

No. 051 Percentage of oil concentrate to water ratio in a water soluble cutting oil How to use

【Question】



We carry out our tapping processing using a water soluble coolant type cutting oil. I have heard there can be a severe change in the taps performance using different types of coolants and cutting oils. What should I be careful of when selecting a coolant and cutting oil?

【Answer】

I think the most important point is to control the percentage of oil concentrate to water ratio in a water soluble cutting oil. As the concentrate ratio decreases, the tap wear happens faster and problems of chip welding develop. There are various types of measuring devices to check the oil concentrate to water ratios, but I think that a hand held refractometer works best for an onsite inspection. Also if the cutting fluid spoils and becomes rancid or is contaminated, it should be replaced immediately.



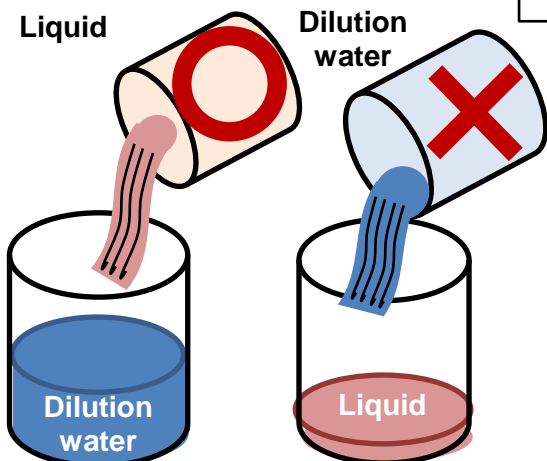
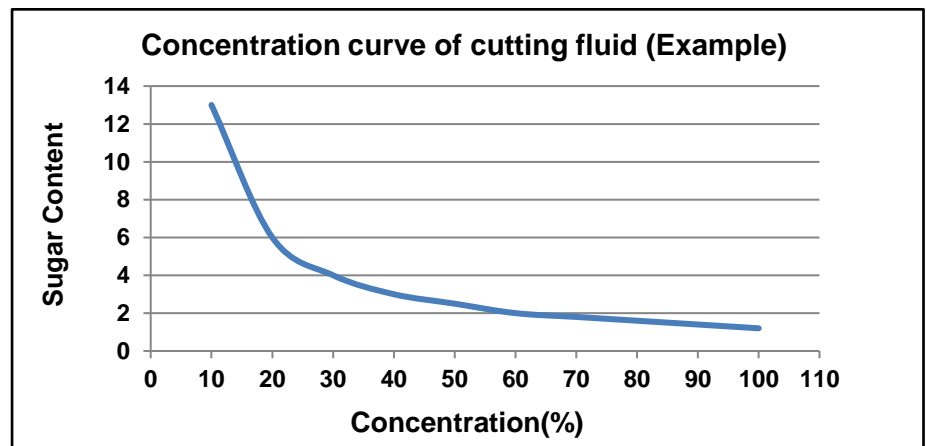
【Advice】

A refractometer is a measuring instrument for checking the sugar content in fruits and is also used for other liquid percentage ratio mixtures. It is also used for measuring the oil concentrate to water ratio in water soluble cutting fluids. Usually, the dilution ratio of oil concentrate to water in a soluble solution is 20 or 30 to 1. You need to use the dilution ratio recommended by the oil concentrate manufacturer. The oil concentrate percentage ratio varies with each oil manufacturer, so it is important to create an oil concentrate to water ratio chart.



Refractometer

Percentage Chart for a refractometer measurement of oil concentrate values and water dilution ratio.



Please use the appropriate dilution method for water-soluble oil concentrate. It is best to create an evenly balanced mixture (stock solution) of water and oil concentrate in small amounts and add this mixture to the larger amount of water while mixing and stirring well to dissolve the concentrate.

Conversely, if the oil concentrate is directly poured into the water tank, it will gel and may not dissolve uniformly.

When replenishing the water soluble oil concentrate, make a diluted liquid of water and oil concentrate in a pail or can and pour it into the coolant tank.

If you add the oil concentrate at a ratio of 1 liter to the 19 liters of dilution water, it becomes a 20 liter water-soluble lubricant. This yields a 20 times dilution.

The concentration of oil concentrate to water is "5%".