

RECOMMENDED PROCEDURE FOR MAINTAINING COOLANTS

The object of maintaining coolants is to prolong their effectiveness without sacrificing performance. The following procedure will help maximize performance and longevity for all of Hangsterfer's water dilutable products.

1. Concentration Consistency

The most important part of coolant maintenance is being consistent with the concentration. Every coolant application has an ideal concentration at which tool life, finishes, etc. will be maximized. Consult your authorized Hangsterfer's distributor or factory representative for more information about concentration recommendations.

The recommended concentration is referred to as the Goal Concentration (GC). This is the level at which the coolant in the machine should be kept. How you maintain the GC is the trick to coolant maintenance.

When you first charge up a machine, you mix the product in the ratio necessary to yield the GC. From this point on, anything added to the sump to make up lost coolant volume will be referred to as the Make-up Concentration (MC). Usually the $MC = (1/2) * GC$, expressed as a percentage, or $MC = 2 * GC$, expressed as a ratio (Water: Concentrate).

Examples: $MC\% = 1/2 GC\%$ or $5\% = (1/2) * 10\%$ or $20:1 = (2) * 10:1$. For the sake of consolidation, all future references to concentrations in this document will be assumed to be expressed as %'s.

This suggests that a 5% MC will maintain a 10%GC. Considering typical evaporation rates for water from the coolant and typical concentrate depletion, this formula usually work. Periodic checks of the concentration with a Refractometer will help identify the optimum MC. If $(2) * MC$ does not yield the desired GC, then adjust the MC accordingly. If the Actual Concentration $AC < GC$, then slightly increase the MC. If $AC > GC$, then lower the MC. The MC should never go below 0.5% or 200:1.

The main reason for maintaining the concentration this way is to help insure that the additives we use to provide superior performance and longevity are going to be in the correct ratios with the water you add. By adding straight water or straight concentrate, it can become difficult to keep the whole system properly balanced. Since some of the additives do get consumed, it is important to replenish them.

If mixing by hand, always add the concentrate to the water and mix thoroughly before adding to the machine. The coolant should always be homogenous before going into the machine. If using a proportioning unit, make certain that the output is indeed the desired concentration. Also, don't forget to change the proportioning unit from the GC setting over to the MC setting.

2. Tramp Oil Removal

This is the next most important step in the maintenance of coolants. Tramp oil is the term used to refer to the way oils and hydraulic oils that collect in the sump. Typically they will mix into the fluid present in the sump.

Hangsterfer's water dilutable products are designed to reject mixing with these tramp oils. Since these oils are not intended for use in cutting applications, they can only interfere. Making it easier to remove them makes it easier to keep the coolant running at maximum performing levels.

We also have available a full line of way and hydraulic oils that are coolant compatible. Most of the big name brands make way and hydraulic oils that were designed for lubrication systems on machines long before the introduction of water dilutable products. Many of the additives they use will interfere with the chemistries of water dilutable products. Ours are formulated to improve separation from coolants.

In addition to interfering with the coolant's cutting performance, tramp oils can also contribute to the foul odors and growth of microscopic organisms. By skimming tramp oils from the surface, you can prolong the life of your Hangsterfer's coolant even further.

The equipment and methods for skimming tramp oils are as varied in effectiveness as they are in price. The method you select should be capable of handling the volume of tramp oil your machines generate. Some methods will skim the tramp oil while it is still in the machine like belt skimmers, wheel skimmers, and some Coalescers. Others process the coolant while it is in a separate holding area like decantation and most other Coalescers.

Our concern is that the tramp oil be removed. You can consult your authorized Hangsterfer's distributor or factory representative for suggestions on the best method available for your situation.

3. Fine Removal

The last step in coolant maintenance is the removal of small particulate from the coolant and the bottom of the sump. The chips and dirt that accumulate in coolant from normal machining processes can eventually become problematic.

The chips from some materials are small and light enough that they stay suspended in the coolant. Over time as the volume of these particles increase, tool life and finishes can be affected. In addition, these same particles have been found to cause most of the reported cases of skin irritation.

Chips, dirt and other particulate will often settle to the bottom of the sump. Here they begin to create the ideal conditions for growing bacteria and fungus. As swarf or sludge accumulates, a "river bed" effect begins. This area, if not cleaned once or twice per year, can be difficult to manage from the standpoint of rancidity.

Both problems with fine accumulation can be prevented with proper filtration. Again, as with tramp oil removal, the methods and their effectiveness vary. You can consult your authorized distributor or factory rep for assistance.

The better a job you do at maintaining your Hangsterfer's coolant, the longer it will last and the more productive it will be for you.

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