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Registered Mail
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Document Control Officer - TS-793
Office of Pesticides and Toxic Substances
Environmental Protection Agency
Room E-209
401 M Street, SW
Washington, DC 20460

Re: Comments on Toxic Substances Control Act
EPA Document Control Number: OPTS-62036
Asbestos Proposed Mining and Import Restrictions and
Proposed Manufacturing, Importation and Processing
Prohibitions; Proposed Rule (51 FR 3738, January 29, 1986)

Dear Sir:

Allied-Signal appreciates the opportunity to submit comments in response to EPA's Notice concerning the Proposed Rule for Asbestos under Section 6 of the Toxic Substances Control Act (TSCA).

In the United States, Allied-Signal has over 200 manufacturing locations in 34 states, in 1985 had sales of over \$9.1 Billion, and currently employs about 145,000 employees. We believe the proposed Asbestos Rule could have a significant effect on Allied-Signal and, in particular, on one of our key businesses, i.e. Friction Materials. The United States based Bendix Friction Materials Division is a major supplier of asbestos containing and non-asbestos containing friction material products. In addition, the Allied Automotive Sector Divisions Jurid Werke in Europe and Jurid do Brasil are original equipment friction material suppliers on vehicles imported into the United States. These Jurid plants plus Bendix Mintex Proprietary, Ltd. (Australia) also supply replacement friction material parts for the United States aftermarkets. As such, we offer the following comments to the EPA with the view that enlightened regulation is important to the protection of health, safety and the environment, as well as to the continuation of an important business in the United States. The friction materials business provides products and services critical to the safety of the public during transportation, as well as employment for several thousand people in several states.

I. Risk Assessment

- Allied-Signal appreciates the public and marketplace concerns relating to the continued use of asbestos and asbestos containing friction materials.
- Asbestos is a generic name used to describe several naturally occurring minerals which have similar, but not necessarily identical, crystalline structures, chemical compositions, and biological effect properties. The asbestos fiber of choice for use in friction materials for passenger cars and trucks has been chrysotile asbestos. This is largely due to its specific

physical and chemical properties which have yielded the critical friction characteristics necessary for safe, reliable performance in stopping a moving vehicle. The chrysotile asbestos fiber, however, is not suitable by itself for this product application. Processes have evolved that react the chrysotile asbestos fiber with other very specific materials in a formulation that creates a tightly bonded organic matrix that locks the chrysotile asbestos fiber into this matrix in the cured compound. It is the combination of these materials in the bonded matrix that produces specific physical and chemical properties that result in the necessary friction characteristics for a particular application. These friction materials must then be engineered into a system that is specifically designed for each passenger car and truck model application. One cannot simply substitute a friction material designed, formulated and engineered for one very specific application for another application without significant potential impact on the braking capability of the vehicle. It is largely for this reason that the extensive search for substitutes for chrysotile asbestos is a complicated and costly research, development and engineering process. Any proposed EPA regulation on banning or phasing down the use of asbestos in friction materials must take this technological challenge into account. We do not believe EPA should trade a debatable risk for the very real problem of unreasonable risk that may result from unreliable or unsafe braking system characteristics.

- The Bendix Friction Materials Division, Jurid Werke, Jurid do Brasil, Bendix Mintex and the Allied Automotive Technical Center of Allied-Signal have had extensive research programs for over 10 years to develop non-asbestos friction material products. These efforts have been successful in developing alternatives for some applications, particularly for certain new model vehicles. The research programs continue unabated at a high level to further develop non-asbestos friction materials for other new model and existing model applications. However, criteria established as part of Allied-Signal's Product Responsibility Program include that the Corporation will develop and commercialize only those products which can be produced safely and with high quality, and that are reliable and safe for their intended application.
- EPA's starting point for proceeding with regulation under Section 6 of TSCA is a finding of unreasonable risk. EPA has assumed that exposure to chrysotile asbestos fiber is similar quantitatively to exposure to other forms of asbestos fibers, and that the toxicological properties of chrysotile asbestos fibers are identical to other asbestos fibers. It is from these assumptions that EPA has estimated the risk level to employees in different occupations and workplaces, and determined that current controls will not preclude unreasonable risk from occurring or continuing.
- The scientific literature contains many reports of significant differences in the toxicological properties of and biological effects in people exposed only to chrysotile asbestos fibers vs those people exposed to other asbestos fibers. The American Conference of Governmental Industrial Hygienists (ACGIH) has recognized these differences by assigning different Threshold Limit Values (TLV's) for each form of asbestos, recognizing chrysotile asbestos as significantly less of a problem. Further, as mentioned above, the chrysotile asbestos fibers are mixed with several other reactive materials. This specific formulation, after processing and curing, results in the chrysotile

asbestos fiber being bonded and locked tightly within an organic matrix that must resist significant degradation over time to assure reliability of performance. Scientific studies have shown that decomposition products of friction materials, when formed from the high temperature and pressure of brake applications, are, for the most part, not fibrous and not identified as free chrysotile asbestos fibers and separate from the bonded matrix. Thus, garage mechanics who may perform brake changes, including relining and grinding operations and may not use the hygiene control procedures recommended by the Friction Materials Standards Institute, including use of local exhaust ventilation, are not exposed to measurable and identifiable free chrysotile asbestos fibers, but rather to a dust of a very different compositional nature. The unbonded chrysotile asbestos exposure levels, in the Bendix Friction Materials Division's United States manufacturing operations, are tightly controlled through engineering design supplemented by local exhaust ventilation and filtration systems and are well in compliance with OSHA and ACGIH standards. In fact, the Corporation has implemented such systems in operations worldwide. Allied-Signal believes that these risk assessment factors do not warrant an immediate ban while the research programs continue to identify safe and reliable substitutes for use in friction materials. Thus, EPA may wish to re-examine its risk estimates and the determination of unreasonable risk.

II. Risk Management Approach: Asbestos Substitution

- In spite of the facts noted in the risk assessment, there has been considerable movement in the marketplace away from friction materials containing asbestos. We fully expect that the market-place pressures that place a demand for non-asbestos products will continue. Allied-Signal has, over the past decade, implemented extensive and costly research programs to develop reliable and effective friction materials that are asbestos free. The Bendix Friction Materials Division has, in fact, been successful in developing asbestos-free products for select applications and expects to continue to be successful in the research and development programs for other applications.
- If the EPA, in its unreasonable risk determination, concludes it is still appropriate to proceed with a ban and/or phase-down on the importation and processing of asbestos for friction materials, Allied-Signal believes safe, reliable alternatives will be developed and commercially available for release by vehicle or brake manufacturers for all original equipment friction material uses within 5 years of the effective date of such a regulation. However, Allied-Signal also believes that it will take significantly longer (at least 5 additional years) to develop adequate substitutes for the asbestos containing friction materials used in the aftermarket.
- The current design criteria for new model passenger cars and trucks assume that the friction material will be of the non-asbestos type, and, as such, the systems are being engineered with the different physical and chemical properties of the non-asbestos material in mind. For the aftermarket, the introduction of an asbestos-free friction material into a system originally designed for asbestos based friction material may result in very different braking characteristics from those initially desired due to the change in physical and chemical properties. Thus, retrofitting in the aftermarket is of much greater concern for the long term substitution of non-asbestos for asbestos friction materials.

III. Regulatory Framework For Asbestos Manufactured, Imported Or Processed For Original Equipment Friction Materials

For regulatory control purposes, Allied-Signal could support a properly designed regulatory approach to banning and/or phasing down the future manufacture, importation or processing of asbestos for use in disc pads, drum segments and brake blocks, designed for use in original equipment, if the following factors were taken into account:

- A. "Free market forces" are expected to be sufficient to encourage manufacturers of friction materials to identify and commercialize suitable substitutes for the asbestos. Therefore, no additional regulatory restrictions should be imposed for a period of 5 years from promulgation of the final regulation and initiation of the compliance schedule. This would enable Allied-Signal to compete in an increasingly international world market where certain applications still require the use of asbestos in friction materials for product safety and integrity reasons. However, major new product design criteria would stipulate the use of non-asbestos friction materials. We believe regulatory interference in free market forces during this 5 year period will not significantly increase the already high level of research, development and engineering activity to develop an asbestos-free product. Such interference will have a negative effect on our ability to compete on a world level which will subsequently have a long term negative effect on the RD&E funding necessary for the continued commercialization of substitutes for asbestos.
- B. From year 6 of the initiation of the final regulation, there could be a required reduction of the total quantity of asbestos permitted to be imported (as raw material and in finished articles) for use in friction materials to 30% of a base year (1981 through 1984). This would continue to be reduced linearly to total elimination after year 10.
- C. The regulation should stipulate that there will be a "State of Technical Achievement Review" process at year 3 and at year 5 to assure that research, development and systems engineering have indeed been able to identify safe, reliable substitutes. We fully expect to be able to achieve these.
- D. It is critical to United States based industry that EPA and OSHA work cooperatively in the regulatory control of asbestos. If EPA indeed plans to proceed to ban or phase-down the use of asbestos, then OSHA needs to allow flexibility in achieving anticipated lower permissible exposure levels to asbestos fibers (i.e. utilizing administrative controls and respiratory protection on an interim basis) instead of costly engineering controls while the asbestos phaseout is proceeding.
- E. The EPA regulations must apply to all friction material products containing asbestos on an equal basis. This would include imports of finished articles as well as domestically produced friction materials.

- F. The permit system that EPA is contemplating for companies that import or process asbestos into finished products must be a simplified notification process only that will not require significant effort on the part of companies nor require significant review by the EPA. We believe this system should go into effect between years 6 through 10, and again stress the need for that system to be simple.
- G. Allied-Signal does not concur with the transferability or banking concepts for permits since we believe that it will lead to far greater administrative complications for EPA and industry without measurable benefit to the EPA, industry or the public.
- H. Labeling of products containing asbestos should be required, but the labeling should be required on the carton within which the asbestos product is packaged. Labeling of individual disc pads, drum segments or brake blocks containing asbestos would be technically complicated and would probably not survive in a legible fashion during extended brake usage. The cartons containing Bendix Friction Material products are currently labeled in accordance with OSHA labeling requirements and we support the continuation of that system. In addition, in conformance with OSHA's Hazard Communication Standard, Material Safety Data Sheets advising of the presence, hazards and control of asbestos in a resin bonded matrix are communicated to all Bendix Friction Material customers.

IV. Regulatory Framework For Asbestos Manufactured, Imported
Or Processed For Aftermarket Friction Materials

Allied-Signal could support a regulatory required ban or phase-down on the manufacture, importation or use of asbestos in friction materials designed for use in the aftermarket. However, the problem in achieving technological breakthroughs in developing substitutes that provide effective, reliable characteristics for braking systems designed years ago for use with friction materials containing asbestos is a much more difficult task. To assure the safety of the users of passenger cars and trucks who may be required to use non-asbestos friction materials in a braking system designed for use with asbestos containing friction materials, it is imperative to assure "like for like" substitution in the aftermarket. All factors bearing on performance characteristics (including quality, reliability, fitness for specific use, system safety, and product integrity) must be assured for mixed components in a system not specifically engineered for the different physical and chemical characteristics of non-asbestos friction materials.

1. For disc pads in the aftermarket, there is a need to provide an asbestos-free product across the entire product spectrum. We anticipate less difficulty in substituting an aftermarket asbestos-free disc pad for those original equipment systems currently being designed for use with asbestos-free products. However, we anticipate much greater difficulty in being able to substitute an aftermarket asbestos-free product as replacement in an original equipment system that was originally designed for use with asbestos. This is especially true for cars built in the mid-1960's and early 1970's. Nevertheless, Allied-Signal could support a regulatory ban and/or phaseout of the manufacture, importation and processing of asbestos if the following criteria are included in the regulation:

- A. No regulatory controls (i.e. maintenance of the "free market") should be imposed for a period of 5 years following the promulgation of the final regulation and initiation of the compliance schedule.
 - B. During year 6, the total quantity of asbestos permitted to be used should be reduced to 50% of that allowed in a base year (1981 through 1984) from which further reductions would be factored in.
 - C. From year 7 through year 10, the residual 50% would be reduced by an appropriate percentage such that there would be a linear reduction to zero after year 10. It will likewise be important to have a "State of Technical Achievement" review at year 3 and year 5 of this phase-down period. While we expect success in our research and development programs, the safety of the consumer using and depending on the braking system for his automobile or truck should be paramount in EPA's after-market brake risk assessment and risk management criteria.
 - D. EPA and OSHA must coordinate and concur in their regulatory measures during the phaseout such that interim measures, including administrative procedures and protective equipment, could be used to meet OSHA's anticipated reduction in permissible asbestos exposure levels.
 - E. Imported products must be regulated equally with products manufactured in the United States. Otherwise, manufacturing of finished friction materials may be transferred to other countries having a different set of regulatory controls on asbestos. This would jeopardize jobs in the United States.
 - F. The permit system, that EPA is contemplating for companies that import or process asbestos into finished products, must be a simplified notification process. We believe this system should go into effect between years 6 through 10, and be applicable on a product by product evaluation basis.
 - G. Allied-Signal does not believe the transferability or banking concepts EPA has suggested for these permits add any advantages and therefore recommend their deletion from regulatory proposals affecting the aftermarket as well as original equipment.
 - H. Labeling of packages or cartons containing the friction material with asbestos is required under current OSHA regulation. There should be no additional requirements to label each individual disc pad.
2. For rigid and flexible drum segments in the aftermarket, we anticipate much greater technological difficulty in being able to create a "size for size" replacement of asbestos with non-asbestos drum segments at competitive prices. At the present time, our goal is to develop competitively priced, asbestos-free friction materials for use on all drum brake applications. Our research programs have shown that significant differences still exist in performance characteristics between our current asbestos-free and asbestos type friction materials (associated with operating temperatures and "fade/recovery" conditions).

Because of these differences and the effect of the force multiplying action (mechanical advantage) on the safe operation of these asbestos-free materials in the duo-servo brake design, Allied-Signal is convinced that further experimental work is necessary to develop asbestos-free products suitable for use on non-servo and duo-servo brakes, especially when there is a chance (due to dimensional similarity) of a mechanic installing a product designed for non-servo use where the one designed for duo-servo use is intended.

Of course, we must engineer materials which have the desired structural integrity, friction level and long life properties the car owner now obtains with the current asbestos product, and yet be processed economically.

Our existing manufacturing equipment was designed to utilize the processing characteristics associated with asbestos fiber. We must now refocus our efforts to maximize the processability of substitute materials.

Nevertheless, we could support a regulatory phaseout and/or ban providing the factors as enumerated above in IV(1) (A-H) for the disc pads in the aftermarket are applied. It would be especially critical to have the "State of Technical Achievement" review since there is less confidence in having adequate substitutes to meet this specific need. During the 10 year phaseout period, it is especially important to have built-in regulatory flexibility to modify the percent reduction after 5 years and possibly after 10 years, but this can be accomplished on an exception basis. A built-in review at year 8 should identify the need for extending out the 10 year phaseout period.

3. For brake blocks in the aftermarket, Allied-Signal continues to have some difficulty in achieving commercial success with adequate non-asbestos substitutes on a "like-for-like" basis. In this product line, this is largely due to the variability in products coupled with less control. In this particular market segment, replacement parts are chosen largely on the basis of "price only". Nevertheless, we could support a regulatory ban and/or phaseout of the use of asbestos for this particular application provided the criteria as enumerated in III (A-H) above for original equipment would apply.

V. Status of Development of Asbestos Substitutes In Friction Materials

EPA has specifically asked for comments on whether adequate substitutes are available for all asbestos applications. EPA has implied that there are such substitutes currently available for friction materials. While we agree with EPA that there are adequate substitutes available for certain friction material applications, it is inappropriate to assume that adequate substitutes are available for all applications. This point is expanded on in the attached update on the technology of developing asbestos-free friction materials.

VI. Recordkeeping Requirements

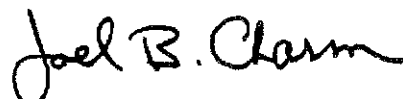
EPA has proposed certain recordkeeping requirements in the proposed rule. If EPA adopts Allied-Signal's recommended regulatory approach, no recordkeeping requirements would be imposed during the first 5 years of the 10 year phase-down period. This would enable manufacturers of friction materials to focus their energy and resources into the research, development and systems engineering necessary to commercialize safe, reliable non-asbestos substitutes for asbestos in friction materials. Of course, OSHA's recordkeeping requirements relating to controls in the workplace would continue to be in place. Beginning during year 5 for implementation in year 6, identification of the base year for those companies that import or process asbestos would commence. Recordkeeping requirements would be appropriate to determine the total quantity of asbestos imported or processed during years 6 through 10 to verify the phase-down. These data could be required to be submitted to EPA and/or inspected by EPA. Copies of labels on packages and other recordkeeping requirements for the OSHA standard would continue to be maintained.

Allied-Signal appreciates the opportunity to work with the EPA in striving to find the appropriate regulatory framework for assessing and managing the risks present in the manufacture and use of products containing asbestos. We hope EPA recognizes that finding adequate substitutes for asbestos for use in friction materials is a technologically complicated and costly process.

Great strides have been made in the past 10 years to develop non-asbestos friction materials and we are optimistic that great strides will continue to be made in our research, development and engineering programs. We remain dedicated to the task of identifying asbestos substitutes, provided such substitutes are safe and can be used in such a way as to not compromise the safety of passengers who are dependent on reliable, effective, quality braking systems and components in their passenger cars and trucks. This would apply for new models as well as in support of older models.

Thank you for the opportunity to comment on the proposed regulation.

Sincerely yours,



Joel B. Charm
Director, Corporate Product Safety
and Integrity
(201) 455-4057

/gbl
attachment
cc: K.W. Cole, Washington Office

SUMMARY

	ORIGINAL EQUIPMENT						AFTERMARKET					
	Brake Blocks		Disc Pads		Drum Segments		Brake Blocks		Disc Pads		Drum Segments	
	Year	%	Year	%	Year	%	Year	%	Year	%	Year	%
1. Allied Signal will support the ban if we can use asbestos in our product lines equal to a percentage of our "base year" consumption as indicated.	1-5	up to 100							1-5	up to 100		
	6	30	Same		Same		Same		6	50	6	50
	7	24	as		as		as		7	40	7	40
	8	18	at		at		at		8	30	8	30
	9	12	left		left		left		9	20	9	20
	10	6							10	10	10	10
	11	0							11	0	11	0
2. Technical review to determine if the industry is "on target" with non-asbestos programs.	Yes		Same		Same		Same		Same		Yes	
	Year 3 & Year 5										Year 3	
											Year 5	
											Year 8	
3. EPA and OSHA must concur in phase-out program coupled with administrative/protective equipment requirements for the work place. (Engineering controls should not be required.)												
4. Permit system (required for Years 6-10) must be a simplified notification procedure only.												
5. Permit must not be transferable nor "bankable."												
6. Phase-down requirements must be applied equally to domestic manufacturers and importers.												
7. Present "OSHA" warning label on carton should be adequate (versus labeling "the product").												