



## PRESSURE-TEMPERATURE CHART

### National R-290 Propane

TEMP (°F)	Pressure (psig)	TEMP (°F)	Pressure (psig)
-40	1.4	65	101.4
-35	3.4	70	110.2
-30	5.7	75	119.5
-25	8.1	80	129.3
-20	10.7	85	139.7
-15	13.6	90	150.5
-10	16.7	95	161.9
-5	20.1	100	173.9
0	23.7	105	186.5
5	27.6	110	199.6
10	31.8	115	213.4
15	36.3	120	227.8
20	41.1	125	242.9
25	46.3	130	258.7
30	51.8	135	275.1
35	57.7	140	292.3
40	63.9	145	310.2
45	70.6	150	328.9
50	77.6	155	348.4
55	85.1	160	368.7
60	93.0		

Values from NIST Refprop 8.0

# R-290

- ◆ Refrigerant Grade Propane
- ◆ Meets AHRI Standard 700 specifications
- ◆ Non-odorized
- ◆ Contains 14 oz. by weight
- ◆ Valve: Dispense using screw on valve tap – Part # KFCA (1/4" SAE flare)

## PRODUCT SAFETY:

- ◆ Extremely flammable
- ◆ Requires adherence to proper safety procedures when storing, handling, transporting and using this product
- ◆ Use only in accordance with equipment manufacturer's instructions
- ◆ Use only tools and equipment certified for use in hazardous areas
- ◆ Store and transport in upright position
- ◆ Refer to Safety Data Sheet (SDS)



### National Refrigerants, Inc.

11401 Roosevelt Boulevard  
Philadelphia, PA 19154  
Tel: 800.262.0012  
fax: 215.698.7466  
web: www.refrigerants.com  
e-mail: info@refrigerants.com



## THINGS TO KNOW ABOUT USING R-290:

### **What type refrigerant is R-290?**

R-290 is a hydrocarbon refrigerant that is highly flammable.

### **Do you have to be EPA certified to purchase R-290?**

No. EPA has exempted R-290 from the sales restriction.

### **Do you have to be certified to service, repair or maintain an approved hydrocarbon containing system?**

No. EPA does not require technician certification for exempt refrigerants, like R-290.

### **Are there any specialized tools needed to service an R-290 refrigeration system?**

Yes. A combustible gas meter / R-290 electronic leak detector (must be designed for combustible gases) A safety placard advising of no smoking or open flames. Standard refrigeration tools are still needed. Ex. Pinch off tool, nitrogen, vacuum pump, micron gauge, torches, soap bubbles, manifold set, and tube cutter. R-290 is highly flammable so you must observe caution and proper safety practices when servicing R-290 systems so make sure tools are spark resistant as appropriate.

### **How do I leak check an R-290 system?**

Basically the same the way you do an HFC but you cannot use a halide leak detector and electronic leak detectors must be specifically designed for combustible gas. A bubble solution or an ultrasonic leak detector can also be used.

### **Do you have to recover R-290 before opening an approved hydrocarbon containing system?**

No. EPA has exempted R-290 from the recovery requirement due to its limited charge size (5 oz. or less) so it can legally be vented to the atmosphere. NOTE: Follow safe procedures to prevent exposure to or ignition of the R-290.

### **Is R-290 approved for use in stand-alone retail food equipment?**

Yes but for NEW equipment only. EPA has limited the charge size for this application to a maximum of 150 grams (~5 oz.). Retrofitting is prohibited.

### **Is R-290 approved for use in vending machines?**

Yes but for NEW equipment only. EPA has limited the charge size for this application to a maximum of 150 grams (~5 oz.). Retrofitting is prohibited.

### **Can I use any type of propane in an EPA approved application?**

No. The refrigerant must be Refrigerant Grade and meet AHRI Standard 700 specifications. This is important in order to guarantee the minimum purity and limit contaminants such as moisture and non-condensable gas so that the equipment performs as designed.

### **Does Refrigerant Grade propane contain an odorant like other propane grades?**

No. An odorant is considered a contaminant that could harm the equipment.

### **Is anyone offering R-290 training classes?**

Yes. Go online to find a training program near you or an online course. RSES offers both on-site and online training classes ([www.rses.org/hydrocarbons](http://www.rses.org/hydrocarbons)). Training may also be available from the equipment manufacturer, contact them for details. It is strongly recommended that you take a training class prior to working on R-290 equipment since R-290 is highly flammable and requires special consideration when using to ensure your safety as well as the safety of others.

### **What does R-290 training cover?**

Training topics will likely include: regulations pertaining to R-290 and its use; safety when using, storing or transporting R-290; leak checking; system evacuation; and sparking hazards.

**ALWAYS REFER TO THE R-290 EQUIPMENT MANUFACTURER'S INSTRUCTIONS AND WARRANTY GUIDELINES PRIOR TO WORKING ON THE EQUIPMENT.**



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