



EDMfluid 78

Innovative synthetic fluid for die-sinking type electric discharge machining

Description

EDMfluid 78 is a low-medium viscosity synthetic fluid consisting of hydrocarbons on which a final hydrogenation process is performed and which features a very tight distillation range. It has been developed to meet the requirements of new metalworking technologies based on the die-sinking type EDM process in order to promote a drastic reduction in the tendency to evaporate and therefore a consequent reduction in pollution of the environment, compared with conventional low viscosity fluids.

EDMfluid 78 is odorless, colorless, non-toxic and has a negligible content of aromatic hydrocarbons.

Properties and advantages

Considering all the requirements to be met by a modern fluid for plunge type EDM, **EDMfluid 78** assures the following advantages and properties:

- High level dielectric strength and ability to concentrate discharge energy in the erosion area. This property, together with the possibility of operating at high frequencies, means that **EDMfluid 78** guarantees top flight performance as regards:
 - level of finish and dimensional accuracy
 - reduced specific consumption of tool electrodes
 - absence of bridging and voltaic arcs, the main causes of production downtimes and reduced efficiency
 - improved resistance to the formation of voltaic arcs.
- Optimal viscosity grading, able to guarantee smooth, constant circulation of the fluid in the area between the workpiece and the electrode (as in deep machining operations), also in the case of tight gaps. This assures constant flushing of the machining area, facilitating removal of metal particles and swarf. Also, with a viscosity that is around 10% higher than conventional fluids, it represents an effective solution also in the case of medium amperage values (between 20 and 50 Amperes) without compromising the need for very low surface roughness.
- Effective cooling capacity, promoted by its high level thermal conductivity and low viscosity.
- Flash point suitable for the specific type of application, able to guarantee high level safety against risks of fire.
- Limited tendency to evaporate due to the reduced interval between the start and end of distillation. The reduction in annual consumption compared with low viscosity conventional fluids may be more than 20%.
- Very low emission of fumes and therefore less pollution of the environment.
- Absolute transparency of the product which is colorless, thus assuring excellent visibility of the work area.
- High level filterability, a particular characteristic that guarantees long service life of the filtering sections and which also facilitates separation from the fluid of any swarf which tends to downgrade machine performance and has negative repercussions on product stability. Its viscosity grading and stability, to be ascribed to its tight distillation range, make it particularly suitable for self-cleaning type filters such as ONA and Transor systems.
- Chemically inactive to metals and the seals of the machine in view of its very low content of PNA.
- Excellent resistance to downgrading caused by oxidation due to its high level refining. This assures longer duration of the charges used compared with conventional fluids.



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Applications

EDMfluid 78 is particularly recommended for machining operations requiring high level dimensional accuracy and surface finish. It is suitable for large, high power machines where the type of machining requires fluids with excellent flushing and filterability properties. In these cases, it guarantees a constant level of finish of the parts and reduced consumption of the tool electrodes.

Specifications

EDMfluid 78 complies with and exceeds the requirements of the main plunge type EDM machine manufacturers such as AGIE, CDM, CHARMILLES, CORMAC, ELOTHERM, EROTECH, FANUC, INGERSOLL, Makino, MITSUBISHI, ONA, Sodick as well as those of major filter manufacturers

Storage conditions and safety

In normal conditions of use, **EDMfluid 78** does not entail any specific risks. However, even if fume emission is very low, it is advisable to install an efficient fume aspiration and extraction system. Information regarding health and environmental safety is available on request.

It is advisable to store the product indoors. If outdoor storage cannot be avoided, keep the drums horizontal to avoid any infiltration of water which is not compatible with the electro-erosion process in that even minor quantities could affect the die-electric strength of the contaminated fluid.

In the case of stocking outdoors, make sure that ambient temperature is at least 5°C above product freezing point.

Typical characteristics

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Characteristics	Test method	Unit of measurement	Values
Appearance			Clear, colorless
Density at 15°C	ASTM D4052	kg/l	0.753
Kinematic viscosity 20°C	ASTM D445	cSt	2.00
Flash point (PM)	ASTM D93	°C	78
Pour point	ASTM D97	°C	- 15
Start of distillation	ASTM D86	°C	200
End of distillation	ASTM D86	°C	230
Color	ASTM D156		+30
Odor			None
Aromatic hydrocarbon content	UV spectrum	%	Negligible
Neutralization No.	DIN 51558/1	mgKOH/gr.	0.01
Doctor test	DIN 51765		Negative

The above data are typical production data and are not intended to represent a specification¹

¹ 08/00-Rev n°1