



LUBRICANT, GEAR, SYNTHETIC HYDROCARBON

WSD-M2C200-C

1. SCOPE

The material defined by this specification is a multiviscosity transmission lubricant using synthetic hydrocarbon (PAO) base fluids compounded with viscosity index improvers and extreme pressure additives.

2. APPLICATION

This specification was released originally for material used to provide lubrication for manual transaxles over a wide temperature range. The material has specific frictional characteristics for this application

3. REQUIREMENTS

Material specification requirements are to be used for initial qualification of materials.

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).

3.3 VISCOSITY

3.3.1	At 100 °C (ISO 3104, ASTM D 445)	Rate and Report
3.3.2	At -26 °C, max (DIN 51398, ASTM D 2983)	5,000 mPa.s
3.3.3	At -40 °C, max (DIN 51398, ASTM D 2983)	20,000 mPa.s
3.3.4	Shear Stability, kinematic viscosity at 100 °C, min (CEC L-45-A-99; 20 h)	11.5 mm ² /s
	Used bearing shear loss after run in period with Reference Oil RL 181/6	9 to 13%
3.3.5	Viscosity Index, min (ISO 2909)	195

3.4	POUR POINT, max (ISO 3016)	-51 °C
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3.5	FLASH POINT, min (ISO 2592)	180 °C
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Date	Action	Revisions
2010 01 19	Revised	See Summary of Revisions M. Swain
2004 08 31	Revised	Para 3.0 inserted; para 3.19 & 4 deleted
1998 02 24	Activated	

**3.6 COPPER CORROSION**
(ISO 2160)

3 h at room temperature, max	1
3 h at 120 +/- 2 °C, max	1

3.7 ANTI FOAMING PROPERTIES
(ASTM D 892 / D 6082)

Foam Tendency at end of 5 min blowing period	Foam Stability at end of 1 min settling period
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Sequence 1, max	10 mL	0 mL
Sequence 2, max	10 mL	0 mL
Sequence 3, max	10 mL	0 mL
Sequence 4, max	240 mL	0 mL

(For Sequence 4 use ASTM D 6082, static foam, 150 +/- 3 °C, 200 mL air/minute)

3.8 FOAMING AFTER AGEING

(CEC-L48-A-00(B) 40°C / 24 hours / 5 L air/ hour) (ASTM D 892)	Foam Tendency at end of 5 min blowing period	Foam Stability at end of 20 sec settling period
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Sequence 1, max	10 mL	10 mL
Sequence 2, max	20 mL	10 mL
Sequence 3, max	10 mL	10 mL

3.9 MOISTURE, max
(ISO 3733)

0.1%

3.10 ODOR

Materials shall produce no objectionable odor under any test performed herein, particularly the tests described in paragraph 3.6 (30 minute and 60 minute intervals during the 3-hour test) and paragraph 3.12.

3.11 RUBBER COMPATIBILITY

(ASTM D 471, paragraph 6.1, with aluminum block or approved equivalents)
168 hours at 150 +/- 3 °C

Material 70 ACM 121433 (acrylic rubber)

Volume change from original	+ 5 +/- 3%
Durometer hardness change from original	+ 3 / -6

Material 75 FKM 595 (fluorinated rubber)

Volume change from original	+ 3 +/- 3%
Durometer hardness change from original	0 / + 6

HNBR 75178 (Hydrogenated Acrylonitrile-Butadiene Rubber)

Volume change from original	Report
Durometer hardness change from original	Report

