

656

OMEGA 656 100% Synthetic Cutting, Grinding & Machining Fluid

**100%
Synthetic
Cutting,
Grinding &
Machining
Fluid**

- *100% synthetic formulation ensures unsurpassed safety & performance.*
- *Transparent quality enables use with equipment employing optical sensors.*
- *Easily diluted to extremely economical, yet effective dosage rates.*

TRUST Save Money
OMEGA Enhance Performance
TO Extend Service Life



TW
PERFORMANCE
POLYMERS & FLUIDS®

SPECIAL FEATURES

Omega 656 100% Synthetic Cutting, Grinding & Machining Fluid is the totally new concept in quality lubrication that revolutionizes machining operations.

- **Omega 656's** 100% synthetic formulation ensures unsurpassed safety and performance.
- **Omega 656** is transparent and enables use with equipment employing optical sensors.
- **Omega 656** is easily diluted to extremely economical dosage rates, but will still give performance superior to ordinary cutting/machining fluids.

OUTSTANDING PROPERTIES

Omega 656 is the superior synthetic cutting, grinding and machining fluid that:

- Provides remarkable lubricity and heat "carry-away" fluid properties for cleaner, truer machining – even on difficult surfaces.
- Protects expensive cutting tools from dulling prematurely – saves time and money.
- Contains no chlorine, sulfur or nitrates – free from any potentially skin-damaging or allergenic chemistry.
- Is water-dispersible for easy cleaning.

USE FOR

Omega 656 is extremely versatile and can be used with complete confidence on iron, steel, stainless steel, aluminum and copper as well as non-metals such as ceramics and glass.

Omega 656 remains near-neutral in color (transparent) when mixed with water at the prescribed mixture ratios enabling work surfaces and machining areas to remain clearly visible for the machinist – making precision work, accuracy and alignment easy.

Use **Omega 656** in all cutting, grinding and machining operations where a quality fluid is required.



Omega

The Ultimate Lubricant

ITW PPFK reserves the right to modify or change this product for purposes of improving its performance characteristics.
© 2016 ITW PP & F Korea Limited

The Omega Trade Mark is the property of ITW Inc., and is used under licence by ITW PP & F Korea Limited.



The information contained in this publication is to the best of our knowledge and accurate at the time of issue in October, 2016



The Ultimate Lubricant

656

DESCRIPTION:

Omega 656 is a totally new, 100% Synthetic Cutting, Grinding & Machining Fluid that revolutionizes machining operations due to its inherent safety, consistently superior performance, and unique environmentally-friendly formulation that makes disposal at the end of its service life, safe and easy.

OUTSTANDING PERFORMANCE CHARACTERISTICS:

Omega 656 is yet another fine quality product designed to enhance the wide range of Omega superior machining fluids and additives.

Omega 656 can be diluted to extremely economical dosage rates, yet will still give

performance superior to ordinary cutting/machining fluids. It is far better in its ability to cool the area being machined than any "neat", oil-type, soluble cutting fluid. Omega 656 is versatile and can be used with complete confidence on iron, steel, stainless steel, aluminium, and copper as well as non-metals, such as ceramics and glass. This product is so versatile it can be diluted and used to lubricate chains and as a burnishing compound as well.

In addition, Omega 656 contains a new class of EP (Extreme Pressure) additives and corrosion inhibitors that are totally chlorine-free (an environmental hazard), sulphur-free (which causes staining on copper and its alloys), and nitrite-free (a serious worker health hazard)!!!

NOW....COMPLETE ELIMINATION OF "SKIP AND TEAR" MACHINING PHENOMENON:

With ordinary machining fluids, the contact "line" between the cutting tool and the base metal to be machined often encounters "skip and tear" operation. The tool "bites" into the metal with a good angle and feed rate but the heat transmitted gets intense so rapidly that the two surfaces literally weld together for micro-seconds due to the inability of ordinary machining fluids to carry the heat away rapidly enough.

However, the torque of the machining tool then overcomes the instantaneous "hold" exerted by the welding together of the machining tool and base metal surface and destructively "tears" the two temporarily-mated surfaces apart by sheer brute strength. Both the cutting edge of the tool and the base metal surface are left jagged, damaged and microscopically-deformed by the combined effects of heat, instant welding, shearing forces and plastic deformation of the metal surfaces.

This little-known "Skip and Tear" phenomenon causes rapid deterioration of cutting tool effectiveness and, in virtually all cases, damages the machined surface as well. Tool life and the accuracy of the machined surfaces are compromised. In severe cases, the machined surfaces will require additional honing or finishing -which adds substantially to both the time and cost of machining.

LOW FOAMING FOR HIGHLY ACCURATE MACHINING:

Omega 656 features a superior, low foaming chemistry that provides for a degree of working part visibility virtually second to no other machining fluid. With improved workpiece visibility, the accuracy of machining is immeasurably enhanced, with the added advantage that machinists are also less likely to suffer from occupational eye-strain.

SUPER ECONOMICAL DILUTION RATES:

Omega 656 is mixed with water and remains virtually clear at all mixture rates for improved workpiece visibility.

USER-FRIENDLY FORMULATION:

An added benefit with Omega 656 is that the product has an extremely low eye and skin irritation factor which workers appreciate as most machinists suffer from one form of skin dermatitis/infection or other -from time to time -due to exposure to cutting and machining oils. It is a very common occupational hazard faced by machinists and now, with Omega 656, this long-standing problem has finally been thoroughly addressed.

Cleaning of used Omega 656 is also much simpler as the product is water dispersible. Clean up for both workers and for the equipment and machined parts also is no longer hazardous, unpleasant, costly nor time-consuming since Omega 656 does not contain either sulphur or chlorine.

TYPICAL DATA:

TEST	CONDITION	TEST RESULT
pH Values (Approximates)	As is:	9.7
	1:20 Dilution:	9.3
	1:50 Dilution:	9.2
Falex Load Test	1:20 Dilution:	Passed @ 4000-Lb (1814-Kg)
	1:50 Dilution:	Passed @ 3000-Lb (1360-Kg)
Falex Wear Test	1:20 Dilution:	5 mins @ 1000-Lb -0 Teeth To next 250-Lb -85 Teeth
Waring Blendor Foam Test	200-ml of 1:20 solution agitated in Waring Blendor for 1 minute	-
	Initial Foam:	6.4 cm
	After 5-min stopping:	0.8 cm
Cast Iron Chip Test	1:20 Dilution:	Passed
	1:50 Dilution:	Passed
Heat Stability Test*	1:20 Dilution:	Passed
	1.50 Dilution:	Passed

The characteristics given above are typical of current production only and slight batch to batch variations should be expected.

*(Solution boiled for 1-hr Observations made on dilution appearance and performance)

RECOMMENDED DILUTION RATIOS:

Applications	Ration of Omega 656: Water
Broaching, Tapping & Threading	Between 1:10 to 1:20
Milling, Drilling & Turning:	Between 1:20 to 1:30
Grinding of Metals:	Between 1:40 to 1:50
Grinding of Ceramics & Glass:	Between 1:50 to 1:80