pipe since it is commonly buried in the ground.

A large proportion of the U.S. population is at risk from this asbestos in the air. Tables I through III show the numbers of persons exposed to asbestos during the more readily quantifiable stages of the lifecycle of asbestos products and the levels to which they are exposed. Exposure levels are "best estimates" based on monitoring studies. Additional information can be found in Refs. 2 and 3 which are included in the rulemaking record. To avoid disclosing confidential business information, the tables sometimes use a range rather than a single number. The notation NA means that data are not available.

TABLE I.—EXPOSURE DATA FOR MANUFACTURING—OCCUPATIONAL

Asbestos product	Primary manufacturing	
	Exposure level (10⁻³ f/ml yr)	Number of persons exposed
Commercial paper	5,681	0–150
Millboard	882	0–150
Pipeline wrap	307	0–150
Beater-add gasket paper	495	204
High-grade electrical paper	5,934	47
Unsaturated roofing felt	540	0–150
Saturated roofing felt	1,313	0–300
Flooring felt	NA	NA
Specialty paper	361	62
V/A floor tile	802	580
Felt-backed vinyl flooring	NA	NA
Asbestos-cement pipe	581	837
Flat A/C sheet	1,016	0–150
Corrugated A/C sheet	2,778	48
A/C sheet shingle	786	0–150
Drum brake lining	1,447	1,222
Disc brakes (LV)	1,598	1,008
Disc brakes (HV)	1,005	0–150
Brake blocks	1,806	456
Clutch facings	1,374	418
Friction products—automatic transmission	578	166
Friction products—commercial	1,361	479
Cloth	2,216	0–150
Thread	3,202	150–300
Sheet gasketing	780	105
Packing	1,084	247
Surface coatings	864	600
Sealants	638	706
Plastics	915	966
Insulation	438	0–150
Mixed fiber	1,348	150–300
Other	941	1,020

TABLE II.—EXPOSURE DATA FOR MANUFACTURING—AMBIENT

Asbestos product	Primary manufacturing	
	Exposure level (10⁻³ f/ml)	Number of persons exposed
Commercial paper	.00158	10,000
Millboard	.00185	30,000
Pipeline wrap	.00168	150,000
Beater-add gasket paper	.00188	350,000
Electrical paper	.00168	10,000
Unsaturated roofing felt	.00168	200,000
Saturated roofing felt	.00166	60,000
Flooring felt	NA	NA
Specialty paper	.00158	10,000
V/A floor tile	.0499	500,000
Felt-backed vinyl flooring	NA	NA
A/C pipe	3.07	1,700,000
Flat A/C sheet	3.07	790,000
Corrugated A/C sheet	3.07	770,000
A/C sheet shingle	3.07	310,000
Drum brake lining	.0089	720,000
Disc brakes (LV)	.0089	320,000
Disc pad as DIY?	.0089	NA
Brake blocks	.0089	150,000
Clutch facings	.0089	70,000
Friction products—automatic transmission	.0089	NA
Friction products—commercial	.0089	90,000
Cloth	.0534	24,000
Thread	.0534	180,000
Sheet gasketing	.7326	680,000
Packing	.7326	60,000
Surface coatings	.00002	2,000,000
Sealants	.00002	4,350,000
Plastics	.00002	1,320,000
Insulation	NA	NA
Mixed fiber	NA	NA
Other	NA	NA

TABLE II.—EXPOSURE DATA FOR MANUFACTURING—AMBIENT—Continued

Asbestos product	Primary manufacturing	
	Exposure level (10⁻³ f/ml)	Number of persons exposed
Corrugated A/C sheet	3.07	770,000
A/C sheet shingle	3.07	310,000
Drum brake lining	.0089	720,000
Disc brakes (LV)	.0089	320,000
Disc pad as DIY?	.0089	NA
Brake blocks	.0089	150,000
Clutch facings	.0089	70,000
Friction products—automatic transmission	.0089	NA
Friction products—commercial	.0089	90,000
Cloth	.0534	24,000
Thread	.0534	180,000
Sheet gasketing	.7326	680,000
Packing	.7326	60,000
Surface coatings	.00002	2,000,000
Sealants	.00002	4,350,000
Plastics	.00002	1,320,000
Insulation	NA	NA
Mixed fiber	NA	NA
Other	NA	NA

Table III.—Exposure Data For Installation, Use, Repair, and Disposal

Asbestos product	Installation		Repair/disposal	
	Exposure level (10⁻³ f/yr)	Number of persons exposed	Exposure level (10⁻³ f/yr)	Number of persons exposed
Commercial paper	NA	NA	NA	NA
Millboard	107	75	NA	NA
Pipeline wrap	NA	NA	NA	NA
Beater-add gasket paper	NA	NA	NA	NA
Electrical paper	120	16	NA	NA
Unsaturated roofing felt	166	7,537	NA	NA
Saturated roofing felt	160	2,422	NA	NA
Flooring felt	NA	NA	NA	NA
Specialty paper	130	76	NA	NA
V/A floor tile	90	8,400	NA	NA
Felt-backed vinyl flooring	NA	NA	NA	NA
A/C pipe	5,000	17,520	NA	NA
Flat A/C sheet	4,700	6,147	NA	NA
Corrugated A/C sheet	4,700	736	NA	NA
A/C sheet shingle	4,700	3,695	NA	NA
Drum brake lining	NA	NA	250	385,149
Disc brakes (LV)	NA	NA	105	164,822
Disc brakes (HV)	NA	NA	105	1,146
Brake blocks	NA	NA	NA	NA
Clutch facings	NA	NA	250	36,184
Friction products—automatic transmission	NA	NA	NA	NA
Friction products—commercial	NA	NA	NA	NA
Cloth	675	650	675	650
Thread	NA	NA	NA	NA
Sheet gasketing	1,360	4,586	NA	NA
Packing	12	2,914	NA	NA
Surface coatings	120	100,000	NA	NA
Sealants	NA	NA	NA	NA
Plastics	NA	NA	NA	NA
Insulation	NA	NA	400	3,000
Mixed fiber	NA	NA	NA	NA
Other	NA	NA	NA	NA

4. *Exposure from imported and exported asbestos and asbestos products.* EPA has determined that significant exposure is likely from imported asbestos products. Although some exposure to United States populations is avoided when asbestos products are manufactured abroad and imported rather than manufactured domestically, significant exposures will still occur after their import into this country. Exposures will occur during installation and use of the product; maintenance of the product; and during dismantling, removal, and disposal of the product. Much asbestos can be released to the ambient air as a result of these activities. Large numbers of people are exposed to asbestos during these activities and the level of exposure can be quite high.

Significant exposures will also occur during the domestic life cycle of bulk asbestos and asbestos products manufactured in this country for export abroad. These exposures will occur during the mining and milling of asbestos fiber and during the processing of fiber into products. There is much exposure to workers during the mining and milling of asbestos and manufacture of asbestos products. In addition, families of workers, and populations living near mining and manufacturing sites are also exposed to asbestos as a result of these activities.

5. *Exposure from various categories of asbestos products.* EPA has noted that various categories of asbestos products present very similar exposure patterns. For example, the products within the construction products category all present significant potential for fiber release to the air and subsequent human exposure during their installation, repair, removal, and disposal. These products are often cut, torn, sawed, and drilled during installation repair, and removal. All of these activities can release fibers to the air. In addition, sanding of these products during use often releases fibers to the air.

Similarly, products within the friction products category all present significant potential for fiber release and subsequent exposure during use and repair. Friction products wear down during use, often releasing fibers to the air either during actual use of the product or during maintenance or repair operations in which previously confined asbestos-containing dust is disturbed and becomes airborne.

Often, fiber releases from asbestos products in these categories occur in close proximity to other products within the same category, making it difficult to attribute observed fiber levels to a particular product. For example, EPA used monitoring data from automobile repair shops to estimate asbestos exposures resulting from repair of asbestos disc brakes, drum brakes, clutch facings, and automatic transmission friction components. Because there are no data available to estimate differences in fiber releases in the various repair activities, EPA

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