



dexos® D Diesel Engine Oil

1 Scope

Note: Nothing in this standard supercedes applicable laws and regulations.

Note: In the event of conflict between the English and domestic language, the English language shall take precedence.

1.1 Purpose/Material Description. This specification details the materials and performance requirements of dexos® D 0W-20 and 5W-30 diesel engine oil.

1.2 Symbols. Not applicable.

1.3 Applicability. dexos® D 0W-20 and 5W-30 diesel engine oils for use in diesel vehicles.

1.4 Remarks. None.

2 References

Note: Only the latest approved standards are applicable unless otherwise specified.

2.1 External Standards/Specifications.

ASTM D92	ASTM D4741	CEC L-078-99	EN ISO 2592
ASTM D97	ASTM D4951	CEC L-099-08	EN ISO 14596
ASTM D412	ASTM D5133	CEC L-104-16	EP6CDT
ASTM D445	ASTM D5293	CEC L-106-16	ISO 3016
ASTM D471	ASTM D5762	CEC L-107	ISO 15597
ASTM D664	ASTM D5800	CEC L-109-16	ISO 17025
ASTM D874	ASTM D6082	CEC L-111	ISP Method T0755-18
ASTM D892	ASTM D6443	CEC L-112-16	MB M111
ASTM D2240	ASTM D6557	DIN 51 363-2	MB M271
ASTM D2270	ASTM D6593	DIN 51 363-3	OM646LA
ASTM D2622	ASTM D6709	DIN 51 400-10	SAE J300
ASTM D2896	ASTM D7216	DIN 51 575	SAE J2643
ASTM D3228	CEC L-14-A-93	DIN 51 757	VDA 675301
ASTM D4052	CEC L-36-A-90	DIN ISO 2909	VW TDI
ASTM D4683	CEC L-40-A-93	DIN ISO 3104	
ASTM D4684	CEC L-54-T-96	DIN ISO 3771	

2.2 GM Standards/Specifications.

GMW3059 GMW17043

2.3 Additional References.

- GM Proprietary Test IQ 8547
- Testing Monitoring Center (<https://dexos@submission.org>)

3 Requirements

3.1 All materials supplied to this standard must comply with GMW3059, **Restricted and Reportable Substances**, including the requirement to obtain a GM-approved International Material Data System (IMDS) submission.

3.2 Laboratories conducting dexos® registered tests and measuring chemical and physical properties of the final formulation must be accredited per ISO 17025 for the appropriate tests.

3.3 It is GM intent that the product supplied per this specification, i.e., the final formulation, pass all requirements defined herein. If in any event GM does not agree with the suitability of any viscosity grade read across, base oil interchange, minor modification, or other change to the candidate oil formulation, GM reserves the right to require additional testing.

3.4 Data Requirements. The engine oil supplier seeking approval of a candidate engine oil formulation to this specification must fulfill all requirements specified including those requirements listed in Appendix A, Table A1, Table A2, Table A3 and Table A4.

3.4.1 The engine oil supplier seeking approval of a candidate engine oil formulation to this specification must provide a completed Formulation Submission Package (FSP), and an American Chemistry Council (ACC) Candidate Data Package (CDP), including the ACC summary page for the candidate oil to the Testing Monitoring Center (TMC). The FSP form is available from TMC.

4 Manufacturing Process

Not applicable.

5 Rules and Regulations

5.1 Legal Regulations. All materials must satisfy applicable laws, rules, regulations and recommendations valid in the country of usage.

5.2 Language. In the event of conflict between the English and domestic language, the English language shall take precedence.

5.3 Inspection and Rejection. All shipments of material or parts under contract or purchase order manufactured to this specification shall be equivalent in every respect to the initial samples approved by Engineering. There shall be no changes in either formulation or manufacturing processes permitted without prior notification and approval by Engineering. Lack of notification by the supplier constitutes grounds for rejection of any shipment. While samples may be taken from incoming shipments and checked for conformance to this specification, the supplier shall accept the responsibility for incoming shipments meeting this specification without dependence upon purchaser's inspection.

The series of tests used to approve each batch of product along with acceptance limits will be agreed upon by the purchaser and seller. The laboratory providing the certificate of analysis must also participate in a proficiency testing program (round robin) that is approved by the Fuels, Fluids, and Lubricants Global Subsystem Leadership Team (GSSLT) or designate. The Fuels, Fluids, and Lubricants GSSLT or designate must receive copies of the proficiency testing reports directly from the test program administrator.

5.4 Initial Source Approval. No shipment shall be made by any supplier until representative initial production samples have been approved by the Fuels, Fluids, and Lubricants Global Subsystem Leadership Team or designees meeting the requirements of this specification.

5.5 Material Safety Data Sheets/Safety Data Sheets (MSDS/SDS). For new product submissions, or when a change in chemical composition of an existing product has occurred, a complete copy of the Material Safety Data Sheet/Safety Data Sheet must be submitted in compliance with the Globally Harmonized System of Classification and Labeling of Chemicals (GHS) requirements or other country-specific MSDS/SDS requirements.

6 Approved Sources

Materials supplied to this specification must be approved by General Motors.

The appropriate GM Materials Engineering department(s) must confirm material as meeting the requirements of this specification. Any test data sheets of material submitted to General Motors for such confirmation (e.g., during Production Part Approval Process (PPAP)) under this material specification must list all properties and must apply corresponding test methods of this material specification.

For other GM locations, the responsible engineering group should be contacted to obtain the approved source in that individual country.

7 Notes

7.1 Glossary.

ACM: A copolymer of ethyl acrylate (AEM) (or other acrylates) and a small amount of a monomer which facilitates vulcanization. The ACM referred to in this standard is a formulation defined in SAE J2643 as ACM-1 or ACM-2.

AEM: An ethylene acrylic material (AEM). The AEM referred to in this standard is a formulation defined in VDA 675301.

ASF: ASF is a parameter that's specific to the test detailed in Appendix A, Table A4.

EVO: Refers to the next iteration of the MB M271 sludge test per CEC L-107.

FKM: A class of fluorinated, carbon-based synthetic rubber, commonly known as fluorocarbon/fluoroelastomer (FKM).

HNBR: A hydrogenated acrylonitrile butadiene rubber (HNBR). The HNBR referred to in this standard is a formulation defined in SAE J2643 as HNBR-1.

VMQ: A silicone rubber having both methyl and vinyl (VMQ) substituent groups on the polymer chain. The VMQ referred to in this standard is a formulation defined in SAE J2643 as VMQ-1.

7.2 Acronyms, Abbreviations, and Symbols.

°C	degrees Celsius
µm	micrometer(s)
%	percent(age)
A/cm	Absorbance/Centimeter
ABS	Acrylonitrile Butadiene Styrene
ACC	American Chemistry Council
ACEA	European Automobile Manufacturers' Association
ACM	Polyacrylate
AEM	Ethylene Acrylic
CCS	Cold Cranking Simulation
CDP	Candidate Data Package
CEC	Coordinating European Council
DI	Direct Injection
EOT	End of Test
FKM	Fluorocarbon/Fluoroelastomer
FSP	Formulation Submission Package
GHS	Globally Harmonized System of Classification and Labeling of Chemicals
GSSLT	Global Subsystem Leadership Team
HNBR	Hydrogenated Nitrile Butadiene Rubber
HTHS	High Temperature High Shear
ICP	Inductively Coupled Plasma
IMDS	International Material Data System

IQ	Information Quality
KV	Kinematic Viscosity
L	Liter(s)
MB	Mercedes Benz
mg	milligram(s)
mg KOH/g	Acid number (mg KOH/g oil)
mg/kg	milligram(s) per kilogram(s)
mL	milliliter(s)
mm²/s	square millimeter(s) per second
mPa s	megapascal seconds (dynamic viscosity)
MSDS	Material Safety Data Sheet
PPAP	Production Part Approval Process
SAE	SAE International
SDS	Safety Data Sheet
TAN	Total Acid Number
TBN	Total Base Number
TMC	Testing Monitoring Center
VMQ	Vinyl Methyl Silicon
XRF	X-Ray Fluorescence

8 Coding System

8.1 This standard shall be referenced in other documents, drawings, etc., as follows:

GMW18006- Viscosity-Grade- XXXX- Diesel

8.1.1 Examples:

GMW18006- Viscosity-Grade- 0W20- Diesel

GMW18006- Viscosity Grade- 5W30- Diesel

9 Release and Revisions

This standard was originated in March 2018. It was first approved by the Materials - Fuels, Fluids, and Lubricants Global Subsystem Leadership Team in April 2018. It was first published in April 2018.

Issue	Publication Date	Description (Organization)
1	APR 2018	Initial publication.
2	DEC 2018	Added references to 5W-30, ISP Method procedure, Testing Monitoring Center. (Materials – Fuels, Fluids, Lubricants GSSLT)
3	NOV 2020	Revised HTHS for 5W-30 engine oil from 2.9 to 3.5. (Materials – Fuels, Fluids and Lubricants GSSLT)