SPACE COATINGS
Company Certified ISO 9001 and EN9100

cnes
License n°80354

MAPLUB® PF 100-c

LOW OUTGASSING GREASE

DESCRIPTION

MAPLUB® PF 100-c is a grease developed for very wide working temperature range applications under ultra-vacuum. It is formulated based on very low outgassing PFPE oil (PerFluoroPolyEther) and PTFE particles (PolyTetraFluoroEthylene).
Some additional information can be found on the website of MAP SPACE COATINGS company:
https://www.map-coatings.com/en/page/documentation.php

TYPICAL PROPERTIES *(Technical data are indicative and non-contractual – all properties measured at 20°C)*

Properties	Norms	Results
Appearance / color	Visual	**White**
Worked penetration ¼ cone, 60 strokes @ 25°C	NF ISO 2137 ASTM D 217	325. 10^{-4} m
Unworked penetration ¼ cone @ 25°C	NF ISO 2137 ASTM D 217	325. 10^{-4} m
NLGI Grade (consistency) @ 25°C	ASTM D217	1
Density	ISO 2811-1	1.92
Apparent viscosity @ 10 s^{-1} (cone/plate)	NF EN ISO 3219	42 Pa.s
Apparent viscosity @ 100 s^{-1} (cone/plate)	NF EN ISO 3219	8 Pa.s
Base oil viscosity index	ASTM D2270	350
Limiting temperatures in constant use		-60°C to 130°C
Limiting temperatures in occasional use		+250°C
Base oil pour point	ASTM D97	-75°C
Oil separation	ASTM D6184	7.4% mass
Evaporation loss	ASTM D972	< 0.01 % mass
Outgassing	ECSS-Q-ST-70-02C	RML = 0.09% CVCM = 0.05%
Limit working pressure		10^{-10} Torr @ 100°C

**associated to MAP internal standard*

APPLICATIONS

MAPLUB® PF 100-c grease has been specially formulated to meet long lifetime specifications for satellite mechanisms.
Its chemical stability in relation to metallic and plastic materials allows its use for a very long lifetime. To date, no deterioration has been observed.
It is perfectly suitable for the lubrication of fragile materials.
Its low consistency leads to relatively low resistant torques, especially at low temperatures.
MAPLUB® PF 100-c grease is quite suitable for space use, on any type of material (metal, ceramic, plastic, etc.) and on such various components as: ball and journal bearings, gears, Harmonic Drive or Cyclo gear boxes, roller and ball screws, sliding systems.

Due to its low evaporation rate, **MAPLUB® PF 100-c** can be used in specific applications such as: vacuum equipment, (vacuum pumps, etc.), electronics (components manufacturing) & electrotechnics (connections), scientific instrumentation (particles rings, etc.), the automotive industry, aeronautics, nuclear power systems, robots for clean rooms.

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COMPLIANCE WITH EUROPEAN REGULATION (REACH, RoHs…) AND NORTH AMERICAN REGULATIONS (ITAR/EAR)

MAPLUB® PF 100-c is compliant with the Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment (RoHs). **MAP** is also compliant with the Registration, Evaluation, and Authorization of Chemicals (REACH) regulation.

MAPLUB® PF 100-c is fully compliant with the ESA working group policy regarding the sensitiveness of the substances included in the formulation.

Please contact our REACH department for any further information (reach@map-coatings.eu).

REFERENCES

Qualification and Evaluation:

- Outgassing report, Airbus report n°3734, August 14th, 2020
- INS report, R20191011V2.1 - Map Coatings – Greases characterization, 15th January 2020
- INS report, R20201004 - Map Coatings – Greases characterization, 14th October 2020
- Updating the MAPLUB greases range, MAP report, December 17th, 2020

SAFETY INSTRUCTIONS

Precautions: This product is not flammable. This preparation is not classified as a health hazard according to

1999/45/CE directive. For complete information, please refer to our latest safety data sheets.

Labelling: This preparation was classified in compliance with the directives in effect.

Transport: Please refer to our latest safety datasheets.

COMMERCIAL INFORMATION

Packaging: Pack of 10 syringes of 5 mL (10 x 5 mL)

Storage: Up to 2 years in original unopened packaging at 20°C +/- 5°C and keep away from humidity, without altering the properties.

WARRANTY

This information, based upon literature and our testing experience to date, is offered as part of our service to customers, and is intended for use by persons having technical skill, at their own discretion and risk for their own investigation and verification. We do not guarantee favourable results and we assume no liability in connection with its use. This information is not intended as a licence to operate under, or a recommendation to infringe, any patent covering any material or use.