SOLSTICE® L40X (R-455A)

TECHNICAL DATA SHEET

Solstice® L40X (R-455A) is a mildly flammable, zeotropic blend designed to serve as an alternative for low-, medium- and high-temperature applications in new systems. It has a low Global Warming Potential (GWP) of <150 and offers high energy efficiency.



APPLICATIONS

Solstice® L40X is an excellent refrigerant option for commercial refrigeration low-temperature applications such as plug-ins, condensing units, food service, water-loop systems and similar. Its low GWP, extended operating envelope, high efficiency, high critical temperature and low critical pressure makes it a potential match for applications such as:

- supermarkets
- chillers
- heat pumps
- transport refrigeration

BENEFITS

- Less than 150 GWP
- Close capacity match to R-404A
- Excellent energy efficiency
- CARB & AIM compliant for new equipment
- Extended operating envelope

PHYSICAL PROPERTIES

GENERAL PROPERTIES	
Class/Type	Zeotropic Blend
Formula	75.5%/21.5%/3% R-1234yf/R-32/R-744
Kind	HFC / HFO
Appearance	Colorless
ODP (ODP-R11=1)	~0
GWP REV /5TH IPCC	146 (AR5)
ASHRAE Standard 34 Class	A2L
LFL (% vol)	11.8-12.9
Reach	Registered

UNITS	
Molecular weight	87.5 lbm/lb-mol
Boiling temperature	-61.6 °F
Critical temperature	186.1 °F
Critical pressure	675 PSIA
Critical volume	0.0352 ft3/lbm
Critical density	0.296 lbm/ft³
Vapor density at boiling point	0.296 lbm/ft³
Liquid density at 32°F	70.47 lbm/ft³
Liquid density at 77°F	64.51 lbm/ft³
Vapor density at 77°F	2.84 lbm/ft³
Liquid heat capacity at 77°F	0.375 Btu/lbm·°R
Vapor heat capacity at 77°F	0.272 Btu/lbm·°R
Vapor pressure at 77°F	151.2 psia
Liquid thermal conductivity at 77°F	0.0445 Btu/h·ft·°R
Vapor thermal conductivity at 77°F	0.0084 Btu/h·ft·°R
Liquid viscosity at 77°F	8.53 x 10-5 lbm/ft·sec
Vapor viscosity at 77°F	8.08 x 10-6 lbm/ft·sec

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MATERIALS COMPATIBILITY

Solstice Advanced Materials does not recommend the use of chlorinated solvents to clean refrigeration systems or components.

DESICCANTS

Desiccant driers compatible with Solstice® L40X are commercially available.

Individual drier manufacturers should be contacted for specific recommendations.

LUBRICANTS

Polyolester (POE) oil is recommended for using Solstice® L40X. Compressor manufacturers typically qualify specific lubricants for use with their products.

Users should check with the equipment manufacturer for the recommended lubricants for their system.

PLASTICS AND ELASTOMERS

Solstice® L40X is compatible with most common materials. There are many different grades and formulations of these materials, we recommend that compatibility testing be performed on the specific grade of materials under consideration and at the conditions of use when designing new systems. Customers should consult the manufacturer or conduct further independent testing.

SAFETY AND STORAGE

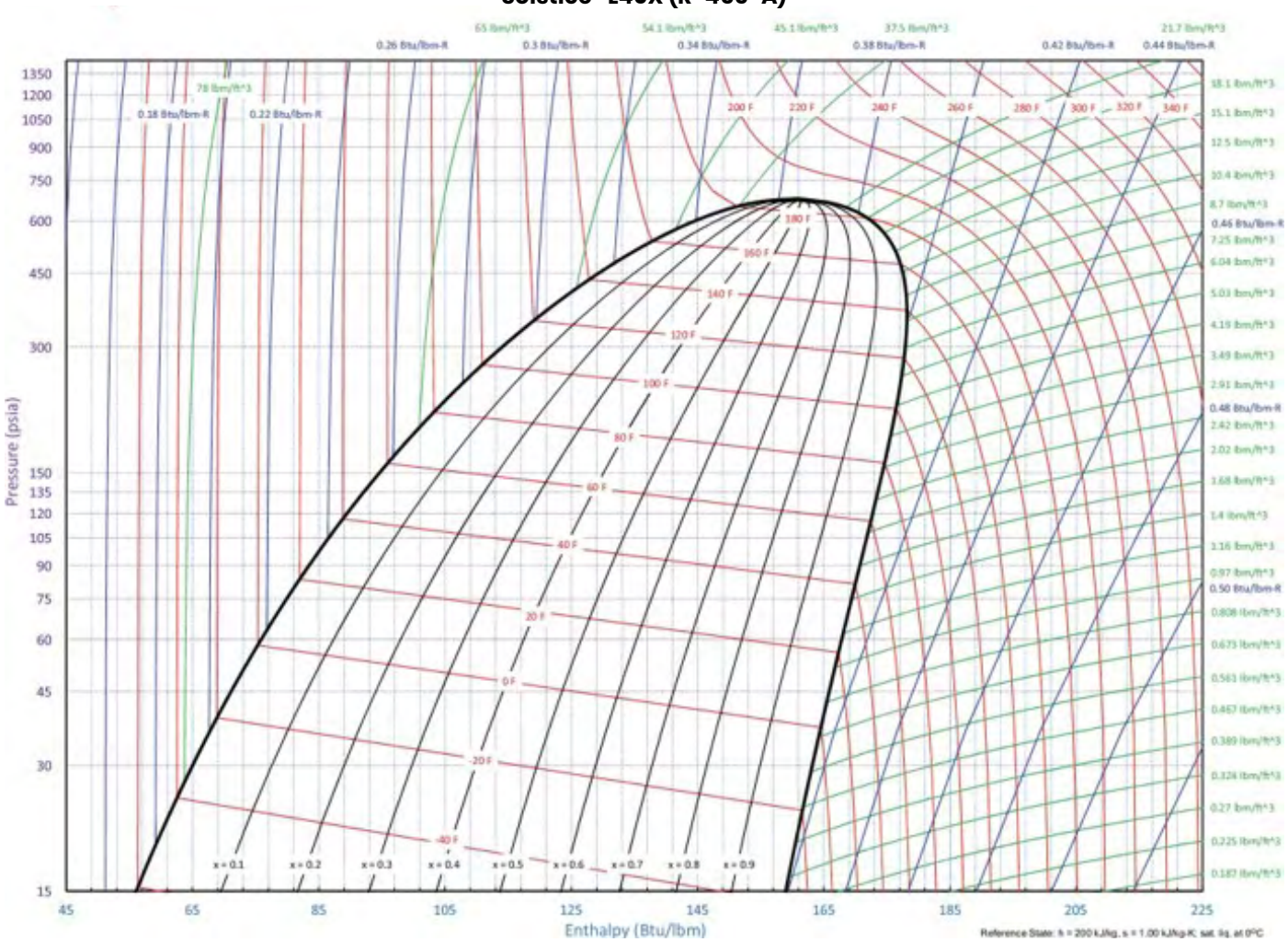
Solstice recommends reading the Safety Data Sheet (SDS) before using the product. Solstice® L40X is a mildly flammable refrigerant (ASHRAE class A2L) and needs to be handled appropriately.

LEAK DETECTION

Leak detectors can be used for pinpointing specific leaks or for monitoring an entire room on a continual basis. Leak detection is important for refrigerant conservation, equipment protection and performance, reduction of emissions and protection in case of contact with the system. Customers should consult the equipment manufacturer for appropriate detectors.

PRESSURE AND ENTHALPY

Solstice® L40X (R-455-A)



PRESSURE AND TEMPERATURE			
psig	°F	°F	°F
5.0	-38.6	-50.1	-27.1
10.0	-29.2	-40.6	-17.8
15.0	-21.2	-32.5	-9.8
20.0	-14.1	-25.4	-2.8
25.0	-7.8	-19.1	3.4
30.0	-2.1	-13.3	9.0
35.0	3.1	-8.0	14.2
40.0	7.9	-3.1	19.0
45.0	12.5	1.5	23.5
50.0	16.7	5.8	27.6
55.0	20.7	9.8	31.6
60.0	24.5	13.7	35.3
65.0	28.1	17.4	38.9
70.0	31.5	20.8	42.3
80.0	38.0	27.4	48.6
90.0	43.9	33.5	54.4
100.0	49.5	39.1	59.8
110.0	54.7	44.4	64.9
120.0	59.5	49.4	69.7
130.0	64.2	54.1	74.2
140.0	68.6	58.6	78.5
150.0	72.7	62.9	82.6
160.0	76.7	67.0	86.5
170.0	80.6	70.9	90.2
180.0	84.2	74.7	93.7
190.0	87.8	78.4	97.2
200.0	91.2	81.9	100.5
210.0	94.5	85.3	103.7
220.0	97.7	88.6	106.7
230.0	100.8	91.8	109.7
235.0	102.3	93.4	111.2
240.0	103.8	94.9	112.6
245.0	105.2	96.5	114.0
250.0	106.7	98.0	115.4
255.0	108.1	99.4	116.8
260.0	109.5	100.9	118.1
265.0	110.9	102.3	119.4
270.0	112.3	103.8	120.7
280.0	114.9	106.6	123.3
290.0	117.5	109.3	125.8
300.0	120.1	112.0	128.2
310.0	122.6	114.6	130.6
320.0	125.0	117.1	132.9
330.0	127.4	119.6	135.2
350.0	132.0	124.5	139.5
370.0	136.4	129.2	143.7
390.0	140.7	133.7	147.7
201	503.5	494.6	514.3

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