coolant purchasing and disposal costs. With attention—primarily by making sure contaminants do not build up to the point of interfering with performance—most coolants can be used many times before they must be replaced. This is a return on investment that can be substantial.

About Eriez®

Eriez is recognized as world authority in separation technologies. The company's magnetic lift and separation, metal detection, fluid recycling, flotation, materials feeding, screening, conveying and controlling equipment have application in the process, metalworking, packaging, plastics, rubber, recycling, food, mining, aggregate and textile and power industries. Eriez manufactures and markets these products through 12 international subsidiaries located on six continents.

For more information, call 814.835.6000, visit www.eriez.com or email eriez@eriez.com.

Eriez World Headquarters is located at 2200 Asbury Road, Erie, PA 16506.