

Job Name _____ Foreman/ Serv. Tech _____ Date _____

Odorless Refrigerants

A technician not employed by Hill was on a project to change a compressor shaft seal and suffered from what is believed to be the effects of inhaling an odorless refrigerant, R408A. The incident resulted in the tech feeling ill, with symptoms such as dizziness, heart palpitations, and nausea. Fortunately, he recovered within two or three hours.

After pumping down the compressor, the tech closed the suction, discharge, and oil stop valves and electrically isolated the compressor, before starting to remove the drive coupling and guard. During this time the tech was unaware that the suction stop valve was passing and that as a result refrigerant was still escaping from the shaft seal. By the time the tech was ready to remove the seized coupling using a couple of Turbo Torches, he had been inhaling a refrigerant rich atmosphere for some considerable time. As he applied heat to the coupling, he began to feel ill. Fortunately, he stopped work and sat outdoors in the fresh air for a while to recover.

Inhalation of R408A, as with other common refrigerants such as R22, may cause cardiac arrhythmia - a variation in the normal rhythm of the heart (heart palpitations) - and may also have a narcotic effect, which can lead to dizziness, headaches, and ultimately unconsciousness. Whereas, the products of combustion are much more toxic than the refrigerant itself but are much more readily detected as they have a very pungent odor and are very acidic, causing immediate and severe irritation to the nose, throat, and lungs. Since the tech did not smell or feel any of these symptoms, the evidence points to the refrigerant itself.

Remember, plan your work whether you are a tech working on a system of another tradesperson working near it. Try to confirm if the refrigerant is present in the atmosphere - halide lamp, electronic leak detector, automatic plant room leak detection.

- Carryout a confirmation leak test before continuing, do not assume that valves are holding fast.
- Cure leaks or isolate plant.
- Increase levels of ventilation particularly at a low level (open doors and windows, turn on ventilation).
- Ask a second person to observe you from a safe place. Instruct them in what action to take if you appear to be in distress.
- Do not weld, burn or heat in the presence of refrigerant, as the toxic, pungent, acidic gases produced are harmful if inhaled.
- Remember that other gases displace air (Other refrigerants, Nitrogen, argon used for welding, etc.)
- If you suspect that an area may be depleted of oxygen, do not enter. Call for assistance and conduct a full assessment of the situation. Additional resources may be required such as oxygen detectors and breathing apparatus.

Attended by:

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