WORLDWIDE ENGINEERING STANDARDS	Material Specification	GMW17223

Fluorescent Dye for Refrigerant Leakage Detection

1 Scope

1.1 Material Description. This standard provides the overall requirements of a fluorescent dye for use within mobile air conditioning systems.

1.2 Symbols. Not applicable.

1.3 Applicability. The dye is introduced into the mobile air conditioning refrigerant system for the purpose of leak detection. This universal dye should be compatible in R134a, R1234yf refrigerant and, polyalkylene glycol (PAG) or polyolyester (POE) oil based systems.

1.4 Remarks. The dye is normally used during service or repair.

2 References

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

2.1 External Standards/Specifications.

ASTM D92 SAE J2297 SAE J2298 SAE J2299
ASTM D891

2.2 GM Standards/Specifications.

GMW3059 GMW16186

2.3 Additional References.

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

3 Requirements

3.1 Physical and Chemical Properties. The dye must meet all applicable requirements of GMW16186, SAE J2297, SAE J2298, SAE J2299 and Table 1.

Table 1: Physical and Chemical Properties

Properties	Values	Test Methods
Appearance	Odorless yellowish liquid	Visual at room temperature
Specific Gravity	1.06 ± 0.03	ASTM D891
Flash Point	> 177 °C (> 350 °F)	ASTM D92

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.

© Copyright 2014 General Motors Company All Rights Reserved

Documents
Document Sharing Hub

Copyright General Motors Company
Provided by IHS Markit under license with General Motors Company
Reproduction, distribution or publication of these standards is expressly prohib
Licensee=/, User=,
Not for Resale,
Full document details: GMW GMW17223 2014

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 International Materials Database System (IMDS) and GMW3059, **Restricted and Reportable Substances for Parts.**

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 Materials Database System
MSDS	Material Safety Data Sheet
PAG	Polyalkylene Glycol
POE	Polyolyester
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 GMW17223

© Copyright 2014 General Motors Company All Rights Reserved

Documents
Document Sharing Hub

Copyright General Motors Company
Provided by IHS Markit under license with General Motors Company
Reproduction, distribution or publication of these standards is expressly prohib
Licensee=/, User=,
Not for Resale,
Full document details: GMW GMW17223 2014