GM ENGINEERING STANDARDS	Material Specification	9986465

Engine Coolant Concentrate, Extended Life, dexcool®

1 Scope

1.1 Material Description. This specification is a part number for a dexcool® extended life engine coolant concentrate that has been approved by GM to GMW3420.

1.2 Symbols. Not applicable.

1.3 Applicability. dexcool® extended life engine coolant is used to protect automotive engine cooling systems from corrosion, freezing and boiling.

2 References

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

2.1 External Standards/Specifications.

ASTM D3306

2.2 GM Standards/Specifications.

GMW3059 GMW3420

2.3 Additional References.

- Global Engine Coolant Mixture Best Practice, Heating Ventilation and Air Conditioning Powertrain Cooling (HVACPTC-229).
- TMC003 Material Safety Data Sheet guidance documents (available at www.gmsupplypower.com).

3 Requirements

3.1 All materials supplied to this specification shall meet and be approved by General Motors to the requirements specified in GMW3420.

3.2 The material shall be Shell dexcool® engine coolant concentrate.

4 Manufacturing Process

The extended life coolant concentrate is intended to be mixed with clean, potable water per the recommended limits specified in ASTM D3306. The concentrations to be used are specified in the Global Engine Coolant Mixture Best Practice Heating Ventilation and Air Conditioning Powertrain Cooling (HVACPTC-229) unless deviation has been granted by the Global Subsystem Leadership Team (GSSLT). The supplier shall work with the GM Design Responsible Engineer to comprehend this requirement.

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

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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. In addition, product MSDS/SDS submissions must be in compliance with specific country General Motors TMC003 Material Safety Data Sheet/Safety Data Sheet guidance documents where available.

5.6 All materials supplied to this standard must comply with the requirements of the International Material Data System (IMDS) and GMW3059, **Restricted and Reportable Substances.**

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.

7 Notes

7.1 Glossary. Not applicable.

7.2 Acronyms, Abbreviations, and Symbols.

GHS Globally Harmonized System of Classification and Labeling of Chemicals

GSSLT Global Subsystem Leadership Team

IMDS International Material Data System

MSDS Material Safety Data Sheet

PPAP Production Part Approval Process

SDS Safety Data Sheet

8 Coding System

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

Material per Shell dexcool® engine coolant per 9986465.

9 Release and Revisions

This standard was originated in February 2015. It was first approved by Materials – Fuels, Fluids & Lubricants in August 2015. It was first published in August 2015.

Issue	Publication Date	Description (Organization)
1	AUG 2015	Initial publication.

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