

GLOSSARY OF METALWORKING FLUID TERMINOLOGY

Term	Description
Acid Number	Amount of free fatty acid or other acidic material in an oil. High numbers may indicate the degradation of oil. Also called neutralization number.
Alkalinity	A test designed to measure the concentration of product in the sample based on the alkaline components of a fluid.
Bacteria Count	A test to determine the approximate bacterial population per ml on a sample dip slide.
CBN	Cubic Boron Nitride. A high-performance material used in grinding wheels.
Chloride	A negatively charged chlorine atom commonly found in water-based metalworking fluids.
Chlorine	A common extreme pressure additive used to promote lubrication.
COD	Chemical Oxygen Demand measures the organic content of natural waters, municipal waste waters and industrial wastes.
Conductivity	Indication of the ionic content.
Copper Corrosion Test	A qualitative measurement of the level of sulfur activity in straight oils. This test evaluates the degree of corrosion on copper.
Defoamers	Metalworking fluid additive that decrease the amount of foam.
Dermatitis	An inflammatory response of the skin which may be reversed when the exposure ceases. Signs and symptoms greatly vary.
DI	Deionized Water. Water which has been chemically treated to remove dissolved ionic salts.
Dipslide	Slide prepared with a growth media to measure growth of bacteria or molds in water diluted fluids.
Dirt	Undissolved solid material in a system which can be measured by filtration at a specified micron size.
Entrainment	Air bubbles created and trapped in a fluid due to an excessive amount of foam.

Term	Description
EP	Extreme pressure. Compounds which contribute to providing lubrication to withstand extreme pressures and/or temperatures.
Fat Content	Estimates the amount of ester or natural fat in a sample.
Fatty Acid Content	By GC, measures the fatty acid levels in a sample which function as corrosion inhibitors and lubricants.
Flash Point	Lowest temperature of a liquid at which the vapor of a liquid ignites with air near the surface of the container.
FOG	Fats, Oils and Greases content are measured using one of two extraction procedures. Value is used in the evaluation to waste treat a product.
Free Alkalinity	A measure of strong alkalinity to an endpoint of pH 8.3.
Free Oil	Tramp oil contamination in a system that is not emulsified product oil.
Fungus	Dip slides used to qualitatively determine the presence of mold.
Galvanic Reaction	The energy created by the process of corrosion between tow dissimilar metals.
GC	Gas Chromatography. Analytical instrument which measures the volatile components of materials.
Hardness	Measurement of calcium and magnesium present in a metalworking fluid and reported as grains per gallon calcium carbonate (CaCO ₃).
Lube Content	By GC, measures the functional lubricant additives in a fluid sample.
Lubricity	Ability of an additive, oil, or grease to control friction and wear by introducing a film between moving surfaces in contact.
Neat Oils	A metalworking product which is based on petroleum oils. Synonymous with straight oils.
Neutralization Number	Amount of free fatty acid or other acidic material in an oil sample. Higher numbers may indicate the degradation of oil. Also called acid number.

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Term	Description
Non-ionic Content	A measure of the remaining polyol surfactant in the sample.
Oil Contamination	Determines the presence of non-product oil in the sample.
Passivating Corrosion	A type of corrosion that produces a molecule thick layer that prevents the passage of oxygen to the metal surface and protects the underlying metal from further corrosion.
pH	A measure of the relative acidity or alkalinity of a water-based system fluid.
Phosphorus	A common extreme pressure additive used to promote lubrication. Can be measured by ICP (Inductively coupled plasma spectrometry) to measure the EP level in the sample.
Polyethylene	A durable and flexible material that shows significant resistance to high pH, high alkaline products.
Precipitation Number	Provides a measure of the undissolved solids in a sample.
PVC	Polyvinyl Chloride. A vinyl-based material that is known to degrade when in contact with high pH (high alkaline) fluids.
Refractive Index	A measure of the solids content of the product concentrate and reported in Brix units.
Refractometer	A handheld unit measures the solids of a fluid which bend the light characteristics of the fluid. This measures the concentration of fluids by the solids content.
RO	Reverse Osmosis. Use of a membrane to retard charged ions. The total ion level may be reduced up to 90-95%.
Rust	A product of the ferrous chemical reaction of oxidation.
Rust Test	Provides an indication of the rust preventives remaining in water-based metalworking fluids by the cast iron chip test
Saponification Number	A measure of the soap forming components remaining in the sample.

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Seal Compatibility	An important consideration in determining the use of metalworking fluids with various materials used as seals.
Sediment	Measurement of the settled solids in a sample.
Semi-synthetic Fluids	Metalworking fluids that generally form semi-clear emulsions with very small droplets, combined with mixtures of natural or synthetic emulsifiers.
Sludge Content	A measure of all solid contamination in a sample.
Small Fines	Small pieces of metal debris caused by the machining of metal products.
Soluble Oils	Metalworking fluids produced by mixing mineral oil with emulsifiers so that when water is added, they emulsify, producing an emulsion or dispersion of oil in water.
Straight Oils	A metalworking product which is based on petroleum oils. Synonymous with neat oils.
Synthetic Fluids	Metalworking fluids that are petroleum oil free and completely water soluble.
Total Alkalinity	Determines the amount of strong and weak alkaline components in the sample; can also be used as an indicator of product concentration.
Total Sulfur Content	Sulfur is a common extreme pressure additive used to promote lubrication. The total amount of EP additive in the sample may be measured by XRF (X-ray fluorescence spectrometer).
Tramp Oil	A measure of the non-product oil contaminating the fluid sample dilution.
TSS	Total Suspended Solids refers to the solid floating/dispersed material found in an effluent sample.
Turnover Rate	The time a production system uses the amount of concentrate or fluid it took to initially charge the system.
UV	Ultraviolet radiation. Used to kill bacteria and fungi in a water source.
Viscosity	A measure of the resistance to flow of a straight oil.

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Term	Description
VOC	A Volatile Organic Compound is a carbon containing substance that evaporates. The VOC value indicates the degree of chemical evaporation into the atmosphere.
Water Content (in oil)	A measure of the water contamination in a straight oil or solvent based product.

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