

# product data sheet

## VARCOOL 3020

**A multi-functional, high performance chlorine free, biocide free water soluble metalworking fluid**

**VARCOOL 3020** is the latest addition to Varol's very successful 3000 range of long-life coolants. The product is fully protected against aluminium staining, making it ideal for machining aerospace alloys as well as titanium, steel and cast iron. The product has been laboratory tested against all commonly used aerospace aluminium types.

**VARCOOL 3020** is a biocide free formulation and therefore has excellent operator acceptance and overcomes concerns related to the BPD (Biocide Product Directive) and regulations concerning formaldehyde release biocides. Having been formulated for use in medium to very hard water areas it overcomes issues associated with instability, corrosion or sticky soap deposits. These problems are caused by water evaporation leaving calcium and magnesium salts to build up in the coolant. It is this salt build up that eventually destabilises emulsions and causes the problems that many areas of the UK especially the South Coast endure.

**VARCOOL 3020** incorporates the latest performance additives; the product also exhibits excellent lubricity characteristics to provide both good tool life and surface finish. The product is especially formulated to remain clean and stable in the hardest of waters without excessive soap formation and is highly resistant to bacteria formation whilst exhibiting excellent corrosion resistance and operator acceptability

### Applications

Reaming	Sawing
Deep hole drilling and boring	Heavy duty turning and sawing
Milling	Metal forming

### Features & Benefits

- Contains high level of HP synthetic esters
- Excellent lubricity characteristics
- Biocide free
- Low foam at high pressures in hard water
- Suitable on steel, titanium, aluminium alloys and cast iron
- High performance in very hard water
- Excellent corrosion resistance
- Good levels of boundary lubrication
- Excellent metal forming capabilities

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## Typical Operations

Drilling	4% to 8%	General machining	4% to 6%
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 3020 Typical Characteristics

Characteristic	Typical Data	Characteristic	Typical Data
Appearance	Amber liquid	IP287 corrosion breakpoint	3% (v/v)
Emulsion Appearance	Milky White	Refractometer Conversion Factor	1.25

## Additional Technical Information

**VARCOOL 3020** 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 3020 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 3020** 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	
<b>Varcut</b>	Neat cutting oils, high performance, extensive range of viscosities	<b>Varlube S</b> Viscosity 32 - 320	Slideway
<b>Varform</b>	Comprehensive range of neat forming oils, including water extendable versions and vanishing oils	<b>Varmulti</b> Viscosity 32 - 680	Multilube - Slideway, Gear, Hydraulic
<b>Varclean</b>	Aqueous based wash fluids, surface cleaners and solvent degreasers	<b>Vargear</b> Viscosity 68 - 460	Industrial Gear
<b>Varcool &amp; Vargrind</b>	Comprehensive range of high performance water soluble fluids. Low, medium, high oil content and synthetics	<b>Varpress</b> Viscosity 5 - 150	Hydraulic oil range covering zinc containing, zinc free and high VI

## Operational Recommendations

**VARCOOL 3020** 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 3020** 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 3020** 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.