

Registration form

Asbestos Awareness CEU Training Course \$75.00
48 HOUR RUSH ORDER PROCESSING FEE ADDITIONAL \$40.00

Start and finish dates: _____

You will have 90 days from this date in order to complete this course

Name _____ **Signature** _____

(This will appear on your certificate as above)

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Please circle which certification you are applying the course CEU's/PDH's.

Water Treatment Water Distribution Wastewater Collection Wastewater Treatment

Other _____

Your certificate will be mailed to you in about two weeks.

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Asbestos Awareness CEU Training Course Assignment

You will have 90 days from the start of this course to have successfully completed the assignment with a score of 70%. You can find online assistance for this course on the Assignment Page on TLC's Website under the hyperlink Student Support.

Once finished, please e-mail info@tlch2o.com or fax (928) 468-0675 the answers along with your registration form to TLC. Once you have paid the course fee \$50.00, you will be provided complete course support from Student Services (928) 468-0665.

The following questions are Fill-in-the Blank type answers.

1. _____: The OSHA general industry standard requires employers to communicate information concerning asbestos hazards in general industry. Asbestos exposure in general industry occurs in a wide variety of industrial and commercial settings. Employees who manufacture asbestos-containing products may be exposed to asbestos fibers.
2. Employees who repair and replace automotive brakes and clutches may be exposed to asbestos fibers. In addition, employees engaged in housekeeping activities in industrial facilities with asbestos product manufacturing operations and in public and commercial buildings with installed _____: may be exposed to asbestos fibers.
3. It should be noted that employees who perform housekeeping activities during and after construction activities are covered by the asbestos construction standard, _____: However, housekeeping employees, regardless of industry designation, should know whether building components they maintain may expose them to asbestos. The same hazard communication provisions will protect employees who perform housekeeping operations in all three asbestos standards; general industry, construction, and shipyard employment.
4. _____:-means the binding of the material is losing its integrity as indicated by peeling, cracking, or crumbling of the material.
5. _____:means any disposal site or portion of it where additional asbestos-containing waste material has not been deposited within the past year.
6. _____:means any building or structure or any group of buildings or structures at a single demolition or renovation site that are under the control of the same owner or operator (or owner or operator under common control).
7. _____:means any material containing more than one percent asbestos as determined using the method specified in appendix A, subpart F, 40 CFR part 763, section 1, Polarized Light Microscopy that, when dry, cannot be crumbled, pulverized, or reduced to powder by hand pressure.

8. _____: means any person who owns, leases, operates, controls, or supervises the facility being demolished or renovated or any person who owns, leases, operates, controls, or supervises the demolition or renovation operation, or both.
9. EPA defines _____: to mean "sufficiently mix or penetrate with liquid to prevent the release of particulates. If visible emissions are observed coming from asbestos-containing material (**ACM**), then that material has not been adequately wetted. However, the absence of visible emission is not sufficient evidence of being adequately wet (Section 61.141, Definitions). Amended water is often used to wet ACM during repair/removal operations.
10. EPA defines _____: to mean mill tailings or any waste that contains commercial asbestos and is generated by a source subject to the provisions of this subpart. This term includes filters from control devices, friable asbestos waste material, and bags on other similar packaging contaminated with commercial asbestos.
11. As applied to demolition and renovation operations, this term also includes friable asbestos waste and _____: non-friable ACM waste that becomes crumbled, pulverized, or reduced to powder by forces that acted on the material during the course of demolition and renovation operations regulated by this subpart, and materials contaminated with asbestos including disposal equipment and clothing.
12. The Asbestos _____: defines two categories of non-friable ACM: Category I non-friable ACM (asbestos-containing packings, gaskets, resilient floor covering and asphalt roofing products) and Category II non-friable ACM (any non-friable material not designated as Category I).
13. The Agency requires that, where the Asbestos NESHAP is applicable, friable ACM and Category II and non-friable ACM that is likely to become disturbed or damaged so that the material could be crumbled, pulverized or reduced to powder during a demolition or renovation be removed, from a facility prior to its demolition/renovation. The fibrous or fluffy spray-applied asbestos materials found in many buildings for fireproofing, insulating, sound-proofing, or decorative purposes are generally considered friable. Pipe and boiler wrap found in numerous buildings is also considered _____:.
14. Non-friable ACM, such as _____:; generally emits low levels of airborne fibers unless subjected to burning or to sanding, grinding, cutting or abrading operations. Other materials, such as asbestos cement sheet and pipe, can emit asbestos fibers if the materials are crumbled, pulverized or reduced to powder during demolition renovation activities. Whenever non-friable materials are going to be damaged to the extent that they are crumbled, pulverized or reduced to powder, they must be handled in accordance with the Asbestos NESHAP.
15. _____: is a serious, chronic, non-cancerous respiratory disease. Inhaled asbestos fibers aggravate lung tissues, which causes them to scar. Symptoms of asbestosis include shortness of breath and a dry, crackling sound in the lungs while inhaling.

16. The risk of asbestosis is _____: for those who do not work with asbestos; the disease is rarely caused by neighborhood or family exposure. Those who renovate or demolish buildings that contain asbestos may be at significant risk, depending on the nature of the exposure and precautions taken.
17. _____: means asbestos-containing packings, gaskets, resilient floor covering, and asphalt roofing products containing more than one percent asbestos as determined using the method specified in appendix A, subpart F, 40 CFR part 763, section 1, Polarized Light Microscopy.
18. _____: means that the material, when dry, can be crumbled, pulverized, or reduced to powder by hand pressure. This definition includes previously non-friable material if the non-friable material becomes damaged to the extent that when dry it may be crumbled, pulverized, or reduced to powder by hand pressure.
19. Friable asbestos-containing material (**ACM**) is any material containing more than _____: asbestos, which when dry, may be crumbled, pulverized, or reduced to powder by hand pressure.
20. **Friable Asbestos Material** - Any material containing more than one percent asbestos, as determined using the method specified in Appendix A, subpart F 40 CFR part 763, section 1, _____: , that when dry, can be crumbled, pulverized, or reduced to powder by hand pressure. If the asbestos content is less than 10 percent as determined by a method other than point counting by polarized light microscopy (PLM), verify the asbestos by point counting using PLM.
21. _____: A sealed compartment with attached inner gloves used for the handling of asbestos- containing materials.
22. _____: means to reduce to powder or small fragments and includes mechanical chipping or drilling.
23. _____: means any material, excluding Category I Nonfriable ACM, containing more than one percent asbestos as determined using the methods specified in appendix A, subpart F, 40 CFR part 763, section 1, Polarized Light Microscopy that, when dry, cannot be crumbled, pulverized, or reduced to powder by hand pressure.
24. _____: means to penetrate with a sharp-edged instrument and includes sawing, but does not include shearing, slicing, or punching.
25. _____: means the wrecking or taking out of any load-supporting structural member of a facility together with any related handling operations or the intentional burning of any facility.
26. _____: means any institutional, commercial, public, industrial, or residential structure, installation, or building (including any structure, installation, or building containing condominiums or individual dwelling units operated as a residential cooperative.

27. _____:means any part of a facility including equipment.
28. _____:means a renovation operation, or a number of such operations, in which some RACM will be removed or stripped within a given period of time and that can be predicted. Individual nonscheduled operations are included if a number of such operations can be predicted to occur during a given period of time based on operating experience.
29. _____:Finely divided particles of asbestos or material containing asbestos.
30. **Permissible exposure limits (PEL)**-OSHA has developed permissible exposure limits (**PELs**) to provide a standard for how long a worker may be exposed to an, _____:such as asbestos, over a specified period of time.
31. One PEL is the _____: Employers must ensure that no employee is exposed to concentrations of airborne contaminants above the TWA. For asbestos, the TWA is 0.1 fibers per cubic centimeter (**f/cc**).
32. Exposure is measured by analyzing _____: time-weighted average (**TWA**) air samples from each employee's breathing zone.
33. PELs also include an " _____:." An excursion limit is similar to the TWA except that it is measured over a 30-minute period. The excursion limit for asbestos is 1.0 f/cc
34. **PLM** - _____:; as defined in Appendix A, subpart F, 40 CFR part 763, section 1
35. _____:means (a) Friable asbestos material, (b) Category I nonfriable ACM that has become friable, (c) Category I nonfriable ACM that will be or has been subjected to sanding, grinding, cutting, or abrading, or (d) Category II nonfriable ACM that has a high probability of becoming or has become crumbled, pulverized, or reduced to powder by the forces expected to act on the material in the course of demolition or renovation operations regulated by the Asbestos NESHAP.
36. **Regulated asbestos-containing material (RACM)**-means (a) Friable asbestos material, (b) Category I nonfriable ACM that has become friable, (c) Category I nonfriable ACM that will be or has been subjected to sanding, grinding, cutting, or abrading, or (d) Category II nonfriable ACM that has a high probability of becoming or has become crumbled, pulverized, or reduced to powder by the forces expected to act on the material in the course of _____: operations regulated by this subpart.
37. _____:means altering a facility or one or more facility components in any way, including the stripping or removal of RACM.

38. _____:means asbestos-containing floor tile, including asphalt and vinyl floor tile, and sheet vinyl floor covering containing more than one percent asbestos as determined using polarized light microscopy according to the method specified in appendix A, subpart F, 40 CFR part 763, Section 1, Polarized Light Microscopy.
39. _____:means to take off RACM from any part of a facility or facility components.
40. _____:means any emissions, which are visually detectable without the aid of instruments, coming from RACM or asbestos-containing waste material, or from any asbestos milling, manufacturing, or fabricating operation. This does not include condensed, uncombined water vapor.
41. _____:means any owner or operator of a source covered by this subpart whose act or process produces asbestos-containing waste material.
42. _____:means the shipping document, required to be originated and signed by the waste generator, used to track and substantiate the disposition of asbestos-containing waste material.
43. _____:When the TWA or the excursion limit is exceeded, the employer must develop and implement a written compliance plan to reduce employee exposure to or below the TWA or excursion limit. The employer may use any combination of engineering and work practices to reduce exposure. This includes respirators where required or permitted under the rules. The compliance plan is an important document for any site-specific work.
44. Asbestos will maintain its structural integrity at temperatures well above 800 F. The melting point is at about _____
45. The fibers have a relatively large surface area, along with numerous pores, and cracks. This allows for a_____. This makes it useful as an insulator in homes and machinery. The large surface area also absorbs water making it practical as pipe insulator to prevent sweating.
46. The_____ : are resistant to aqueous media and chemical attack. They also show high resistance to acids. This makes this class of asbestos useful for battery packing. Chrysotile is significantly less resistant to chemical destruction.
47. Asbestos have a large internal volume, large surface area, and the fibers are flexible. This makes it ideal for the absorption of sound energy. It is often uses to help_____ .
48. OSHA requires that employees who may be exposed to dangerous levels of asbestos must be made aware of the hazards and how to_____.

49. Employees must be told where in their workplace they can find copies of all applicable asbestos standards. Employers must provide any employee with the opportunity to review the regulations if they so desire. It is an _____ to have access to the regulations.
50. Asbestos is the name given to a number of naturally occurring _____ minerals that have been mined for their useful properties such as thermal insulation, chemical and thermal stability, and high tensile strength.
51. The three most common types of asbestos are: a) chrysotile, b) amosite and _____
52. Chrysotile, also known as white asbestos and a member of the _____ mineral group is the commonest.
53. Asbestos can only be identified under a _____.
54. Asbestos differs from other minerals in its crystal development. The crystal formation of asbestos is in the form of long thin fibers. Asbestos is divided into two mineral groups _____. The division between the two types of asbestos is based upon the crystalline structure.
55. Serpentine have a sheet or layered structure where _____ have a chain-like structure. As the only member of the serpentine group, Chrysotile (A, B) is the most common type of asbestos found in buildings.
56. Chrysotile makes up approximately _____ of all asbestos contained in buildings in the United States.
57. Unlike most minerals, which turn into dust particles when crushed, asbestos breaks up into fine fibers that are too small to be seen by the human eye. Often, individual fibers are mixed with a material that _____ them together, producing asbestos-containing material (**ACM**).
58. Some people exposed to asbestos develop asbestos-related health problems; some do not. Once inhaled, asbestos fibers _____ body tissues. They may be deposited and retained in the airways and lung tissue.
59. Because asbestos fibers remain in the body, each exposure increases the likelihood of developing an asbestos-related disease. Asbestos-related diseases may not appear until years after exposure. A medical examination that includes a medical history, _____, and chest X ray may detect problems early.
60. Many substances have a " _____" or an exposure that is unlikely to cause any harm. Above the safe dose, a health effect is expected. This concept is known as a dose response.

61. As the dose increases, so does the _____ of the health effect. However, in the case of asbestos, scientists have not determined a "safe dose" or threshold level for exposure to airborne asbestos. Still, the less exposure a person receives over a lifetime, the less likely it is that that person will develop an asbestos-related health problem.
62. In addition to breathing it, ingesting asbestos may also be harmful to you, but the consequences of this type of exposure have not been clearly documented. People who touch asbestos may get a rash similar to the rash caused by _____. While the effects of skin exposure to asbestos have not been scientifically documented, it is best to minimize all contact with asbestos.
63. Asbestos was used in approximately _____ products. Two-thirds of this total (2,000) was used in construction products. Appendix A includes a short list of products where asbestos may be found.
64. _____: A respirator that covers the nose and mouth and that generally consists of a quarter- or half-facepiece. NIOSH Definition
65. _____: An atmosphere with an oxygen content below 19.5% by volume. OSHA Definition
66. _____ Means an individual whose legally permitted scope of practice (i.e., license, registration, or certification) allows him or her to independently provide, or be delegated the responsibility to provide, some or all of the health care services required by paragraph (e) of this section. OSHA Definition
67. **Planned or Unplanned Entry into an IDLH Environment, an Environment of Unknown Concentration of Hazardous Contaminant, or an Environment of Unknown Composition:** A situation in which respiratory devices are recommended to provide adequate protection to workers entering an area where the contaminant concentration is above the _____ or is unknown. NIOSH Definition
68. _____ A respirator in which the pressure inside the respiratory inlet covering exceeds the ambient air pressure outside the respirator. OSHA Definition
69. **Potential Occupational Carcinogen:** Any substance, or combination or mixture of substances, which causes an increased incidence of benign and/or malignant neoplasms, or a substantial decrease in the latency period between exposure and onset of neoplasms in humans or in one or more experimental mammalian species as the result of any oral, respiratory, or dermal exposure, or any other exposure which results in the induction of tumors at a site other than the site of administration. This definition also includes any substance that is metabolized into one or more potential occupational carcinogens by mammals _____. OSHA Cancer Policy). NIOSH Definition

70. _____ An air-purifying respirator that uses a blower to force the ambient air through air-purifying elements to the inlet covering. OSHA Definition
71. **Immediately Dangerous to Life or Health (IDLH):** An atmosphere that poses an immediate threat to life, would cause irreversible adverse health effects, or would impair an individual's ability to escape from _____. OSHA Definition
72. _____ The physical activity of fire suppression, rescue or both, inside of buildings or enclosed structures which are involved in a fire situation beyond the incipient stage. (See 29 CFR 1910.155) OSHA Definition
73. _____: A respiratory inlet covering that is designed to form a partial seal with the face. OSHA Definition
74. _____: A respirator in which the air pressure inside the facepiece is negative during inhalation with respect to the ambient air pressure outside the respirator. OSHA Definition
75. _____ An atmosphere-supplying respirator for which the breathing air source is designed to be carried by the user. OSHA Definition
76. **Service Life:** The length of time required for an air-purifying element to reach a specific effluent concentration. Service life is determined by the type of substance being removed, the concentration of the substance, the ambient temperature, the specific element being tested (cartridge or canister), _____, and the selected breakthrough value. The service life for a self-contained breathing apparatus (**SCBA**) is the period of time, as determined by the NIOSH certification tests, in which adequate breathing gas is supplied. **NIOSH Definition**
77. **Service Life:** The period of time that a respirator, filter or _____, or other respiratory equipment provides adequate protection to the wearer. **OSHA Definition**
78. **Single-Use Dust or Dust and Mist Respirators:** Respirators approved for use against dusts or mists that may cause _____ and fibrosis. NIOSH Definition
79. _____: An atmosphere-supplying respirator for which the source of breathing air is not designed to be carried by the user. OSHA Definition
80. _____: A respiratory inlet covering that forms a complete seal with the face. OSHA Definition
81. _____: An action conducted by the respirator user to determine if the respirator is properly seated to the face. OSHA Definition

82. _____: The gaseous state of a substance that is solid or liquid at temperatures and pressures normally encountered. NIOSH Definition
83. _____: A positive pressure atmosphere-supplying respirator that admits breathing air to the facepiece when the positive pressure is reduced inside the facepiece by inhalation. OSHA Definition
84. **Protection Factors:** _____
85. _____: The minimum anticipated protection provided by a properly functioning respirator or class of respirators to a given percentage of properly fitted and trained users.
86. _____: A surrogate measure of the workplace protection provided by a respirator.
87. _____: A measure of the protection provided in the workplace by a properly functioning respirator when correctly worn and used.
88. **Helmet:** A rigid _____inlet covering that also provides head protection against impact and penetration. OSHA Definition
89. _____: A filter that is at least 99.97% efficient in removing monodisperse particles of 0.3 micrometers in diameter. The equivalent NIOSH 42 CFR 84 particulate filters are the N100, R100, and P100 filters. OSHA Definition
90. _____: Means a respiratory inlet covering that completely covers the head and neck and may also cover portions of the shoulders and torso. OSHA Definition
91. _____: A container with a filter, sorbent, or catalyst, or combination of these items, which removes specific contaminants from the air passed through the container. OSHA Definition
92. _____A system that warns the respirator user of the approach of the end of adequate respiratory protection; for example, that the sorbent is approaching saturation or is no longer effective. OSHA Definition
93. _____: A gas mask that consists of a half-mask facepiece or mouthpiece, a canister, and associated connections, and that is designed for use during escape-only from hazardous atmospheres. NIOSH Definition
94. _____: A pass/fail fit test to assess the adequacy of respirator fit that relies on the individual's response to the test agent. OSHA Definition
95. _____: Means an assessment of the adequacy of respirator fit by numerically measuring the amount of leakage into the respirator. OSHA Definition

96. **Recommended Exposure Limit (REL):** An _____ time-weighted average (TWA) or ceiling (C) exposure concentration recommended by NIOSH that is based on an evaluation of the health effects data. NIOSH Definition
97. _____: The portion of a respirator that forms the protective barrier between the user's respiratory tract and an air-purifying device or breathing air source, or both. It may be a facepiece, a helmet, a hood, a suit, or a mouthpiece respirator with nose clamp. OSHA Definition
98. _____: An atmosphere-supplying respirator that admits breathing air to the facepiece only when a negative pressure is created inside the facepiece by inhalation. OSHA Definition
99. _____: A respirator that is discarded after the end of its recommended period of use, after excessive resistance or physical damage, or when odor breakthrough or other warning indicators render the respirator unsuitable for further use. NIOSH Definition
100. **Dust:** A solid, mechanically produced particle with a size ranging from _____. NIOSH Definition
101. _____: A situation that requires the use of respirators due to the unplanned generation of a hazardous atmosphere (often of unknown composition) caused by an accident, mechanical failure, or other means and that requires evacuation of personnel or immediate entry for rescue or corrective action. NIOSH Definition
102. **Emergency Situation:** Any occurrence such as, but not limited to, equipment failure, rupture of containers, or failure of control equipment that may or does result in an _____ release of an airborne contaminant. OSHA Definition
103. _____: Exposure to a concentration of an airborne contaminant that would occur if the employee were not using respiratory protection. OSHA Definition
104. _____: A respirator with an air-purifying filter, cartridge, or canister that removes specific air contaminants by passing ambient air through the air-purifying element. OSHA Definition
105. **Atmosphere-Supplying Respirator:** A respirator that supplies the respirator user with breathing air from a source independent of the ambient atmosphere, and includes _____ and self-contained breathing apparatus (SCBA) units. OSHA Definition
106. _____: The penetration of challenge material(s) through a gas or a vapor air-purifying element. The quantity or extent of breakthrough during service life testing is often referred to as the percentage of the input concentration. NIOSH Definition

107. _____ Means the use of a protocol to qualitatively or quantitatively evaluate the fit of a respirator on an individual. (See also Qualitative fit test QLFT and Quantitative fit test QNFT.) OSHA Definition
108. _____: A solid condensation particulate, usually of a vaporized metal. NIOSH Definition
109. _____: An aeriform fluid that is in a gaseous state at standard temperature and pressure. NIOSH Definition
110. _____: Respiratory devices that are designed for use only during escape from hazardous atmospheres. NIOSH Definition
111. _____: A respirator intended to be used only for emergency exit. OSHA Definition
112. _____: A component used in respirators to remove solid or liquid aerosols from the inspired air. OSHA Definition
113. _____: A particulate respirator with a filter as an integral part of the facepiece or with the entire facepiece composed of the filtering medium. (See **SINGLE-USE DUST or DUST and MIST RESPIRATORS and DISPOSABLE RESPIRATORS.**) NIOSH Definition
114. _____: A negative pressure particulate respirator with a filter as an integral part of the facepiece or with the entire facepiece composed of the filtering medium. OSHA Definition
115. _____: A quantitative measure of the fit of a specific respirator facepiece to a particular individual. NIOSH Definition
116. _____: A quantitative estimate of the fit of a particular respirator to a specific individual, and typically estimates the ratio of the concentration of a substance in ambient air to its concentration inside the respirator when worn. OSHA Definition
117. **Immediately Dangerous to Life or Health (IDLH):** Acute respiratory exposure that poses an immediate threat of loss of life, immediate or delayed _____ adverse effects on health, or acute eye exposure that would prevent escape from a hazardous atmosphere. NIOSH Definition
118. Asbestosis is a serious, chronic, _____ respiratory disease. Inhaled asbestos fibers aggravate lung tissues, which causes them to scar.
119. Symptoms of _____ include shortness of breath and a dry, crackling sound in the lungs while inhaling. In its advanced stages, the disease may cause cardiac failure.

120. There is _____ treatment for asbestosis; the disease is usually disabling or fatal. The risk of asbestosis is minimal for those who do not work with asbestos; the disease is rarely caused by neighborhood or family exposure.
121. Those who _____ buildings that contain asbestos may be at significant risk, depending on the nature of the exposure and precautions taken.
122. _____ causes the greatest number of deaths related to asbestos exposure.
123. The incidence of lung cancer in people who are directly involved in the mining, milling, manufacturing, and use of asbestos and its products is much higher than in the general population. The most common symptoms of _____ are coughing and a change in breathing.
124. People who have been exposed to asbestos and are also exposed to some other carcinogen—_____—have a significantly greater risk of developing lung cancer than people who have only been exposed to asbestos.
125. _____ is a rare form of cancer, which most often occurs in the thin membrane lining of the lungs, chest, abdomen, and sometimes the heart.
126. Virtually all cases of _____ are linked with asbestos exposure.
127. Approximately 2 percent of all miners and textile workers who work with asbestos, and 10 percent of all workers who were involved in the manufacture of asbestos-containing gas masks, contract _____.
128. Evidence suggests that cancers in the esophagus, larynx, oral cavity, stomach, colon, and kidney may be caused by _____ asbestos.
129. There are many good reasons to stop _____, but smoking in addition to asbestos exposure is especially dangerous because both affect the lungs.
130. One study found that asbestos workers who smoke are about _____ more likely to develop lung cancer than people who neither smoke nor have been exposed to asbestos. There is an increased risk of lung cancer for smokers exposed to asbestos.
131. Several groups published standards dealing with asbestos. The Occupational Safety and Health Administration (**OSHA**) recently published a standard in August 1994. This new standard lowers the acceptable exposure level to _____ cubic centimeter of air.

132. Other groups that _____ include the National Institute of Occupational Safety and Health (**NIOSH**), the American Conference of Governmental Industrial Hygienist (**ACGIH**) and the Environmental Protection Agency (**EPA**).
133. Employees exposed to asbestos above the _____, or where the possibility of eye irritation exists, must use appropriate protective work clothing and equipment.

The next six questions will be about local exhaust ventilation and dust collection systems are very important, especially when you use tools such as saws, drills, scorers, and abrasive wheels that could release asbestos fibers into the air. ***The following is allowable exposure control equipment:***

134. _____
135. _____
136. _____
137. _____
138. _____
139. _____
140. Whenever the _____ and work practices are insufficient to control asbestos fibers, employees must supplement the controls with respiratory protection.
141. Decontamination areas are a source of _____ to asbestos.
142. When leaving a regulated area, employees should enter the _____ area through the equipment room.
143. There, they should remove all asbestos material on the protective clothing by using an _____ vacuum. Employees must not remove their respirators while in the equipment room. All protective clothing must be removed and put into labeled clothing bags.
144. Employees then must leave the equipment room, remove their respirator, and shower before entering a _____.
145. The construction standard also requires: All asbestos waste must be collected and disposed of in _____ or similar containers.
146. The construction standard also requires: Waste and dust from areas with accessible _____ may not be dusted or dry swept except by using an HEPA-filtered vacuum and all material placed in a leak-tight container.

Use the same asbestos safety precautions when handling asbestos waste. It's best to wet these wastes. Place them in labeled, sealed, leakproof containers for careful and proper disposal. Examples of asbestos waste include the following five answers:

147. _____

148. _____

149. _____

150. _____

151. _____

152. Any shipment of asbestos waste must conform to the _____ regulations for the transportation of hazardous materials. In general, the material must be placed in a proper poly-lined container that is leakproof and labeled with the correct DOT name for the asbestos waste.

153. The waste must be transported in a covered vehicle to an _____. When shipping the waste, the shipping facility must offer the proper placards to the driver of the transport vehicle. The vehicle must have the proper placards on all sides. Once delivered to the landfill, the waste must be covered with at least 6 inches of fill within 24 hours.

154. The _____ requires the U. S. Environmental Protection Agency (**EPA**) to develop and enforce regulations to protect the general public from exposure to airborne contaminants that are known to be hazardous to human health.

155. In accordance with Section 112 of the CAA, EPA established National Emissions Standards for Hazardous Air Pollutants _____ to protect the public.

156. The responses assume that the questioner has a basic understanding of the Asbestos _____ and demolition and renovation practices.

157. The Asbestos _____ regulations protect the public by minimizing the release of asbestos fibers during activities involving the processing, handling, and disposal of asbestos-containing material.

158. The Asbestos _____ specifies work practices to be followed during demolitions and renovations of all structures, installations, and buildings (excluding residential buildings that have four or fewer dwelling units).

159. In addition, the regulations require the owner of the building and/or the contractor to notify applicable State and local agencies and/or EPA Regional Offices before all demolitions, or before renovations of buildings that contain a certain _____ amount of asbestos.

160. The _____ regulation requires that RACM be adequately wetted during the following activities: During cutting or disjoining operations when a facility component which is covered or coated with friable ACM is being removed from that facility as units or in sections (Section 61.145 (c)(2)(i)).
161. During demolitions or renovations a contractor may choose to remove an entire boiler, a section of pipe, or other facility components without first removing the asbestos insulation from these structures. Any _____ which will be disturbed during cutting or disjoining operations must be adequately wet.
162. During stripping operations when a facility component containing _____ remains in place in the facility. (Section 61.145 (c)(3)).
163. Stripping operations are the most common form of asbestos removal during renovation activities, since most items that are covered with asbestos are facility components or structural members which will _____.
164. Stripping off all of the _____ can generate significant asbestos emissions if the ACM is not adequately wet during removal.
165. _____, which includes fire-proofing materials found on decking and support I-beams, is normally easy to wet throughout because of the absorbing property of the cellulose mixing/binding agent.
166. The Asbestos _____ requires that these materials be fully penetrated with the wetting agent during demolition/renovation activities.
167. Other ACM, however, such as " _____ " insulation used on pipes and boilers, certain ceiling and floor tile applications, etc., which do not absorb water readily may be hard to penetrate by water or a wetting agent.
168. For such materials, adequate wetting consists of coating the surfaces of the materials with water or a _____ prior to, during, and, in most cases, after removal activities in order to prevent asbestos emissions. Whenever such materials are broken during the removal process, the exposed, dry surfaces must be wetted immediately to reduce emissions.
169. If pieces of _____ are accidentally disturbed, they should be immediately wetted and kept wet until collected for disposal. Removal personnel are commonly assigned to keep the fallen RACM wet prior to its being collected for disposal.
170. After the _____ has been stripped from a facility component, it must remain adequately wet until it has been collected and contained or treated in preparation for disposal. (Section 61.145 (c)(6)(i)).

171. After removal, adequately wetted ACWM must be sealed in leak-tight containers or wrapping which must be labeled as specified by the Occupational Health and Safety Administration (OSHA) under 29 CFR 1910.1001(j)(2) or 1926.58(k)(2)(iii). Such waste materials destined for off-site transport must additionally be labeled with the name of the generator and location of the _____ (Section 61.150 (a) (1) (iv and v)).
172. Adequate wetting of ACM is typically accomplished by repeatedly spraying it with a liquid or a wetting agent, usually amended water (water to which _____ chemicals have been added), until it can absorb no more. However, this does not necessarily mean that the ACM will be soaked throughout.
173. Surfactant chemicals reduce the _____ of the water, thereby increasing its ability to penetrate the ACM and surround the asbestos fibers.
174. Although amending agents are not required by the Asbestos NESHAP (the NESHAP only requires the use of a liquid), EPA, in its "Guidance for Controlling Asbestos-Containing Materials in Buildings", EPA-560/5-85-024 (Purple Book), recommends the use of a 50:50 mixture of _____ and polyoxyethylene ether, or the equivalent, in a 0.16 percent solution (1 ounce to 5 gallons) of water.
175. _____ may be applied with garden sprayers or hoses. Garden sprayers are hand-held, portable, and have a one- to five-gallon capacity. Water hoses are usually attached to a faucet tap, fire hydrant or water tank.
176. Generally, the hose has a nozzle attached which spreads the water stream so that a _____ is created.
177. An engineering control often used is a misting unit which can be used to create a high level of humidity within a removal area. It is believed that fibers emitted into a saturated environment will absorb _____ and fall out of the air faster, thus reducing airborne fiber levels.
178. The outer surface of the _____ pipe insulation, usually a canvas wrap, should be saturated with a wetting agent and then removed. Wetting should continue until all the insulation is permeated with amended water. Metal bands holding the insulation in place should be removed and the corrugated RACM insulation stripped.
179. Asbestos-containing preformed block insulation has been used as thermal insulation on boilers, hot water tanks and heat exchangers in industrial, commercial, institutional and residential applications. The blocks are commonly _____ and may be held in place by chicken wire or expanded metal lath. A plaster-saturated canvas was often applied as a final covering or wrap.

180. Due to the number, thickness and varying absorbencies of these layers of materials, adequate wetting may be accomplished only by continually wetting the materials with _____ as the various layers are stripped.
181. One person may be assigned to spray the materials as they are stripped, and a misting sprayer may be used in an attempt to _____ asbestos fiber levels.
182. Wetting of cementitious fitting insulation is similar to that used when removing asbestos-containing thermal block insulation. The outer surface is saturated with amended water and the outer covering (if applicable) is removed. The fitting insulation _____ and the insulation stripped. To ensure that the fitting remains adequately wet during the removal operation, a person is often assigned to spray the ACM as it is stripped. A misting sprayer may be used to reduce airborne asbestos fiber levels.
183. " _____ " is a generic term designated by the Asbestos Hazard Emergency Response Act (AHERA; Asbestos Containing Materials in Schools, 40 CFR Part 763, Subpart E) to mean any wall or ceiling material that is sprayed-on or troweled-on, such as acoustical plaster or fireproofing. The recommended wetting method for this type of RACM is to saturate the surfaces, begin the stripping operation and continue to wet the RACM as it is being removed. A misting sprayer may also be used to keep the air saturated while the removal occurs.
184. Since surfacing materials vary in their ability to absorb a wetting agent, inspectors must consider the type of surfacing material that is being removed in order to determine the required extent of penetration by the amended water. Surfacing materials which easily absorb a wetting agent need to be fully penetrated or permeated to be considered adequately wet, whereas only the exposed surfaces of materials which _____ readily need to be wetted.
185. The use of high pressure water to remove asbestos-containing surfacing materials, either through a steam-cleaning device or a diesel powered hydroblasting water applicator, should be avoided since such use may unduly _____ and contribute to higher airborne asbestos fiber levels. However, if this removal method is used, contractors must adequately wet the ACM prior to and during the removal.
186. Both friable and non-friable forms of other asbestos-containing building materials exist. Friable materials include asbestos-containing paper (commonly found beneath wooden floors), wallpaper, and _____. It has been estimated that 5 to 10 percent of the ceiling tiles currently installed in the U.S. contain asbestos.
187. Non-friable miscellaneous ACM includes floor tiles, asbestos cement sheet (_____), siding shingles, asphalt roofing shingles, laboratory benchtops and even chalkboards.

188. These materials may become friable with age, and under harsh conditions. Category I _____ ACM must be carefully examined to determine if the material is in poor condition, that is, if the binding material is losing its integrity, exhibited by peeling, cracking or crumbling; and is also friable.
189. When _____ ACM has become friable it is subject to the NESHAP.
190. If Category I or II ACM is sanded, ground, cut or abraded it is also covered by the NESHAP. Category II non-friable ACM which is damaged to the extent that it has or will become crumbled, pulverized or reduced to powder due to demolition/ renovation activities, is subject to the _____.
191. Miscellaneous materials are wetted in manners similar to those used to wet other categories of _____. Coverings are saturated with a wetting agent before removal and the asbestos-containing portions fully penetrated with the agent prior to, during and after their removal, while stored in the removal area, and while being placed into disposal containers.
192. Miscellaneous materials that don't absorb water readily (e.g., asbestos-concrete products, and floor tiles) are _____ to have wetted surfaces. A misting sprayer may be used to diminish airborne asbestos fiber levels.
193. In 1979, under the _____, EPA began an asbestos technical assistance program for building owners, environmental groups, contractors and industry. In May 1982, EPA issued the first regulation intended to control asbestos in schools under the authority of TSCA; this regulation was known as the Asbestos-in-Schools Rule.
194. Starting in 1985, loans and grants have been given each year to aid Local Education Agencies (**LEAs**) in conducting asbestos abatement projects under the _____.
195. In 1986, the Asbestos Hazard Emergency Response Act (**AHERA**; Asbestos Containing Materials in Schools, 40 CFR Part 763, Subpart E) was signed into law as Title II of TSCA. AHERA is more inclusive than the May 1982 _____
196. AHERA requires LEAs to inspect their schools for asbestos containing building materials (**ACBM**) and prepare _____ which recommend the best way to reduce the asbestos hazard.
197. In 1989 EPA published the Asbestos: Manufacture, Importation, Processing, and Distribution in Commerce Prohibitions; Final Rule (40 CFR Part 763, Subpart I). The rule will eventually ban about _____ of the asbestos used in the U.S. (based on 1985 estimates). For example, asbestos containing drum brake linings and roof coatings will be banned. The rule will be implemented in three stages between 1990 and 1997.

198. The Asbestos NESHAP is intended to _____
of asbestos fibers during activities involving the handling of asbestos.

199. The regulations require owners and operators subject to the
Asbestos _____ to notify delegated State and
local agencies and/or their EPA Regional Offices before demolition or renovation
activity begins. The regulations restrict the use of spray asbestos, and prohibit the
use of wet applied and molded insulation (i.e., pipe lagging).

200. The Asbestos NESHAP also regulates asbestos _____.

**You are finished with your assignment, please email or fax your answer to
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Please mail or fax this survey with your final exam

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PLEASE COMPLETE THIS FORM BY CIRCLING THE NUMBER OF THE APPROPRIATE ANSWER IN THE AREA BELOW.

1. Please rate the difficulty of your course.
Very Easy 0 1 2 3 4 5 Very Difficult
2. Please rate the difficulty of the testing process.
Very Easy 0 1 2 3 4 5 Very Difficult
3. Please rate the subject matter on the exam to your actual field or work.
Very Similar 0 1 2 3 4 5 Very Different
4. What would you do to improve the course? _____

Any other concerns or comments.

