

product data sheet

VARCOOL 4055

A multi-functional, high performance boron, formaldehyde, biocide free water soluble metalworking fluid

VARCOOL 4055 is the latest in chlorine free technology offering significant advantages in performance without the use of chlorinated additives. It is inherently low foam and is excellent in soft to hard water. It is suitable for use on a wide range of difficult materials and is a perfect choice for aerospace and high technology manufacturing.

VARCOOL 4055 forms a micro emulsion and therefore offers unrivalled cutting and wetting performance and can be used in all types of arduous manufacturing applications. The performance additives incorporated into the fluid provides outstanding surface finish on all types of iron, steel, aluminium, titanium and other aerospace alloys. The unique formulation prevents scum and soap formation associated with more reactive materials and can be used across a wide range of filtration / types of filter media systems without causing blinding.

VARCOOL 4055 is a boron and formaldehyde free formulation and therefore has excellent operator acceptance and overcomes concerns related to the impending regulations concerning formaldehyde release biocides and use of boric acid in metalworking fluids. Although using formaldehyde free biocide coupled with boron free technology (free of boric acid and its derivatives) Varcool 4055 does contain fungicides and special neutralised bio-stable amines, these are important to give the product the stability and sump-life performance required to contain overall fluid costs.

Applications

Reaming	Tapping and threading
Deep hole drilling and boring	Turning and general machining
Milling	Centerless grinding

Features & Benefits

Excellent performance characteristics	Contains HP lubricity additives
Low foam in all water types	High performance in arduous operations
Good levels of boundary lubrication	Excellent metal forming capabilities
Suitable for use on ferrous, non-ferrous and high performance alloys	
Free of secondary amines, biocide, boron, formaldehyde and chlorine	

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Typical Operations

Drilling & boring	4% to 8%	General machining	6% to 8%
Reaming	8% to 12%	Boring	8% to 12%
Threading, tapping	5% to 10%	Metal forming	4% to 12%
Broaching, sawing	8% to 10%	Turning, milling	4% to 6%

VARCOOL 4055 Typical Characteristics

Characteristic	Typical Data	Characteristic	Typical Data
Appearance	Amber liquid	IP287 corrosion breakpoint	2%
Emulsion Appearance	Translucent	Refractometer conversion factor	1.40
PH (@ 5% concentration)	9.3	Odour	Characteristic

Additional Technical Information

VARCOOL 4055 is a truly versatile water soluble metalworking fluid that can be used across a diverse range of metals, applications and water hardnesses. The performance parameters of VARCOOL 4055 make it an ideal candidate product to be used throughout a machine shop as a high performance general purpose coolant and grinding fluid. If further information is required please consult your local selling agent or Varol Technical Department for further information

VARCOOL 4055 is free of boron; boric acid has been given the status of a SVHC (substance of very high concern). Boric acid derivatives are used in a number of water-mix metal working fluids. Although there has been a lot of work to prove that the boric acid derivatives do not contain free boric acid there has been a move in the market to move away from boric acid derivatives in water-mix metal working fluids.

Bio-stability - these products give excellent bio-control maintaining bacteria levels well within the HSE (Health and Safety Executive) guidelines.

Corrosion inhibition - These products give equivalent corrosion protection, or better than boron containing products.

For maximum service life, coolant systems should be cleaned and sterilised by treatment with

Varclean System Cleaner. This high performance system cleaner can be used whilst production is continued for up to 24 hours prior to exchange of fluids. Please refer to the **Varclean System Cleaner** data sheet for detailed application information or contact your Varol sales agent.

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Varol Metalworking		Varol Machine Lubricants	
Varcut	Neat cutting oils, high performance, extensive range of viscosities	Varlube S Viscosity 32 - 320	Slideway
Varform	Comprehensive range of neat forming oils, including water extendable versions and vanishing oils	Varmulti Viscosity 32 - 680	Multilube - Slideway, Gear, Hydraulic
Varclean	Aqueous based wash fluids, surface cleaners and solvent degreasers	Vargear Viscosity 68 - 460	Industrial Gear
Varcool & Vargrind	Comprehensive range of high performance water soluble fluids. Low, medium, high oil content and synthetics	Varpress Viscosity 5 - 150	Hydraulic oil range covering zinc containing, zinc free and high VI

Operational Recommendations

VARCOOL 4055 is designed to be mixed with water; it has been developed to exhibit full multi-metal compatibility and is suitable for use in soft and hard water types.

Mix emulsions of **VARCOOL 4055** with water by adding concentrate to water and then mixing or use a suitable proportioning mixer unit, these are available on request. The use of an airline to mix the solution is not recommended. Machine top up may require a weaker dilution than the initial machine charge concentration. Recommended concentrations can vary depending on operations, materials, tooling, coolant pressure, coolant flow. The above information is given for guidance. Please contact your representative for further advice.

VARCOOL 4055 should always be stored indoors and protected from frost. Good standards of hygiene and housekeeping should always be adopted when using any metalworking fluid. A separate SDS is available for this product.

As with all modern cutting fluids, concentration control is of paramount importance, therefore regular check by use of a refractometer is recommended for this product. It should be noted that the individual product refractometer correction factor should always be used to ensure accuracy.