



Joint Training and Apprenticeship Committee

Refrigeration Workers Local 787 - O.R.A.C. Training Fund
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410A Safe Handling Considerations (Highlights)

*The JTAC assumes no liability for the information contained within.
Please refer to the most recent equipment and/or refrigerant manufacturer's
literature for complete and accurate procedures and requirements.*

Equipment & Installation

- Evaporators and low side components are rated for 235 psig minimum design pressures, (CSA B-52) Manufacturer may be higher, example: manufacturer L = 450 psi
- High side components are rated for minimum 444 psig design pressures (CSA B-52) Manufacturer may be higher (example: Manufacturer M = 622 psi)
- 410A is used in new equipment only, rated for 410A and its pressures
- Requires POE Oil as a lubricant (do not cross contaminate, do not mix viscosities nor allow to become saturated with moisture)
- Compressors are heavy wall, scroll type
- Condensers are larger for greater heat of rejection and subcooling
- Thermostatic Expansion Valves are required for higher efficiencies
- Liquid Line Filter Driers are required to be rated for 410A (both for pressure & compatibility) 410A drier will not absorb the R-32 component, as existing driers will
- Brazing or mechanical connection of fittings. Purge with nitrogen when brazing
- Pressure relief and pressure limiting switches set as per manufacturer and/or CSA B-51 and B-52 requirements

Transfer and storage

- Refrigerant handling equipment to be rated for higher pressures:
- Cylinders/containers 4BA400 or 4BW400, minimum 400 psig rating
- Recovery units and manifold gauges and hoses 800 psig operating pressure
- When charging, do not charge to a full column of liquid in the sight glass, use charging tables, weigh scales, etc.
- Refrigerant transfer as a liquid to avoid fractionation (removal from cylinder)
- Do not store at temperatures above 125°F
- Store containers in vertical upright, secured position with pressure relief in contact with refrigerant vapour
- Maximum container liquid capacity of 80% water capacity at 70°F, recommend 60% water capacity when being stored or moved at higher temperatures (such as in your service vehicle, during the hot summer). Expansion rate at 120°F is 185% that of R-22
- *Recover refrigerant from hoses*

Personal Safety From DuPont MSDS sheets

- ASHRAE 34 Rating of A1
- Boils at minus **-60.7°F (-51.5°C)**, at atmospheric pressure, wear appropriate Personal Protective Equipment : impervious gloves, chemical splash goggles, Self Contained Breathing Apparatus in the event of large spills (maximum levels in an occupied space of 13 lb/1000 ft³, 0.208 kg/m³).
- If splashed in eyes, flush for 15 minutes with clean water and seek medical treatment
- If skin contact, flush with lukewarm water (do not use hot water)
- "Levels of greater than 1,000 ppm may cause temporary nervous system depression with anesthetic effects such as dizziness, headache, confusion, incoordination and loss of consciousness and even higher levels can result in heart irregularities, unconsciousness or even death. Liquid contact can cause frostbite"
- 410A is heavier than air and will displace the oxygen
- 410A is not flammable at atmospheric pressure and standard temperatures, but at higher pressures, in the presence of air, it could support combustion
- When exposed to flame, can break down into hydrogen fluoride... **very toxic**
- **DO NOT pressurize system with air and 410A, the air/410A mixture may become combustible (as with most refrigerants)**