



Windshield Washer Solution, Concentrate, 99% Methanol

1 Scope

1.1 Material Description. This specification covers a liquid windshield washer concentrate which when diluted with water provides cleaning, protection against freezing and a rust inhibitor for storage for use as the factory fill solution in the windshield washer reservoir.

1.2 Symbols. Not applicable.

1.3 Applicability. Solvent for cleaning windshields.

2 References

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

2.1 External Standards/Specifications.

ASTM D56

ASTM D1015

ASTM E70

ASTM E346

2.2 GM Standards/Specifications.

GMW3059

2.3 Additional References.

TMC003 Material Safety Data Sheet guidance documents (available at www.gmsupplypower.com).

3 Requirements

3.1 Chemical Requirements. The liquid windshield washer concentrate as received shall conform to the following (weight percent):

Methanol 99.70 to 99.72

Blue Dye 0.001 to 0.0100

Corrosion Inhibitor 0.28 to 0.30

3.2 Physical Requirements of the Concentrate. The liquid windshield washer concentrate shall conform to the following:

Specific Gravity (ASTM E346) 0.790 to 0.800

pH (ASTM E70) 8.0 to 9.5

Flash Point (ASTM D56) 10 °C minimum

Absorbance of concentrate (dye) 0.4 to 0.8

3.3 Color. Blue color shall not fade significantly or form precipitate when stored for three months under normal storage conditions.

3.4 Absorbance of Concentrate. The dye concentration is verified by spectrophotometry by determining the wavelength of maximum absorbance for the concentrate solution. The wavelength of maximum absorbance for the concentrate solution shall be between the wavelengths of 600 N•m to 650 N•m which corresponds to the specified 0.4 to 0.8 absorbance.

3.5 Stain Test. Testing is to be conducted with both the 9985670 concentrate and with a solution consisting of two (2) parts concentrate to three (3) parts deionized water. Both the candidate 9985670 windshield washer solution and a control solution consisting of an approved 9985670 windshield washer solution shall be tested. One (1) paint panel shall be tested for each paint formulation that needs to be tested per the Global Paint and Polymers Center for compatibility with this fluid. Four (4) drops of solution shall be placed on each paint panel: The concentrate and the 2:3 mixed solution of the candidate fluid and the concentrate and the 2:3 mixed solution

of the control fluid. To conduct the test, apply the drops of solution on the paint panel at about 22 °C and allow it to dry completely. After the drops have dried completely, wipe the surface of the paint panel with a wet cloth. Evaluate the surface of the paint panel in the area of the windshield washer solution contact. Exposure of the paint panels to the candidate solution must not result in greater tendency to stain than exposure of the paint panels to the approved 9985670 control solution. Test paint panels and data must be supplied to the Global Paints and Polymers Center for their evaluation and approval of the candidate 9985670 windshield washer solution.

4 Manufacturing Process

The liquid windshield washer concentrate shall be mixed with water to make a 40% by volume methanol concentration for factory fill into the vehicle as follows:

4.1 Mix. Three (3) parts tap water, two (2) parts concentrate.

4.1.1 Water used must not compromise the function of the windshield solvent and should have a maximum total hardness (as CaCO₃) of 200 ppm.

4.2 Physical Properties of Mix.

Specific Gravity (ASTM E346) 0.940 to 0.950

Freeze Point (ASTM D1015) No higher than -30 °C

4.2.1 The mix shall not foam in the washer reservoir sufficiently to create more than 20% foam, as compared to liquid volume, while the pump is run continuously.

4.2.2 The mix shall not leave any objectionable residue.

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. 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**.