



# Aquatex 3180

## General purpose soluble oil

Product Data Sheet

### Product description

Aquatex 3180 is a general purpose soluble oil, formulated for use in a wide variety of machining operations.

With special base oils, coupling agents and a high level of emulsifiers, Aquatex 3180 forms a very stable emulsions, even with relatively hard water.

### Customer benefits

- **Efficient Machining and grinding** – High detergency performance keeps grinding wheels free of grit and fines, and flushes and settles chips. Low foaming tendency is an advantage in high speed operations.
- **High precision and surface finish** – High performance heat transfer and reduced tool/workpiece friction ensures precise dimensional accuracy and good surface finish on parts
- **Low maintenance** – High-efficiency detergency assists in flushing and settling of grinding grid dirt, increases tool service life. The selected base oil component of the emulsion provides effective rust protection of machine and parts, and the high level of reserve alkalinity reduces emulsion acids
- **Longer emulsion life** – Highly stable, long-service alkaline emulsion resists bacterial degradation and effective biocides combat micro-organisms

### Applications

- Light machining such as drilling, planing, milling, sawing and turning operations on a variety of carbon and alloy steels ranging from soft to medium hardness, particularly where carbide tip tooling is being used
- Recommended for grinding operations where very clean emulsions are typically required to permit rapid settling of fines
- Water-containing metalworking fluids such as soluble oil emulsions should never be used for machining operations on magnesium or magnesium-containing alloys as a fire or explosion hazard may exist. The recommended product for machining these metals is Caltex Almag Oil

### Product highlights:

- High dimensional accuracy and surface finish
- High level detergency keeps tools clean
- Low foaming tendency
- Increases tool service life

A Chevron company product



### Dilution

- General machining: 5 - 10%
- Grinding: 5%

Aquatex 3180 forms a milky white emulsion when mixed with water.

- For use in water with total hardness up to 200 mg/L.
- Always add oil to water (not water to oil).
- Refractometer factor is 1.1 (i.e., a refractometer reading of 1°Brix represents an emulsion strength of 1.1%)

### Typical test data

AQUATEX 3180 TEST	TEST METHODS	RESULTS
<b>Product Code</b>		<b>530710</b>
<b>Appearance (in neat form)</b>	Visual	Dark red
<b>Density at 20°C, kg/l</b>	ASTM D1298	0.89
<b>pH at 5% dilution at 20°C</b>	ASTM D1287	9.4
<b>Break-point, %vol</b>	IP 287	4.0

### Service Consideration

#### System Cleaning

For best performance, thoroughly clean the system to remove residues, machining debris/fines, bio-accumulations, etc., from previously used products. For further information, please contact your local Chevron office.

#### Emulsion Preparation

A minimum of two-thirds of water to be used in the emulsion should be charged (at room temperature) into a separate mixing vessel. Slowly add the amount of oil required to obtain the correct emulsion concentration, with thorough mixing. Remember O I L (Oil In Last) to avoid forming an invert emulsion and, where possible, use automatic mixers. Aquatex® 3180 is formulated to be compatible with water up to 200 mg/L hardness. For best results, water of low hardness should be used in emulsion preparation and make-up. Hard water tends to deplete the emulsifiers, resulting in surface scum and soap formation over extended periods of time.



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*continued*

### **Monitor Emulsion Regularly**

Service life may be greatly extended through the use of good fluid monitoring practices. Check emulsion strength regularly, always premixing emulsion prior to adding to system. Where possible, adjust concentrate by adding pre-mixed emulsion of suitable concentration. Pre-mixed Aquatex® 3180 emulsion should only be added to the system where there is adequate fluid movement for thorough mixing, and never directly before the filter. The pH should be periodically checked and maintained within the range of 8.5 to 9.5. Maintenance of correct emulsion strength is generally sufficient to maintain the pH. Checking for bacterial/fungal growth should be carried out using bacteria/fungi dip slides or other suitable test kits.

### **Remove Tramp Oil and Other Contaminants**

Elimination of tramp oil and other contaminants is essential to prolonging emulsion life. Since the presence of tramp oils provides nutrients for bacterial growth, any tramp oil should be periodically skimmed from sumps and reservoirs. Foreign materials such as machining debris and fines should be periodically removed by filtration or other suitable means.

### **Handling Practices**

It is recommended that Aquatex® 3180 be stored indoors at room temperature to protect against the effects of temperature extremes. Aquatex® 3180 should never be stored at temperatures below 4°C for extended periods, since low temperature storage conditions may lead to stratification and/or layering of components. If outdoor storage is necessary and separation is observed, the product can usually be reconstituted by agitation to remix the ingredients. Overheating of the product may result in removal of water and/or coupling agents, which will adversely affect the balance of ingredients and make the product unusable.

In addition, extreme care should be taken to prevent the oil from becoming contaminated during storage. Any contaminants could have very unfavourable effects on the emulsification and performance characteristics of the product.

This bulletin was prepared in good faith from the best information available at the time of issue. While the values and characteristics are considered representative, some variation, not affecting performance, can be expected. It is the responsibility of the user to ensure that the products are used in the applications for which they are intended.

Produced by Chevron Lubricants; Africa, Middle East and Pakistan.

Environment, Health and Safety Information is available on this product in the Material Safety Data Sheet (MSDS) and Customer Safety Guide. Customers are encouraged to review this information, follow precautions and comply with laws and regulations concerning product use and disposal. To obtain a MSDS for this product, visit [www.caltexoils.com](http://www.caltexoils.com).

**For more information, go to [www.chevronlubricants.com](http://www.chevronlubricants.com)**