

## ExxonMobil Kutwell 82

Category : Fluid , Lubricant

### Material Notes:

KUTWELL is the trademark for a line of two high-performance "soluble" cutting fluids for cooling and lubricating the tool and work in machining operations. The line includes one petroleum-base fluid, KUTWELL 40, and one semi-synthetic fluid, KUTWELL 82. KUTWELL products mix readily into water to form stable emulsions. They have excellent rust-preventive properties, both are inhibited against foaming, and both are versatile products suitable for a wide range of metal cutting and grinding operations. KUTWELL products effectively remove heat from the work piece and can be applied as a stream or in mist form. In many cases, the proper KUTWELL grade can replace straight mineral cutting oils, and a single grade may often serve all the machine tools in a plant. KUTWELL water-mix cutting and grinding fluids are suitable for a wide range of ferrous and non-ferrous metalworking operations. KUTWELL 40 is a premium quality soluble oil offering outstanding emulsion stability and rust inhibition. It emulsifies easily and resists oil-water separation in adverse operating conditions, such as poor water quality or contamination with dirt or tramp oil. KUTWELL 40 also contains a bactericide to help guard against the formation of objectionable odors. Diluted as a 95:5 water-oil mixture, it can also be used as a fire-resistant hydraulic oil. Additionally, manufactured parts can be cleaned and protected against rusting by immersing them in a KUTWELL 40 emulsion at 66-82 °C, then allowing the parts to dry. KUTWELL 82 is a water-soluble, biostable semi-synthetic product particularly recommended for light-to-moderate machining operations. It mixes easily with water, with little or no agitation, forming a translucent blue cutting fluid. The inherent lubricity of its chemical base assures effective lubrication under moderate-duty cutting or grinding of cast iron, steel, copper and most aluminum alloys. In most applications, KUTWELL 82 lubricates more effectively at higher water dilution ratios than conventional soluble oils. This provides superior cooling performance and, in some machining operations, higher production rates. The excellent rust-preventive properties of KUTWELL 82 derive from the combined effect of two additives. One provides a protective film that physically coats the metal surface. The other, a polar material, forms a supplemental film that preferentially attaches to the metal surface. KUTWELL 82 is safe, clean, and pleasant to use. It exhibits excellent chemical and physical stability in service. It has inherent resistance to rancidity and inhibits the growth of mold and bacteria. It does not have an oily feel when spilled on surrounding surfaces. For grinding, dilution ratios range from 30:1 to 80:1, with 50:1 a fair average for all ferrous materials. Dilutions for typical cutting operations range from 10:1 to 40:1 -- averaging about 25:1. Stronger concentrations are required for difficult operations, e.g., 5:1 to 15:1 for threading stainless steel. Note : Because KUTWELL 82, as delivered, contains water, it is necessary to keep the product from freezing. Soluble oils are prepared for use by mixing them with relatively large portions of water. Note: To achieve a stable emulsion, always add oil to water - never add water to oil. For best emulsion stability and protection against rust and bacterial growth, use deionized or low hardness water (<100ppm). Begin by stirring one part oil into four parts water. Next, add water to this mixture to reach the desired dilution. The oil-water ratio may change during operation due to water evaporation and the filters removal of oil attached to fine particles. Thus, it is important to regularly sample the oil concentration. This can be done by drawing off a representative sample in a graduated glass cylinder and breaking the emulsion with a saturated salt solution, such as Epsom salts. The oil concentration can easily be observed. Alternatively, the emulsion strength can be estimated by

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[http://www.lookpolymers.com/polymer\\_ExxonMobil-Kutwell-82.php](http://www.lookpolymers.com/polymer_ExxonMobil-Kutwell-82.php)

| Physical Properties | Metric    | English                   | Comments |
|---------------------|-----------|---------------------------|----------|
| Density             | 1.00 g/cc | 0.0361 lb/in <sup>3</sup> |          |

| Physical Properties                 | @Temperature 15.0 °C<br>Metric | @Temperature 59.0 °F<br>English | Comments |
|-------------------------------------|--------------------------------|---------------------------------|----------|
| Kinematic Viscosity at 40°C (104°F) | 39 cSt                         | 39 cSt                          |          |

| Thermal Properties | Metric  | English | Comments |
|--------------------|---------|---------|----------|
| Pour Point         | 32.0 °C | 89.6 °F |          |

| Descriptive Properties | Value      | Comments |
|------------------------|------------|----------|
| Color                  | clear blue |          |
| Emulsion Stability     | Good       |          |

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