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and clutch characteristics

Table 1 — General Properties of Brake Linings

Characteristic	High Organic Class A	Medium Organic Class B	Low Organic No Asbestos Class C
Fade	Poor	Good	Excellent
Wear	Excellent	Good	Fair
Friction: Cold	Highest	Lower	High + Stab.
Hot	Lowest	Higher	High + Stab.
Noise	None	Little	Lots
Compressibility	Lots	Some	Little
Metal Mate	No scoring	Some scoring	Lots of scoring
Duty For Use	Standard	Medium heavy	Heavy

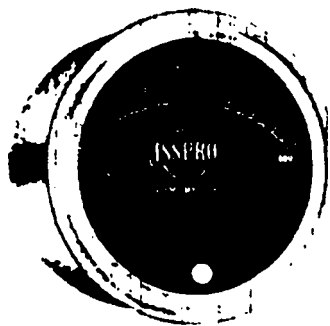
Table 2 — LFW-1 Results at 27.3 kg Load at Variable Speeds (Step Change)

Characteristic	Class A	Class B	Class C	Class C + 10% Friction Mod- ifier "A"
Wear (General Rating)	Excellent	Good	Fair	_____
LFW-1 on blocks, mg	189	351	587	490
Friction-Cold (General Rating)	Highest	Lower	High and Stable	_____
LFW-1, $\mu(T^{\circ}C)$ at 2000 rpm	0.38 (49)	0.22 (38)	0.46-0.39 (55)	0.27-0.30 (55)
Hot (General Rating)	Lowest	Higher	High and Stable	_____
LFW-1, $\mu(T^{\circ}C)$ ● 1200 rpm ● 1000 rpm	0.30 (107) 0.33 (115)	0.28 (82) 0.38 (232)	0.38 (143)	0.35 (150)
Noise (General Rating)	None	Little	Lots	_____
LFW-1	Very slight at one speed	None	Some at several speeds	None
Metal Mate (General Rating)	No scoring	Some scoring	Medium-heavy scoring	_____
LFW-1 Test ring, mg loss	13	236	634	270

for longer engine life

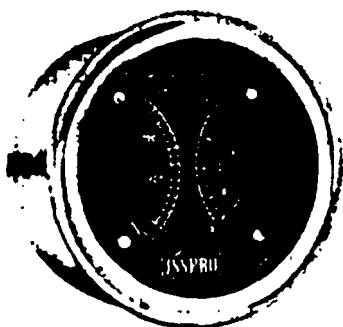
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R604 PYROMETER

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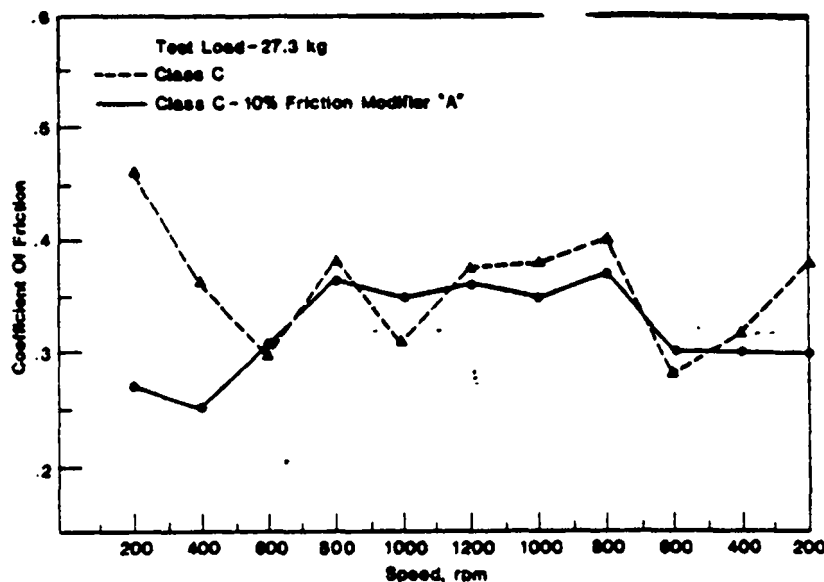


Fig. 1—LFW-1 Coefficient of friction vs. speed.

most noise, also gave the most stable frictional properties with speed and temperature as shown in Fig. 1. More consistent coefficient of friction properties were obtained from the Class C prototype between 600 and 1200 rpm. Class C prototype produced less noise than the standard Class C brake pad. The difference between the maximum and minimum coefficient of friction was less with the prototype containing Friction Modifier "A" than standard Class C material.

Desirable characteristics of Class B (lower wear, less noise, and a more constant coefficient of friction) may be achieved through use of the 10% Friction Modifier "A" composition. It must be noted that this percentage should not be considered as the amount necessary for other compositions.

Commercial applications

New technology for these new friction modifiers was first developed in Dow Corning's Munich Research and Development Laboratory. The first commercial evaluation and successes were in European brake pads.

Friction Modifier "A" has been used in the brake pads of a large European car for several years. The performance of the brake

pad with the new friction modifier was compared with another composition containing MoS₂. Comparisons made on a dynamometer showed the following advantages over the MoS₂ composition:

- lower noise level
- less dependence of friction coefficient on temperature
- decreased wear of the brake pad (30% increase in lifetime)
- decreased wear of the metal disc.

Since the initial usage in Europe, other European brake and clutch material manufacturers have evaluated these new friction modifiers. They have generally found them equal or superior to MoS₂, but they do not always provide the same characteristics since different materials are used in each formulation.

In the U.S.A. a number of brake and clutch friction material manufacturers have already evaluated the friction modifiers. Some have found that in semi-metallic brake pads without asbestos, these new additives can reduce noise, wear, and fade. In some cases, no improvement was found.

Based on SAE paper 790717, "Controlled Friction Additives for Brake Pads and Clutches," by Harry M. Schiefer and George V. Kubczak, Dow Corning Corp.

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35-year-old employee of Bendix becomes 13th victim of asbestos

WINDSOR (CP) — A 35-year-old man has become the 13th victim to die of an asbestos-related cancer after working at one of the two Windsor plants of Bendix Corp., the man's union representative and closest friend says.

Tommy Dunn, who worked for almost 12 years in the welding department of one of the plants, died on Saturday.

Doctors operated on Mr. Dunn in December, 1979, for mesothelioma, a rare form of inoperable cancer linked to asbestos fibres. They discovered two tumors in an advanced stage in his lung and gave him a maximum of two years to live.

Rick Byrne, former plant chairman for Local 195 of the United Auto Workers, who worked with Mr. Dunn for 11 years, and other union negotiators have taken the cases of 19 Bendix workers to the Workmen's Compensation Board.

Thirteen of the 19, including Mr. Dunn, have died of asbestos-related diseases.

Mr. Byrne said Mr. Dunn asked him to check with the board to see whether he was eligible for benefits. After long negotiations, the board decided Mr. Dunn's illness made him suitable for compensation and he received payment retroactive to November, 1979.

However, Bendix, which uses

asbestos in the manufacture of automotive brake linings, has never acknowledged that it was directly responsible for Mr. Dunn's illness. Mr. Byrne said Mr. Dunn was one of those concerned that Bendix did not completely comply with a 1966 Government request to clean up its plants.

"They were supposed to clean it up in 1966 and Tommy didn't know why they didn't clean it up."

Now, however, Mr. Byrne said that although the union has made some headway, negotiations will be tougher because Bendix closed its two Windsor plants last August.

"What can you change now — they're gone."