GM	WORLDWIDE ENGINEERING STANDARDS	Test Procedure	GMW14334

Chemical Resistance to Fluids

1 Introduction

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. The object of this test procedure is to determine the effects of fluids on automotive trim materials and components. Examples of fluids are cleaning agents, perspiration, etc. See Appendix A, Table A1.

1.2 Applicability. Such components will normally have organic-coated surfaces or be integrally colored plastic or self-adhesive films, but other types of materials or components are not excluded.

1.3 Remarks. For Fluid Codes , see Table 1.

2 References

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

2.1 External Standards/Specifications.

None

2.2 GM Standards/Specifications.

9981285	9982224	GMW3221	GMW16387
9982223	9985670		

2.3 Additional References.

2.3.1 Part Numbers available at: www.cas.org.

- 1051515 - AC Delco Optikleen
- 19259280 - AC Delco Glass Cleaner
- 88861405 - GM Leather, Vinyl and Plastic Cleaner
- 88865217 - AC Delco Car Wash Shampoo
- 88865218 - AC Delco Cleaner Wax

2.3.2 Chemical Abstract Service (CAS).

- CAS 64-19-7
- CAS 7647-14-5
- CAS 7732-18-5
- CAS 10039-32-4
- CAS 10361-29-2

3 Resources

3.1 Facilities.

3.1.1 Calibration. The test facilities and equipment shall be in good working order and shall have a valid calibration label.

3.1.2 Alternatives. Alternative test facilities and equipment may also be used. However, all measuring variables as specified in this standard shall be determined correctly with respect to their physical definition.

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3.2 Equipment. Not applicable

3.3 Test Vehicle/Test Piece.

3.3.1 Test Piece. If possible, complete components shall be tested. Where size, configuration, etc., restricts testing, sections of convenient size, cut from the component, shall be used. A minimum of three (3) test pieces shall be tested.

3.3.2 Organic Coatings. It is also permissible to use specially prepared test panels. The size shall be:

(250 mm ± 5 mm) × (20 mm ± 2 mm) × (0.8 mm to 2.5 mm)

The test panels shall be made of production-intent substrates. Coating shall be applied via production-intent processes and in the thicknesses specified in the material specification or in the paint manufacturer's data sheet.

3.4 Test Time. See Table 2.

3.5 Test Required Information. If not otherwise specified, the respective fluids are applicable for the materials specified in Table 2 (integrally colored, organic-coated, and self-adhesive films listed; other types of materials must specify the required fluids). Conditioned test pieces shall be immersed in the test fluid for the time specified in Table 2. The test pieces shall be removed, rinsed free of reagent, dried with clean cloth using slight pressure, inspected, and evaluated.

3.6 Personnel/Skills. Personnel trained in accordance with laboratory accreditation requirements.

Table 1: Fluids

Code	Fluids
A	**Cleaning Agents for Interior**
	Commercial vehicle cleaning agent-Interior
	Commercial window cleaning agent
B	**Cleaning Agents, Polishes and Protective Agents for Exterior**
	Transit coating/protective wax
	Remover for transit coating/protective wax
	Commercial vehicle cleaning agent - Exterior
	Commercial window cleaning agent
	Commercial car shampoo
	Commercial paintwork cleaning product
	Commercial washer fluid – methanol based
	Commercial washer fluid – ethanol based
	Commercial tar and road oil cleaner
	Commercial chrome cleaner and polish
	Commercial glass treatment

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Code	Fluids		
C	**Artificial Perspiration Solutions (prepared per a, and b.)**		
	a. Acid perspiration solution - pH approximately four (4)		
	Substance	**Chemical Abstract Service (CAS) Number**	**Quantity**
	Sodium chloride	7647-14-5	8.0 g
	Sodium phosphate dibasic Dodecahydrate (12 H_2O)	10039-32-4	8.0 g
	Glacial acetic acid	64-19-7	5.0 g
	Distilled water	7732-18-5	to 1000 mL
	b. Alkaline Perspiration Solution - pH Approximately Nine (9)		
	Substance	**CAS Number**	**Quantity**
	Sodium chloride	7647-14-5	10.0 g
	Ammonium carbonate	10361-29-2	4.0 g
	Sodium phosphate dibasic Dodecahydrate (12 H_2O)	10039-32-4	1.0 g
	Distilled water	7732-18-5	to 1000 mL
X	**Other Fluids** (**as specified on the drawing**)		

Note: CAS = Chemical Abstract Service.

Table 2: Immersion Time and Applicability

Fluid	Immersion Time	Applicable for Materials
Commercial vehicle cleaning agent Interior/exterior	24 h	• Integrally colored plastics • Organic-coated surfaces • Self-adhesive films
Commercial window cleaning agent	1 h	• Integrally colored plastics • Organic-coated surfaces • Self-adhesive films
Transit coating/Protective wax	24 h	• Organic-coated surfaces
Remover for Transit coating/Protective wax	1 h	• Organic-coated surfaces
Commercial car shampoo	24 h	• Integrally colored plastics • Organic-coated surfaces • Self-adhesive films
Commercial paintwork cleaning product	24 h	• Integrally colored plastics • Organic-coated surfaces

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