

METALWORKING FLUIDS

CONTROL AND MAINTENANCE OF COOLANTS

Product Selection as seen in Lesson #2 is very important. Certain products simply will not perform a particular machining or grinding operation. Other products are not safe to use on certain metals. And in many jobs there are a number of products that will do the job, but one type works best. This product increases production, increases tool life, reduces rejects, makes for more pleasant working conditions, and saves money and increases profits overall, So it is essential that you choose the best product available for the machining and/or grinding operations in your accounts.

Let's now assume that you have selected the right product and the right product concentration. You're definitely off on the right foot, but you're still far from a smooth-running cutting fluid account.

After you have chosen the product and mixing dilution, the first thing to do is clean the machine or machines. Putting fresh new coolant into a dirty sump is asking for problems. You have most likely gotten a shot at this account: because you've convinced the engineer or maintenance foreman that you could solve a particular problem. And most probably the reason for his problem was bacteria and tramp oil. (Tramp oils are a combination of oils from the work and the machine which end up in the cutting fluid.) Don't put clean coolant into a dirty machine. If you do, chances are you will not solve his problem and you won't have an account very long. Insist that they take the time to clean the machine with MACHINE SUMP CLEANER prior to charging with fresh coolant.

MACHINE SUMP CLEANER mixed 1 part to 25 parts water will do a very nice job of cleaning the coolant tank. Allow the MACHINE SUMP CLEANER to recirculate in the system a minimum of two hours. However, the longer the cleaner is recirculated the better. Do not compromise in this procedure, for it is very important. After the MACHINE SUMP CLEANER has recirculated a minimum of two hours, drain the MACHINE SUMP CLEANER from the tank and rinse twice with clean water. Any residual MACHINE SUMP CLEANER can cause foam problems in the cutting fluid. So it is important to remove all the MACHINE SUMP CLEANER from the tank.

Immediately after the second rinse, charge the tank with the selected coolant. If you are charging the system manually, fill the tank with water and add the cutting fluid slowly to the water where there is the most agitation. **A better way to charge the tank is via one of Milano's automatic dispensers.**

Once the tank is filled, even if you have used one of the automated dispensers, check the coolant concentration. This can be done using either the Milano Lubricoolant Titration Kit or a Refractometer. Charts for both the Titration Kit and the Refractometer are available for all Milano coolants (Cutting Fluids).

The first two weeks after installing a new coolant are very critical. Service is always important, but never more important than during these first two weeks. You must check the concentration daily for the first three days. This is a new coolant, and unless you are there the machinists will treat it the same as they did the old coolant. During the first week, you will get a feel for how the coolant runs. If you want to run a coolant at a 1 to 20 ratio, you cannot continually add make-up at 1:20. Water is continually evaporating from the system, which will increase the concentration. The coolant concentrate does not evaporate. Coolant is lost only through carryout on the parts, splash out and leaks in the tank. So if you want to keep a system at 1 to 20, your make-up should be in the 1 to 40 range. The first two weeks will give you a good idea of just how much concentrate is required to maintain concentration.

Remember, if you charge the tank with a drum proportioner set at 1:20, you cannot continually make up to that tank at 1:20. It will soon be 1:10 and continue to increase in concentration. Set the proportioner at 1:40 by changing the orifice and see how it runs for the first week or two.

After deciding on the proper make-up, you must periodically check the system and the proportioner with the titration kit or refractometer to make sure they stay in line. A coolant system out of line for only a day or two can cause problems!

Cutting fluids are designed to run in the tanks with a pH above 8.5. If the pH drops below 8.5 something is wrong and you are asking for rust and rancidity problems. Most Milanco products when first added to the machine will have a pH between 9.0 and 9.5. This initial pH will drop because of carbon dioxide which is picked up from the air. The pH should buffer out between 8.5 and 9.0. This is the optimum pH range to run a coolant. It is high enough to aid in rust and rancidity control and not too high so that it causes dermatitis problems.

Check the pH. If it gets too low, something is wrong. Either acid contaminants or bacteria are getting into the system, or the concentration is too lean.

We have pH paper available for checking pH and lubriculture sticks for checking bacterial levels. Use these items to help you control your cutting fluid systems.

Good housekeeping is also important. If tramp oil is allowed to build up in the tank and this tank sits over a weekend or holiday, you are most probably going to have bacteria problems. Educate your employees, impress upon them the importance of skimming tramp oil off the tank. It takes little time to do and can make a big difference in how well a coolant performs.

If your machine is having problems, it is important that you learn about them as soon as possible. Check some of the parts to see if there is any rust, ask the operators how the coolant is doing, and check the coolant usage level. Find out why they used more or less this week than last.

Service is part of the Milanco deal. Service is something they probably did not get from the competition, and this lack of service is probably the reason they've had problems. We give the service he needs.

Milanco has cutting fluid additives which can solve a lot of problems and save a lot of accounts. Have some additives on hand at all times and don't be afraid to use them. Earlier I talked about the importance of maintaining pH. Milanco additives not only will increase the pH to about 9.0, but will have a buffering effect on the pH which will help to keep that pH around 9.0. Additives kill rancid odor immediately, but also have an effect on the bacteria causing these odors. Because additives increase the pH and improve the quality of emulsions, they make the coolant much more resistant to future bacteria problems.

The new Resource Conservation and Recovery Act has made it very difficult to dispose of coolants. The following steps can help reduce coolant disposal for the customer, and will save money and cure headaches. Concentration and pH control, good housekeeping, dispensing equipment, and additive usage will help to prolong tank life and reduce disposal problems and costs.