



## LOW TEMPERATURE SYNTHETIC HYDRAULIC FLUID

H-538 – MIL-PRF-87257 B

### Description

HYDRAUNYCOIL FH 42 is a synthetic hydraulic fluid based on PAO and esters with a viscosity of 7 cSt at 40°C. It is designed to operate in the temperature range - 54°C to + 200°C for a long period of time without significant evaporation or change in viscosity.

### Application

HYDRAUNYCOIL FH 42 is the latest generation of hydraulic fluids for aircraft and missiles. It represents the best compromise between the low temperature (down to - 54°C) fluidity requirements, the fire-resistance for safe handling and operation, and the lubricating capability to prevent component wear and seizure over a large temperature range. It can be used in hydraulic systems previously operated with H-537 (MIL-PRF-83282) or H-515 (MIL-PRF5606) fluids without change of the elastomeric seals. It is also used in automatic pilots, brakes and as shock absorber.



Characteristic	Unit	Result	Limit*	Test method
- Specific gravity at 15.6°C	-	0.835	report	ASTM D 4052
- Color of finished fluid	-	pass	pass	MIL-PRF-87257 A
- Kinematic viscosity at 100°C 40°C - 40°C - 54°C      1 h 30 3 h 72 h	mm <sup>2</sup> /s	2.09 6.76 474 2244 2260 2271	min. 2.00 min. 6.70 max. 550 max. 2500 max. 2500 max. 2500	ASTM D 445 ASTM D 2532
- Low temperature stability	-	pass	pass	FTM-S-791-3458
- Flash point	°C	178	min. 170	ASTM D 92
- Fire point	°C	196	min. 180	ASTM D 92
- Pour point	°C	- 69	max. - 60	ASTM D 97
- Acid number	mg KOH/g	0.01	max. 0.20	ASTM D 664
- Evaporation loss - 6 h 30 at 135°C - mass fraction	%	11.7	max. 20.0	FTM-S-791-350
- Foaming characteristic at 25°C Foam volume after      5 minutes aeration 1 minute settling	ml	40 0	max. 65 0	ASTM D 892
- Lubricity – Scar diameter      1 h - 9.8 N 1 h - 9.8 N 1 h - 392 N	mm	0.12 0.20 0.60	max. 0.21 max. 0.30 max. 0.65	ASTM D 4172
- Solid particle content 5 - 15 micrometers 16 - 25 micrometers 26 - 50 micrometers 51 - 100 micrometers > 100 micrometers	nb/100 cm <sup>3</sup>	pass pass pass pass pass	max. 10000 max. 1000 max. 150 max. 20 max. 5	HIAC
- Water content	mg/kg	55	max. 100	microcoulometric MO-10-001 A
- Corrosion and oxidation stability      168 h at 135°C Viscosity change at 40°C Neutralization number increase Metal weight change      Aluminium Magnesium Cadmium Steel Copper	% mg KOH/g mg/cm <sup>2</sup>	0.6 0.02 0.0 0.0 0.0 0.0 0.0	max. 10.0 max. 0.2 max. +/- 0.2 max. +/- 0.2 max. +/- 0.2 max. +/- 0.2 max. +/- 0.6	ASTM D 4636
Cadmium aspect Copper cotation	- -	pass 3a	slight discoloration max. 3	ASTM D 130
- Swelling of synthetic rubber Volume fraction – NBR L - 168 h at 70°C	%	21.0	19.0 to 30.0	FTM-S-791-3603

\* MIL-PRF-87257 B specification

The values above are typical values. They do not constitute any contractual commitment.  
Sales specifications are available on request. The present technical data sheet replaces all the previous editions.