



ENGINEERING MATERIAL SPECIFICATION

LUBRICANT, POLYALKYLENE GLYCOL

INACTIVE
INACTIVE

WSH-M1C231-B
WST-M1C231-B2
WSS-M1C231-B3

1. SCOPE

WSH-M1C231-B: This material specification defines the physical and chemical properties of a polyalkylene glycol based synthetic lubricant to be used with HFC-134a.

WST-M1C231-B2: This material specification defines the physical and chemical properties of a polyalkylene glycol based synthetic lubricant to be used with HFC-134a; for heavy truck air conditioning systems.

WSS-M1C231-B3: This material specification defines the physical and chemical properties of a polyalkylene glycol based synthetic lubricant to be used for seals in HVAC systems that use HFC-134a type refrigerants.

2. APPLICATION

This specification was released originally for oils used in air conditioning compressors operating within the temperature range of -40 to 125 °C.

3. REQUIREMENTS

3.0 STANDARD REQUIREMENTS FOR PRODUCTION MATERIALS

Material suppliers and part producers must conform to the Company's Standard Requirements For Production Materials (WSS-M99P1111-A).

	B	B2	B3
3.3 SPECIFIC GRAVITY (ASTM D4052, 20 °C)	0.95 - 1.05	0.98 - 1.08	1.02 - 1.08
3.4 VISCOSITY (ISO 3164/ASTM D445/ DIN 51562)			
At 40 °C	46 mm ² /s min	73 – 82 mm ² /s min	437 – 483 mm ² /s min
At 100 °C	10 – 15 mm ² /s min	15 mm ² /s min	---
3.5 VISCOSITY INDEX (ASTM D2270)	200 min		
3.6 WATER CONTENT (ASTM D6304)	700 ppm max	1000 ppm max	---
3.7 FLASH POINT (ISO 2592/ASTM D92/ ASTM D1310)	200 °C min	200 °C min	260 °C min

Date	Action	Revisions	Rev. 06
2017 06 27	Editorial	Corrected footer	A. Collins, NA
2016 07 19	INACTIVE	B2 and B3	2016 07 19
1991 04 26	Released	CE00E10109215007	





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WSH-M1C231-B
INACTIVE WST-M1C231-B2
INACTIVE WSS-M1C231-B3

	B	B2	B3
3.8 POUR POINT (ISO 3016/ASTM D5949)	-40 °C max	---	-30 °C max
3.9 TOTAL ACID NUMBER (ASTM D974)	0.22 mg KOH/g, max	---	1.0 mg KOH/g, max

4. GENERAL INFORMATION

The information given below is provided for clarification and assistance in meeting the requirements of this specification. Grease approved to this specification should have the following typical properties.

4.1 EVAPORATION LOSS (ASTM D972, 24 h at 100 +/- 2 °C)	5.0 %, max	---	---
4.2 LUBRICANT PAINT STAINING (B only) (FLTM BJ 126-01)	No softening, no discoloration		
4.3 WEAR PREVENTIVE CHARACTERISTICS (ASTM D3233)	2702 N min	---	---
4.4 SEALED TUBE STABILITY TEST (ANSI/ASHRAE Standard 97-2007 14 days at 175 C with HFC-134a)			
Change in Viscosity at 40 °C (ASTM D 445)	10 mm ² /s max	---	---

Test Method:

- After aging, visually inspect the test tube contents for liquid discoloration and any deposits formation. Visually inspect the metal coupons for discoloration or evidence of corrosion and/or copper plating.
- Analyze HFC-134a/PAG using the Selective Ion Electrode Method for ppm of fluoride and chloride.

4.5 CONSISTENCY

This material shall be free from acid, alkali, or other foreign matter. It must also be free from any objectionable odors.



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