

Table 1 Properties of the ferrofluids.

Ferrofluid	EFH1	EMG 308
Color	Black brown	Black brown
Carrier Liquid	Light mineral oil	Water
Saturation Magnetization	440 Gauss (44 mT)	66 Gauss (6.6 mT)
Viscosity at 27°C	6 cp (6 mPa/s)	<5 cp (5 mPa/s)
Particle Diameter	10 nm	10 nm
Density	1.21 g/cc	1.05-1.07 g/cc
Vapor Pressure (mm/Hg @ 20°C)	9%	17%

Table 2 Industrial oil properties

Viscosity at 100°C	8.8 cst
Specific gravity at 15.6°C	0.844
Flash COC°C	220
Pour Point°C	-45
CCS cP:	4600
MRV TP - 1cP	30000
NOACK	12 wt%
Sulfated ash	0.93
Zinc wt%	0.83
Phosphorus wt%	0.076
Sodium wt%	0.049
Calcium wt%	0.211

Table 3 Specification of Neodymium magnet - N45

Type	Rectangular block
Dimensions	3×0.5×0.25 in.
Tolerance	All dimensions ± 0.004 in.
Material	NdFeB, grade N45
Plating	NiCuNi triple layer coated
Maximum Op Temp	176° F (80 °C)
Br max	13500 G
Holding Power	33 lb
Magnetized axis	Magnetized through thickness
Weight	1.8 oz