

Basic characteristics of mixed refrigerants

Item	R-410A	R-407C	R-404A	R-507A
Component	R-32/R-125 50/50wt%	R-32/R-125/R-134a 23/25/52wt%	R-143a/R-125/R-134a 52/44/4wt%	R-143a/R-125 50/50wt%
Chemical Formula	Reference per component	Reference per component	Reference per component	Reference per component
Molecular weight [kg/kmol]	72.6	86.2	97.6	98.9
Critical Temperature (°C)	72.5	87.3	72.4	71.1
Critical Pressure [MPa]	4.95	4.819	3689	3794
Boiling Temperature (101.325kPa)[°C]	-51.6	-43.8	-46.6	-47.1
Dew Point Temperature (101.325kPa)[°C]	-51.6	-36.7	-45.8	-47.1
Boiling Point Pressure (25°C)[kPa]	1652	1188	1260	1288
Dew Point Pressure (25°C)[kPa]	1647	1019	1246	1287
Density (25°C, saturated liquid)[kg/m ³]	1061	1138	1045	1049
Density (25°C, saturated gas)[kg/m ³]	65.6	43.8	65.3	69
Latent heat of evaporation (25°C)[kJ/kg]	186.6	183	140	136.2
Specific heat ratio (25°C, 101.325kPa)[-]	1.175	1.144	1.118	1.117
Thermal conductivity (25°C, saturated liquid)[mW/(m · K)]	98	87.8	67.3	66.3
Thermal conductivity (25°C, saturated gas)[mW/(m · K)]	15.5	13.6	16.1	16.2
Viscosity (25°C, saturated liquid)[μPa · s]	120.9	152.8	126.8	125.4
Viscosity (25°C, saturated gas)[μPa · s]	13.9	12.7	12.5	12.7
Surface tension (25°C)[mN/m]	5	6.9	4.6	4.4
Solubility in water (25°C, 101.325kPa)[%]				
Solubility with water refrigerant (25°C)[%]				
Dielectric strength (N2=1) (25°C, 101.325kPa)[-]	20.0 kV/cm			
Dielectric constant (saturated liquid)				
Dielectric constant (40°C, 0.1MPa)[-]				
Ozone Depletion Potential (CFC-11=1)[-]	0	0	0	0
Global Warming Potential* (CO ₂ =1)[-]	1730	1530	3260	3300
Atmospheric lifetime (years)	-	-	-	-
Ignition range[vol%]	None	None	None	None
ASHRAE SSPC34 Safety classification	A1/A1	A1/A1	A1/A1	A1
Allowable concentration**[ppm]	1000 ⁽³⁾	1000 ⁽³⁾	1000 ⁽³⁾	1000 ⁽³⁾
Azeotropic point[°C]	-	-	-	-40
Existing chemical substance number	2-3705 2-3713	2-3705 2-3713 2-3585	2-3584 2-3713 2-3585	2-3584 2-3713
CAS NO	1975/10/5 354-33-6	1975/10/5 354-33-6 811-97-2	420-46-2 354-33-6 811-97-2	420-46-2 354-33-6
TSCA	Finished input	Finished input	Finished input	Finished input
EINECS NO	2008394 2065578	2008394 2065578 2123770	2069965 2065578 2123770	2069965 2065578

* IPCC-1995 (integration time 100 years)

** Allowable concentration: (1) Japan Society for Occupational Health recommended value, (2) ACGIH's TLV-TWA value, (3) AIHA's WEEL-TWA value