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PETITION TO THE

ENVIRONMENTAL PROTECTION AGENCY

TO PROHIBIT THE USE OF ASBESTOS
IN BRAKES FOR NEW CARS AND TRUCKS
AND IN REPLACEMENT BRAKES
IN EXISTING VEHICLES

September 13, 1984

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I. INTRODUCTION

This petition, which is filed pursuant to §21 of the Toxic Substances Control Act, 15 U.S.C. §2620 ("TSCA"), requests that the Environmental Protection Agency exercise its authority under §6 of the statute, 15 U.S.C. §2605, to prohibit the further use of asbestos in automobile and truck brake linings. The hazards of exposure to asbestos are well established. The evidence linking asbestos exposure to cancer in humans was first observed in 1935[1]. By the early 1950's, epidemiologists conclusively demonstrated the association between certain cancers and exposure to asbestos. Since that time the association has been repeatedly confirmed.[2]

This petition presents evidence demonstrating that the continued use of asbestos in vehicle brake linings presents an unreasonable risk to health. Approximately one million vehicle maintenance workers are at particular risk, and the general public is exposed to unreasonable health risks as well.

A prohibition on the use of asbestos in both brake linings for new cars and trucks and in replacement brake linings in existing vehicles is necessary to protect against these risks. Existing occupational asbestos standards are grossly inadequate to protect against cancer, and national emission standards are insufficient to protect against the unreasonable risks posed by asbestos in brakes because no "safe threshold" levels of exposure to asbestos can be established. Accordingly, this petition requests EPA to initiate a rulemaking proceeding pursuant to §6

of TSCA, no later than March 1, 1985, by publishing a proposed rule prohibiting the use of asbestos in brake linings for new automobiles and trucks and in replacement brake linings for existing automobiles and trucks. As discussed below, economically and technologically feasible substitutes are available, and their use would vastly reduce the health hazard posed by the use of asbestos products.

II. JURISDICTION

This petition is filed pursuant to §6 and §21 of the Toxic Substances Control Act. Section 21 gives "any person" the right to petition the Administrator of the Environmental Protection Agency, ("EPA" or "Agency") to initiate a proceeding for the issuance of a rule under §6 of the Act. Section 21(b)(3) requires the Administrator to act on this petition within 90 days after it has been filed. If the petition is granted, the Administrator is required to promptly commence the requested rulemaking pursuant to §6(b).

For purposes of the Act, asbestos falls within the definition of a "chemical substance" since it is an "inorganic substance of particular molecular identity." 15 U.S.C. §2602(2)(A). Under §6 of TSCA, asbestos can be regulated as a chemical substance if "there is reasonable basis to conclude that manufacture, processing, distribution in commerce, use or disposal presents or will present an unreasonable risk of injury to health or the environment...." 15 U.S.C. §2605(a).

The Administrator is authorized to apply a variety of regulatory mechanisms, including the prohibition of the chemical substance's use, to the extent necessary to adequately protect against such risks. The authority to take the action requested by petitioner is contained in §6(a)(5), which permits the Administrator to prohibit "or otherwise regulat[e] any manner or method of commercial use of such substance or mixture."

Although the term "unreasonable risk" is not defined in the Toxic Substances Control Act itself, the House Report stated that

> In general, a determination that a risk associated with a chemical substance or mixture is unreasonable involves balancing the probability that harm will occur and the magnitude and severity of that harm against the effect of proposed regulatory action on the availability to society of the benefits of the substance or mixture, taking into account the availability of substitutes for the substance or mixture which do not require regulation, and the adverse effects which such proposed action may have on society.

H. Rep. No. 94-1341, 94th Cong., 2d Sess. 14 (1976).

The courts have also interpreted this term in other comparable statutes. For example, in interpreting its use in the Federal Hazardous Substances Act, 15 U.S.C. §1261, the District of Columbia Circuit has defined unreasonable risk as involving "a balancing test like that to be made in tort law; the regulation may issue if the severity of the injury that may result from the product, factored by the likelihood of the injury, offsets the harm the regulation itself imposes on manufacturers and consumers." Forester v. CPSC, 559 F.2d 774 (D.C. Cir. 1977). This same test has also been applied to regulatory decisions under the Consumer Product Safety Act, 15 U.S.C. §2051, involving the same "unreasonable risk" standard, see Aqua Slide 'N' Dive v.

CPSC, 569 F.2d 831, 839 (5th Cir. 1978), and under the Federal Insecticide, Fungicide, and Rodenticide Act, 7 U.S.C. §136 et seq., see Environmental Defense Fund v. EPA, 548 F.2d. 998, 1005 (D.C. Cir. 1976).

III. DESCRIPTION OF PETITIONER

Natural Resources Defense Council, Inc. ("NRDC") is a national nonprofit membership corporation organized under the laws of the State of New York. NRDC's purposes, which are supported by its members, include the protection of public health through reduction of involuntary exposure to toxic substances, particularly carcinogens. NRDC files this petition on behalf of itself and its members.

NRDC has over 40,000 members and contributors throughout the country. Each of NRDC's members is or may be exposed to asbestos originating in brake linings and is or may be exposed to unreasonable risks therefrom.

Previous NRDC activities involving asbestos include a similar petition to the Consumer Produce Safety Commission asking that home patching compounds which contain asbestos, such as taping, spackling, and jointsealing materials, be banned as hazardous products. The Commission responded to our request by imposing a ban on these products in 1977. 42 FR 63354 (December 15, 1977).

IV. THE CONTINUED USE OF ASBESTOS IN VEHICLE BRAKE LININGS POSES AN UNREASONABLE RISK TO HEALTH

Asbestos is the generic name for a a number of naturally occuring hydrated silicate mineral fibers. There are two groups of these minerals -- serpentine (chrysotile), and amphibole (amosite, crocidolite, anthophyllite, tremolite, and actinolite). Chrysotile itself accounts for 95% of the world's asbestos production.[3]

In the past, asbestos had numerous widespread applications due to its unique combination of features. These processed fibers offer high tensile strength, and have good resistance to heat and chemicals. Before its extremely dangerous health threats were recognized, asbestos was extensively used in buildings, automobiles, and cement drinking water pipes. In recent years, safer substitutes have been developed for every commercial use of asbestos, precipitating a 68% decline in U. S. asbestos consumption between 1977 and 1983. The sole product use that has not shown a rapid decline is for friction products such as brakes, the largest single use of asbestos today.[4]

Because of the delayed onset of asbestos-related diseases, epidemiological and pathological reports have shown only recently that asbestos is one of the largest single causes of environmental human cancer in the United States. Generally, these diseases, such as mesothelioma and cancers of the lung, larynx, and gastrointestinal tract, are not clinically detectable for over 20 years after the first exposure to asbestos. In 1978, the Secretary of Health, Education, and Welfare announced that

approximately 17% of American cancer deaths over the next several decades will be linked to asbestos.[5] More recently, Nicholson and co-workers have estimated that cancer deaths in the United States from asbestos will number 8,500 to 10,000 per year for the next twenty years -- or more than one death per hour.[6]

A. Increased Risk of Disease

Mesothelioma and lung cancer are the most significant causes of death among people exposed to asbestos.[7] In the case of asbestos insulation workers, 20% of deaths were attributed to lung cancer and 7% died of mesothelioma.[8] Mesothelioma, an always fatal malignancy of the pleura or peritoneum -- membranes which enclose the lungs and abdomen respectively -- is associated almost exclusively with asbestos exposure.[9] Insulators also incur excessive mortality from asbestosis and cancers of the gastrointestinal tract, larynx and kidney.[10]

Asbestos workers face a greater risk of cancer than the general public. For example, the risk of lung cancer for males who work with asbestos insulation and also smoke is 53 times the risk for males who do neither.[11] By contrast, the risk of lung cancer for male smokers not exposed to asbestos is only 11 times the risk for male non-smokers.[12] In other words, male smokers who are exposed to asbestos at the workplace increase their risk of lung cancer as much as 5-fold. The same multiplier, 5, seems to apply for increased risk of lung cancer among non-smoking asbestos insulation workers.[13]

All commercial varieties of asbestos are carcinogenic in humans.[14] Animal inhalation studies demonstrate no significant difference in the effects of various types of asbestos.[15] In fact, each of the three commercial varieties of asbestos -- chrysotile, amosite, and crocidolite -- produced either lung cancer or mesothelioma in experimental animals with as little as seven hours of exposure to the dusts.[16]

Asbestosis is a nonmalignant fibrosis scarring of the lungs that is caused solely from inhalation of asbestos. When not fatal, asbestosis can be a crippling disease leaving its victims with permanently scarred lungs and decreased vital capacity, as well as increased susceptibility to development of pneumonia and other respiratory infections.

B. Brief and Long-Term Exposure to Asbestos

Ample scientific evidence exists to demonstrate that brief, high-level exposure, as well as long-term, low-level exposure to asbestos leads to an increase in the risk of cancer.[17] In recommending criteria for asbestos exposure, the National Institute for Occupational Safety and Health (NIOSH) noted: "The effect after several decades of a one-time acute dose of asbestos of limited duration which overwhelms the clearing mechanism, and is retained in the lungs, may be as harmful as the cumulative effect of lower daily doses of exposure over many years of work."[18]

Both long-term, low-level and short-term, high-level exposures to asbestos are associated with cancer-related

diseases. People living in the area of asbestos mines, mills, factories and even shipyards and family members of asbestos workers have become victims of mesothelioma despite what would be considered light exposure to the dust. More recent follow-up studies have revealed that significant excess cancer mortality occurred in workers with short-term exposure -- one month or less of employment in an asbestos plant.[19]

A study done by Harries and co-workers reported 37 cases of mesothelioma among United Kingdom shipyard workers whose primary exposure to asbestos was from proximity to asbestos work. This indirect occupational exposure was sufficient to produce mesothelioma years later.[20] Other studies have also reported similar incidences of mesothelioma from such "bystander" exposure.[21]

C. Health Risks From Asbestos Brake Products

Automobile brakes create substantial exposures to asbestos. Each time a brake is used, an asbestos pad or disc presses on the wheel base to slow the vehicle. This friction causes asbestos fibers to be released into the brake drum and environment, exposing not only brake workers but also the general public to a serious health threat. Numerous studies published since 1970 have shown that a fraction of unaltered asbestos fiber survives the heat of the braking process.[22]

In 1975, the National Institute for Occupational Safety and Health ("NIOSH") warned that "the present findings indicate that

enough asbestos is preserved from the braking process to produce significant exposures during certain brake servicing procedures."[23] Even earlier, EPA noted that asbestos emissions from brake wear were "not inconsequential relative to air pollution control." Concern was also expressed over airborne emissions from brake servicing with compressed air jets and uncontrolled dust from brake grinding.[24]

Dr. William Nicholson of Mt. Sinai School of Medicine has suggested that the increased asbestos level in urban areas can be attributed to asbestos from automobile brakes.[25] Rohl and his colleagues detected "higher than ambient" concentrations of asbestos fibers measured at the entrance to a large river-crossing tunnel in New York City.[26] In addition, asbestos fiber concentrations at Connecticut toll booths were found to be higher than ambient levels in Connecticut cities. Generally, in areas where braking is extremely common, asbestos concentrations can exceed observed background. The literature also includes one report of mesothelioma in a toll collector.[27]

A number of studies have measured the amount of asbestos that survives the processes of abrasion, macroshear, and thermal wear that occur during braking. One such study determined that approximately 158,000 pounds per year of asbestos are released by American vehicles during normal braking processes. Additionally, the report estimates that 11.2% of the released asbestos remains in the brake drum, and workers are potentially exposed to all of this during servicing.[28]

The Rohl study released in 1977 analyzed the components of

this brake dust with x-ray diffractometry.[29] Chrysotile, one of the several forms of carcinogenic asbestos fiber, was found to comprise 2% to 15% by weight in ten brake dust samples taken from New York City repair shops. Twenty-nine more samples from Europe and Australia confirmed this conclusion. Using transmission electron microscopy (TEM), the Rohl study established the existence of chrysotile fiber bundles and fibrils in all the samples. Yet another study, using dark field electron microscopy, concluded that a significant fraction of asbestos fibers in brake wear products survived intact.[30] Using TEM, Rohl observed as well that 80% of the surviving fibers were shorter than 0.4 micrometer (um), which is unobservable by optical microscopy. Rohl concluded also that "asbestos fibers in [brake drum] debris appear to be reduced in length only with minimum alterations in crystallinity".[31] When instilled into the lungs of hamsters, brake drum dust produced "asbestos bodies" in the lung tissues.[32]

During brake servicing, ambient asbestos levels can easily exceed the Occupational Safety and Health Administration's ("OSHA's") 15 minute ceiling of 10 fibers/cc (fibers longer than 5 microns, visible under phase contrast optical microscopy). The Rohl study found asbestos fiber concentrations from brake servicing to be 16 fibers/cc. Even as far away as 20 feet from the site of the brake repair operation, significant levels of asbestos were reported. In the garage environment, background sampling revealed that "at least 14 minutes after jet air blowing and up to 75 feet away, asbestos concentrations are still

measurable even by optical microscopy.[33] This results in exposure to millions of customers annually as well as to others in the area. Other studies demonstrate asbestos fiber concentrations as high as 29 fibers/cc[34] and 87 fibers/cc[35] during brake servicing operations.

These results demonstrate that the problem of exposure to dangerous levels of asbestos during brake servicing is substantial because of both the high levels of optically detectable fibers and the more numerous submicroscopic fibers. The small asbestos fibers from brake wear can easily penetrate throughout the respiratory system, and also migrate to other organs in the body.

D. Automobile Maintenance Workers Are at Particular Risk From Exposure to Asbestos Brake Products

Because of the airborne mobility of microscopic and submicroscopic asbestos fibers, a diverse group of people are at risk from asbestos brake products. Garage mechanics, bystanders employed in adjacent areas of repair shops in sales and service, and toll booth operators are among the groups of greatest concern. Asbestos fibers from brake servicing can be readily carried home on the mechanic's clothing. There have been reports of mesothelioma in pets whose owners were mechanics[36] and in a child of a brake mechanic.[37] Anyone who drives, works or lives where heavy braking occurs, such as New York City, is exposed to asbestos from brakes and with it an increased risk of cancer. A similar situation applies with asbestos exposure from

use and maintenance of industrial braking equipment.

More than 900,000 automobile maintenance workers are potentially exposed to asbestos from brake linings.[38] It is believed that about 400 deaths per year now result from asbestos related cancer due to past exposure to asbestos from automobile maintenance work and that this toll will rise (due to increased use and exposure in recent years) to 500-600 per year between the years 1990 and 2015.[39] This translates to more than 20,000 excess deaths from asbestos-related cancer in automobile maintenance workers in the United States over the next 45 years.[40] The mortality rate could remain at the level of 600 per year for an additional 10-15 years into the next century unless consumption of asbestos in automobile and truck brakes is drastically reduced from current levels.

Lorimer et al. examined 90 vehicular maintainence workers who had 10 years or more experience in brake repair shops and who had no other history of occupational asbestos exposure.[41] Sixty-one of these men were general mechanics who did brake lining work more than once a week for 10 years or more. Tests were performed for pulmonary function and effects of smoking. Twenty-nine percent had decreased vital capacity, and this percentage increased with age and exposure. X-ray abnormalities consistent with asbestosis were seen in one-quarter of the group and the prevalence of abnormalities increased with length of asbestos-related work. Moreover, it has been reported since the 1930's that asbestosis occurred among workers who manufactured and

worked grinding brake linings in the United States and in Europe. [42]

More importantly, the more recent literature also documents mesothelioma among automobile repair workers.[43] Pleural mesothelioma was diagnosed in a 55 year-old man who had 19 years of experience working in used car, tire, and car repair businesses. He had no history of other exposure to asbestos.[44] Two other cases of mesothelioma occurred in men who did brake repair work for many years. None of their other work experience, to their knowledge, involved exposure to asbestos.[45] More recent cases have been more detailed in excluding exposures other than brake repair.[46] Daum has seen peritoneal mesothelioma in a brake mechanic.[47]

V. SUBSTITUTES FOR ASBESTOS IN VEHICLE BRAKES

Several substitutes for asbestos are currently available for use in automobile brakes. Of these, the most promising are (1) semi-metallic friction materials; and (2) organic formulations that replace asbestos reinforcement with alternative fibers.

A. Semi-Metallic Brakes

Semi-metallic friction materials for brakes were developed in the 1960s. Foreign manufacturers were the first to install them in passenger cars, police cars, and taxicabs. In 1970, police cars in this country, including cars of the Los Angeles

Police Department, were equipped with semi-metallic front disc brakes. Since then, the use of semi-metallic disc brakes has risen dramatically. In 1980, representatives of Bendix Corporation reported that semi-metallic brakes were already in use in some American automobiles.[48]

Semi-metallic brakes are superior in performance characteristics to asbestos products. In particular, they offer the following advantages: (1) improved friction stability; (2) improved fade resistance; (3) excellent high-temperature wear resistance; (4) minimal speed spread; (5) excellent rotor compatibility; (6) high performance with minimal noise; and (7) improved high speed effectiveness.

Although initially more expensive, semi-metallic brakes are less expensive to the consumer in the long run because of their long life and high performance characteristics. Studies using actual vehicle comparison show substantial improvements in projected lining life, rotor life, and noise characteristics for semi-metallic brakes over conventional brakes under a variety of usage conditions.[49]

B. Brakes Reinforced With Non-Asbestos Fibers

This second group of non-asbestos brakes uses a similar composite formulation to conventional brakes. The asbestos, however, is replaced by a combination of a low-cost filler fiber with higher cost reinforcing fibers added for strength and crack resistance.

One of the alternative reinforcement fibers is DuPont's Kevlar aramid fiber, introduced in 1972. Kevlar's unique characteristics make it particularly suitable for use in friction materials for the following reasons:[50] (1) high strength and toughness (1.3 to 1.5 times that of asbestos); (2) high temperature stability; (3) low density; (4) good friction performance; (5) good thermal and electrical insulation; and (6) high resistance to wear. Tests verify the superior friction and wear performance of aramid- reinforced brakes. One study concluded that the wear rate for pads reinforced with Kevlar was 10% to 12%, the same as for semi-metallics, compared with 18% to 25% for asbestos pads.[51]

Because of these characteristics, aramid-reinforced brakes, like semi-metallics, are cheaper to the consumer over the long run. Moreover, because aramid-reinforced brakes have the same basic formulation as asbestos brakes, production techniques already developed for asbestos brake manufacture can easily be retained.[52]

A new "pulp" form of Kevlar aramid fiber, available since 1981, is currently being used in the manufacture of both disc and drum brakes.[53] Aramid-reinforced brakes have proven highly successful in field use. A producer of Kevlar-reinforced truck brake blocks has improved brake life by 35 percent and estimates an improved drum life of up to 50 percent longer than conventional products.[54]

Fiberglass and sintered metal compositions have also been developed. Recent European research into "mineralized" flax

fibers shows promise of becoming another alternative to asbestos in brakes.

Despite the immediate health risk of asbestos and the availability of superior asbestos substitutes, use of asbestos-free alternatives remains limited. General Motors has taken the lead in introducing passengers cars with semi-metallic disc brakes. Ford has asbestos-free brake drum linings in its Sierra models. Saab, Volvo and Jaguar have been leaders in Europe. Reluctance by automobile manufacturers towards more rapid elimination of asbestos in brakes is understandable only from the cost-saving viewpoint of the industries and the brake-shop owner. Manufacturers are hesitant to make the conversion to a non-asbestos brake technology with a higher initial purchase price even though the higher durability of asbestos-free brakes means that they last longer, and therefore, the overall costs to the consumer are almost equivalent.

C. Commercial Feasibility of Asbestos-Free Brakes

The automobile and friction products industries in Sweden have demonstrated the commercial feasibility of asbestos-free brake products. In 1982, for example, Saab introduced asbestos-free brake linings on all new models. Saab also joined other Swedish manufacturers in providing asbestos-free brakes to the replacement market for cars from dozens of different manufacturers.[55]

In fact, it is now illegal in Sweden to replace brakes on

vehicles using asbestos-containing brakes if an asbestos-free brake is certified as satisfactory by the brake or vehicle manufacturer. The director of the Swedish program reports that, "We have not heard of any negative results so far."[56] Although Sweden has concentrated on eliminating the use of asbestos-containing replacement brakes, it is believed that two-thirds of all new cars now sold in Sweden are equipped with asbestos-free brakes. The Swedish parliament is now investigating the possibility of a complete ban on imported cars containing friction elements made with asbestos.[57]

VI. A REQUIREMENT UNDER THE TOXIC SUBSTANCES CONTROL ACT PROHIBITING THE USE OF ASBESTOS IN BRAKE LININGS IS NECESSARY AND REASONABLE TO PROTECT AGAINST THE HEALTH RISKS

In the foregoing sections, NRDC has demonstrated that asbestos emissions from brake linings present serious risks of injury to the health of automobile maintenance workers and to the public at large. NRDC has also shown that asbestos-free brakes are commercially feasible. In this section, NRDC will demonstrate why the administrator of the EPA should regulate such emissions and why use of §6 of TSCA rather than any other federal law is an appropriate exercise of the Administrator's discretionary authority as provided under §9 of TSCA.

In NRDC's view, stricter workplace standards cannot eliminate the unreasonable risks posed by the use of asbestos in brake linings. OSHA currently has in place a time-averaged exposure limit of 2 fibers/cc. According to NIOSH and OSHA

experts writing in 1980, this standard is "grossly" inadequate to protect the health of groups at risk from the continued use of asbestos in brake products.[58] OSHA also admits that its current peak limit for short-term asbestos exposure (10 fibers/cc for fifteen minutes) "certainly... would exceed the time-weighted average level at which a significant risk is found."[59] Moreover, even OSHA's proposed limits of .5 or .2 fibers/cc for asbestos exposure would still permit a substantial health risk to exist. Finally, any OSHA standard would be difficult to enforce and would not protect the general public. For these reasons, a ban pursuant to §6(b) of TSCA is the only effective way to protect both workers and the public against the adverse health effects associated with asbestos emissions from brake linings.

Any delay based on the hope that OSHA will take action to substantially reduce the hazards from brake products is unwarranted. OSHA's 1984 proposal is in some respects weaker than a similar proposed asbestos rule published October 9, 1975. Given the unwillingness of OSHA in 1984 to propose work-practice controls for brake repair workers, there is no basis for expecting that agency to act to reduce the risk to such workers. Moreover, even a stricter standard would not protect against the unreasonable risks posed by asbestos in brake products, because the resulting exposures are substantial and it is currently impossible to set a "safe" level for exposure to asbestos. Brakeshop facilities are also too numerous to permit universal application and enforcement of a stricter standard. Finally, and perhaps most significantly, a workplace standard

will not protect the general public against asbestos exposures resulting from the use of asbestos brakes.

Other solutions short of a ban will inevitably be ineffective to protect against the risks posed by asbestos. In the past, warnings to brake repair workers in the absence of regulation have proven ineffective.[60] Mechanics are not inclined to change time-hardened work practices, and, to date, managers have not been motivated to purchase expensive equipment to control asbestos release in brake servicing operations.

Although engineering control measures exist which in theory can greatly reduce but not eliminate exposure, practical utilization of these techniques is probably unworkable. First, there are 900,000 mechanics (and millions of bystanders and customers) exposed in 100,000 facilities most of which are small.[61] Inspection of these shops would involve prohibitive costs. Second, over ninety-nine percent of brake fibers are too small to be detected by OSHA's optical microscopy technique. The electron microscopy needed for accurate air sampling can easily cost $300 per sample. At least several samples would be needed for each garage. Third, substantial asbestos exposure can occur during filter changing when vacuum methods are used. Fourth, disposal remains a major problem: wet methods may entail evaporation of the solvent and easy resuspension of fibers back into the air. Vacuum methods produce heavily contaminated filters which are typically dispersed into municipal refuse streams. Since there are no controls in use today in most

repair shops, and adequate brake cleaning devices are in use in very few locations, the problem defies a garage-by-garage regulatory approach.[62]

A. The EPA Administrator Has the Discretionary Authority Under Section 9 of TSCA to Act "in the public interest" to Protect Against a Risk of Injury

NRDC believes that imposition of a ban is the only way to protect both workers and the public from the health hazards presented by asbestos in the workplace environment and in urban air released through the manufacture, use and servicing of asbestos brake products. TSCA is the best statutory instrument to effect such a ban.

As the legislative history of TSCA clearly shows, the subject of deference to other statutes and to other agencies with jurisdiction over the subject matter was thoroughly debated prior to passage of TSCA. The language of §9(a) of TSCA makes distinctly discretionary the determination whether EPA or another agency should act in the first instance to reduce or prevent unreasonable risks. It makes no sense to require that EPA always defer to another regulatory agency or another EPA office in cases where TSCA might apply. Such routine deference would not achieve the clear purpose of §2(b)(2) of TSCA which is to provide "adequate authority" to regulate chemical substances and mixtures which present an unreasonable risk of injury to health or the environment.

According to the plain words of TSCA, it is left to the discretion of the EPA Administrator to determine whether a risk may be prevented or reduced to a sufficient extent by action taken under a federal law not administered by the EPA, or under an EPA statute other than TSCA. If the Administrator makes the discretionary judgment that it is "in the public interest to protect against a risk under TSCA" or that TSCA is more appropriate than another statute not administered by the EPA, then TSCA gives the Administrator full authority to go forward to protect against the particular risk.[63] A recent letter from members of the Senate Committee on Environment and Public Works reaffirms Congressional intent on this issue, which is that §9(a) of TSCA sets forth a "coordinating mechanism" and not a "general proscription against the use of TSCA authorities in areas of overlapping authority."[64]

B. Asbestos in Brake Linings Poses an "Unreasonable Risk" Under Section 6 of TSCA

Asbestos can be regulated under §6 of TSCA if there is a reasonable basis to conclude that its use presents an unreasonable risk of injury to health or the environment. As noted above, the type of evidence and degree of proof required for such a finding is discussed in the House Report. The Report states that a finding of unreasonable risk "does not...require the factual certainty of a 'finding of fact' of the sort associated with adjudication." It further adds, "Factual certainty...of an unmeasurable risk of a particular harm may not

be possible and the bill does not require it." H. Rep. No. 94-1341, 94th Cong. 2nd Sess. 32 (1976).

Courts have applied a similar standard to regulatory decisions under statutes comparable to TSCA. In Environmental Defense Fund, Inc. v. EPA, 548 F.2d 998, 1005 (D.C. Cir. 1976) the Court noted that:

> Reliance on general data...has been held a sufficient basis for an order cancelling or suspending the registration of a pesticide.

Additionally, where regulation of carcinogens is involved, administrative actions have been upheld despite the absence of cause-and-effect evidence:

> ...courts have traditionally recognized a special judicial interest in protecting the public health, particularly where "the matter involved is as sensitive and fright-laden as cancer." Where the harm envisioned is cancer, courts have recognized the need for action based upon lower standards of proof than otherwise applicable.

Environmental Defense Fund, Inc. v. EPA, 598 F.2d 62, 88 (D.C. Cir. 1978)(footnotes omitted)(quoting EDF v. EPA, 465 F.2d 528, 538 (D.C. Cir. 1972)). Moreover, Courts interpreting TSCA and other health protection statutes have concluded that they impose

> a heavy burden of explanation on an administrator who decides to permit the continued use of a chemical known to produce cancer in experimental animals.

Environmental Defense Fund v. EPA, 548 F.2d 998, 1005 (D.C. Cir. 1976). See also EDF v. EPA, 636 F.2d 1267, 1282 n. 40 (D.C. Cir. 1980); EDF v. EPA, 548 F.2d at 1005.

Under §6(c)(1) of the Toxic Substances Control Act, the Administrator is required to consider and publish a statement describing the following factors in making his determination of

whether a chemical substance or mixture presents an unreasonable risk: (1) the effects of such substance or mixture on health and the magnitude of the exposure of human beings to such substance or mixture; (2) the effects of such substance or mixture on the environment and the magnitude of the exposure of the environment to such substance or mixture; (3) the benefits of such substance or mixture for various uses and the availability of substitutes for such uses; and (4) the reasonably ascertainable economic consequences of the rule, after consideration of the effect on the national economy, small business, technological innovation, the environment, and public health.

As discussed in the preceding section, asbestos can produce mesothelioma, lung and other cancers as well as asbestosis in humans. Moreover, scientists have yet to establish a threshold for asbestos, that is, a level below which no adverse health effects exist. Indeed, the evidence suggests that even very low levels of asbestos can lead to cancer over a sufficiently long latency period.

In making his determination, the Administrator must also consider the "benefits of such substance for various uses and the availability of substitutes for such uses" as well as the "reasonably ascertainable economic consequences of the rule" 6(a)(1). As demonstrated above, economically and technologically feasible alternatives are available to replace asbestos in brake linings.

Even if the regulations requested by NRDC were to impose a significant cost, EPA would still be responsible for protecting the public against the risk posed by asbestos in brake linings. Where Congress has authorized EPA to impose prohibitions even on the basis of suggested carcinogenicity, the economic impact of such regulation alone should not prevent its implementation. As the House Report noted:

> the Committee doesn't intend that a chemical which... [presents]...an unreasonable risk should be permitted to be marketed solely because it would cause economic costs to producers if it were not permitted to be sold. H. Rep. No. 94-1341, 94th Cong., 2nd Sess. 35 (1976).

Measured against these standards, the use of asbestos in vehicle brakes linings must be determined to pose an unreasonable risk of injury.

VII. CONCLUSION

Recent evidence indicates that the continued use of asbestos in brake products presents an unreasonable threat to health much greater than previously acknowledged. At the same time, several commercially viable, economical alternatives to asbestos brake products have become available. For the reasons stated above, a ban under §6 of TSCA on asbestos brake products in both the new and replacement market is necessary to protect against the

documented risks. NRDC believes that such a ban will result in a net increase of total benefits relative to costs and therefore urges that this petition be granted.

Respectfully submitted,

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FOOTNOTES

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Figure 1,
Asbestos Consumption in the United States
(U.S. Bureau of Mines)

Year	Total Consumption	Consumption In Friction Products	Friction Products Percentage of Total
1977	671,500 (metric tons)	57,000 (metric tons)	8.5%
1978	618,700	52,600	8.5%
1979	560,000	47,600	8.5%
1980	358,700	52,000	14.5%
1981	348,800	51,000	14.6%
1982	246,500	52,900	21.5%
1983	217,000	48,300	22.2%

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