# What are R290 & R600a refrigerants?
- They are hydrocarbon (HC) refrigerants.
- R290: Common name for high purity propane (C₃H₈)
- R600a: Common name for isobutane (C₄H₁₀)*
- R290/R600a refrigerants are proven safe, not an environmental threat, and have been used in international markets for more than 10 years.
- Only refrigerant grade R290 or R600a should be used.

## Why not R134a?
- Regulations ban R134a in certain uses, effective 2019.
- Most commercial refrigeration manufacturers are moving to R290 as the alternative to R134a.

## R290 Service Overview
- R290 & R600a are FLAMMABLE. You MUST observe caution and follow proper safety practices when servicing R290/R600a refrigeration systems.
- Servicing refers to making repairs to the hermetically sealed system and any part of the electrical system. There is a 150 gram (5.29 ounces) charge limit of R290/R600a for commercial applications.
- Repair on R290/R600a systems MUST always be done in a well ventilated area.
- Because R290/R600a is highly flammable, a combustible gas leak detector and safety placard is required when servicing R290/R600a systems.

## Servicing R290/R600a vs. R134a
- Operationally very similar systems:
  - Operating pressures of R290/R600a systems are slightly higher than an equivalent R134a system.
  - Example:
    - At 100°F, evaporating pressure in an R290 system is approx. 46 psig.
    - At 100°F, evaporating pressure in an R134a system is 26.6 psig.
- Specialized training is not mandated, but is recommended.
  - (Online Training Available) [www.rses.org](http://www.rses.org)

## R290 and R600a Parts and Requirements
- Spark resistant/sealed electrical components are required.
  - Only like component replacement parts are to be used on R290/R600a systems. NO substitutes.
  - Avoid unapproved parts at all times.
Red and Blue Hoses

Standard refrigeration gauge manifold hoses may be used on R290 and R600a systems. However, the red and blue hoses are to be as short as reasonably possible.

Red Sleeves

Red sleeves are installed on the process tubes on R290 and R600a systems. These sleeves are to remain in place. If removed for service, they must be returned to their original position.

Training

Hoshizaki recommends servicing as outlined by RSES procedures.

- Refrigeration Service Engineering Society (RSES) offers an online course on R290 and R600a refrigeration. There is a charge for this course: www.rses.org

Publications:


- Hoshizaki Service Manuals available for all refrigeration products

Read the Hoshizaki Service Manual Before Any Repair

- Before starting any refrigeration repair, post the Danger Propane or Danger Isobutane placard on the front of the appliance.

- A Combustible Gas Leak Detector MUST be turned on prior to starting any work and remain on and near the work area for the duration of the servicing or repair.

- Power to the appliance being serviced MUST be disconnected.

- Service personnel should wear appropriate Personal Protective Equipment (PPE).

- When purging the system, ONLY Oxygen Free Dry Nitrogen should be used.

- Replacement refrigerant MUST be approved Refrigerant Grade of the proper type.

- A fully charged and recently serviced (within past year) Carbon Dioxide or Dry Powder Fire Extinguisher MUST be in the work area.

- Maintain good ventilation in the area at ALL times and eliminate ALL ignition sources in the area.

- R290/R600a MUST be removed from the system, via the R290/R600a Recovery Process (piercing valve), before cutting into the system with tubing cutters. Use CAUTION as there may be residual R290/R600a still in the system.

- Solder joints MUST NOT be heated (touched with a flame) to remove a component, such as a compressor or filter dryer, from an R290/R600a System.

- You MUST use tubing cutters to cut connections to remove a compressor or other component in an R290/R600a System.