Instructions to Repairing and Handling Isobutane R600a

Refrigeration Systems

Technical Data:

R600a is a colorless and flammable gas with a slight odor.
Chemical formula: C₄H₁₀
Boiling point: 10.9°F
Vapor pressure: 31 psig at 70°F
Explosion limits with air: 1.3 % vol. to 8.5 % vol.

Storing R600a:

R600a containers must not be exposed to heat in excess of 50 °C by sunlight or other heat sources.
R600a containers must not be stored in corridors, entrances, staircases or attics.
R600a containers must not be stored with fireworks.
Storage areas must be sufficiently ventilated, either naturally or artificially.
Storage areas must be located such that they can be quickly and safely evacuated in case of an emergency.
Storage areas must have a fire extinguisher located at each exit.

Handling R600a:

The surrounding room is well ventilated.
Naked flames and smoking are strictly forbidden.
A fire extinguisher must be ready for use.
Safety glasses and gloves must be worn.
R600a is not collected but released into the atmosphere.

Repairing R600a Systems

Only qualified personnel in handling R600a refrigerant may perform repairs on refrigeration systems.

1-Install a piercing valve on the compressor process tube. Open the valve to release R600a to the atmosphere through a hose.
2-Connect a R600a manifold to the piercing valve and connect a vacuum to the manifold.
3-Start the vacuum pump and open the manifold to evacuate the refrigeration system
4-Run the vacuum pump for minimum 15 min to release R600a soluble in the compressor lubricant to the atmosphere.
5-Open the manifold and the vacuum pump, disconnect the manifold and vacuum pump.
6-Purge the refrigeration system using 150 psig nitrogen.
7-Use tubing cutters to remove compressor, drier, evaporator, evaporator or disconnect capillary tube
8-Prepare new components including an access valve.

If you use all mechanical connectors without brazing, please skip 9-11 and go to 12

9-Solder the components while flowing nitrogen below 5 psig
10-Leave the drier as last component to solder.
11-Solder the drier without flowing nitrogen.

12- Connect a R600a manifold to the access valve.
13-Perform leak test using 150 psig nitrogen
14-Connect a vacuum to the manifold.
15-Start the vacuum pump and open the manifold to evacuate the refrigeration system.
16-Run the vacuum pump for minimum 30 min.
17-Charge the refrigeration system using the amount specified on the nameplate.
18-Close the manifold and access valve.
19-Disconnect the manifold.