ASSESSMENT OF ASBESTOS USE AND IMPENDING REGULATIONS

Vehicle Materials Development and Planning
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PRODUCED BY FORD

ASBESTOS-IMPACT

Purpose

To review and update the engineering asbestos plan.

Background

The 1975 OSHA proposed standard remains dormant. If promulgated it will lower the permissible occupational exposure limit for asbestos from the current 2 fibers per cubic centimeter to 0.5 fiber/cc. Formal hearings that normally precede issuance of a final standard have been delayed for several reasons:

- A standard for the construction industry has not been prepared.
- An economic impact study has not been released, although it has been in draft form for six months.
- Continued attack on the proposed standard by asbestos and mining interests as being too restrictive.

Contrary to this apparent inactivity, NIOSH has recommended documentation of the "life cycle" of asbestos from mining to disposal and elimination of all non-essential uses. A working group in EPA's Office of Toxic Substance is currently performing a "life cycle" analysis of asbestos. First priorities for regulation are paper products (gaskets) and friction materials (brakes).

Assessment

A study of the current regulatory situation indicates a high probability that tighter environmental restrictions on asbestos will be promulgated within the next two years. The fact no firm evidence exists that the current standard is inadequate only means there will be no emergency standard of a disruptive nature. Evaluation of the current standard could take 30 or 40 years and still not surface concrete evidence supporting either the government or industry position. The burden is clearly on industry to "prove" the current standard is adequate. Since this is not possible and the government agencies were created to regulate the use of materials, we must proceed on the assumption there will be further regulation of asbestos.

The previous scenario for a staged tightening remains a possibility. This would mean a reduction of the current standard to 1 fiber/cc by mid-1980 and 0.5 fiber/cc by early 1983. However, this timing is unlikely because most industry currently meets 1 fiber/cc and the proposed standard has been "on-the-books" for nearly four years with no action.

If, as expected, during the next two years the proposed OSHA standard is promulgated, and/or regulation by EPA of asbestos emissions from brake wear occurs, then the following results can be expected:

A. A drastic reduction in the use of asbestos containing friction materials over the next 3 to 5 years. Comments:

  - Court challenges will delay implementation of standards for at least 1 year.
  - Transmission and Axle programs will be accelerated for non-asbestos substitution. (Attachment I)
  - Costly "crash programs" for brake drum substitutions.
  - • Attachment II shows the company usage of asbestos containing friction materials.

• General list being compiled by VMD&P- additional input required

B. The use of asbestos containing gasket, insulating and sealer materials will remain cost-effective for most applications. Comments:

- Raw asbestos comes from Canada.
- Process areas meet 0.5 fiber/cc by encapsulation.
- No emission problem because of encapsulation (with the possible exception of disposal).
- *. Attachment III shows the company usage of asbestos containing gasket, insulating and sealer materials.

It is less likely that we will see a standard of 0.1 fiber/cc. Streets in major cities have been measured at levels higher than 0.1 fiber/cc and citing this level as dangerous could result in "public panic".

Competition

Several years ago, GM reportedly considered a policy to get asbestos out of the brake linings because of the toxic concerns. They decided that the effort to find a substitute for asbestos would be better spent to improve the performance and durability of the lining material and opted for a development program with semi-mets by '81-'82 and all linings (disc and drum) by '85. The asbestos issue has helped keep the semi-met programs going over the years. There is no "official" GM company policy to remove asbestos from other component areas. However, because of toxic concerns and company awareness of asbestos, gaskets and heat insulators are slowly being replaced with asbestos free materials. Asbestos insulation reportedly has been removed from manufacturing plants and the facilities that manufacture brake linings meet the present standard of 2 fiber/cc. It appears obvious, regardless of company policy, that GM intends to eliminate the use of asbestos. Their approach of "no formal policy" is a result of uncertainties associated with cost and timing for substitutions, and a general awareness that issues must be dealt with before they become problems.

Chrysler also has no formal program for asbestos removal. However, in the case of sealers and gaskets, they attempt to use non-asbestos materials wherever possible and in most cases, are now introducing the substitute materials. In the area of brakes, front wheel discs are being converted to semi-mets as new programs permit, but no plan exists for rear brake drum substitution.

Summary

It is unlikely that crash programs on some friction materials can be avoided when tighter standards are promulgated for the following reasons:

- Reportedly there are no asbestos free substitute materials for drum brake linings available for evaluation at this time.
- Despite the lead body solder fiasco, the engineering attitude (with the exception of Transmission and Axle) remains "wait until the standard is promulgated". (Questions have been raised by various PEO's regarding a policy or position for the use of asbestos. In the absence of other direction, VMD&P makes recommendations later in this paper for a specific asbestos policy.)
- The automotive industry has not shown sufficient interest in non-asbestos materials to warrant accelerated R&D efforts by suppliers.

General list being compiled by VMD&P - additional input required from PEO's for completion

THE ABOVE COMPETITIVE INFORMATION IS BASED ON GENERALLY AVAILABLE INDUSTRY DATA. TRADE RELEASES

Summary (continued)

asbestos containing gasket, insulating and sealer materials will remain cost-effective this time around. However, the ultimate goal of NIOSH is to ban the use of asbestos, which means regulatory pressures will continue for many years to come. If we do not begin a serious effort to develop non-asbestos substitutes, additional "crash programs" can be expected.

Recommendations

The above assessments raise questions about company response to impending government regulations for environmental exposure to asbestos. In order to minimize the economic and timing impacts of these regulations, the Company must increase response in the following areas:

1. Initiate Advanced Engineering projects in the PEO's to develop alternate materials for friction, gasket, insulating and sealer components that contain asbestos. The October 7, 1978 Transmission and Axle Engineering Non-asbestos Material Program (Attachment I) is an excellent example. The suppliers must be made aware that we are seriously interested in alternate materials so that they will expend the necessary R&D efforts. Additional manpower will be necessary to assist the already over burdened PEO's. Responsibility: PEO's (Advanced Engineering)
2. It will be necessary to increase the capability of the Friction Materials Study Group within Research Staff to provide parallel support for engineering projects. Responsibility: E&RS
3. A firm company policy must be adopted for asbestos usage. Attached is a Car Engineering Practice Letter signed by the Vice President, Car Engineering (Attachment IV). Responsibility: VMD&P
4. Because of the lack of a formal mechanism to follow progress in this area, periodic reports must be made to management via the Engineering and Research Subcommittee. Responsibility: PEO's (Advanced Engineering)

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TRANSMISSION AND AXLE ENGINEERING NON-ASBESTOS MATERIAL PROGRAM

[illegible]: To develop non-asbestos material components to replace those items currently released which contain asbestos.

[illegible]: Manufacturing controls necessitated by anticipated OSHA standards to control carcinogenic materials will virtually eliminate asbestos usage in the automotive industry.

PROGRAM: For automatic transmissions, the initial development effort to evaluate non-asbestos friction materials is being conducted with the C6 transmission; initial production incorporation is scheduled for Job 1, 19[illegible]. As final material selections are made for individual friction elements, the other automatic transmission groups will determine their requirements based on the C6 experience.

The asbestos reinforced phenolic reactors will commence phasing out in 1980 and be completely phased out by Job 1, 1981.

Due to limited production capability by the prime supplier Raybestos-Manhattan, manual transmission will concentrate initial clutch development on the [illegible]-1/16" diameter unit for Job 1, 1980 and phase the [illegible]" diameter in by Job 1 [illegible].

[illegible] will be phased out in [illegible] friction [illegible]

[illegible] requirements.

[illegible]

Transmission and Axle Engineering [illegible]

[illegible]

TRANSMISSION AND AXLE ENGINEERING
NON-ASBESTOS MATERIALS PROGRAM

10/7/80

	C4	C6	FMX	C3	JATCO	AOD	ATX	AXOD II	MANUAL	AXLE
Direct Clutch	R-7018-E10 BD-7134A Incorporation Job #1, 1981 Part of C4 Engagement Improvement Prog.	R-7018-E10 Incorporation Job #1, 1980 Limited Models	Out in 1981 No Action Planned	Design Transmittal going to EAO stating this to be Job #1, 1982 Program	Out in 1981 No action Planned	R-7049-E28 Prime BD-714-AAB Alternate Running Change 1981	R-7049-E13 Job #1, 1981	Programmed 100% for Non-Asbestos selection of material [illegible] based on results obtained by production transmission which by Job #1, 1983 will have 3 years experience		
Forward Clutch	R-7049-E13 BD-715-AAB Incorporation (Same as above)	R-7049-E13 Incorporation Job #1, 1980 Limited Models				BD-715-AAB Running Change 1981				
Intermediate Clutch						R-7049-E13 Prime BD-715-AAB Alt Running Change 1981	R-7049-E13 Job #1, 1981			
Reverse Clutch		BD-715-AAB Incorporation Job #1, 1980 Limited Models				BD-714-AAB Running Change 1981	R-7049-E13 Job #1, 1981			
Intermediate Band	BD-1473 Incorporation Job #1, 1982	BD-1473 Incorporation Job #1, 1980 Limited Models					BD-1181 Job #1, 1981			
O/D Band						BD-1473 Running Change 1981				
Reverse Band	Material determination not complete Incorporation planned for Job #1, 1982					R-7049-E10 Prime BD-1797 Alt. Running Change 1981				
Phenolic Reactor	Phased out Job #1, 1980	Phased out Job #1, 1981	Phased out Job #1, 1980							
Phenolic Washer	*Asbestos Reinforced will be phased out as running change 1980									
Damper						Material TBD Job #1, 1981	Material TBD Job #1, 1981			
L/U Conv. Clutch/ Damper	Material being determined for Job #1, 1982 Release									
Clutch Disc									9-1/16" Dia, Job #1, 1980 8½" Dia by Job #1, 1981	
Gaskets and Sticker Plates										Metal friction discs for 8.8" in [illegible], and 7.5" in [illegible]. Non-asbestos material TBD on 9" axles by 1981

Legend BD – Borg Warner Spring Division
R – Raybestos-Manhattan