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IN THE ASBESTOS November 1992

Table C-1 Various Types of Friable and Nonfriable Materials and Products (as of 1977)

Subdivision	Generic name	Asbestos (%)	Dates of use	Binder/sizing
Friable insulation material	spray-applied insulating	1-95	1935-1970	sodium silicate portland cement organic binders
Preformed thermal insulating products	batts blocks and pipe covering			
	85% magnesia	15	1926-1949	magnesium carbonate
	calcium silicate	6-8	1949-1971	calcium silicate
Textiles	cloth[a]			
	blankets (fire)[a]	100	1910-present	none
	felts	90-95	1920-present	cotton/wool
	blue stripe	80	1920-present	cotton
	red stripe	90	1920-present	cotton
	green stripe	95	1920-present	cotton
	sheets	50-95	1920-present	cotton wool
	cord/rope yarn[a]	80-100	1920-present	cotton wool
	tubing	80-85	1920-present	cotton wool
	tape/strip	90	1920-present	cotton wool
	curtains[a]			
	(theatre welding)	60-65	1945-present	cotton
Cementitious concrete-like products	extrusion panels	8	1965-1977	portland cement
	corrugated	20-45	1930-present	portland cement
	flat	40-50	1930-present	portland cement
	flexible	30-50	1930-present	portland cement
	flexible perforated	30-50	1930-present	portland cement
	laminated (outer surface)	35-50	1930-present	portland cement
	roof tiles	20-30	1930-present	portland cement
	clapboard and shingles			
	clapboard	12-15	1944-1945	portland cement
	siding shingles	12-14	unknown-present	portland cement
	roofing shingles	20-32	unknown-present	portland cement
	pipe	20-15	1935-present	portland cement
Paper products	corrugated			
	high temperature	90	1935-present	sodium silicate
	moderate temperature	35-70	1910-present	starch
	indented	98	1935-present	cotton and organic binder
	millboard	80-85	1925-present	starch lime clay
Roofing felts	smooth surface	10-15	1910-present	asphalt
	mineral surface	10-15	1910-present	asphalt
	shingles	1	1971-1974	asphalt
	pipeline	10	1920-present	asphalt
Asbestos-containing compounds	caulking putties	30	1930-present	linseed oil
	adhesive (cold applied)	5-25	1945-present	asphalt
	joint compound		1945-1975	asphalt
	roofing asphalt	5	unknown-present	asphalt
	mastics	5-25	1920-present	asphalt
	asphalt tile cement	13-25	1959-present	asphalt
	roof putty	10-25	unknown-present	asphalt
	plaster/stucco	2-10	unknown-present	portland cement
	specialties	3-5	1930-1975	starch, casein, synthetic resins
	sealants fire/water	50-55	1935-present	castor oil or polyisobutylene
	cement insulation	20-100	1900-1973	clay
	cement, finishing	55	1920-1973	clay
	cement, magnesia	15	1926-1950	magnesium carbonate
Asbestos-cement products		50	1930-present	portland cement
Flooring tile and Sheet Goods	vinyl/asbestos tile	21	1950-present	polyvinylchloride
	asphalt/asbestos tile	26-33	1920-present	asphalt
	sheet goods/resilient	30	1950-present	dry oils
Wallpaper backing	vinyl wallpaper	6-8	unknown-present	—
Paints and coatings	roof coating	4-7	1900-present	asphalt
	air tight	15	1940-present	asphalt

[a]Laboratory aprons, gloves, cord rope, fire blankets, and curtains may be common in schools



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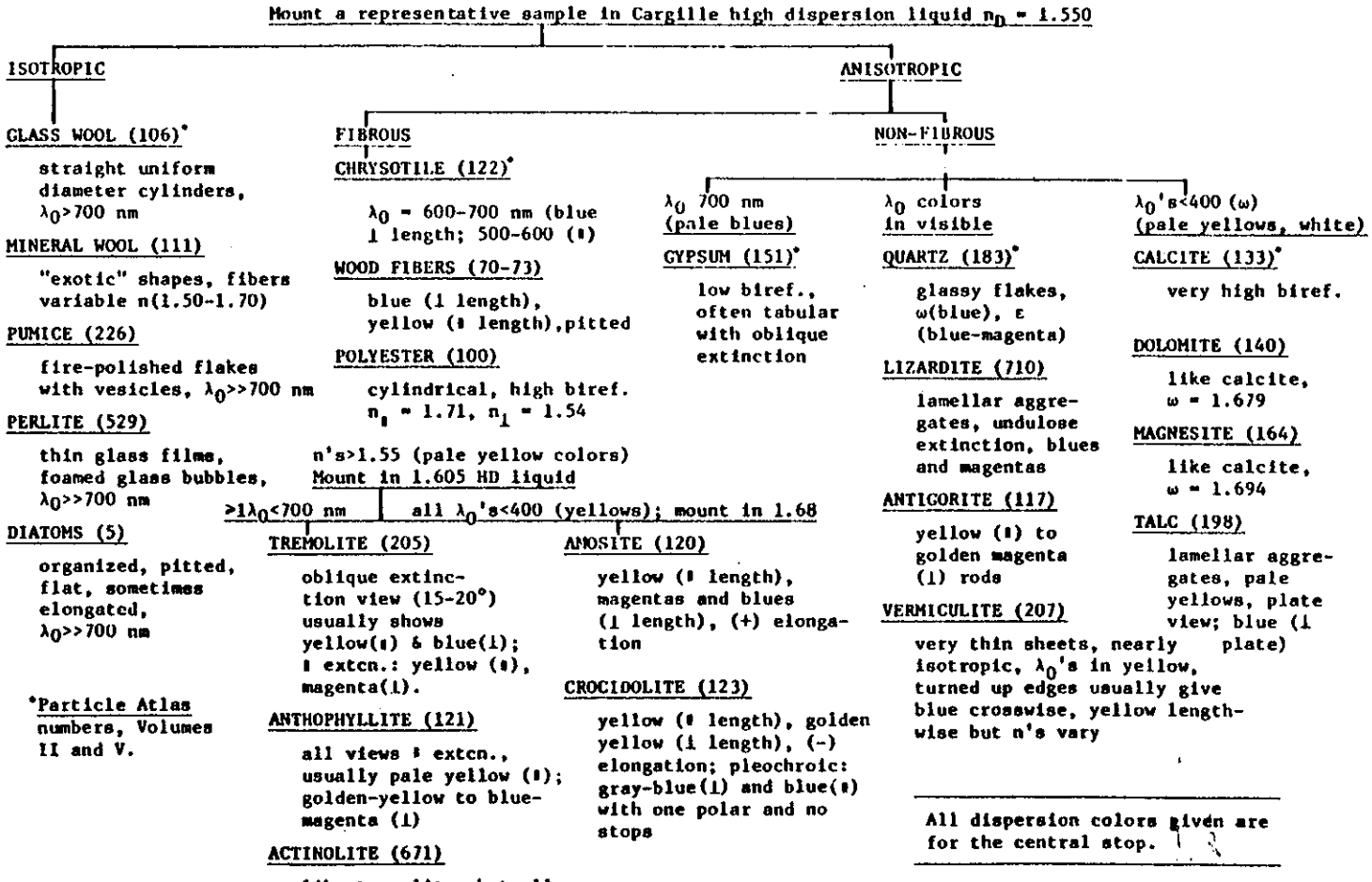

Table 7. Procedure for analysis of asbestos materials

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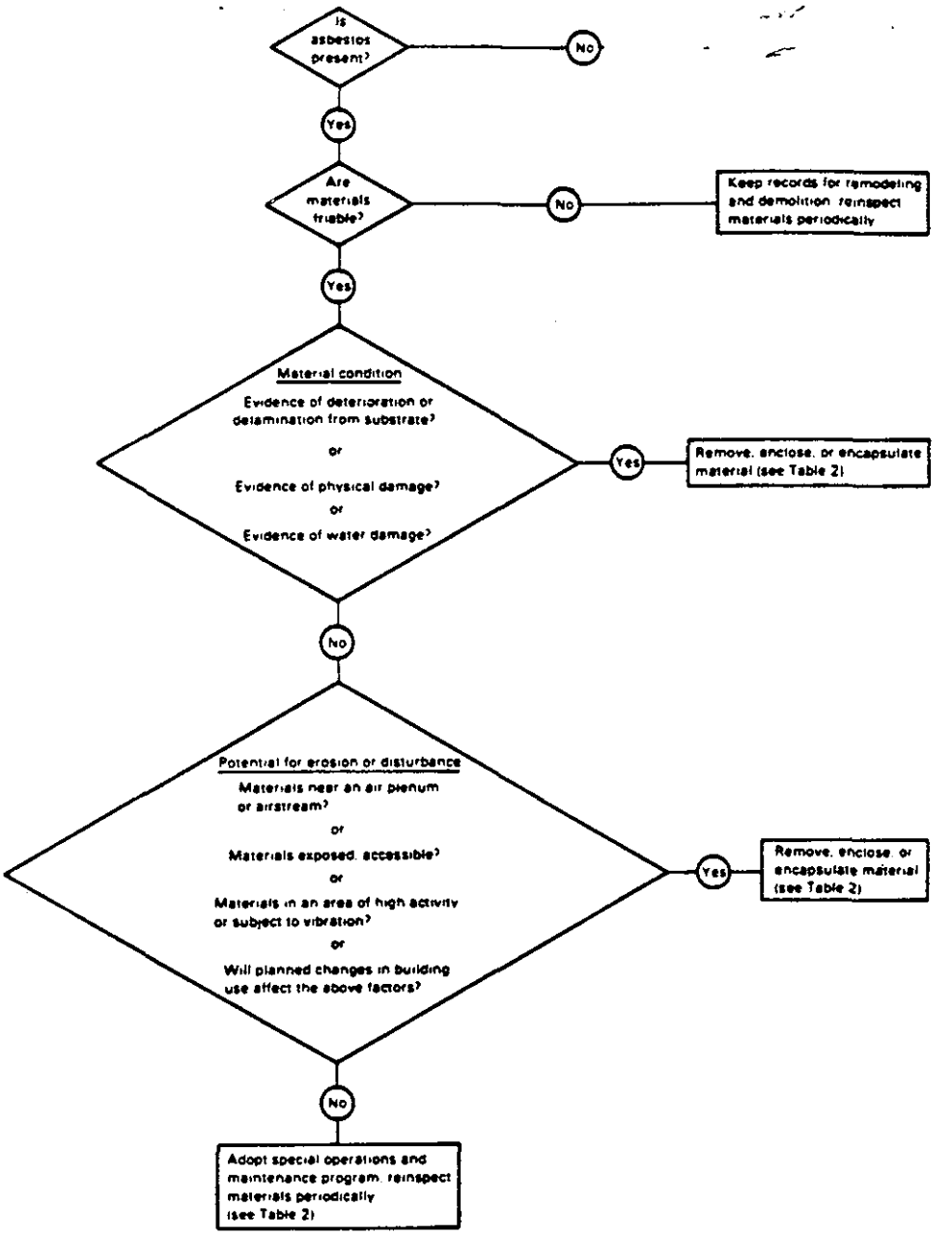
Figure 15 A guide to selecting a course of action



*A statement certifying that friable asbestos-containing materials are not present.

Table 2 Comparison of Asbestos Control Alternatives

Method	Advantages	Disadvantages	Appropriate applications	Inappropriate applications	General comments
Removal	Eliminates asbestos source Eliminates need for special operations and maintenance program	Replacement with substitute material may be necessary Porous surfaces also may require encapsulation Improper removal may raise fiber levels	Always	Never	Containment barriers needed Worker protection required Wet removal is required for all types of asbestos, (amosite will not adsorb water or water with traditional wetting agents) Disposal may be a problem in some areas Unusual circumstances, complex surfaces, and the presence of utilities may require special removal techniques
Enclosure	Reduces exposure in the area outside the enclosure Initial costs may be lower than removal unless utilities need relocating or major changes Usually does not require replacement of material	Asbestos source remains and must be removed eventually Fiber release continues behind enclosure Special operations program required to control access to enclosure for maintenance and renovation Periodic reinspection required to check for damage Repair of damaged enclosure necessary Fibers released in dry form during construction of enclosure Long term costs could be higher than removal	When materials need to be isolated from building occupants (e.g., exposed pipe) Disturbance or entry into enclosed area unlikely	Damaged or deteriorating materials causing rapid fiber release Water damage evident Damage or entry into enclosure likely Ceiling to be enclosed is low	Containment barriers needed Use of tools with HEPA-filtered vacuum attachments advisable Worker protection needed

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Table 2 (continued)

Method	Advantages	Disadvantages	Appropriate applications	Inappropriate applications	General comments
Encapsulation	Reduces asbestos fiber release from material Initial costs may be lower than removal Does not require replacement of material	Asbestos source remains and must be removed later If material is not in good condition, sealant may cause material to delaminate Periodic reinspection required to check for damage or deterioration Repair of damaged or deteriorating encapsulated surface required Encapsulated surface is difficult to remove and may require dry techniques for eventual removal Long term costs may be higher than removal	Material still retains binding integrity Damage to material not likely Material not highly accessible Material granular cementitious	Material does not adhere well to substrate Material is deteriorating or damaged or damage is likely Water damage is evident Material is fibrous fluffy	Containment barriers needed Worker protection needed Airless sprayers should be used Damaged pipe insulation may be taped but not sprayed Previously encapsulated materials may have to be re-encapsulated
Special operations and maintenance program plus periodic reinspection	Lowest initial cost of any alternative	Asbestos source remains Special operations program required to prevent damage of material during maintenance or renovation Periodic reinspection required to assess material condition and potential for erosion or disturbance	As a temporary measure until another alternative is selected Material in good condition and has low potential for erosion or disturbance Material is nonfriable	Material not in good condition or has high potential for erosion or disturbance	Special building cleaning practices are essential

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