

# product data sheet

## **VARCOOL 1010**

### **Soluble oil metalworking fluid**

**Varcool 1010** is a boron free oil containing metal process fluid which produces a milky white emulsion when diluted in water. The product is compounded to form a stable emulsion in both hard and soft water and is highly inhibited against bacterial growth.

**Varcool 1010** has been developed to exhibit full multi-metal compatibility and is suitable for economical use on a wide variety of machining applications.

**Varcool 1010** exhibits excellent lubricity characteristics, making the product suitable for a whole variety of machining applications whilst maintaining machine cleanliness and operator acceptability.

#### **Applications**

Reaming

Tapping and threading

Deep hole drilling and boring

Turning

Milling

Centerless grinding

#### **Features & Benefits**

Excellent performance characteristics

Free of chlorine, sulphur and phosphorous EP additives

Boron free

Suitable on steel, aluminium, titanium, nickel

Suitable for use in hard and soft water

High performance in arduous operations

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## Typical Operations

Drilling & boring	8% to 12%	General machining	4% to 6%
Reaming	8% to 12%	Centerless grinding	3% to 10%
Threading, tapping	5% to 10%	Metal forming	4% to 12%
Broaching, sawing	8% to 10%	Turning, milling	4% to 6%

## Varcool 1010 Typical Characteristics

Characteristic	Typical Data	Characteristic	Typical Data
Appearance	Amber liquid	IP287 corrosion breakpoint	3%
Odour	Bland	Specific Gravity (@20°C)	0.992
Emulsion Appearance	Milky White	Loadbearing capacity (kg/mm <sup>2</sup> )	1.05
PH (@ 5% concentration)	9.5	Refractometer conversion factor	2.0

## Additional Technical Information – Varcool 1010

**Varcool 1010** 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> Visc 32 - 320	Slideway
<b>Varform</b>	Comprehensive range of neat forming oils, including water extendable versions and vanishing oils	<b>Varmulti</b> Visc 32 - 680	Multilube - Slideway, Gear, Hydraulic
<b>Varclean</b>	Aqueous based wash fluids, surface cleaners and solvent degreasers	<b>Vargear</b> Visc 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> Visc 5 - 150	Hydraulic oil range covering zinc containing, zinc free and high VI

## Operational Recommendations

**Varcool 1010** 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 1010** 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 1010** 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.