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GENERAL MOTORS CORPORATION
MATERIAL SPECIFICATIONNO 998 1421
998 1386
998 1473PNC
PACET 05-74

NAME

GREASE-PHOSPHATE AND PAINT CYCLE RESISTANT

CONTROLLED USE ONLY

FISHER BODY

I. GENERAL DESCRIPTION

This specification covers the physical, functional and chemical requirements of high-low temperature, phosphate and paint cycle resistant grease. The grease shall be employed in the lubrication of automotive hardware mechanisms that are subjected to high and low temperatures and phosphate-paint processes (spray, Electrophoretic-Cathodic and Anodic, etc.).

998 1421 - Used in the lubrication of parts such as door lock assemblies, which require very good low temperature properties and where oil bleed-out at high temperatures is not as critical a factor as in the 998 1386 materials.

998 1386 - Used in the lubrication of parts such as door hinge assemblies which require good low temperature properties and where oil bleed-out at high temperatures is a critical factor.

998 1473 - Used in the lubrication of parts such as window regulator clutches where the wear and sound deadening characteristics of graphite are essential.

All above materials shall be compatible with organic solvents**and shall remain at a constant viscosity in solution when diluted with these solvents and not be adversely changed when these solvents are evaporated.

None of the above greases shall contain any silicone materials or any other materials detrimental to a painting process.

** Solvents such as SC-100, Stoddard, and 1,1,1 Trichloroethane.

II. DETAILED REQUIREMENTS

The lubricants must be of uniform texture and consistency; they must not be perfumed and they must not become rancid or show component separation over long time periods. The grease must not be toxic or injurious to personnel engaged in its handling or use and they must not be harmful to automotive finishes.

A. Physical Properties

The physical properties of the greases are of primary importance and must meet the following requirements:

5-9-78	Added II A7 Detergent Immersion	F.B.	ER/6863	Gen 2 RP
4-11-77	General Revision		95651	GW/CRW
10-11-73	New specifications: 998 1386, -1421, -1473- Supersedes FRMS 20-28 B, -A, -C	F.B.	ER-35431	
DATE	S.M.	REVISION REQUIRED		

This specification changes from previous issue



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II. DETAILED REQUIREMENTS Cont'dA. Physical Properties Cont'd

Tests	998 1421	998 1386	998 1473	Test Method
1. Oil Separation (22 Hrs @ 99.0°C ± 1.0°C)	10% Max	6% Max.	6% Max.	Fed. TM 791A Method 321.2
2. Evaporation (22 Hrs at 99.0°C ± 1.0°C)	5% Max.	5% Max.	5% Max.	ASTM D-972
3. Bleeding Test (30 Min. at 205°C)	The grease must not slide down panel nor dry out. Slight oil bleed-out is permissible.	The grease must not slide down panel, dry out, or show any oil bleed- out.	Same as 9981386	Fisher Body TM 52-6
4. Torque Test (-30°C)				
a. Start-Up Torque	0.40 N·m ** (Max.)	0.70 N·m (Max.)	0.70 N·m (Max.)	Fisher Body TM 52-10
b. Running Torque	0.10 N·m (Max.)	0.30 N·m (Max.)	0.30 N·m (Max.)	
5. Corrosion Test (168 Hours Condensing Humidity - 100% at 37.8°C)	No rust	No rust	No rust	Fisher Body TM 52-7
6. Caustic-Phosphate Resistance Test	To be det.	To be det.	To be det.	Fisher Body TM 52-1
7. Detergent Immersion * Cycle Test				
Percent Wash-Off 5 Cycles	15 Max.	"	"	Fisher Body TM 52-27
Percent Wash-Off 10 Cycles	25 Max.	"	"	" "
8. Pressure Oil Separation	To be det.	To be det.	To be det.	To be det.
9. Extreme Pressure Pro- perties				
a. 4-Ball Weld Point (Kg) or	90 Min.	200 Min.	150 Min.	Fisher Body TM 52-13
b. Timken O.K. Load	To be det.	To be det.	To be det.	ASTM D-2500- 66T

**N·m = Newton-Metres

* Activities range from 0.1 to 1.0 g.