Mobilmet Alpha, Sigma, Gamma, and Omega

Oil Based Cutting Fluids

Product Description

Mobilmet Alpha, Mobilmet Sigma, Mobilmet Gamma, and Mobilmet Omega are high performance mineral-oil-type active cutting oils incorporating synthesised additive technology. The balanced selection of additives in each Mobilmet cutting oil maximises performance over the wide range of pressures and temperatures encountered when machining difficult metals under difficult conditions. This chemically-synthesised, active additive combination also controls buildup on the tool tip, resulting in a better surface finish.

These Mobilmet cutting oils contain the active anti-weld properties that are required for cutting difficult-to-machine metals. They are transparent on the work piece, allowing good visual inspection of machined parts. These oils, however, can discolour the surface of copper alloys. Mobilmet Alpha, Sigma, Gamma, and Omega are designed for a wide variety of metal cutting operations, severities and metallurgies. They are also formulated for ease of use and operator convenience. These attributes have resulted in these fluids becoming the products of choice for many machine shops.

Mobilmet Alpha cutting oil is the lowest-viscosity product in the series. It is recommended for deep-hole or gun drilling where its low viscosity enables it to flush swarf and chips away from the hole and permits fines to settle quickly. Mobilmet Sigma cutting oil is a medium-viscosity oil that will provide outstanding performance in general-purpose machine operations. It is recommended for nearly all machining operations on ferrous metals, except heavy-duty operations where tolerance and finish are critical, or for operations such as deep-hole drilling where a low-viscosity oil is needed. It is a transparent, low-odor cutting oil that gives outstanding results when compared with other cutting oils in the same viscosity range. Its very high anti-weld and lubricity compounding make it useful on tough, draggy metals. It contains an anti-mist agent. Mobilmet Gamma is a cutting oil with high anti-weld and lubricity compounding. It is recommended for more severe operations, such as heavy-duty threading, tapping, and broaching on difficult-to-machine metals. Where staining is not critical, it may be used on brass, bronze, or other copper-bearing alloys. This anti-mist-type oil is a transparent, low-odor product that provides outstanding performance compared to other so-called heavy-duty cutting oils. Mobilmet Omega is an extremely heavy-duty cutting oil for hard-to-machine metals that must be broached, tapped, or threaded.

Features and Benefits

The Mobilmet brand of cutting fluids has gained a reputation for innovation and outstanding performance over the years. Mobilmet Alpha, Sigma, Gamma, and Omega are an important member of this family with their active additive and low-misting technology. This proprietary formulation approach, developed by our formulation scientists in conjunction with key customers, yields superb performance in a wide range of applications.

Features and potential benefits of Mobilmet Alpha, Sigma, Gamma, and Omega products include:

Features	Advantages and Potential Benefits
Very active anti-weld additive technology	High cutting efficiency, better surface finish and closer tolerances for overall improved productivity Helps increase tool life between regrinds Reduced chip welding in heavy-duty operations Faster machining at higher speeds and/or feeds
Multi-purpose capability	Fewer cutting oils in shop and potential for lower inventory costs
Less misting (Mobilmet Sigma, Gamma)	Improved workplace and operator safety

Applications

Mobilmet Alpha, Sigma, Gamma, and Omega are designed for a wide variety of metal cutting operations, severities and metallurgies. Specific applications, by grade, include:

- Mobilmet Alpha cutting oil is the lowest-viscosity product in the series. It is recommended for deep-hole or gun drilling. It can be used on a variety of metals including stainless steels, high-nickel steel and heat-resistant alloys, and in most machining operations.
- Mobilmet Sigma cutting oil provides outstanding performance in general-purpose machine operations. It is recommended for nearly all machining operations on ferrous metals, except heavy-duty operations where tolerance and finish are critical, or for operations such as deep-hole drilling where a low-viscosity oil is needed. It is suitable for all kinds of steel under normal cutting duty. Where staining is not critical, it may be used on brass, bronze, or other copper-bearing alloys.
- Mobilmet Gamma is recommended for more severe operations, such as heavy-duty threading, tapping, and broaching on difficult-to-machine metals. Unlike many conventional heavy-duty cutting oils, however, Mobilmet Gamma will operate efficiently on less-difficult materials. Where staining is not critical, it may be used on brass, bronze, or other copper-bearing alloys.
- Mobilmet Omega is an extremely heavy-duty cutting oil for hard-to-machine metals that must be broached, tapped, or threaded.

Typical Properties

	MobilmetAlpha	MobilmetSigma	MobilmetGamma	MobilmetOmega
Viscosity, ASTM D 445				
cSt @ 40º C	18.45	29.88	33.84	42.6
cSt @ 100º C	4.0	5.4	5.8	6.8
Viscosity Index, ASTM D 2270	120	122	121	119
Specific Gravity @15º C kg/l, ASTM D 1298	7.227	7.3	7.329	7.46
Total Sulphur, ASTM D 2622, wt-%	1.452	1.517	1.638	-
Active Sulphur, ASTM D 1662, wt-%	0.695	0.867	0.904	1.90

Health and Safety

Based on available information, this product is not expected to produce adverse effects on health when used for the intended application and the recommendations provided in the Material Safety Data Sheet (MSDS) are followed. MSDS's are available upon request through your sales contract office, or via the Internet. This product should not be used for purposes other than its intended use. If disposing of used product, take care to protect the environment.

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Typical Properties are typical of those obtained with normal production tolerance and do not constitute a specification. Variations that do not affect product performance are to be expected during normal manufacture and at different blending locations. The information contained herein is subject to change without notice. All products may not be available locally. For more information, contact your local ExxonMobil contact or visit www.exxonmobil.com
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