



EDMfluid-AD

Special synthetic dielectric fluids for die-sinking EDM microborers

Description

The **EDMfluid AD** range of products are synthetic, low-viscosity dielectric fluids formulated with paraffin-based hydrocarbons. These substances are subject to innovative purification processes and characterised by a very short distillation range, and with added components suitable to generating the ionisation channel. The **EDMfluid AD** have been specially developed for the new technologies used for **deep microdrilling** by EDM die-sinking to achieve high dimensional precision.

The **EDMfluid AD** range includes three viscosity grades to answer to the most exacting processing requirements, specifically for microdrilling on metals with high mechanical properties such as hard metals, to achieve diameters from 0.1 to 5mm. The **EDMfluid AD** products are also characterised by a relatively high flash point (in relation to their low viscosity grade), are odourless, colourless, have a negligible aromatic hydrocarbon content, high viscosimetric stability, low tendency to evaporation and very high processing safety levels.

Properties and benefits

Compared to conventional hydrocarbon-based dielectrics, the **EDMfluid AD** product range offers the following benefits, with regards to the effectiveness of an EDM microborer machining with coreless electrodes of minimal diameter to achieve deep drilling:

- High dielectric rigidity and ability to concentrate the discharge energy within the erosion area. This means the **EDMfluid AD**, as well as ensuring that machining may be done at high frequencies, guarantees high performance in terms of:
 - finish and precision;
 - lower wear and tear of tool electrodes;
 - no voltaic arc and bridges, which normally mean a production standstill and loss of output;
- suitable viscosity to guarantee continuous action both within the electrode and in the clearance between the electrode and the hole being drilled, to facilitate continuous flushing and removal of dust and swarfs;
- viscosimetric stability thanks to their extremely short distillation range (only 6 °C), necessary to ensure long term flushing performance;
- good cooling properties, promoted by the high thermal conductivity and by the low viscosity grade;
- flash point suited to the required application;
- low tendency to evaporation, thanks to the short range between initial and final boiling points;
- very low fume emission;
- total clearness of product, which is colourless to guarantee excellent visibility of the machining area;
- high filterability, useful to ensure a longer economic life to the filters, as well as facilitate removal of swarfs from the fluid that may be damaging to the electrode and to the product stability;
- no chemical reactivity, considering the low PNA content, to metals and machine sealing components; excellent properties of oxidation resistance, thanks to the high refining of the product. This translates into a longer economic life of the product fill.



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Applications

The **EDMfluid AD** products, with their relatively low and very stable viscosity, and thanks to their processing safety levels due to unusual flash point values not often found in products with the same viscosity grades, have been specially developed for deep EDM microdrilling.

Specifications

The **EDMfluid-AD** product range answer to the most exacting requirements of die-sinking EDM machine manufacturers, especially with regards to the specifications by AGEMA, Makino, Sarix.

Safety and storage

The **EDMfluid-AD** products are not hazardous during normal operative conditions. However, it is recommended to install fume extraction systems even for products with such low fume emission. Further information on health and environmental safety is available on request.

It is recommended to store the product indoors. If storing outside is necessary, keep the drums upright to avoid water infiltration, as this substance, by altering the dielectric rigidity of the dielectric fluid even when present in the tiniest quantity, is not compatible with electroerosive processing.

If the product is stored outdoors, please ensure the surrounding temperature is always at least 5 °C above the product's freezing point

Standard Characteristics

EDMfluid AD			70	80	90
Characteristics	Test method	Unit of measurement	Values		
Appearance			Colourless liquid		
Density at 15°C	ASTM D4052	kg/l	0.744	0.752	0.762
Kinematic viscosity at 20°C.	ASTM D445	cSt	1.7	1.95	2.3
Flash point (PM)	ASTM D93	°C	≥70	≥85	≥90
Boiling range	ASTM D86	°C	6	6	6
Colour	ASTM D156		+30		
Odour			None		
Aromatic hydrocarbon content	UV spectr.	%	<0.001		
Doctor test	DIN 51765		Negative		

The above data are typical of production and are not product specifications