



**WORLDWIDE
ENGINEERING
STANDARDS**

Material Specification

GMW18299

dexos® R Performance 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 describes engine oil that meets or exceeds the material properties and performance requirements required to be licensed as dexos® R; XW-20, XW-30, XW-40, or XW-50 for gasoline engines.

1.2 Symbols. Not applicable.

1.3 Applicability. Materials meeting this specification are intended for use as factory or service fill engine oil for high-performance variants of GM engines.

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 D4684	ASTM D6795	DIN 51575
ASTM D97	ASTM D4684-17	ASTM D7216	DIN 51757
ASTM D412	ASTM D4741	ASTM D7419	DIN ISO 2909
ASTM D445	ASTM D4951	ASTM D7528	DIN ISO 3104
ASTM D471	ASTM D4951-14	ASTM D8114	DIN ISO 3771
ASTM D664	ASTM D5133	ASTM D8256	EN ISO 14596-2
ASTM D874	ASTM D5293-17a	ASTM D8279	ISO 2592
ASTM D892	ASTM D5762	ASTM D8350	ISO 3016
ASTM D2240	ASTM D5800	CEC L-14-A	ISO 15597
ASTM D2270	ASTM D6082	CEC L-36-A-90	ISO 17025
ASTM D2270-10	ASTM D6417	CEC L-40-A-93	ISO/IEC Guide 58
ASTM D2622-10	ASTM D6443	CEC L-54-96	OM646LA
ASTM D2896	ASTM D6557	CEC L-99-08	SAE J300
ASTM D3228	ASTM D6616	DIN 51363-2	SAE J2643
ASTM D4052	ASTM D6709	DIN 51363-3	
ASTM D4683	ASTM D6794	DIN 51400-10	

2.2 GM Standards/Specifications.

GMW3059	GMW17043	GMW17295 (ID)	GMW17299 (ID)
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(ID) = This standard is limited to internal distribution within General Motors and shall not be distributed outside this company. Contact the GM Lead Engineer for further instructions.

2.3 Additional References.

- Additive Technical Committee (ATC) Code of Practice.
- American Chemistry Council (ACC) Petroleum Additives Product Approval Code of Practice.
- Association Technique de l'Industrie Européenne des Lubrifiants (ATIEL) Code of Practice.
- Center for Quality Assurance (CQA); <https://gmtdc.org>.
- dexos® Approval Committee.
- dexos® test registration manual, available at: <https://gmtdc.org>.
- Formulation Submission Package (FSP) forms available at: <https://gmtdc.org/bulletin.aspx>.
- GM Part Numbers: 9986491, 9986556. See Appendix B, Table B1 for additional detail.
- GM Proprietary Test (Information Quality (IQ)) (ID).
(ID) = This document is limited to internal distribution within General Motors and shall not be distributed outside this company. Contact the GM Lead Engineer for further instructions.

3 Requirements

3.1 Testing Requirements. It is GM's intent that the product supplied per this specification, i.e., the final formulation, pass all requirements defined herein. If in any event the GM dexos® Approval Committee 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.

3.1.1 All materials supplied to this standard must comply with GMW3059, Restricted and Reportable Substances. For raw materials, non-dimensional materials (e.g., fluids, greases) and/or bulk materials that require approval into the GM Materials Approved Source List (GMMASL), an International Material Data System (IMDS) submission must be made by the material supplier as a material Material Data Sheet (mMDS). After the mMDS is approved by the GM IMDS team, the materials supplier is to provide a "Header only report" to the responsible GM Materials Engineer. Further guidance can be found in the GM-specific instructions on the IMDS website.

3.1.2 All tests must be run in accordance with the requirements listed in the dexos® test registration manual.

3.1.3 Laboratories conducting dexos® registered tests and measuring chemical and physical properties of the final formulation must be accredited per ISO 17025. Such accreditation must have been granted by an organization which has demonstrated that it operates in accordance with the requirements of ISO/IEC Guide 58.

3.1.4 All ASTM International (ASTM) tests must be conducted according to the procedures specified in the American Chemistry Council (ACC) Petroleum Additives Product Approval Code of Practice.

3.1.5 All Coordinating European Council (CEC) tests must be conducted according to the procedures specified in the Additive Technical Committee (ATC) Code of Practice, the Association Technique de l'Industrie Européenne des Lubrifiants (ATIEL) Code of Practice, and the European Engine Lubricants Quality Management System (EELQMS).

3.2 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, Table A4, Table A5, and Table A6.

3.2.1 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 ACC Candidate Data Package (CDP), including the ACC summary page for the candidate oil to the General Motors Test Data Center at <https://gmtdc.org>. The FSP form and supplemental information form are available at <https://gmtdc.org/bulletin.aspx>.

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.

IVB: Industry nomenclature utilizes Roman numerals to denote the test number and version. Thus this denotes the Sequence 4 version B test in the industry.

VH: Industry nomenclature utilizes Roman numerals to denote the test number and version. Thus this denotes the Sequence 5 version H test in the industry.

VI E: Industry nomenclature utilizes Roman numerals to denote the test number and version. Thus this denotes the Sequence 6 version E test in the industry.

VIII: Industry nomenclature utilizes Roman numerals to denote the test number and version. Thus this denotes the Sequence 8 test in the industry.

X: Industry nomenclature utilizes Roman numerals to denote the test number and version. Thus this denotes the Sequence 10 test in the industry.

7.2 Acronyms, Abbreviations, and Symbols.

@	at
°C	degrees Celsius
µm	micrometer
%	percent(age)
ACC	American Chemistry Council
ACEA	Association des Constructeurs Européens d'Automobiles
ACM	SAE abbreviation for Polyacrylate
AEM	SAE abbreviation for Ethylene Acrylic Copolymer
ASTM	ASTM International
ATC	Additive Technical Committee
ATIEL	Association Technique de l'Industrie Européenne des Lubrifiants
CCS	Cold Cranking Simulation
CDP	Candidate Data Package
CEC	Coordinating European Council
CQA	Center for Quality Assurance
EELQMS	European Engine Lubricants Quality Management System
EOFT	Engine Oil Filterability Test
EOT	End of Test
EWTT	Engine Oil Water Treatment Test
FEI	Fuel Economy Improvement
FKM	SAE abbreviation for Fluoro-Elastomer
FSP	Formulation Submission Package
GHS	Globally Harmonized System of Classification and Labeling of Chemicals
GMAER	GM Aeration Test
GMMASL	GM Material Approved Source List
GMOD	GM Oxidation and Deposit Test
GMOEE	GM Oil Efficiency Evaluation
GMSPi	GM Stochastic Pre-ignition Test
GMTD	GM Turbocharger Deposit Test
GSSLT	Global Subsystem Leadership Team
HNBR	Hydrogenated Nitrile Butadiene Rubber
ICP	Inductively Coupled Plasma
IMDS	International Material Data System
IQ	Information Quality
kg	kilogram(s)
kg/m ³	kilogram(s) per cubic meter
L	liter(s)
mg	milligram
mg/kg	milligram per kilogram
mg•KOH/g	milligrams of potassium hydroxide per gram
mL	milliliter
mm ²	square millimeter(s)
mm ² /s	millimeter squared per second

mMDS	material Material Data Sheet
mPa•s	millipascal per second
MSDS	Material Safety Data Sheet
PPAP	Production Part Approval Process
ppm	parts per million
ROBO	Romaszewski Oil Bench Oxidation
SAE	SAE International
SDS	Safety Data Sheet
SRE	Standard Reference Elastomer(s)
TCO	Turbo Coolant Out
VMQ	Vinyl Methyl Silicon
XRF	X-ray Fluorescence Spectroscopy

8 Coding System

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

GMW18299-ViscosityGrade-XW-20-Gasoline

GMW18299-ViscosityGrade-XW-30-Gasoline

GMW18299-ViscosityGrade-XW-40-Gasoline

GMW18299-ViscosityGrade-XW-50-Gasoline

9 Release and Revisions

This standard was originated in June 2020. It was first approved by the Materials - Fuels, Fluids and Lubricants GSSLT in January 2021. It was first published in February 2021.

Issue	Publication Date	Description (Organization)
1	FEB 2021	Initial publication.