

Name \_\_\_\_\_

**SHORT ANSWER. Write the word or phrase that best completes each statement or answers the question.**

1) What precautions are necessary when working with refrigerants?

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2) How can a refrigerant cause the breakup or depletion of the ozone layer?

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3) What does hygroscopic means what referring to refrigerant oils?

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4) What is a SNAP refrigerant?

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5) What does the Clean Air Act mandate when it comes to servicing air conditioning systems?

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6) What do the colors of the containers mean?

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## Answer Key

Testname: AHAC8\_SHORT4

1) Precautions when working with refrigerants include:

- Wear safety goggles or a clear face shield and protective clothing (gloves) when working with refrigerants
- Always be in a well-ventilated shop area when working with refrigerants and avoid small, enclosed areas. Refrigerants do not contain oxygen and are heavier than air. If they are released into a confined area, they fill the lower space, forcing air and its oxygen upward. Any humans or animals that breathe refrigerants can be asphyxiated, and lack of oxygen can cause loss of consciousness or death. In case of accidental release of refrigerant into the atmosphere, move immediately to an area with adequate ventilation.
- If liquid refrigerant is splashed onto the skin or into the eyes of a human or animal, it immediately boils and absorbs heat from the body part it is in direct contact with. The temperature of the area is reduced to the low boiling point of the refrigerant, which is cold enough to freeze that body part.

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2) A chlorine atom from a chlorinated fluorocarbon (CFC) such as R-12 can travel into the stratosphere if it escapes or is released. There, under the effects of ice clouds and sunlight, it can combine with one of the oxygen atoms of an ozone molecule to form chlorine monoxide and an ordinary oxygen molecule, O<sub>2</sub>. This destroys that ozone molecule. The chlorine can then break away and attack other ozone molecules. It is believed that 1 chlorine can destroy 10,000 to 100,000 ozone molecules.

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3) PAG or ester oil is very hygroscopic, which means that it can absorb moisture directly from the air up to about 2% to 6%.

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4) Section 612 of the 1990 Clean Air Act established the Significant New Alternatives Policy (SNAP) program to determine acceptable replacements for Class I and Class II chemicals. Class I chemicals include CFCs, and Class II chemicals are HCFCs. SNAP is administered by the EPA and identifies refrigerants that are acceptable from their ozone-depleting potential, global warming potential, flammability, and toxicity characteristics.

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5) Section 609 is a portion of the Clean Air Act that places certain requirements on the mobile vehicle air conditioning (MVAC) service field. Important portions of this Section require the following:

- Technicians who repair or service automotive A/C systems shall be properly trained and certified and use approved refrigerant recovery and recycling equipment.
- Recovery and recycling equipment must be properly approved.

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6) Refrigerant containers are color-coded:

- R-12 containers are white
- R-22 containers are green
- R-134a containers are light blue
- R-1234yf containers are white with a red stripe

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