

COOLANTS

New Generation Coolants

Grinding with diamonds is an interaction of glass with the diamond bonding matrix and coolant, thereby making diamond coolants a vital component of the grinding process. In partnership with the leading coolant manufacturers, SALEM has aided in the development of a new generation of coolants. These new generation coolants can be more appropriately termed "grinding fluids," as in addition to cooling, they lubricate, inhibit rust and biologic growth, control foam, settle debris and clean particulate from the work surface.



Optimum Concentrations for the Majority of Beveling & Edging Applications

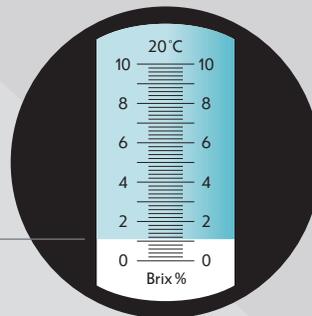
STM990

5%

Concentration

1.1

Refractometer
Reading



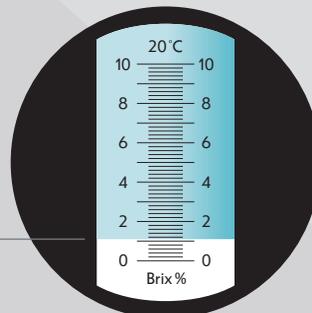
STM980

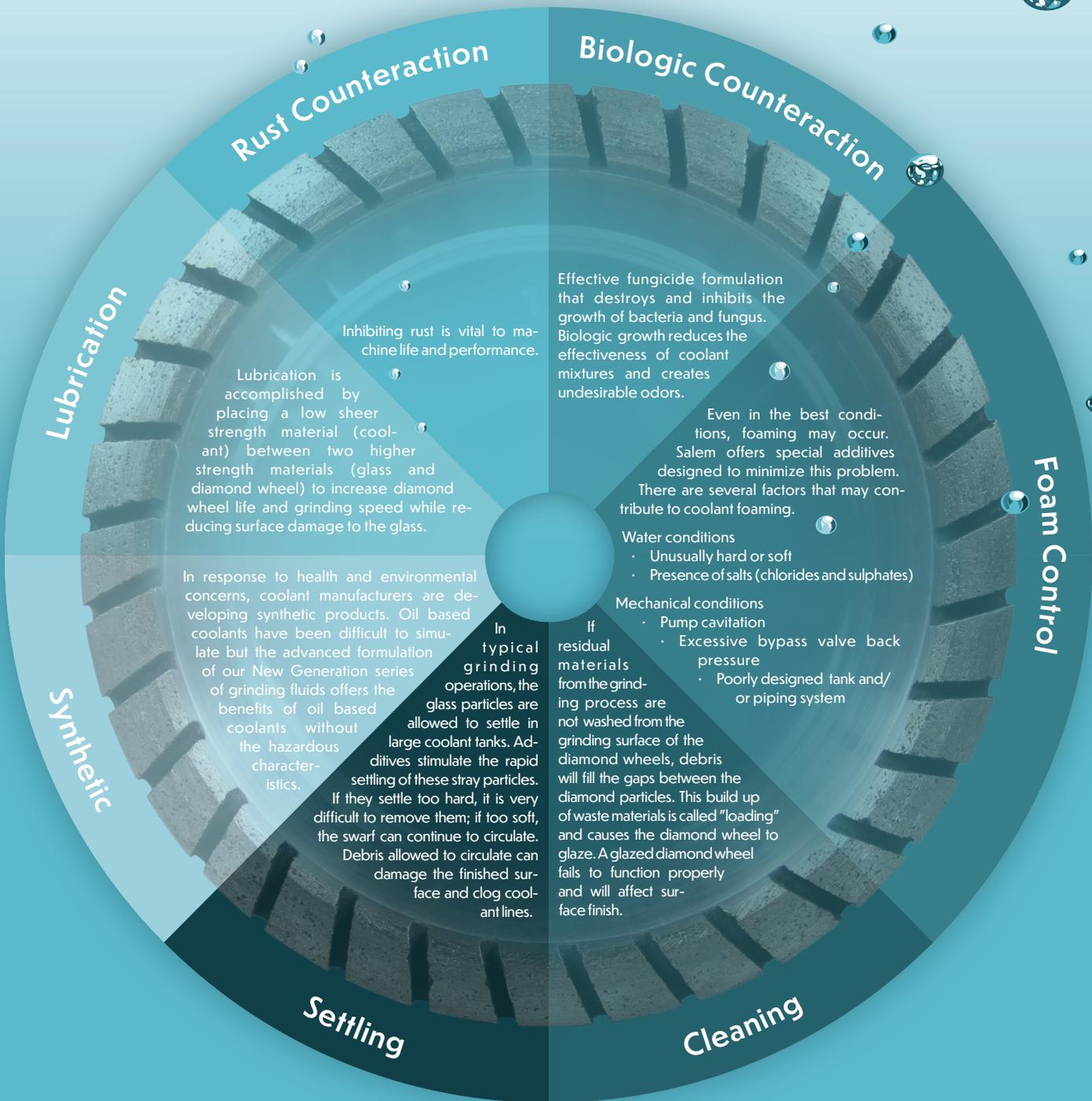
5%

Concentration

1.1

Refractometer
Reading







Maintaining strict controls on coolant mixtures is imperative to maximizing any coolant application. Proper coolant concentrations will:

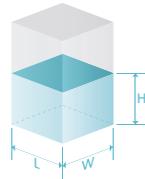
- Extend Diamond Tool Life
- Optimize Diamond Tool Performance
- Reduce Subsurface Damage
- Protect Machinery (Inhibit Rust)

The recommended coolant concentrations (water to coolant ratio) listed in the catalog are to be used as "starting points". There are many external variables that affect coolant performance (water conditions, temperatures, materials being processed, processing speeds etc.) Due to these variables, the optimum concentration will vary from plant to plant and even from job to job. Defining and maintaining the "target" concentration for a particular application will greatly enhance diamond grinding efficiency.

The Following Will Aid in Determining Optimum Coolant Concentrations

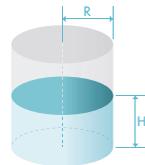
Volume (in gallons) for a Square Tank	
$L \times W \times H$ (inside dimensions*)	= Volume (in cubic inches)
$\frac{\text{Volume (in cubic inches)}}{231}$	= Volume (in gallons)

Volume (in gallons) for a Cylindrical Tank	
$\pi \times R^2 \times H$ (inside dimensions*)	= Volume (in cubic inches)
$\frac{\text{Volume (in cubic inches)}}{231}$	= Volume (in gallons)



- L = Length (in inches)
- W = Width (in inches)
- H = Height* (in inches)

*Height (in inches) should be measured as the depth of the coolant mixture not the overall height of the tank.



- $\pi = 3.142$
- R = Radius (in inches) = $\frac{\text{diameter (in inches)}}{2}$
- H = Height* (in inches)

*Height (in inches) should be measured as the depth of the coolant mixture not the overall height of the tank.

Coolant Additives

No matter how well a coolant works, conditions can arise where it is necessary to add chemicals at the tank.

Biocide - If foul odor develops in cooling water, the addition of a biocide tank-side will kill the odor-causing bacteria. However, the bacteria that cause coolant odor are anaerobic and cannot survive in an oxygen-rich environment. They often breed in the swarf of a cooling-water tank that stands idle for one or more days during production lapses. It is often possible to eliminate coolant odor by running the re-circulation pump at least once a day during down times to aerate the coolant. If that does not suffice, adding a biocide usually cures the problem quickly.

Defoamer - Any contaminants to the coolant may cause some form of increased foam or entrained air. Additions of a defoamer will mitigate any negative consequences to coolant contamination, such as oil, cleaners and high levels of suspended solids. Defoamer will help maintain the current coolant performance without having to dump an entire tank when foam or entrained air builds over time.

Flocculant - In glass grinding applications, the presence of glass particles suspended in the coolant reduces the overall grinding efficiency, diamond wheel performance and both diamond wheel and coolant life. Flocculants are chemical compounds used to settle suspended glass particulate, and other solids, to ensure the optimal performance of both the coolant and the diamond wheels.

Grotan biocide

A broad spectrum bactericide/fungicide used extensively to prevent microbial contamination in coolant solutions. This fast acting bactericide will extend coolant life by eliminating foul smelling bacteria and fungi. Grotan can be used in individual sumps as well as large central systems.

5 gallon PailM804-P

STM720 defoamer

A highly effective, non-silicone tank-side defoamer. It is used in very small quantities and maintains long lasting performance. Treatment recommendations are 4 - 8 oz per 250 gallons. STM720 is fully washable under typical industrial cleaning and rinsing practices and allows for subsequent painting after washing, without defect.

1 gallon jugSTM720-G
5 gallon pail.....STM720-P

Ultra Clean flocculant

A flocculant to stimulate rapid yet soft settling of glass particulate suspended in coolant solutions. Maximizes coolant life and retards glass build-up (glazing) on diamond wheels. Reduces coolant line clogging and diamond wheel dressing. Does not require dilution - use at 100%.

5 gallon pail..... M916P
55 gallon drum.....M916D

Synthetic Coolants

Salem's line of synthetic coolants are mineral and petrochemical free while providing rust protection and lubricity to the grinding wheels. The STM line is compatible with polishing wheels including the industry's premier polishing wheel, the Vero wheel.

STM990 synthetic

STM990 is a high performance, synthetic coolant designed to work specifically with flocculant dosing systems – like ChemWest's particle separation systems. The formulation effectively manages the glass swarf by readily combining with an injected flocculant to eliminate diamond wheel glazing, clogged coolant lines and to ensure thorough yet soft settling. The advanced lubricity of STM990 yields optimal grinding performance in the most demanding production applications by promoting high stock removal rates and producing excellent surface finishes. This comprehensively formulated coolant also exhibits low foaming as well as a biocide to minimize odor created by bacterial growth and is stable throughout a broad range of water conditions (hard to soft). Coolant concentration of STM-990 should be checked daily.

5 gallon pail.....STM990-P
 55 gallon drum..... STM990-D
 275 gallon tote..... STM990-T

STM980 synthetic

STM980 is a Salem exclusive synthetic coolant that features a proprietary lubricant and flocculant formulation to optimize the glass grinding process. It is the perfect choice for settling tanks, centrifuges and filter press systems. The advanced lubricity of STM980 yields optimal grinding performance in the most demanding production applications by promoting high stock removal rates and producing excellent surface finishes. The flocculant package manages the swarf to eliminate diamond wheel glazing, clogged coolant lines and to ensure soft settling. This comprehensively formulated coolant also exhibits low foaming as well as a biocide to minimize odor created by bacterial growth and is stable throughout a broad range of water conditions (hard to soft).

5 gallon pail.....STM980-P
 55 gallon drum..... STM980-D
 275 gallon tote..... STM980-T

Sahara Dry synthetic

One pound of Sahara Dry Powder converts 100 gallons of tap water into a state-of-the art grinding fluid. Sahara Coolant provides benefits superior to most other synthetic coolants. It provides good lubricity for smooth grinding and longer diamond-wheel life. This coolant does not foam and causes swarf to settle softly for easier and faster tank cleaning.

40 lb pail MSDB-P



STMSETTLE-19 flocculant

STM SETTLE-19 is a high molecular weight flocculant that is highly effective in the flocculation of many types of total suspended solids (TSS) in liquid coolant systems, including glass, and is ideal for ChemWest particle removal systems. STM SETTLE-19 is concentrated and requires a high dilution of 500:1 (0.2%) before being added to the solids separation system. This flocculant has a very mild pH, which will eliminate the acid-caused corrosion on ferrous metal and aluminum found with the use of many coagulants additives (i.e. Poly-aluminum Chloride-PAC).

1 gallon jug STMSETTLE19-G

STMSETTLE-28 flocculant

STM SETTLE-28 is a blend of organic and inorganic coagulants, that is highly effective in the flocculation of many types of total suspended solids (TSS) in liquid systems, including glass, and is ideal for a variety of solids separators, such as the "CLEAN 20" type systems, as well as industrial centrifuges. STM SETTLE-28 should be added at full-strength directly into the system prior to the dirty return area. Recommended treatment levels will be 200 to 600ppm, depending on TSS load. This flocculant has a moderate pH, which will not exhibit the aggressive acid-caused corrosion on ferrous metal and aluminum found with the use of many coagulants additives (i.e. Poly-aluminum Chloride-PAC).

1 gallon jug STMSETTLE28-G
 5 gallon pail..... STMSETTLE28-P
 55 gallon drum.....STMSETTLE28-D

