PRODUCT BULLETIN

ENEOS Corporation
1-8-15, Konan, Minato-ku, Tokyo 108-8005 JAPAN
TEL : +81-3-6260-2012

IND-6002-2007E

METAL WORK AF

Special High-Grade Electric Discharge Machining Oil

METAL WORK AF is a long-life electric discharge machining oil blended from specially refined low-aromatic base oil and antioxidant additives. Electric discharge machining oils is usually required to have various characteristics. Superior properties such as high flash point, low viscosity, odor-free nature, low skin irritancy and high oxidation stability are required in order to improve safety, workability and handling. **METAL WORK AF** has low odor and skin irritation because its aromatic content is less than 1% (FIA analysis).

● Special Features

1. Excellent Oxidation Stability for Long-Term Use

METAL WORK AF, which is formulated with low-aromatic base oil and antioxidant additives, can be used for long periods of time due to its superior oxidation and heat stability.

2. Outstanding Machining Performance

METAL WORK AF has the ideal viscosity for high-precision machining, high-speed rough machining, penetration, bottom work and all other types of electric discharge machining.

3. Superb Safety

METAL WORK AF, which has high flash point, is less dangerous during handling and can be used more safely than kerosene.

● Applications

All types of electric discharge machining, including the machining of molds for automobiles, aircraft and telecommunication equipment and the machining of precision parts for electronics and nuclear power application.

● Containers

200 liter drums, 20-liter pail cans

●Results of High-Speed SKD-11 Machining Speed Test

The machining speed was measured for electric discharge machining oil to determine the amount of material machined per minute. This test proved that **METAL WORK AF** is superior the machining efficiency to the electric discharge machining oil based on the mineral oil.

METAL WORK AF	Mineral-Oil-Based Machining Oil
72mg/min	62 mg/min

Test Conditions
・Electrodes:10mmX10mm copper electrodes
・Ip:10A
・τ on:90μs
・τ off:25μs
・Machining surface roughness:35μm Rmax.

●Typical properties of METAL WORK AF

Appearance		Transparent liquid
Color(Saybolt)		≧+30
Density		0.817
Kinematic viscosity(40°C)	mm^2/s	2.5
Flash point(PM)	°C	104
Pour point	°C	-25
Acid number	mgKOH/g	0.00
Distillation		
Initial Boiling Point	°C	239
End Point	°C	262

Note: The typical properties are subject to change without notice

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Handling Precautions

▼ **Follow these precautions when handling this product.**

Composition :	Base Oil, Additives
Precautionary pictograms:	
Signal word:	Danger
Hazard Statement:	Combustible liquid May be fatal if swallowed and enters airways
Precautionary Statements: **Prevention**	・Do not handle until all safety precautions have been read and understood. ・Wear protective gloves/protective clothing/eye protection/face protection. ・Do not allow the eyes to become exposed to the product. Do not swallow the product. ・Keep away from heat/sparks/open flames/hot surfaces – No smoking. ・Use explosion-proof electrical/ventilating/lighting/equipment. ・Ground/bond container and receiving equipment. ・Wash hands thoroughly after handling. ・Do not eat, drink or smoke when using this product.
Response	・IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician. ・IF SWALLOWED: Rinse mouth. Do NOT induce vomiting. ・If the eyes are exposed to the product: Rinse the eyes with plenty of running water and immediately contact a physician. ・IF ON SKIN: Wash with plenty of soap and water. ・Do NOT induce vomiting. ・In case of fire: Use suitable extinguishing media for extinction.
Storage	・The product must be stored in a cool, well-ventilated location where it will not be exposed to direct sunlight. ・Containers that have been opened must be tightly sealed. ・Store locked up.
Disposal	・Dispose of contents/container in accordance with local/regional/national/international regulations. ・If there are any doubts about proper methods of handling the product, contact the point of purchase before proceeding with usage.