

**SOLKANE® - INFORMATION SERVICE**

# **Solkane® 507 Thermodynamics**

**SOLVAY FLUOR**

**Technical Service - Refrigerants -**

**PRODUCT BULLETIN NO.: T/09.04/05/E**

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# 1 Units and Symbols

Symbol	Unit	Meaning/Definition
<i>A, B</i>	[-]	parameters of the Wagner equation
<i>C</i>	[-]	parameter of the equation for density of boiling liquid
<i>D</i>	[kJ/(kg K)]	parameter of the equation for specific heat capacity in an ideal gas state
<i>E, F, G</i>	[-]	parameter of the Martin-Hou equation
<i>H</i>	[Pa s /K]	parameter of the equation for dynamic viscosity
<i>J</i>	[W/(m K)]	parameter of the equation for thermal conductivity of the saturated liquid
<i>L</i>	[W/(m K)]	parameter of the equation for thermal conductivity of the saturated vapour
<i>K</i>	[N/(m K)]	parameter of the equation for surface tension
<i>M</i>	[kJ/(kg K)]	parameter of the equation for specific heat capacity of the saturated liquid
<i>R</i>	[bar m <sup>3</sup> /(kg K)]	gas constant
<i>b</i>	[m <sup>3</sup> /kg]	parameter of the Martin-Hou equation
<i>c</i>	[kJ/(kg K)]	specific heat capacity
<i>e</i>	[kJ/kg]	specific exergy
<i>h</i>	[kJ/kg]	specific enthalpy
<i>k</i>	[-]	parameter of the Martin-Hou equation
<i>p</i>	[bar]	pressure
<i>r</i>	[kJ/kg]	enthalpy of vaporization
<i>s</i>	[kJ/(kg K)]	specific entropy
<i>t</i>	[°C]	temperature
<i>T</i>	[K]	temperature
<i>v</i>	[m <sup>3</sup> /kg]	specific volume
<i>η</i>	[Pa s]	dynamic viscosity
<i>λ</i>	[W/(m K)]	thermal conductivity
<i>ρ</i>	[kg/m <sup>3</sup> ]	density
<i>σ</i>	[N/m]	surface tension

## Indices

'	liquid
''	vapour
<i>c</i>	critical value
<i>R</i>	reduced value
<i>i</i>	run index
<i>u</i>	ambient conditions
<i>p</i>	isobar
<i>v</i>	isochor
<i>0</i>	ideal gas

## 2 Introduction

The refrigerant Solkane®507 is a long term replacement for R502 and R22 in low temperature refrigeration. R502 consists of 48.8% R22 and 51.2% R115 by weight. R115 is a chlorofluorocarbon (CFC) with an ozone depletion potential (ODP) of 0.6 leading to an ODP of 0.33 for R502. The production of R502 has been stopped in developed countries<sup>1</sup> on 1/1/1996. The ozone depletion potential of the hydrochlorofluorocarbon (HCFC) R22 is reduced to a fraction of the ODPs of chlorofluorocarbons and is therefore regarded as an intermediate solution. The use of HCFCs will be gradually reduced. By 2030 (2015 for the European Community) the production of HCFCs will be phased out in developed countries<sup>1</sup>. Solkane 507 is an azeotrope blend consisting of 50% R125 (CF<sub>3</sub>CHF<sub>2</sub>) and 50% R143a (CF<sub>3</sub>CH<sub>3</sub>) by weight. The refrigerant behaves and can be treated like a pure fluid. The hydrofluorocarbons (HFC) R125 and R143a contain only carbon, fluorine and hydrogen. They do not contribute to the depletion of the stratospheric ozone layer. The global warming potential is significantly reduced compared to the CFCs.

Solkane®507 can be used in new equipment and also in retrofitted R502 equipment.

Solkane®507 is non-flammable. Its toxicity is low and comparable to that of R502. The environmental behaviour and the handling of Solkane®507 is described in the material safety data sheet<sup>2</sup> and in the environmental compatibility brochure<sup>3</sup>.

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<sup>1</sup> In the sense of Montreal Protocol (1995 Vienna meeting)

<sup>2</sup> Order by Fax : +49 (0) 511 857 2146

<sup>3</sup> Order by Fax : +49 (0) 511 857 2166

## 3 Thermophysical Values

### 3.1 Physical Data

Chemical name	[-]	Pentafluoroethane/ 1.1.1-Trifluoroethane
Chemical formula	[-]	CF <sub>3</sub> CHF <sub>2</sub> / CF <sub>3</sub> CH <sub>3</sub>
CAS No.	[-]	354-33-6/420-46-2
Molecular weight	[kg/kmol]	98.9
Boiling point <sup>1</sup>	[°C]	-47.1
Freezing point <sup>2</sup>	[°C]	-118
Critical temperature	[°C]	70.7
Critical pressure	[bar]	37.1
Saturated liquid density <sup>2</sup>	[kg/m <sup>3</sup> ]	1049
Saturated vapour density <sup>1,2</sup>	[kg/m <sup>3</sup> ]	69.12
Vapour pressure <sup>1,2</sup>	[bar]	12.88
Enthalpy of vaporization <sup>2</sup>	[kJ/kg]	136.17
Liquid thermal conductivity <sup>2</sup>	[W/m K]	65.12E-3
Vapour thermal conductivity <sup>2</sup>	[W/m K]	15.92E-3
Surface tension of liquid <sup>2</sup>	[N/m]	4.212E-3
Specific heat capacity of liquid <sup>2</sup>	[kJ/(kgK)]	1.540
Specific heat capacity of vapour <sup>1,2</sup>	[kJ/(kgK)]	0.872
Liquid viscosity <sup>2</sup>	[Pa s]	0.1216E-3
Flammability limit in air <sup>1</sup>	[Vol.-%]	None <sup>3</sup>

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<sup>1</sup> at 1.013 bar

<sup>2</sup> at 25°C

<sup>3</sup> according to DIN 51649 and UL 2128

### 3.2 Basis of Thermodynamic Calculation

The thermodynamic calculation equations have been adapted to ISO/DIS 17584, as at 12/2003. They fulfil this standard with the exception of the thermal capacities in a saturated state of  $0.59 < T_R < 0.97$  and in an overheated state of  $0.05\text{MPa} < p < 1.5\text{MPa}$  and  $T_{\text{max}} = 500\text{K}$ .

The Wagner equation

$$\ln p_R = (A_1(1-T_R) + A_2(1-T_R)^{B_1} + A_3(1-T_R)^{B_2} + A_4(1-T_R)^{B_3} + A_5(1-T_R)^{B_4} + A_6)/T_R \quad (1)$$

where  $T_R = \frac{T}{T_c}$  and  $p_R = \frac{p}{p_c}$

was chosen to describe the vapour pressure. The constants and values for the critical pressure  $p_c$  and the critical temperature  $T_c$  are as follows:

	Bubble Pressure	Dew Pressure
$A_1$ [-]	-7.64620259	-7.64586276
$A_2$ [-]	3.867682743	3.868067457
$A_3$ [-]	-8.03476662	-8.03610496
$A_4$ [-]	11.70687893	11.70896464
$A_5$ [-]	-9.55997222	-9.56118056
$A_6$ [-]	0.000383344	0.000383543
$B_1$ [-]	1.5	1.5
$B_2$ [-]	2	2
$B_3$ [-]	2.5	2.5
$B_4$ [-]	3	3
$T_c$ [K]	343.90	
$p_c$ [bar]	37.15	

The density of the boiling liquid is described by the equation

$$\rho'_R = 1 + C_1(1-T_R)^{1/3} + C_2(1-T_R)^{2/3} + C_3(1-T_R) + C_4(1-T_R)^{4/3} \quad (2)$$

where  $\rho'_R = \frac{\rho'}{\rho_c}$ .

The constants and the value for the critical density are:

$C_1$ [-]	1.708114	$C_4$ [-]	0.857132
$C_2$ [-]	1.299924	$\rho_c$ [kg/m <sup>3</sup> ]	492.48
$C_3$ [-]	-1.048264		

The specific heat capacity under ideal gas conditions is represented by the equation

$$c_p^0 = D_1 + D_2T + D_3T^2 + D_4T^3 + D_5/T \quad (3)$$

The coefficients are:

$D_1$	[kJ/(kg K)]	2.65085E-01	$D_4$	[kJ/(kg K <sup>3</sup> )]	-1.29260E-09
$D_2$	[kJ/(kg K <sup>2</sup> )]	2.18503E-03	$D_5$	[kJ/kg]	-4.47842E+00
$D_3$	[kJ/kg]	-1.05040E-07			

The equation of state according to Martin-Hou is

$$p = \frac{RT}{z} + \frac{E_1 + F_1T + G_1e^{-kT_r}}{z^2} + \frac{E_2 + F_2T + G_2e^{-kT_r}}{z^3} + \frac{E_3}{z^4} + \frac{E_4 + F_4T + G_4e^{-kT_r}}{z^5} \quad (4)$$

where  $z = v - b$

and is a good representation of the pvT relationship for Solkane®507. The coefficients of the equation are:

$E_1$	[-]	-1.23914E-03	$F_2$	[-]	2.15811E-10
$E_2$	[-]	5.92810E-07	$F_4$	[-]	1.41510E-14
$E_3$	[-]	-2.43763E-10	$G_1$	[-]	-2.52569E-02
$E_4$	[-]	-6.81277E-12	$G_2$	[-]	-1.38915E-05
$F_1$	[-]	1.76697E-06	$G_4$	[-]	6.38878E-10
$b$	[m <sup>3</sup> /kg]	-2.87300E-04	$k$	[-]	5.475
$R$	[bar m <sup>3</sup> /(kgK)]	8.41056E-04			

The equation for specific heat capacity under ideal gas conditions (3) and the thermal equation of state (4) form the basis of the specific enthalpy and entropy calculation. Applying generally valid thermodynamic relationships the equation is transformed to

$$h = h_0 + (pv - RT) + D_1T + D_2 \frac{T^2}{2} + D_3 \frac{T^3}{3} + D_4 \ln T + \frac{E_1}{z} + \frac{E_2}{2z^2} + \frac{E_3}{3z^3} + \frac{E_4}{4z^4} + e^{-k \cdot T_r} \cdot (1 + k \cdot T_r) \cdot \left( \frac{G_1}{z} + \frac{G_2}{2z^2} + \frac{G_4}{4z^4} \right) \quad (5)$$

and

$$s = s_0 + R \ln \left( \frac{zp_1}{RT} \right) + D_1 \cdot \ln T + D_2 T + D_3 \frac{T^2}{2} - \frac{D_4}{T} - \left( \frac{F_1}{z} + \frac{F_2}{2z^2} + \frac{F_4}{4z^4} \right) + \frac{k}{T_c} e^{-k \cdot T_r} \left( \frac{G_1}{z} + \frac{G_2}{2z^2} + \frac{G_4}{4z^4} \right) \quad (6)$$

where  $z = v - b$  and  $p_1 = 1.013$  bar.

The Clausius - Clapeyron equation was used to generate thermodynamic data in the wet vapour range.

$$\frac{dp}{dT} = \frac{1}{T} \cdot \frac{h'' - h'}{v'' - v'} \quad (7)$$

Rearranging equation (7) gives

$$h' = h'' - \frac{dp}{dT} \cdot T \cdot (v'' - v') \quad (8)$$

The integration constants  $h_0$  and  $s_0$  are found by letting

$$h'_{(t=0^\circ\text{C})} = 200.0 \text{ kJ/kg}$$

$$s'_{(t=0^\circ\text{C})} = 1.000 \text{ kJ/(kgK)}$$

to be

$$h_0 = 248.3641 \text{ kJ/kg}$$

$$s_0 = -0.3070 \text{ kJ/(kgK)}$$

If neither the kinetic nor the potential energies are taken into account, the specific energy may be found by the following equation:

$$e = h - h_u - T_u(s - s_u) \quad (9)$$

where the subscript u indicates ambient conditions.

The saturation pressure of the substance at  $T_u = 290 \text{ K}$  serves as the reference pressure.

Applying the preconditions mentioned above, the constants  $h_u$  and  $s_u$  are found to be as follows:

$$h_u = 223.23 \text{ kJ/kg}$$

$$s_u = 1.0813 \text{ kJ/(kg K)}$$



### 3.3 Transport Properties

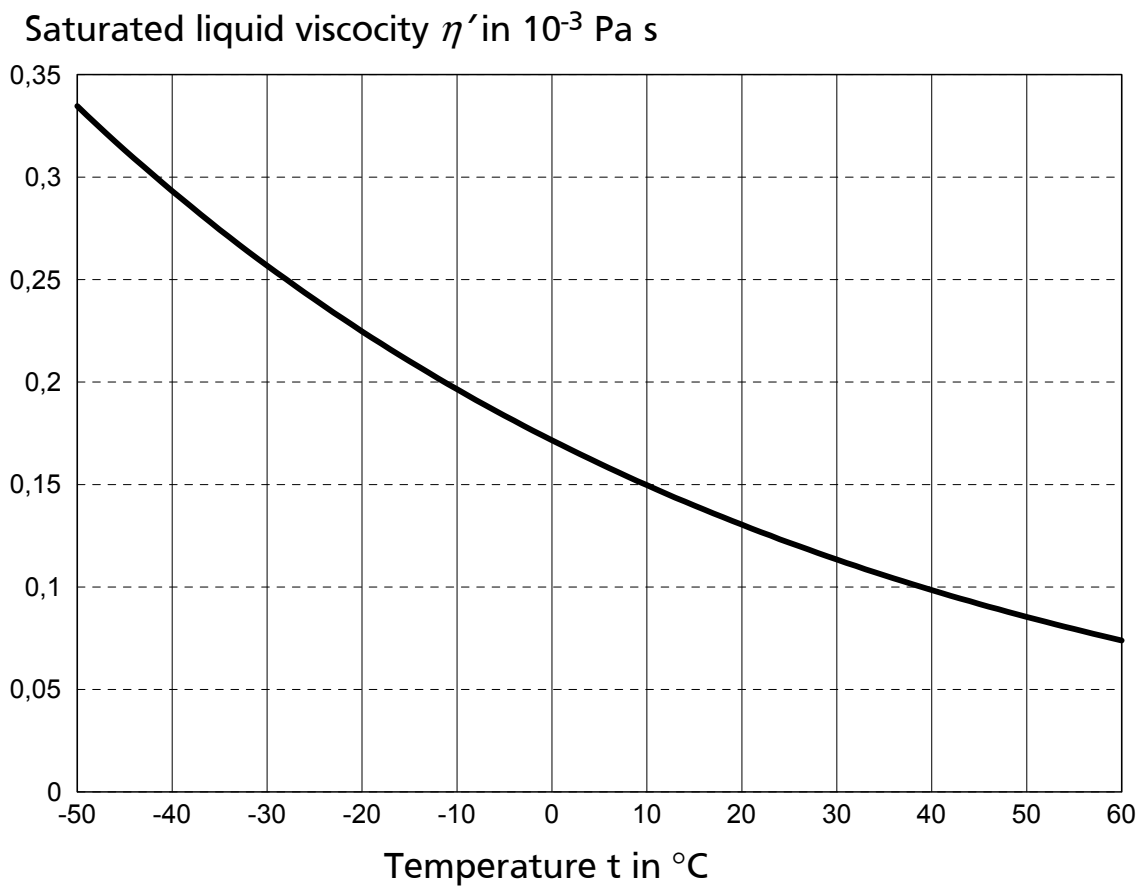
#### 3.3.1 Dynamic Viscosity of Saturated Liquid

The viscosity of the saturated liquid of Solkane®507 was measured within the temperature range of -50 to 60 °C. The following regression equation is valid for the liquid phase:

$$\ln\left(\frac{\eta'}{10^{-3}}\right) = H_0 + H_1 t + H_2 t^2 + H_3 t^3 \quad (10)$$

with  $t$  in °C and  $\eta'$  in  $10^{-3}$  Pa s. The coefficients are:

$$\begin{aligned} H_0 &= -1.76262 \quad [\text{Pa s}] & H_2 &= -6.0177\text{E-}6 \quad [\text{Pa s/K}^2] \\ H_1 &= -0.0136 \quad [\text{Pa s/K}] & H_3 &= -2.2129\text{E-}8 \quad [\text{Pa s/K}^3] \end{aligned}$$



**Figure 1:** Dynamic saturated liquid viscosity

### 3.3.2 Dynamic Viscosity of Saturated and Superheated Vapour

The viscosity of the saturated and superheated vapour of Solkane®507 was measured in a temperature range of -50 to 50°C. The data can be represented by the following equations

$$\eta = \eta_0 + \Delta\eta \quad (11)$$

with

$$\eta_0 = 2.6696 \times 10^{-2} \times \frac{(MT)^{\frac{1}{2}}}{\sigma^2 \Omega_\eta T^*}, \quad T^* = \frac{kT}{\varepsilon} \text{ and}$$

$$\Omega(T^*) = \exp[0.45667 - 0.53955(\ln(T^*)) + 0.187265(\ln T^*)^2 - 0.03629(\ln T^*)^3 + 0.00241(\ln T^*)^4] \quad (12 \text{ a-c})$$

$$\Delta\eta = T_R^{2.2} [\ln(1.65 + \rho_{R0}^{0.8})]^{1.6} \left[ e^{\left(1 - \frac{0.78}{T_c}\right) \rho_{R0}} - 1 \right] (F \cdot z_c \cdot \zeta)^{-1}$$

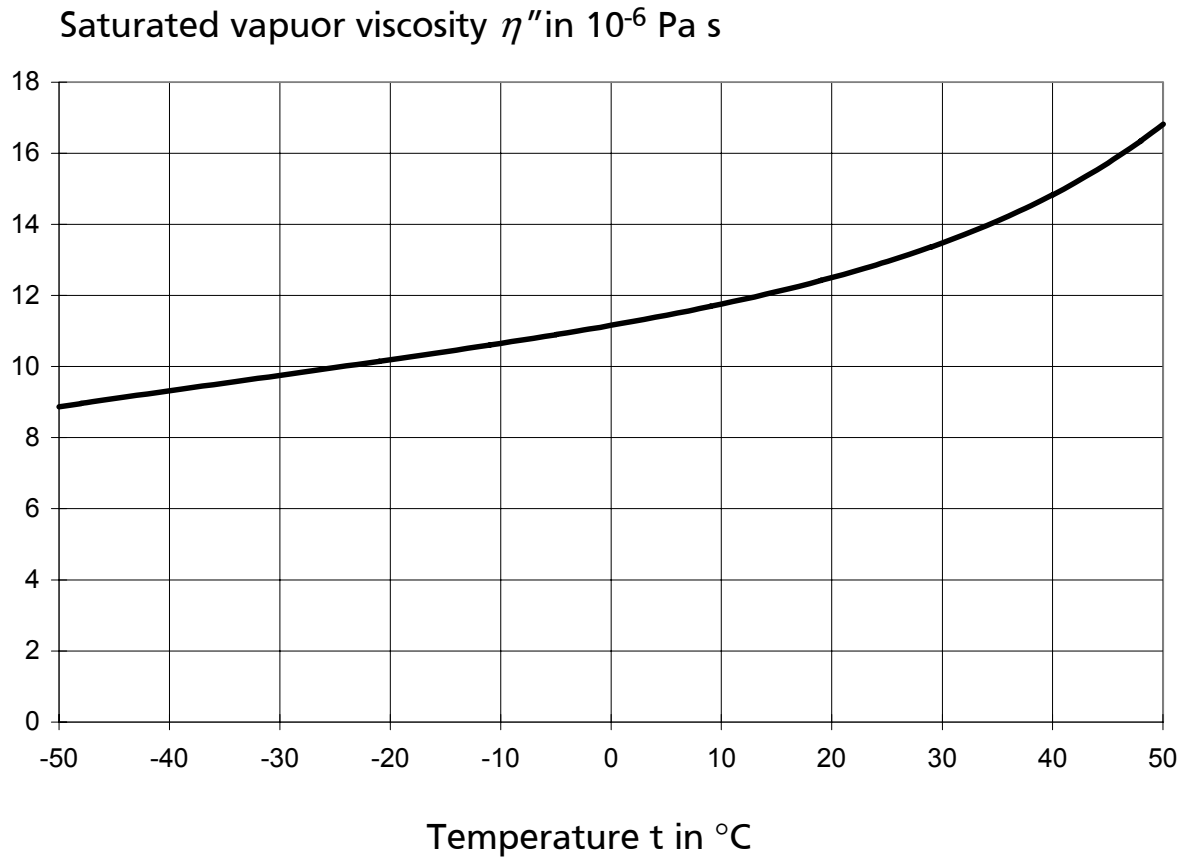
$$z_c = \frac{p_c V_c}{RT_c} \quad \text{and} \quad \rho_{R0} = \frac{\rho - \rho_0}{\rho_c} \quad \text{and} \quad F=1 \text{ for R507 as a light polar agent.} \quad (12 \text{ d-f})$$

In equation (12) the constants are as follows .

$R$ the universal gas constant	= 8314	[J kmol <sup>-1</sup> K <sup>-1</sup> ]
$\rho_c$ the critical density	= 494.25	[kg/m <sup>3</sup> ]
$\rho_0$ the density at 1.013bar and temperature as defined by T		[kg/m <sup>3</sup> ]
$T_c$ the critical temperature	= 343,96	[K]

The constants of equation (11) where determined to be

$$\begin{aligned} \zeta &= 42170.05 \text{ [1/(Pa s)]} \\ \sigma &= 0.4902 \text{ [nm]} \\ \varepsilon/k &= 294.33 \text{ [K]} \end{aligned}$$



**Figure 2:** Dynamic viscosity of saturated vapour

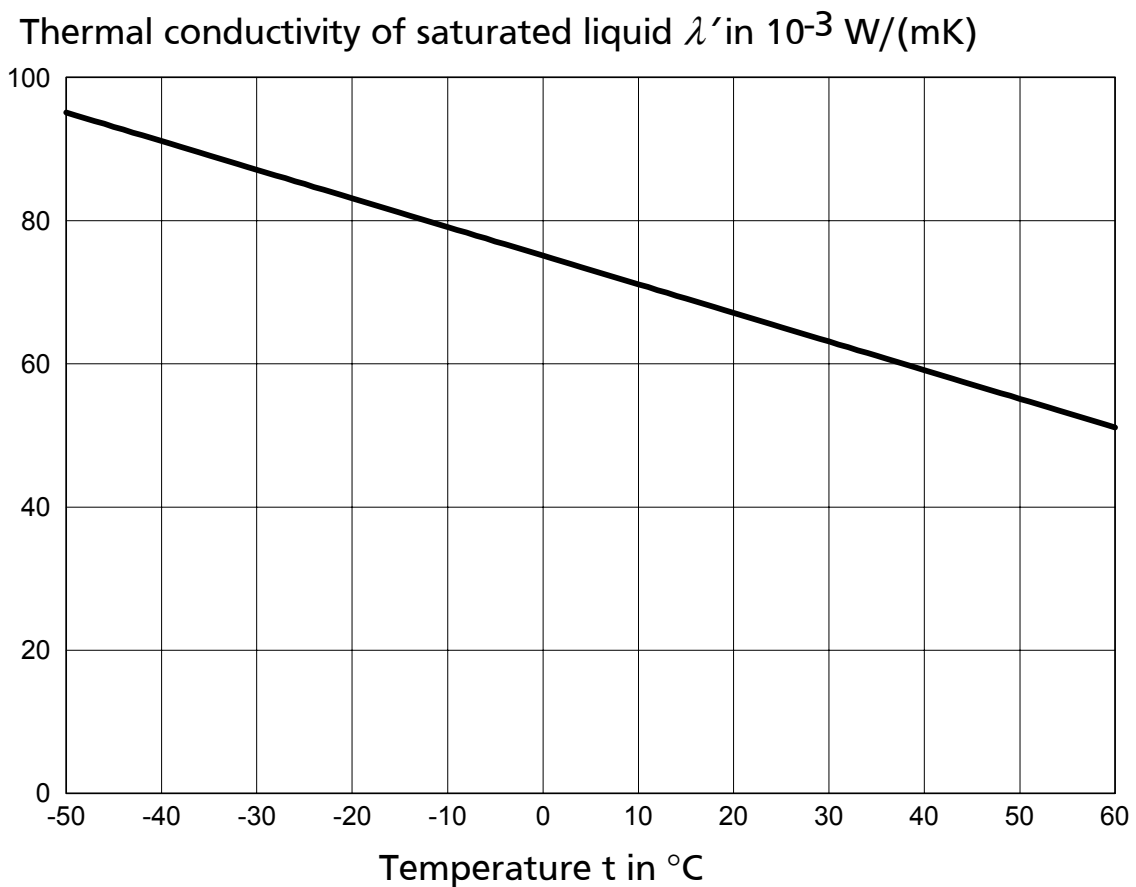
### 3.3.3 Thermal Conductivity of Saturated Liquid

The thermal conductivity of saturated liquid can be expressed with the regression equation

$$\lambda' = J_0 + J_1 t \quad (13)$$

where  $t$  is in  $^{\circ}\text{C}$  und  $\lambda'$  in  $10^{-3}\text{W}/(\text{mK})$ . The coefficients of the equation are:

$$J_0 = 75.115 \quad [10^{-3}\text{W}/(\text{mK})] \quad J_1 = -0.3999 \quad [10^{-3}\text{W}/(\text{mK}^2)]$$



**Figure 3:** Thermal conductivity of saturated liquid

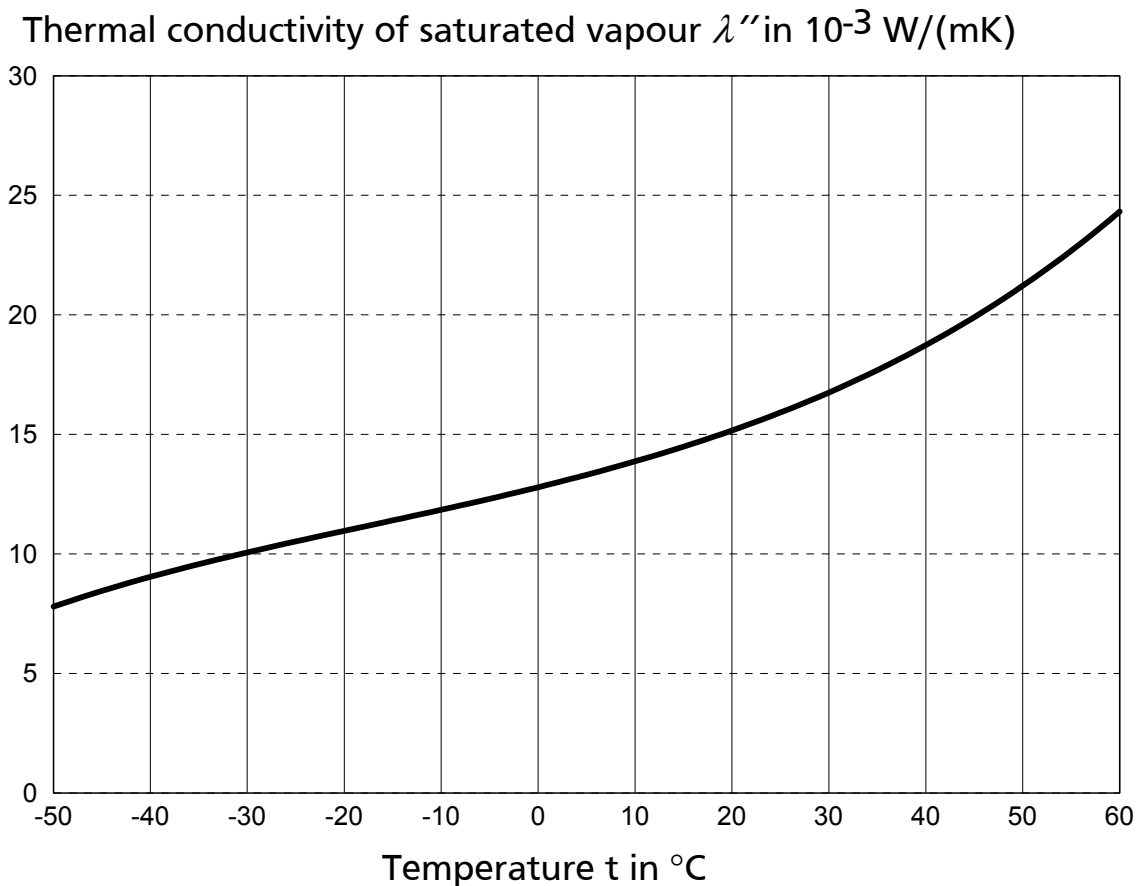
### 3.3.4 Thermal Conductivity of Saturated Vapour

The thermal conductivity of saturated vapour can be expressed using the regression equation

$$\lambda'' = L_0 + L_1 t + L_2 t^2 \quad (14)$$

where  $t$  is in °C und  $\lambda''$  in  $10^{-3}$  W/(m K). The coefficients of the equation are as follows:

$L_0 = 12.791$	$[10^{-3}\text{W}/(\text{mK})]$	$L_3 = 1.1106\text{E-}5$	$[10^{-3}\text{W}/(\text{m K}^4)]$
$L_1 = 0.10017$	$[10^{-3}\text{W}/(\text{mK}^2)]$	$L_4 = 5.0437\text{E-}8$	$[10^{-3}\text{W}/(\text{m K}^5)]$
$L_2 = 6.8586\text{E-}4$	$[10^{-3}\text{W}/(\text{mK}^3)]$		



**Figure 4:** Thermal conductivity of saturated vapour

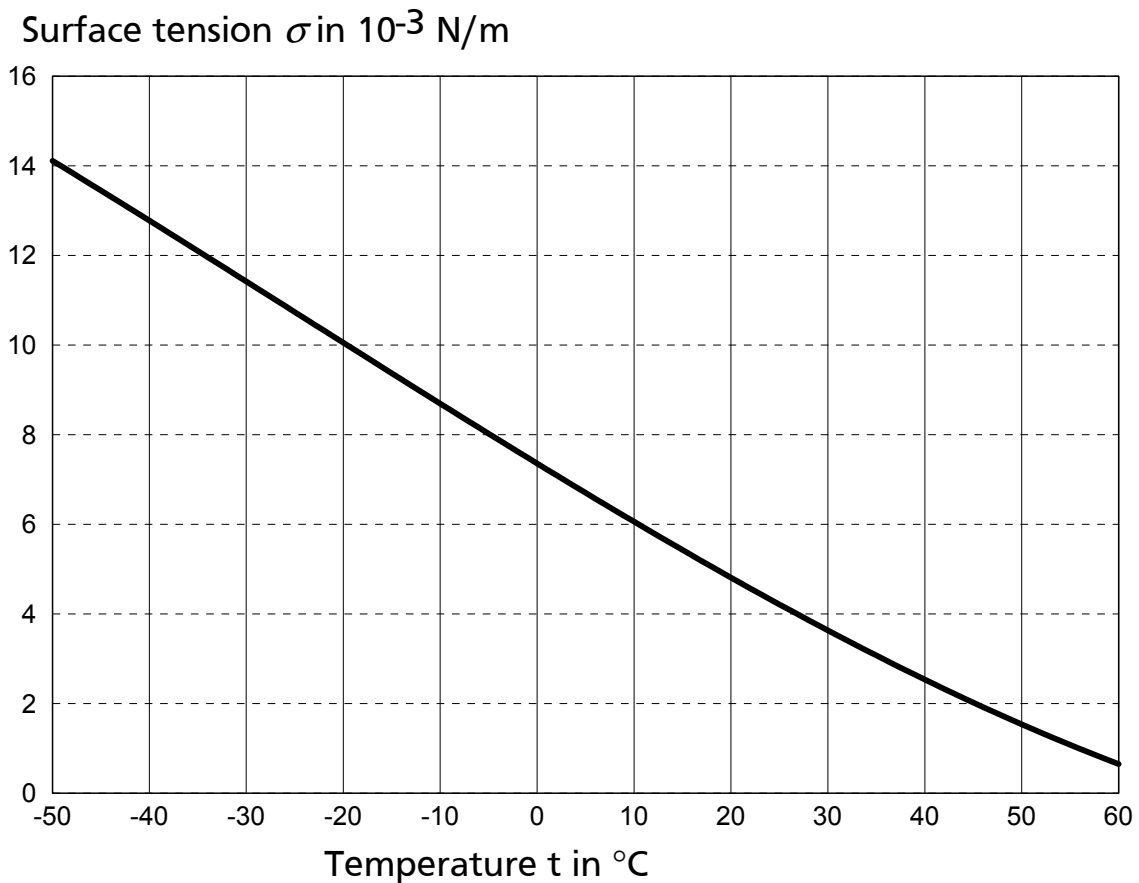
### 3.3.5 Surface Tension

The surface tension of the liquid can be expressed using the regression equation

$$\sigma = K_0 + K_1t + K_2t^2 + K_3t^3 \quad (15)$$

where  $t$  is in °C and  $\sigma$  in  $10^{-3}\text{N/m}$ . The coefficients of the equation are:

$$\begin{aligned} K_0 &= 7.5373 [10^{-3}\text{N/m}] & K_2 &= 1.8652\text{E-}4 [10^{-3}\text{N}/(\text{mK}^2)] \\ K_1 &= -0.13204 [10^{-3}\text{N}/(\text{mK})] & K_3 &= 2.5084\text{E-}6 [10^{-3}\text{N}/(\text{mK}^3)] \end{aligned}$$



**Figure 5:** Surface tension

### 3.3.6 Specific Heat Capacity of Saturated Liquid

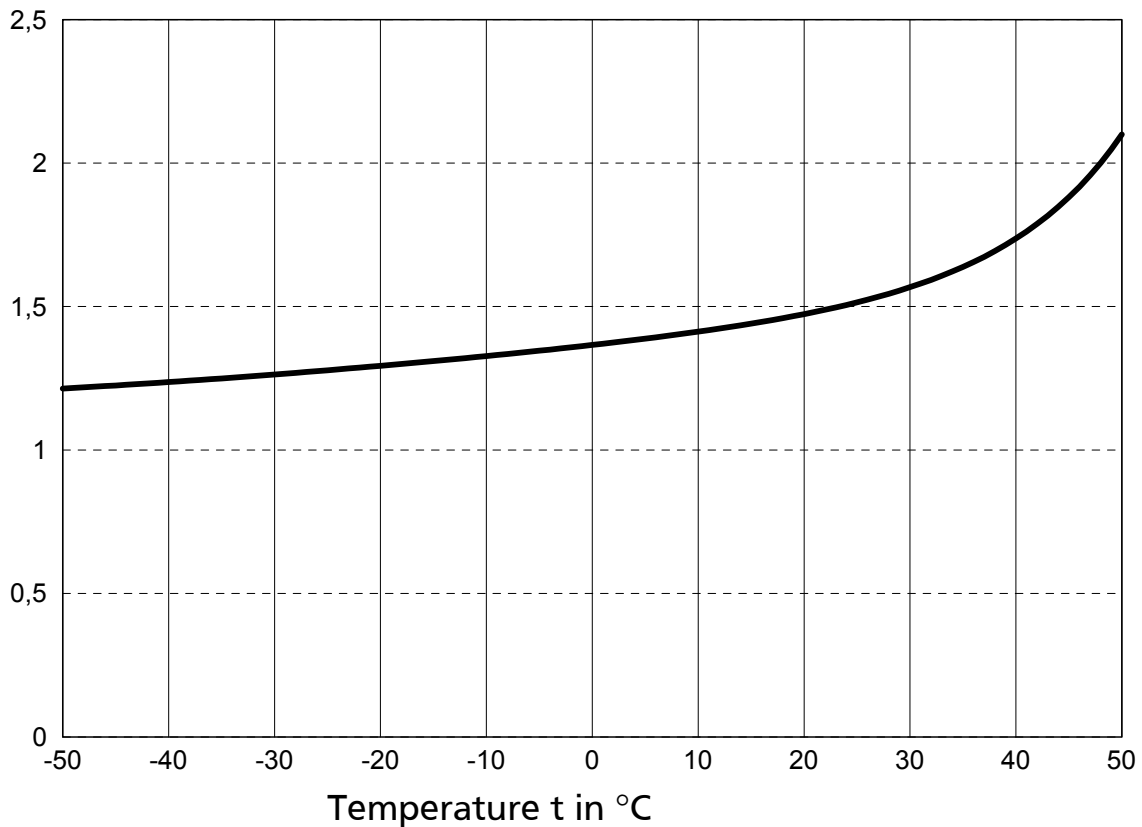
The specific heat capacity of saturated liquid can be expressed using the equation

$$c'_p = M_0 + M_1(1 - T_R)^{1/9} + M_2(1 - T_R)^{2/9} + M_3(1 - T_R)^{3/9} + M_4(1 - T_R)^{6/9} \quad (16)$$

where  $T_R = \frac{T}{T_c}$ ,  $c'_p$  is in kJ/(kg K) and  $T$  is in K. The coefficients of the equation are as follows:

$M_0 =$	312.9057	[kJ/(kg K)]	$M_3 =$	-1035.3755	[kJ/(kg K)]
$M_1 =$	-1320.8741	[kJ/(kg K)]	$M_4 =$	88.2952	[kJ/(kg K)]
$M_2 =$	1956.713	[kJ/(kg K)]			

Specific heat capacity of saturated liquid  $c_p'$  in kJ/(kgK)



**Figure 6:** Specific heat capacity of saturated liquid

## 4 Compatibility of Materials

### 4.1 Elastomeres

The compatibility of the elastomeres that are normally used in refrigeration systems with Solkane®507 is generally good. Cold extraction tests that were carried out on CR (chlorbutadiene rubber or Neoprene®), NBR (acrylonitrilebutadienerubber) and HNBR (hydrated acrylnitrilbutadiene rubber) showed only slight swelling and yielded negligible amounts of extract. Fluorinated rubbers (FKM and FPM) are not recommended because of their considerable swelling and blistering when used with Solkane®507 or with other HFC refrigerants. Ethylenepropylenediene rubber is only to be recommended where the presence of mineral oil in the refrigeration cycle can be excluded.

The effect of the lubricant which is used must not be ignored. Recommendations made by the lubricant and compressor manufacturers must be followed.

### 4.2 Thermoplastics

Experience with CFC and H-CFC has shown that only a limited number of plastics are resistant to fluorinated refrigerants. Polytetrafluoroethylene, polyacetale and polyamide might be taken into account for the use with Solkane®507. It is again vital to take the effect of the lubricant into account.

### 4.3 Metals

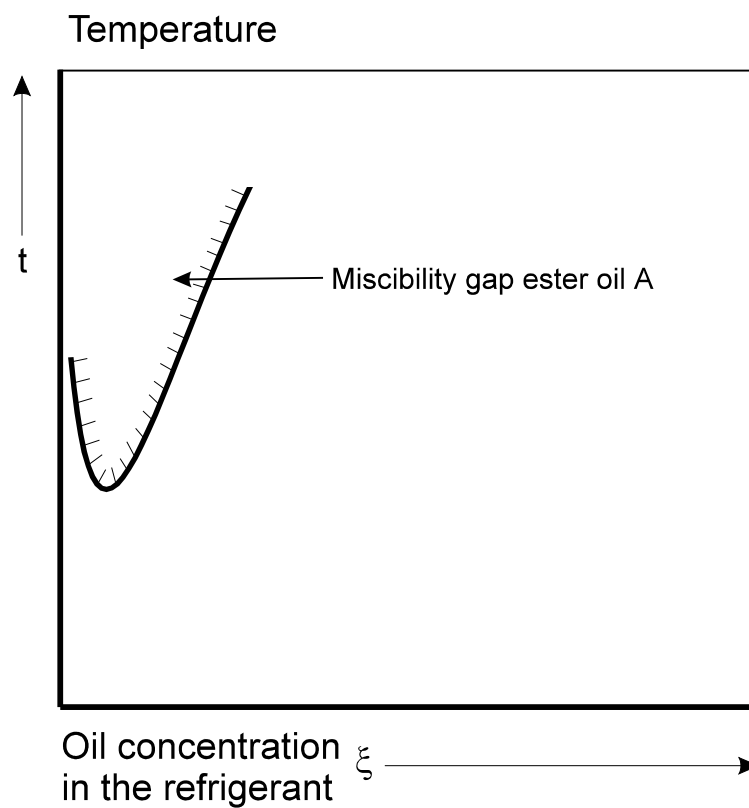
Solkane®507 is generally used in conjunction with lubricants (Ester oils, PAG-oils) in refrigeration technology. In combination both materials are compatible with the metals and alloys usually found in machines and apparatus. Only zinc, magnesium, lead and aluminium alloys with more than 2% magnesium by mass should be avoided. The water content of refrigeration oil depending on oil type should especially be taken into account. Values of not more than 50 ppm are to be aimed at.



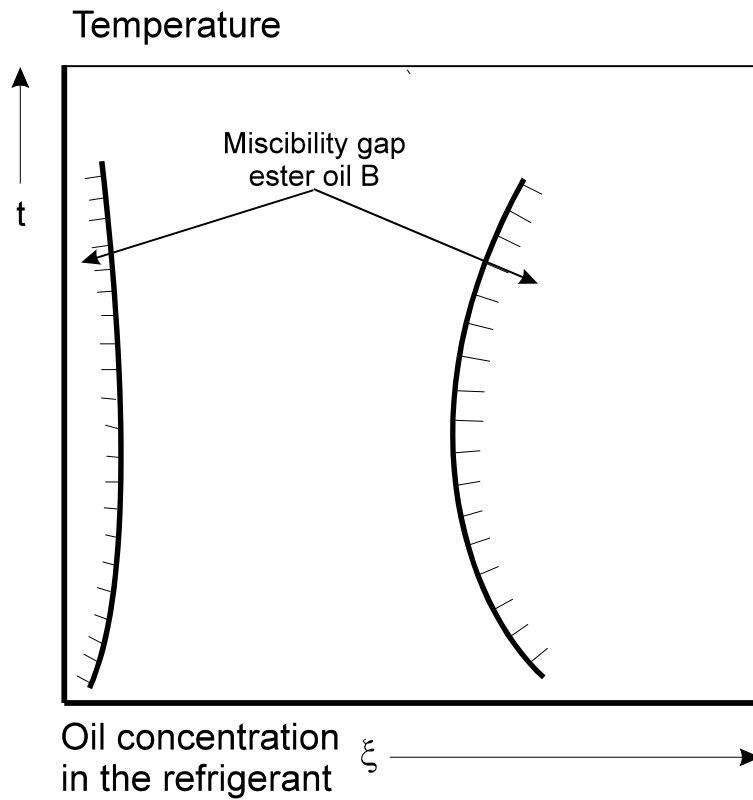
## 5 Refrigerant Oils

Like all fluorinated hydrocarbons, Solkane<sup>®</sup>507 is immiscible with mineral oils. Ester oils (POE) are normally used as lubricants. The solubility of these oils in Solkane<sup>®</sup>507 is a function of temperature and composition. The following diagrams show the solubility properties of various lubricants with Solkane<sup>®</sup>507. Highly viscous lubricants tend to give large miscibility gaps.

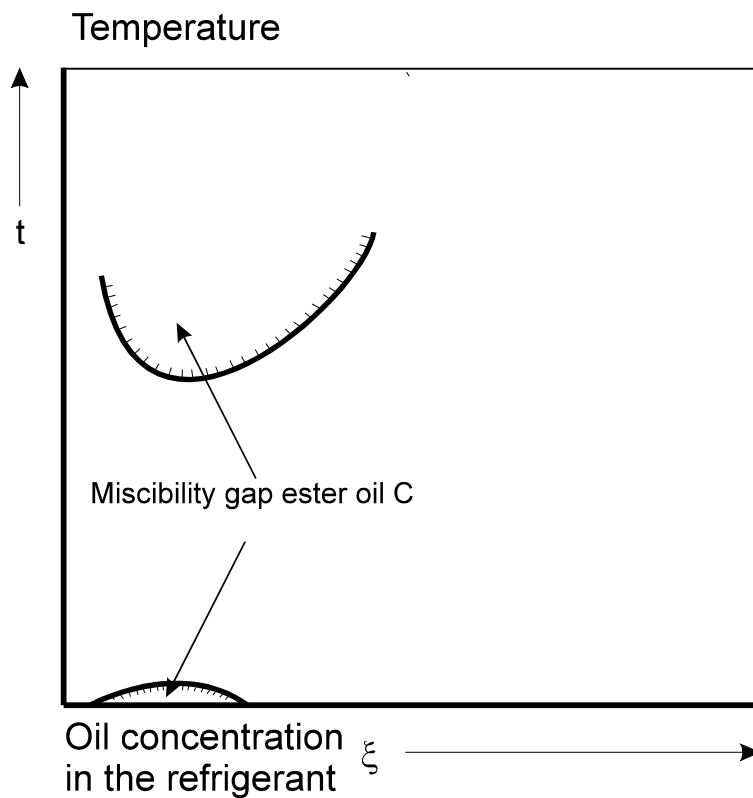
The precise miscibility gaps of the individual oils can be obtained from the lubricant manufacturers.



**Figure 7:** Miscibility behaviour of Solkane<sup>®</sup>507 and ester oil A



**Figure 8:** Miscibility behaviour of Solkane®507 and ester oil B



**Figure 9:** Miscibility behaviour of Solkane®507 and ester oil C

## 6 Flammability

The explosion limits of R143a are 7.1 - 20.9 % by volume in air. R125 has no explosion limits. When blended 50/50 % by weight the outcoming mixture has no explosion limits. According to UL 2182 Solkane®507 is non-flammable.

## 7 Toxicity

The toxicity of R125 was extensively tested within the scope of the PAFT programme (Programme for Alternative Fluorocarbon Toxicity Testing). PAFT recommended an occupational exposure limit of 1000 ppm. For R143a various manufacturers recommend a maximum exposure limit of 500 ppm related to an eight hour working day. The toxicity of Solkane®507 can therefore be regarded as low and comparable to the toxicity of R502.

## 8 Vapour Table, Wet Vapour Range Solkane®507

t	p'	p''	v'	v''	ρ'	ρ''	h'	h''	r	s'	s''
[°C]	[bar]	[bar]	[dm <sup>3</sup> /kg]	[dm <sup>3</sup> /kg]	[kg/dm <sup>3</sup> ]	[kg/m <sup>3</sup> ]	[kJ/kg]	[kJ/kg]	[kJ/kg]	[kJ/kg K]	[kJ/kg K]
-70	0.292	0.292	0.721	573.91	1.387	1.74	111.52	321.38	209.86	0.6305	1.6618
-69	0.310	0.310	0.723	542.04	1.384	1.84	112.74	321.99	209.24	0.6361	1.6597
-68	0.330	0.330	0.724	512.26	1.381	1.95	113.97	322.60	208.63	0.6417	1.6577
-67	0.350	0.350	0.726	484.42	1.378	2.06	115.18	323.21	208.02	0.6472	1.6558
-66	0.371	0.371	0.727	458.38	1.375	2.18	116.40	323.82	207.42	0.6528	1.6539
-65	0.394	0.394	0.729	434.01	1.372	2.30	117.61	324.43	206.82	0.6584	1.6520
-64	0.417	0.417	0.730	411.18	1.370	2.43	118.82	325.03	206.22	0.6639	1.6502
-63	0.441	0.442	0.732	389.77	1.367	2.57	120.02	325.64	205.62	0.6695	1.6484
-62	0.467	0.467	0.733	369.70	1.364	2.70	121.22	326.25	205.03	0.6750	1.6467
-61	0.494	0.494	0.735	350.85	1.361	2.85	122.42	326.86	204.44	0.6806	1.6450
-60	0.522	0.522	0.736	333.15	1.358	3.00	123.62	327.47	203.84	0.6861	1.6433
-59	0.552	0.552	0.738	316.52	1.355	3.16	124.82	328.07	203.25	0.6917	1.6417
-58	0.582	0.582	0.740	300.88	1.352	3.32	126.02	328.68	202.66	0.6972	1.6401
-57	0.614	0.614	0.741	286.16	1.349	3.49	127.21	329.28	202.07	0.7027	1.6385
-56	0.648	0.648	0.743	272.31	1.346	3.67	128.41	329.89	201.48	0.7082	1.6370
-55	0.682	0.683	0.745	259.25	1.343	3.86	129.61	330.49	200.88	0.7138	1.6355
-54	0.719	0.719	0.746	246.95	1.340	4.05	130.81	331.10	200.29	0.7193	1.6341
-53	0.757	0.757	0.748	235.34	1.337	4.25	132.01	331.70	199.69	0.7248	1.6327
-52	0.796	0.796	0.750	224.39	1.334	4.46	133.21	332.30	199.09	0.7302	1.6313
-51	0.837	0.837	0.751	214.05	1.331	4.67	134.41	332.90	198.49	0.7357	1.6300
-50	0.880	0.880	0.753	204.29	1.328	4.90	135.61	333.50	197.89	0.7412	1.6286
-49	0.924	0.924	0.755	195.05	1.325	5.13	136.82	334.10	197.28	0.7466	1.6274
-48	0.970	0.971	0.757	186.32	1.322	5.37	138.03	334.70	196.67	0.7521	1.6261
-47	1.018	1.018	0.758	178.06	1.319	5.62	139.24	335.30	196.06	0.7575	1.6249
-46	1.068	1.068	0.760	170.24	1.316	5.87	140.45	335.89	195.44	0.7629	1.6237
-45	1.120	1.120	0.762	162.83	1.312	6.14	141.67	336.49	194.82	0.7684	1.6225
-44	1.173	1.174	0.764	155.81	1.309	6.42	142.89	337.08	194.20	0.7738	1.6214
-43	1.229	1.229	0.766	149.15	1.306	6.70	144.11	337.68	193.57	0.7792	1.6203
-42	1.287	1.287	0.767	142.83	1.303	7.00	145.33	338.27	192.94	0.7845	1.6192
-41	1.346	1.347	0.769	136.84	1.300	7.31	146.56	338.86	192.30	0.7899	1.6181
-40	1.408	1.408	0.771	131.15	1.297	7.63	147.79	339.45	191.66	0.7953	1.6171
-39	1.472	1.473	0.773	125.74	1.294	7.95	149.03	340.04	191.01	0.8006	1.6161
-38	1.539	1.539	0.775	120.60	1.290	8.29	150.27	340.62	190.36	0.8059	1.6151
-37	1.607	1.608	0.777	115.72	1.287	8.64	151.51	341.21	189.70	0.8113	1.6142
-36	1.678	1.679	0.779	111.07	1.284	9.00	152.75	341.79	189.04	0.8166	1.6132
-35	1.752	1.752	0.781	106.65	1.281	9.38	154.00	342.37	188.37	0.8219	1.6123
-34	1.828	1.828	0.783	102.44	1.278	9.76	155.26	342.95	187.70	0.8272	1.6114
-33	1.906	1.906	0.785	98.42	1.274	10.16	156.51	343.53	187.02	0.8324	1.6106
-32	1.987	1.987	0.787	94.60	1.271	10.57	157.77	344.11	186.33	0.8377	1.6097
-31	2.070	2.071	0.789	90.96	1.268	10.99	159.04	344.68	185.65	0.8429	1.6089

## Vapour Table, Wet Vapour Range Solkane®507

t	p'	p''	v'	v''	ρ'	ρ''	h'	h''	r	s'	s''
[°C]	[bar]	[bar]	[dm <sup>3</sup> /kg]	[dm <sup>3</sup> /kg]	[kg/dm <sup>3</sup> ]	[kg/m <sup>3</sup> ]	[kJ/kg]	[kJ/kg]	[kJ/kg]	[kJ/kg K]	[kJ/kg K]
-30	2.157	2.157	0.791	87.48	1.264	11.43	160.31	345.26	184.95	0.8482	1.6081
-29	2.246	2.246	0.793	84.17	1.261	11.88	161.58	345.83	184.25	0.8534	1.6073
-28	2.338	2.338	0.795	81.00	1.258	12.35	162.86	346.40	183.54	0.8586	1.6065
-27	2.432	2.433	0.797	77.98	1.254	12.82	164.14	346.97	182.83	0.8638	1.6058
-26	2.530	2.530	0.799	75.09	1.251	13.32	165.42	347.54	182.11	0.8690	1.6050
-25	2.630	2.631	0.801	72.34	1.248	13.82	166.71	348.10	181.39	0.8742	1.6043
-24	2.734	2.735	0.804	69.70	1.244	14.35	168.00	348.66	180.66	0.8793	1.6036
-23	2.841	2.841	0.806	67.18	1.241	14.89	169.30	349.22	179.92	0.8845	1.6029
-22	2.951	2.951	0.808	64.76	1.238	15.44	170.60	349.78	179.18	0.8896	1.6023
-21	3.064	3.064	0.810	62.46	1.234	16.01	171.90	350.34	178.43	0.8947	1.6016
-20	3.180	3.181	0.813	60.25	1.231	16.60	173.21	350.89	177.68	0.8998	1.6010
-19	3.300	3.300	0.815	58.13	1.227	17.20	174.52	351.44	176.92	0.9049	1.6004
-18	3.423	3.423	0.817	56.10	1.224	17.83	175.84	351.99	176.15	0.9100	1.5998
-17	3.549	3.550	0.820	54.16	1.220	18.46	177.16	352.54	175.38	0.9151	1.5992
-16	3.680	3.680	0.822	52.29	1.217	19.12	178.48	353.08	174.60	0.9202	1.5986
-15	3.813	3.814	0.824	50.51	1.213	19.80	179.80	353.62	173.82	0.9252	1.5980
-14	3.950	3.951	0.827	48.79	1.210	20.50	181.13	354.16	173.03	0.9303	1.5975
-13	4.091	4.092	0.829	47.14	1.206	21.21	182.47	354.70	172.23	0.9353	1.5970
-12	4.236	4.237	0.832	45.57	1.202	21.95	183.80	355.23	171.43	0.9403	1.5964
-11	4.385	4.385	0.834	44.05	1.199	22.70	185.14	355.76	170.62	0.9454	1.5959
-10	4.538	4.538	0.837	42.59	1.195	23.48	186.49	356.29	169.80	0.9504	1.5954
-9	4.694	4.695	0.839	41.19	1.191	24.28	187.84	356.82	168.98	0.9554	1.5949
-8	4.855	4.855	0.842	39.84	1.188	25.10	189.19	357.34	168.15	0.9604	1.5944
-7	5.019	5.020	0.845	38.55	1.184	25.94	190.54	357.86	167.32	0.9653	1.5939
-6	5.188	5.189	0.847	37.30	1.180	26.81	191.90	358.37	166.47	0.9703	1.5935
-5	5.361	5.362	0.850	36.11	1.176	27.70	193.26	358.88	165.62	0.9753	1.5930
-4	5.539	5.539	0.853	34.95	1.173	28.61	194.62	359.39	164.77	0.9802	1.5926
-3	5.720	5.721	0.856	33.84	1.169	29.55	195.99	359.90	163.91	0.9852	1.5921
-2	5.907	5.907	0.858	32.77	1.165	30.51	197.36	360.40	163.04	0.9901	1.5917
-1	6.097	6.098	0.861	31.74	1.161	31.50	198.74	360.90	162.16	0.9951	1.5913
0	6.293	6.293	0.864	30.75	1.157	32.52	200.00	361.39	161.39	1.0000	1.5908
1	6.493	6.493	0.867	29.79	1.153	33.56	201.50	361.88	160.38	1.0049	1.5904
2	6.697	6.698	0.870	28.87	1.149	34.64	202.89	362.37	159.48	1.0099	1.5900
3	6.907	6.908	0.873	27.98	1.145	35.74	204.27	362.85	158.58	1.0148	1.5896
4	7.121	7.122	0.876	27.13	1.141	36.87	205.67	363.33	157.66	1.0197	1.5892
5	7.341	7.341	0.879	26.30	1.137	38.03	207.06	363.80	156.74	1.0246	1.5888
6	7.565	7.566	0.882	25.50	1.133	39.22	208.46	364.27	155.81	1.0295	1.5884
7	7.794	7.795	0.886	24.73	1.129	40.44	209.87	364.74	154.87	1.0344	1.5880
8	8.029	8.030	0.889	23.98	1.125	41.70	211.28	365.20	153.92	1.0393	1.5876
9	8.269	8.269	0.892	23.26	1.121	42.99	212.69	365.65	152.97	1.0442	1.5872

## Vapour Table, Wet Vapour Range Solkane®507

t	p'	p''	v'	v''	ρ'	ρ''	h'	h''	r	s'	s''
[°C]	[bar]	[bar]	[dm <sup>3</sup> /kg]	[dm <sup>3</sup> /kg]	[kg/dm <sup>3</sup> ]	[kg/m <sup>3</sup> ]	[kJ/kg]	[kJ/kg]	[kJ/kg]	[kJ/kg K]	[kJ/kg K]
10	8.51	8.51	0.896	22.57	1.117	44.31	214.10	366.10	152.00	1.0491	1.5868
11	8.76	8.77	0.899	21.89	1.112	45.67	215.52	366.55	151.02	1.0540	1.5864
12	9.02	9.02	0.902	21.24	1.108	47.07	216.95	366.99	150.04	1.0589	1.5860
13	9.28	9.28	0.906	20.62	1.104	48.51	218.38	367.42	149.04	1.0639	1.5856
14	9.55	9.55	0.910	20.01	1.099	49.98	219.81	367.85	148.04	1.0688	1.5852
15	9.82	9.82	0.913	19.42	1.095	51.49	221.25	368.27	147.02	1.0737	1.5848
16	10.10	10.10	0.917	18.85	1.091	53.05	222.70	368.69	145.99	1.0786	1.5844
17	10.38	10.39	0.921	18.30	1.086	54.64	224.15	369.10	144.96	1.0835	1.5840
18	10.68	10.68	0.924	17.77	1.082	56.28	225.60	369.51	143.90	1.0885	1.5836
19	10.97	10.97	0.928	17.25	1.077	57.97	227.06	369.90	142.84	1.0934	1.5832
20	11.27	11.28	0.932	16.75	1.073	59.70	228.53	370.29	141.76	1.0983	1.5827
21	11.58	11.58	0.936	16.26	1.068	61.48	230.00	370.68	140.67	1.1033	1.5823
22	11.90	11.90	0.941	15.79	1.063	63.31	231.48	371.05	139.57	1.1082	1.5819
23	12.22	12.22	0.945	15.34	1.058	65.20	232.97	371.42	138.45	1.1132	1.5814
24	12.55	12.55	0.949	14.90	1.054	67.13	234.46	371.78	137.32	1.1182	1.5810
25	12.88	12.88	0.954	14.47	1.049	69.12	235.96	372.13	136.17	1.1232	1.5805
26	13.22	13.22	0.958	14.05	1.044	71.17	237.47	372.47	135.00	1.1282	1.5800
27	13.57	13.57	0.963	13.65	1.039	73.27	238.99	372.81	133.82	1.1332	1.5795
28	13.92	13.93	0.967	13.26	1.034	75.44	240.51	373.13	132.62	1.1382	1.5790
29	14.29	14.29	0.972	12.87	1.029	77.67	242.05	373.45	131.40	1.1432	1.5785
30	14.65	14.66	0.977	12.50	1.023	79.97	243.59	373.75	130.16	1.1483	1.5780
31	15.03	15.03	0.982	12.15	1.018	82.34	245.15	374.05	128.90	1.1534	1.5774
32	15.41	15.41	0.987	11.80	1.013	84.77	246.71	374.33	127.62	1.1585	1.5768
33	15.80	15.80	0.993	11.46	1.008	87.29	248.29	374.60	126.32	1.1636	1.5763
34	16.20	16.20	0.998	11.13	1.002	89.88	249.87	374.86	124.99	1.1687	1.5756
35	16.60	16.60	1.004	10.80	0.996	92.55	251.47	375.11	123.64	1.1738	1.5750
36	17.02	17.02	1.009	10.49	0.991	95.31	253.08	375.34	122.26	1.1790	1.5743
37	17.44	17.44	1.015	10.19	0.985	98.15	254.71	375.57	120.86	1.1842	1.5737
38	17.86	17.86	1.021	9.89	0.979	101.09	256.34	375.77	119.43	1.1894	1.5729
39	18.30	18.30	1.027	9.60	0.973	104.13	258.00	375.96	117.97	1.1947	1.5722
40	18.74	18.74	1.034	9.32	0.967	107.27	259.66	376.14	116.48	1.1999	1.5714
41	19.20	19.20	1.040	9.05	0.961	110.52	261.34	376.30	114.95	1.2052	1.5706
42	19.65	19.66	1.047	8.78	0.955	113.88	263.04	376.44	113.40	1.2105	1.5697
43	20.12	20.12	1.054	8.52	0.949	117.36	264.76	376.56	111.80	1.2159	1.5688
44	20.60	20.60	1.062	8.27	0.942	120.97	266.49	376.66	110.17	1.2213	1.5679
45	21.09	21.09	1.069	8.02	0.935	124.72	268.24	376.75	108.50	1.2267	1.5669
46	21.58	21.58	1.077	7.78	0.929	128.61	270.01	376.81	106.79	1.2321	1.5659
47	22.08	22.08	1.085	7.54	0.922	132.65	271.81	376.84	105.04	1.2376	1.5648
48	22.59	22.60	1.093	7.31	0.915	136.86	273.62	376.85	103.23	1.2431	1.5636
49	23.12	23.12	1.102	7.08	0.907	141.24	275.45	376.84	101.38	1.2486	1.5624

## Vapour Table, Wet Vapour Range Solkane®507

t	p'	p''	v'	v''	$\rho'$	$\rho''$	h'	h''	r	s'	s''
[°C]	[bar]	[bar]	[dm <sup>3</sup> /kg]	[dm <sup>3</sup> /kg]	[kg/dm <sup>3</sup> ]	[kg/m <sup>3</sup> ]	[kJ/kg]	[kJ/kg]	[kJ/kg]	[kJ/kg K]	[kJ/kg K]
50	23.65	23.65	1.111	6.86	0.900	145.81	277.31	376.79	99.48	1.2542	1.5611
51	24.19	24.19	1.121	6.64	0.892	150.59	279.19	376.71	97.52	1.2598	1.5598
52	24.74	24.74	1.131	6.43	0.884	155.58	281.10	376.60	95.50	1.2655	1.5583
53	25.29	25.30	1.142	6.22	0.876	160.82	283.03	376.45	93.42	1.2712	1.5568
54	25.86	25.86	1.153	6.01	0.867	166.32	284.99	376.26	91.28	1.2769	1.5551
55	26.44	26.44	1.165	5.81	0.859	172.10	286.97	376.03	89.06	1.2827	1.5534
56	27.03	27.03	1.177	5.61	0.850	178.21	288.99	375.75	86.76	1.2885	1.5515
57	27.63	27.63	1.190	5.42	0.840	184.66	291.03	375.41	84.38	1.2944	1.5495
58	28.24	28.25	1.205	5.22	0.830	191.52	293.11	375.01	81.90	1.3003	1.5473
59	28.87	28.87	1.220	5.03	0.820	198.83	295.22	374.55	79.33	1.3063	1.5449
60	29.50	29.50	1.236	4.84	0.809	206.66	297.36	374.00	76.64	1.3123	1.5423
61	30.15	30.15	1.254	4.65	0.797	215.09	299.54	373.37	73.83	1.3184	1.5395
62	30.80	30.80	1.273	4.46	0.785	224.22	301.75	372.62	70.87	1.3245	1.5364
63	31.47	31.47	1.295	4.27	0.772	234.22	304.01	371.75	67.75	1.3307	1.5329
64	32.15	32.15	1.319	4.08	0.758	245.27	306.30	370.72	64.43	1.3370	1.5290
65	32.85	32.85	1.347	3.88	0.743	257.66	308.63	369.50	60.87	1.3433	1.5246
66	33.56	33.56	1.379	3.68	0.725	271.83	311.00	368.01	57.01	1.3496	1.5194
67	34.28	34.28	1.417	3.47	0.706	288.47	313.42	366.18	52.76	1.3560	1.5132

# 9 Vapour Table, Superheated Range Solkane®507

## 0,88bar -50,00°C

t	v	h	s
°C	dm³/kg	kJ/kg	kJ/kgK
-50	204.29	333.50	1.6286
-45	209.64	337.29	1.6455
-40	214.93	341.12	1.6620
-35	220.18	344.98	1.6784
-30	225.39	348.87	1.6946
-25	230.56	352.80	1.7106
-20	235.70	356.77	1.7264
-15	240.81	360.78	1.7421
-10	245.89	364.83	1.7576
-5	250.95	368.91	1.7730
0	255.99	373.04	1.7883
5	261.01	377.20	1.8034
10	266.01	381.41	1.8184
15	270.99	385.66	1.8332
20	275.96	389.94	1.8480
25	280.92	394.27	1.8626
30	285.86	398.64	1.8772
35	290.80	403.06	1.8916

## 1,17bar -44,00°C

t	v	h	s
°C	dm³/kg	kJ/kg	kJ/kgK
-44	155.81	337.08	1.6214
-40	159.10	340.20	1.6349
-35	163.16	344.12	1.6515
-30	167.19	348.07	1.6679
-25	171.17	352.06	1.6842
-20	175.12	356.07	1.7002
-15	179.04	360.12	1.7160
-10	182.94	364.21	1.7317
-5	186.81	368.33	1.7472
0	190.65	372.49	1.7626
5	194.48	376.68	1.7778
10	198.29	380.92	1.7929
15	202.08	385.19	1.8078
20	205.86	389.50	1.8227
25	209.62	393.85	1.8374
30	213.37	398.24	1.8520
35	217.11	402.67	1.8665
40	220.84	407.14	1.8809

## 1,54bar -38,00°C

t	v	h	s
°C	dm³/kg	kJ/kg	kJ/kgK
-38	120.60	340.62	1.6151
-35	122.54	343.03	1.6253
-30	125.73	347.05	1.6420
-25	128.87	351.10	1.6585
-20	131.99	355.18	1.6748
-15	135.07	359.29	1.6908
-10	138.11	363.42	1.7067
-5	141.14	367.59	1.7224
0	144.14	371.79	1.7379
5	147.12	376.02	1.7533
10	150.08	380.29	1.7685
15	153.02	384.60	1.7836
20	155.95	388.94	1.7985
25	158.87	393.32	1.8133
30	161.77	397.74	1.8280
35	164.67	402.19	1.8426
40	167.55	406.68	1.8570
45	170.42	411.21	1.8714

## 1,99bar -32,00°C

t	v	h	s
°C	dm³/kg	kJ/kg	kJ/kgK
-32	94.60	344.11	1.6097
-30	95.63	345.76	1.6165
-25	98.18	349.90	1.6334
-20	100.69	354.06	1.6500
-15	103.17	358.24	1.6663
-10	105.61	362.44	1.6824
-5	108.02	366.66	1.6983
0	110.42	370.92	1.7141
5	112.79	375.20	1.7296
10	115.14	379.52	1.7450
15	117.47	383.87	1.7602
20	119.78	388.25	1.7753
25	122.09	392.66	1.7902
30	124.38	397.11	1.8050
35	126.65	401.59	1.8197
40	128.92	406.11	1.8342
45	131.18	410.67	1.8487
50	133.43	415.26	1.8630

## 0,97 bar -48,00°C

t	v	h	s
°C	dm³/kg	kJ/kg	kJ/kgK
-48	186.32	334.70	1.6261
-45	189.26	336.99	1.6362
-40	194.12	340.84	1.6529
-35	198.92	344.72	1.6694
-30	203.69	348.63	1.6856
-25	208.42	352.57	1.7017
-20	213.11	356.56	1.7176
-15	217.78	360.58	1.7333
-10	222.42	364.64	1.7489
-5	227.03	368.73	1.7643
0	231.63	372.87	1.7796
5	236.20	377.04	1.7947
10	240.75	381.26	1.8097
15	245.29	385.51	1.8246
20	249.82	389.81	1.8394
25	254.33	394.14	1.8541
30	258.83	398.52	1.8686
35	263.32	402.94	1.8831

## 1,29 bar -42,00°C

t	v	h	s
°C	dm³/kg	kJ/kg	kJ/kgK
-42	142.83	338.27	1.6192
-40	144.35	339.84	1.6260
-35	148.11	343.79	1.6427
-30	151.82	347.76	1.6592
-25	155.50	351.76	1.6755
-20	159.13	355.80	1.6916
-15	162.74	359.86	1.7075
-10	166.32	363.96	1.7233
-5	169.88	368.10	1.7388
0	173.41	372.27	1.7542
5	176.92	376.48	1.7695
10	180.41	380.72	1.7846
15	183.89	385.01	1.7996
20	187.36	389.33	1.8145
25	190.80	393.69	1.8292
30	194.24	398.09	1.8439
35	197.67	402.52	1.8584
40	201.08	407.00	1.8728

## 1,68 bar -36,00°C

t	v	h	s
°C	dm³/kg	kJ/kg	kJ/kgK
-36	111.07	341.79	1.6132
-35	111.67	342.60	1.6166
-30	114.64	346.66	1.6335
-25	117.56	350.73	1.6501
-20	120.45	354.83	1.6665
-15	123.31	358.96	1.6826
-10	126.13	363.12	1.6985
-5	128.93	367.30	1.7143
0	131.71	371.52	1.7299
5	134.46	375.77	1.7453
10	137.20	380.05	1.7606
15	139.91	384.37	1.7757
20	142.62	388.73	1.7907
25	145.31	393.12	1.8055
30	147.98	397.54	1.8202
35	150.65	402.01	1.8348
40	153.30	406.51	1.8493
45	155.95	411.05	1.8637

## 2,16 bar -30,00°C

t	v	h	s
°C	dm³/kg	kJ/kg	kJ/kgK
-30	87.48	345.26	1.6081
-25	89.87	349.43	1.6251
-20	92.22	353.62	1.6418
-15	94.53	357.83	1.6582
-10	96.81	362.06	1.6745
-5	99.06	366.31	1.6905
0	101.29	370.59	1.7063
5	103.50	374.89	1.7219
10	105.68	379.22	1.7373
15	107.85	383.59	1.7526
20	110.00	387.98	1.7677
25	112.14	392.41	1.7827
30	114.26	396.87	1.7975
35	116.38	401.37	1.8122
40	118.48	405.90	1.8268
45	120.57	410.46	1.8413
50	122.65	415.07	1.8557
55	124.73	419.70	1.8699

## 1,07 bar -46,00°C

t	v	h	s
°C	dm³/kg	kJ/kg	kJ/kgK
-46	170.24	335.89	1.6237
-45	171.14	336.66	1.6271
-40	175.60	340.53	1.6439
-35	180.02	344.43	1.6604
-30	184.39	348.36	1.6767
-25	188.73	352.33	1.6929
-20	193.03	356.32	1.7088
-15	197.30	360.36	1.7246
-10	201.54	364.43	1.7402
-5	205.76	368.54	1.7557
0	209.96	372.68	1.7710
5	214.14	376.87	1.7862
10	218.30	381.09	1.8012
15	222.44	385.36	1.8162
20	226.57	389.66	1.8310
25	230.69	394.00	1.8457
30	234.79	398.39	1.8602
35	238.89	402.81	1.8747

## 1,41 bar -40,00°C

t	v	h	s
°C	dm³/kg	kJ/kg	kJ/kgK
-40	131.15	339.45	1.6171
-35	134.63	343.42	1.6340
-30	138.07	347.42	1.6506
-25	141.46	351.45	1.6670
-20	144.82	355.50	1.6832
-15	148.15	359.59	1.6991
-10	151.45	363.70	1.7149
-5	154.73	367.85	1.7306
0	157.98	372.04	1.7460
5	161.21	376.26	1.7613
10	164.42	380.52	1.7765
15	167.62	384.81	1.7915
20	170.80	389.14	1.8064
25	173.97	393.51	1.8212
30	177.12	397.92	1.8359
35	180.27	402.36	1.8504
40	183.40	406.85	1.8649
45	186.53	411.37	1.8792

## 1,83 bar -34,00°C

t	v	h	s
°C	dm³/kg	kJ/kg	kJ/kgK
-34	102.44	342.95	1.6114
-30	104.65	346.23	1.6250
-25	107.37	350.33	1.6417
-20	110.06	354.46	1.6582
-15	112.72	358.61	1.6744
-10	115.34	362.79	1.6905
-5	117.94	367.00	1.7063
0	120.51	371.23	1.7219
5	123.06	375.50	1.7374
10	125.60	379.80	1.7527
15	128.11	384.13	1.7679
20	130.61	388.50	1.7829
25	133.10	392.90	1.7978
30	135.57	397.33	1.8126
35	138.03	401.81	1.8272
40	140.48	406.32	1.8417
45	142.92	410.87	1.8561
50	145.36	415.45	1.8704

## 2,34 bar -28,00°C

t	v	h	s
°C	dm³/kg	kJ/kg	kJ/kgK
-28	81.00	346.40	1.6065
-25	82.34	348.93	1.6168
-20	84.55	353.16	1.6336
-15	86.72	357.39	1.6502
-10	88.85	361.65	1.6665
-5	90.95	365.93	1.6826
0	93.03	370.23	1.6985
5	95.09	374.55	1.7142
10	97.13	378.90	1.7297
15	99.15	383.29	1.7451
20	101.15	387.70	1.7602
25	103.14	392.14	1.7753
30	105.11	396.61	1.7902
35	107.07	401.12	1.8049
40	109.03	405.67	1.8195
45	110.97	410.24	1.8340
50	112.90	414.85	1.8484
55	114.82	419.50	1.8627



# Vapour Table, Superheated Range Solkane®507

## 2,53 bar -26,00°C

t	v	h	s
°C	dm <sup>3</sup> /kg	kJ/kg	kJ/kgK
-26	75.09	347.54	1.6050
-25	75.51	348.39	1.6085
-20	77.59	352.65	1.6255
-15	79.62	356.92	1.6422
-10	81.63	361.21	1.6587
-5	83.60	365.52	1.6749
0	85.55	369.84	1.6908
5	87.47	374.19	1.7066
10	89.37	378.56	1.7222
15	91.26	382.96	1.7376
20	93.12	387.39	1.7528
25	94.98	391.85	1.7679
30	96.81	396.34	1.7829
35	98.64	400.86	1.7976
40	100.46	405.42	1.8123
45	102.26	410.01	1.8268
50	104.06	414.63	1.8413
55	105.85	419.29	1.8556

## 3,18 bar -20,00°C

t	v	h	s
°C	dm <sup>3</sup> /kg	kJ/kg	kJ/kgK
-20	60.25	350.89	1.6010
-15	61.96	355.29	1.6182
-10	63.64	359.69	1.6351
-5	65.29	364.09	1.6517
0	66.91	368.51	1.6680
5	68.50	372.94	1.6841
10	70.07	377.39	1.6999
15	71.63	381.85	1.7155
20	73.16	386.35	1.7310
25	74.68	390.86	1.7463
30	76.18	395.40	1.7614
35	77.67	399.97	1.7763
40	79.15	404.57	1.7911
45	80.62	409.20	1.8058
50	82.08	413.86	1.8203
55	83.53	418.55	1.8347
60	84.97	423.27	1.8490
65	86.41	428.03	1.8632

## 3,95 bar -14,00°C

t	v	h	s
°C	dm <sup>3</sup> /kg	kJ/kg	kJ/kgK
-14	48.79	354.16	1.5975
-10	49.94	357.80	1.6114
-5	51.35	362.34	1.6285
0	52.73	366.87	1.6453
5	54.08	371.41	1.6617
10	55.41	375.95	1.6779
15	56.71	380.50	1.6938
20	57.99	385.07	1.7096
25	59.26	389.66	1.7251
30	60.51	394.26	1.7404
35	61.75	398.89	1.7555
40	62.97	403.54	1.7705
45	64.19	408.22	1.7853
50	65.39	412.93	1.8000
55	66.59	417.66	1.8145
60	67.78	422.42	1.8289
65	68.96	427.22	1.8432
70	70.13	432.04	1.8574

## 4,86bar -8,00°C

t	v	h	s
°C	dm <sup>3</sup> /kg	kJ/kg	kJ/kgK
-8	39.84	357.34	1.5944
-5	40.58	360.16	1.6050
0	41.78	364.86	1.6224
5	42.95	369.53	1.6393
10	44.09	374.20	1.6560
15	45.21	378.86	1.6723
20	46.31	383.53	1.6883
25	47.38	388.20	1.7042
30	48.45	392.89	1.7197
35	49.49	397.59	1.7351
40	50.52	402.31	1.7503
45	51.55	407.05	1.7653
50	52.56	411.81	1.7802
55	53.56	416.60	1.7949
60	54.55	421.41	1.8094
65	55.53	426.25	1.8238
70	56.51	431.11	1.8381
75	57.48	436.01	1.8523

## 2,73 bar -24,00°C

t	v	h	s
°C	dm <sup>3</sup> /kg	kJ/kg	kJ/kgK
-24	69.70	348.66	1.6036
-20	71.26	352.11	1.6173
-15	73.18	356.42	1.6342
-10	75.06	360.74	1.6508
-5	76.92	365.08	1.6671
0	78.74	369.43	1.6832
5	80.54	373.80	1.6991
10	82.33	378.20	1.7147
15	84.09	382.62	1.7302
20	85.83	387.07	1.7455
25	87.56	391.54	1.7606
30	89.28	396.05	1.7756
35	90.98	400.58	1.7905
40	92.68	405.15	1.8052
45	94.36	409.75	1.8198
50	96.03	414.39	1.8342
55	97.70	419.05	1.8485
60	99.35	423.76	1.8628

## 3,42 bar -18,00°C

t	v	h	s
°C	dm <sup>3</sup> /kg	kJ/kg	kJ/kgK
-18	56.10	351.99	1.5998
-15	57.08	354.66	1.6102
-10	58.67	359.10	1.6272
-5	60.23	363.55	1.6440
0	61.76	368.00	1.6604
5	63.26	372.46	1.6766
10	64.74	376.94	1.6926
15	66.20	381.43	1.7083
20	67.65	385.95	1.7238
25	69.07	390.48	1.7392
30	70.48	395.05	1.7543
35	71.88	399.63	1.7693
40	73.27	404.25	1.7842
45	74.65	408.89	1.7989
50	76.01	413.56	1.8135
55	77.37	418.27	1.8279
60	78.72	423.01	1.8423
65	80.06	427.77	1.8565

## 4,23 bar -12,00°C

t	v	h	s
°C	dm <sup>3</sup> /kg	kJ/kg	kJ/kgK
-12	45.57	355.23	1.5964
-10	46.11	357.07	1.6035
-5	47.46	361.67	1.6207
0	48.77	366.25	1.6377
5	50.06	370.83	1.6543
10	51.31	375.41	1.6706
15	52.55	379.99	1.6867
20	53.76	384.59	1.7025
25	54.96	389.20	1.7181
30	56.14	393.83	1.7335
35	57.31	398.48	1.7487
40	58.47	403.16	1.7637
45	59.61	407.85	1.7786
50	60.74	412.58	1.7933
55	61.87	417.33	1.8079
60	62.99	422.10	1.8224
65	64.10	426.91	1.8367
70	65.20	431.75	1.8509

## 5,18 bar -6,00°C

t	v	h	s
°C	dm <sup>3</sup> /kg	kJ/kg	kJ/kgK
-6	37.30	358.37	1.5935
-5	37.54	359.33	1.5970
0	38.69	364.08	1.6146
5	39.82	368.82	1.6318
10	40.91	373.53	1.6486
15	41.97	378.24	1.6651
20	43.02	382.95	1.6813
25	44.04	387.66	1.6972
30	45.05	392.37	1.7129
35	46.04	397.10	1.7284
40	47.02	401.85	1.7436
45	47.99	406.61	1.7587
50	48.95	411.40	1.7737
55	49.89	416.20	1.7884
60	50.83	421.03	1.8030
65	51.76	425.89	1.8175
70	52.68	430.77	1.8318
75	53.60	435.67	1.8460

## 2,95 bar -22,00°C

t	v	h	s
°C	dm <sup>3</sup> /kg	kJ/kg	kJ/kgK
-22	64.76	349.78	1.6023
-20	65.50	351.52	1.6092
-15	67.31	355.87	1.6262
-10	69.09	360.23	1.6429
-5	70.84	364.60	1.6594
0	72.55	368.98	1.6756
5	74.24	373.39	1.6915
10	75.92	377.81	1.7073
15	77.57	382.25	1.7228
20	79.20	386.72	1.7382
25	80.82	391.21	1.7534
30	82.43	395.73	1.7685
35	84.02	400.29	1.7834
40	85.60	404.87	1.7981
45	87.17	409.48	1.8127
50	88.73	414.13	1.8272
55	90.28	418.81	1.8416
60	91.83	423.52	1.8558

## 3,68 bar -16,00°C

t	v	h	s
°C	dm <sup>3</sup> /kg	kJ/kg	kJ/kgK
-16	52.29	353.08	1.5986
-15	52.60	353.98	1.6021
-10	54.12	358.48	1.6194
-5	55.60	362.97	1.6363
0	57.05	367.46	1.6528
5	58.47	371.95	1.6692
10	59.87	376.46	1.6852
15	61.25	380.98	1.7011
20	62.61	385.52	1.7167
25	63.95	390.08	1.7321
30	65.28	394.67	1.7473
35	66.59	399.27	1.7624
40	67.89	403.91	1.7773
45	69.19	408.57	1.7921
50	70.47	413.26	1.8067
55	71.74	417.97	1.8212
60	73.01	422.72	1.8356
65	74.26	427.50	1.8498

## 4,54 bar -10,00°C

t	v	h	s
°C	dm <sup>3</sup> /kg	kJ/kg	kJ/kgK
-10	42.59	356.29	1.5954
-5	43.88	360.94	1.6129
0	45.13	365.58	1.6300
5	46.36	370.20	1.6468
10	47.55	374.82	1.6633
15	48.73	379.45	1.6795
20	49.88	384.08	1.6954
25	51.01	388.72	1.7111
30	52.13	393.38	1.7266
35	53.24	398.05	1.7419
40	54.33	402.75	1.7570
45	55.41	407.47	1.7720
50	56.48	412.21	1.7867
55	57.54	416.97	1.8014
60	58.59	421.77	1.8159
65	59.63	426.59	1.8302
70	60.67	431.44	1.8445
75	61.70	436.32	1.8586

## 5,54 bar -4,00°C

t	v	h	s
°C	dm <sup>3</sup> /kg	kJ/kg	kJ/kgK
-4	34.95	359.39	1.5926
0	35.84	363.25	1.6068
5	36.92	368.05	1.6242
10	37.97	372.82	1.6412
15	38.99	377.57	1.6578
20	39.98	382.32	1.6742
25	40.96	387.07	1.6902
30	41.92	391.82	1.7061
35	42.87	396.59	1.7216
40	43.80	401.36	1.7370
45	44.71	406.15	1.7522
50	45.62	410.96	1.7672
55	46.52	415.78	1.7820
60	47.41	420.63	1.7967
65	48.29	425.50	1.8112
70	49.16	430.40	1.8255
75	50.02	435.32	1.8398
80	50.88	440.27	1.8539

# Vapour Table, Superheated Range Solkane®507

## 5,90 bar -2,00°C

<i>t</i>	<i>v</i>	<i>h</i>	<i>s</i>
°C	dm <sup>3</sup> /kg	kJ/kg	kJ/kgK
-2	32.77	360.40	1.5917
0	33.20	362.36	1.5989
5	34.24	367.22	1.6165
10	35.25	372.05	1.6337
15	36.23	376.86	1.6506
20	37.18	381.66	1.6671
25	38.12	386.45	1.6833
30	39.03	391.24	1.6992
35	39.93	396.03	1.7149
40	40.82	400.84	1.7304
45	41.69	405.66	1.7456
50	42.55	410.49	1.7607
55	43.40	415.34	1.7756
60	44.25	420.21	1.7903
65	45.08	425.10	1.8049
70	45.91	430.01	1.8193
75	46.73	434.95	1.8336
80	47.54	439.92	1.8478

## 7,12 bar 4,0°C

<i>t</i>	<i>v</i>	<i>h</i>	<i>s</i>
°C	dm <sup>3</sup> /kg	kJ/kg	kJ/kgK
4	27.13	363.33	1.5892
5	27.31	364.35	1.5929
10	28.23	369.41	1.6109
15	29.11	374.42	1.6284
20	29.96	379.38	1.6455
25	30.79	384.33	1.6622
30	31.60	389.25	1.6786
35	32.39	394.17	1.6947
40	33.16	399.08	1.7105
45	33.92	403.99	1.7261
50	34.67	408.91	1.7414
55	35.40	413.84	1.7565
60	36.13	418.78	1.7715
65	36.84	423.74	1.7863
70	37.55	428.72	1.8009
75	38.25	433.71	1.8153
80	38.95	438.73	1.8296
85	39.63	443.77	1.8438

## 8,52 bar 10,0°C

<i>t</i>	<i>v</i>	<i>h</i>	<i>s</i>
°C	dm <sup>3</sup> /kg	kJ/kg	kJ/kgK
10	22.57	366.10	1.5868
15	23.39	371.39	1.6053
20	24.17	376.60	1.6232
25	24.92	381.74	1.6406
30	25.65	386.85	1.6576
35	26.36	391.92	1.6742
40	27.04	396.97	1.6904
45	27.72	402.01	1.7064
50	28.37	407.04	1.7221
55	29.02	412.07	1.7375
60	29.65	417.10	1.7528
65	30.28	422.14	1.7678
70	30.89	427.19	1.7826
75	31.50	432.26	1.7973
80	32.10	437.34	1.8118
85	32.70	442.44	1.8261
90	33.29	447.56	1.8403
95	33.87	452.70	1.8544

## 10,10 bar 16,00°C

<i>t</i>	<i>v</i>	<i>h</i>	<i>s</i>
°C	dm <sup>3</sup> /kg	kJ/kg	kJ/kgK
16	18.85	368.69	1.5844
20	19.44	373.12	1.5996
25	20.15	378.56	1.6180
30	20.83	383.91	1.6358
35	21.47	389.20	1.6531
40	22.10	394.43	1.6700
45	22.71	399.63	1.6864
50	23.30	404.81	1.7026
55	23.88	409.96	1.7184
60	24.44	415.11	1.7340
65	24.99	420.26	1.7493
70	25.54	425.40	1.7644
75	26.07	430.56	1.7793
80	26.60	435.72	1.7940
85	27.12	440.89	1.8086
90	27.63	446.07	1.8230
95	28.14	451.27	1.8372
100	28.65	456.49	1.8513

## 6,29 bar 0,00°C

<i>t</i>	<i>v</i>	<i>h</i>	<i>s</i>
°C	dm <sup>3</sup> /kg	kJ/kg	kJ/kgK
0	30.75	361.39	1.5908
5	31.76	366.33	1.6088
10	32.73	371.23	1.6262
15	33.67	376.10	1.6433
20	34.59	380.95	1.6599
25	35.49	385.79	1.6763
30	36.36	390.62	1.6924
35	37.22	395.45	1.7082
40	38.07	400.29	1.7237
45	38.90	405.13	1.7391
50	39.72	409.99	1.7543
55	40.53	414.87	1.7692
60	41.33	419.76	1.7840
65	42.12	424.67	1.7987
70	42.90	429.60	1.8131
75	43.68	434.56	1.8275
80	44.45	439.54	1.8417
85	45.21	444.55	1.8558

## 7,57 bar 6,00°C

<i>t</i>	<i>v</i>	<i>h</i>	<i>s</i>
°C	dm <sup>3</sup> /kg	kJ/kg	kJ/kgK
6	25.50	364.27	1.5884
10	26.21	368.39	1.6030
15	27.07	373.48	1.6208
20	27.89	378.52	1.6382
25	28.69	383.52	1.6551
30	29.47	388.50	1.6717
35	30.23	393.46	1.6879
40	30.97	398.42	1.7038
45	31.70	403.37	1.7195
50	32.41	408.32	1.7350
55	33.11	413.28	1.7502
60	33.81	418.25	1.7652
65	34.49	423.24	1.7801
70	35.17	428.24	1.7948
75	35.83	433.25	1.8093
80	36.49	438.29	1.8237
85	37.15	443.35	1.8379
90	37.80	448.43	1.8520

## 9,02 bar 12,00°C

<i>t</i>	<i>v</i>	<i>h</i>	<i>s</i>
°C	dm <sup>3</sup> /kg	kJ/kg	kJ/kgK
12	21.24	366.99	1.5860
15	21.72	370.22	1.5973
20	22.49	375.53	1.6155
25	23.22	380.76	1.6332
30	23.93	385.93	1.6504
35	24.62	391.07	1.6672
40	25.28	396.17	1.6837
45	25.93	401.26	1.6998
50	26.56	406.34	1.7156
55	27.18	411.41	1.7312
60	27.79	416.48	1.7465
65	28.39	421.55	1.7616
70	28.98	426.63	1.7766
75	29.56	431.72	1.7913
80	30.14	436.83	1.8058
85	30.70	441.95	1.8203
90	31.27	447.09	1.8345
95	31.82	452.25	1.8486

## 10,67 bar 18,00°C

<i>t</i>	<i>v</i>	<i>h</i>	<i>s</i>
°C	dm <sup>3</sup> /kg	kJ/kg	kJ/kgK
18	17.77	369.51	1.5836
20	18.06	371.77	1.5913
25	18.76	377.33	1.6102
30	19.42	382.79	1.6283
35	20.05	388.16	1.6459
40	20.66	393.47	1.6630
45	21.25	398.74	1.6797
50	21.83	403.97	1.6960
55	22.38	409.18	1.7120
60	22.93	414.37	1.7277
65	23.46	419.56	1.7431
70	23.99	424.74	1.7583
75	24.50	429.92	1.7733
80	25.01	435.11	1.7881
85	25.51	440.31	1.8028
90	26.00	445.52	1.8172
95	26.49	450.75	1.8315
100	26.97	455.99	1.8456

## 6,70 bar 2,00°C

<i>t</i>	<i>v</i>	<i>h</i>	<i>s</i>
°C	dm <sup>3</sup> /kg	kJ/kg	kJ/kgK
2	28.87	362.37	1.5900
5	29.46	365.38	1.6009
10	30.40	370.35	1.6186
15	31.31	375.29	1.6359
20	32.19	380.19	1.6528
25	33.05	385.08	1.6693
30	33.89	389.96	1.6855
35	34.71	394.83	1.7014
40	35.52	399.70	1.7171
45	36.31	404.58	1.7326
50	37.10	409.47	1.7478
55	37.87	414.37	1.7629
60	38.63	419.28	1.7777
65	39.38	424.22	1.7924
70	40.12	429.17	1.8070
75	40.86	434.15	1.8214
80	41.59	439.15	1.8356
85	42.32	444.17	1.8498

## 8,03 bar 8,00°C

<i>t</i>	<i>v</i>	<i>h</i>	<i>s</i>
°C	dm <sup>3</sup> /kg	kJ/kg	kJ/kgK
8	23.98	365.20	1.5876
10	24.33	367.29	1.5950
15	25.16	372.47	1.6131
20	25.97	377.59	1.6308
25	26.74	382.66	1.6479
30	27.49	387.70	1.6647
35	28.22	392.71	1.6811
40	28.94	397.71	1.6972
45	29.63	402.71	1.7130
50	30.32	407.70	1.7285
55	30.99	412.69	1.7439
60	31.65	417.69	1.7590
65	32.31	422.70	1.7739
70	32.95	427.73	1.7887
75	33.59	432.77	1.8033
80	34.22	437.83	1.8177
85	34.84	442.91	1.8320
90	35.46	448.01	1.8461

## 9,55 bar 14,00°C

<i>t</i>	<i>v</i>	<i>h</i>	<i>s</i>
°C	dm <sup>3</sup> /kg	kJ/kg	kJ/kgK
14	20.01	367.85	1.5852
15	20.16	368.95	1.5890
20	20.92	374.37	1.6077
25	21.64	379.70	1.6257
30	22.33	384.96	1.6432
35	22.99	390.16	1.6602
40	23.64	395.33	1.6769
45	24.26	400.47	1.6931
50	24.87	405.59	1.7091
55	25.47	410.71	1.7248
60	26.06	415.81	1.7403
65	26.63	420.92	1.7555
70	27.20	426.03	1.7705
75	27.76	431.15	1.7853
80	28.31	436.29	1.7999
85	28.85	441.43	1.8144
90	29.39	446.59	1.8287
95	29.92	451.77	1.8429

## 11,28 bar 20,00°C

<i>t</i>	<i>v</i>	<i>h</i>	<i>s</i>
°C	dm <sup>3</sup> /kg	kJ/kg	kJ/kgK
20	16.75	370.29	1.5827
25	17.44	376.00	1.6021
30	18.10	381.58	1.6206
35	18.72	387.05	1.6385
40	19.32	392.45	1.6559
45	19.89	397.79	1.6728
50	20.45	403.08	1.6893
55	20.99	408.35	1.7055
60	21.52	413.59	1.7213
65	22.03	418.82	1.7369
70	22.54	424.04	1.7522
75	23.03	429.26	1.7673
80	23.52	434.48	1.7822
85	24.00	439.71	1.7969
90	24.47	444.95	1.8115
95	24.94	450.20	1.8258
100	25.40	455.46	1.8400
105	25.86	460.74	1.8541

# Vapour Table, Superheated Range Solkane®507

### 11,90 bar 22,00°C

t	v	h	s
°C	dm <sup>3</sup> /kg	kJ/kg	kJ/kgK
22	15.79	371.05	1.5819
25	16.20	374.56	1.5937
30	16.85	380.27	1.6127
35	17.47	385.86	1.6310
40	18.05	391.35	1.6487
45	18.61	396.77	1.6658
50	19.16	402.14	1.6826
55	19.68	407.46	1.6989
60	20.19	412.76	1.7149
65	20.69	418.04	1.7307
70	21.18	423.30	1.7461
75	21.66	428.56	1.7613
80	22.13	433.82	1.7763
85	22.59	439.08	1.7911
90	23.04	444.34	1.8057
95	23.49	449.62	1.8201
100	23.94	454.90	1.8344
105	24.37	460.21	1.8485

### 13,93 bar 28,00°C

t	v	h	s
°C	dm <sup>3</sup> /kg	kJ/kg	kJ/kgK
28	13.26	373.13	1.5790
30	13.51	375.62	1.5873
35	14.12	381.68	1.6071
40	14.69	387.54	1.6260
45	15.22	393.28	1.6441
50	15.74	398.91	1.6617
55	16.23	404.46	1.6787
60	16.70	409.95	1.6954
65	17.16	415.40	1.7116
70	17.60	420.82	1.7275
75	18.04	426.22	1.7431
80	18.46	431.59	1.7584
85	18.88	436.96	1.7735
90	19.28	442.33	1.7884
95	19.68	447.70	1.8031
100	20.08	453.07	1.8176
105	20.47	458.45	1.8319
110	20.85	463.84	1.8461

### 16,20 bar 34,00°C

t	v	h	s
°C	dm <sup>3</sup> /kg	kJ/kg	kJ/kgK
34	11.13	374.86	1.5756
35	11.25	376.21	1.5800
40	11.83	382.70	1.6009
45	12.37	388.92	1.6206
50	12.87	394.94	1.6394
55	13.34	400.81	1.6574
60	13.79	406.58	1.6749
65	14.22	412.26	1.6918
70	14.63	417.88	1.7083
75	15.03	423.45	1.7244
80	15.42	428.99	1.7402
85	15.80	434.50	1.7557
90	16.17	439.99	1.7709
95	16.54	445.47	1.7859
100	16.89	450.94	1.8007
105	17.24	456.42	1.8152
110	17.59	461.89	1.8296
115	17.93	467.37	1.8438

### 18,74 bar 40,00°C

t	v	h	s
°C	dm <sup>3</sup> /kg	kJ/kg	kJ/kgK
40	9.32	376.14	1.5714
45	9.90	383.24	1.5939
50	10.41	389.90	1.6147
55	10.89	396.28	1.6343
60	11.33	402.44	1.6529
65	11.74	408.46	1.6708
70	12.14	414.36	1.6881
75	12.52	420.17	1.7050
80	12.88	425.91	1.7213
85	13.24	431.60	1.7373
90	13.58	437.26	1.7530
95	13.91	442.88	1.7684
100	14.24	448.48	1.7835
105	14.56	454.07	1.7984
110	14.87	459.65	1.8130
115	15.18	465.23	1.8275
120	15.48	470.80	1.8418
125	15.78	476.38	1.8559

### 12,54 bar 24,00°C

t	v	h	s
°C	dm <sup>3</sup> /kg	kJ/kg	kJ/kgK
24	14.90	371.78	1.5810
25	15.03	372.98	1.5850
30	15.68	378.86	1.6046
35	16.29	384.57	1.6233
40	16.86	390.17	1.6413
45	17.42	395.68	1.6587
50	17.95	401.13	1.6757
55	18.46	406.52	1.6923
60	18.95	411.88	1.7085
65	19.44	417.21	1.7244
70	19.91	422.52	1.7400
75	20.37	427.82	1.7553
80	20.83	433.11	1.7704
85	21.27	438.41	1.7853
90	21.71	443.70	1.8000
95	22.14	449.01	1.8145
100	22.57	454.32	1.8288
105	22.99	459.65	1.8430

### 14,66 bar 30,00°C

t	v	h	s
°C	dm <sup>3</sup> /kg	kJ/kg	kJ/kgK
30	12.50	373.75	1.5780
35	13.12	380.03	1.5985
40	13.69	386.07	1.6179
45	14.22	391.94	1.6365
50	14.73	397.68	1.6544
55	15.21	403.32	1.6718
60	15.67	408.90	1.6886
65	16.12	414.42	1.7051
70	16.55	419.90	1.7212
75	16.97	425.35	1.7369
80	17.38	430.77	1.7524
85	17.79	436.19	1.7676
90	18.18	441.59	1.7826
95	18.57	446.99	1.7974
100	18.95	452.39	1.8120
105	19.33	457.80	1.8264
110	19.70	463.22	1.8406
115	20.06	468.64	1.8547

### 17,02 bar 36,00°C

t	v	h	s
°C	dm <sup>3</sup> /kg	kJ/kg	kJ/kgK
36	10.49	375.34	1.5743
40	10.97	380.76	1.5917
45	11.51	387.20	1.6122
50	12.01	393.40	1.6315
55	12.48	399.41	1.6500
60	12.92	405.30	1.6677
65	13.35	411.08	1.6850
70	13.75	416.78	1.7017
75	14.15	422.42	1.7180
80	14.53	428.02	1.7340
85	14.90	433.58	1.7496
90	15.26	439.13	1.7650
95	15.61	444.65	1.7801
100	15.96	450.16	1.7950
105	16.30	455.67	1.8097
110	16.63	461.18	1.8241
115	16.96	466.69	1.8384
120	17.28	472.20	1.8525

### 19,66bar 42,00°C

t	v	h	s
°C	dm <sup>3</sup> /kg	kJ/kg	kJ/kgK
42	8.78	376.44	1.5697
45	9.13	380.90	1.5838
50	9.67	387.89	1.6056
55	10.15	394.50	1.6259
60	10.59	400.85	1.6451
65	11.00	407.01	1.6635
70	11.39	413.02	1.6811
75	11.77	418.93	1.6982
80	12.13	424.76	1.7149
85	12.47	430.53	1.7311
90	12.81	436.24	1.7469
95	13.14	441.92	1.7624
100	13.45	447.58	1.7777
105	13.77	453.21	1.7927
110	14.07	458.83	1.8075
115	14.37	464.44	1.8220
120	14.66	470.05	1.8364
125	14.95	475.66	1.8506

### 13,22 bar 26,00°C

t	v	h	s
°C	dm <sup>3</sup> /kg	kJ/kg	kJ/kgK
26	14.05	372.47	1.5800
30	14.57	377.31	1.5961
35	15.17	383.19	1.6153
40	15.74	388.91	1.6337
45	16.29	394.52	1.6515
50	16.81	400.05	1.6688
55	17.31	405.52	1.6856
60	17.79	410.95	1.7020
65	18.26	416.33	1.7180
70	18.72	421.69	1.7338
75	19.17	427.04	1.7492
80	19.60	432.37	1.7644
85	20.03	437.70	1.7794
90	20.46	443.03	1.7942
95	20.87	448.37	1.8088
100	21.28	453.71	1.8232
105	21.69	459.06	1.8374
110	22.09	464.43	1.8515

### 15,41 bar 32,00°C

t	v	h	s
°C	dm <sup>3</sup> /kg	kJ/kg	kJ/kgK
32	11.80	374.33	1.5768
35	12.17	378.22	1.5895
40	12.74	384.46	1.6096
45	13.27	390.49	1.6287
50	13.77	396.36	1.6470
55	14.25	402.11	1.6647
60	14.70	407.78	1.6818
65	15.14	413.37	1.6985
70	15.56	418.92	1.7148
75	15.97	424.43	1.7307
80	16.37	429.90	1.7463
85	16.76	435.36	1.7617
90	17.15	440.81	1.7768
95	17.52	446.25	1.7917
100	17.89	451.69	1.8063
105	18.25	457.13	1.8208
110	18.61	462.57	1.8351
115	18.96	468.02	1.8493

### 17,87 bar 38,00°C

t	v	h	s
°C	dm <sup>3</sup> /kg	kJ/kg	kJ/kgK
38	9.89	375.77	1.5729
40	10.13	378.59	1.5820
45	10.69	385.32	1.6033
50	11.19	391.73	1.6233
55	11.66	397.91	1.6422
60	12.10	403.92	1.6604
65	12.52	409.81	1.6780
70	12.92	415.61	1.6950
75	13.31	421.33	1.7115
80	13.68	427.00	1.7277
85	14.04	432.62	1.7435
90	14.39	438.22	1.7590
95	14.74	443.79	1.7743
100	15.07	449.34	1.7893
105	15.40	454.89	1.8040
110	15.73	460.43	1.8186
115	16.04	465.97	1.8330
120	16.36	471.52	1.8472

### 20,60bar 44,00°C

t	v	h	s
°C	dm <sup>3</sup> /kg	kJ/kg	kJ/kgK
44	8.27	376.66	1.5679
45	8.39	378.24	1.5729
50	8.94	385.66	1.5960
55	9.44	392.56	1.6172
60	9.88	399.12	1.6370
65	10.30	405.44	1.6559
70	10.69	411.60	1.6739
75	11.06	417.62	1.6914
80	11.41	423.54	1.7082
85	11.75	429.39	1.7247
90	12.08	435.17	1.7407
95	12.40	440.91	1.7564
100	12.71	446.62	1.7718
105	13.01	452.30	1.7870
110	13.31	457.97	1.8018
115	13.60	463.62	1.8165
120	13.89	469.27	1.8310
125	14.17	474.91	1.8452

## Vapour Table, Superheated Range Solkane®507

### 21,58 bar 46,00°C

<i>t</i>	<i>v</i>	<i>h</i>	<i>s</i>
°C	dm <sup>3</sup> /kg	kJ/kg	kJ/kgK
46	7.78	376.81	1.5659
50	8.24	383.13	1.5856
55	8.75	390.41	1.6079
60	9.21	397.23	1.6286
65	9.63	403.75	1.6480
70	10.02	410.06	1.6665
75	10.39	416.21	1.6843
80	10.74	422.24	1.7015
85	11.07	428.18	1.7182
90	11.39	434.04	1.7345
95	11.71	439.85	1.7503
100	12.01	445.62	1.7659
105	12.31	451.35	1.7812
110	12.59	457.07	1.7962
115	12.88	462.76	1.8109
120	13.15	468.45	1.8255
125	13.43	474.13	1.8399
130	13.69	479.80	1.8540

### 24,74 bar 52,00°C

<i>t</i>	<i>v</i>	<i>h</i>	<i>s</i>
°C	dm <sup>3</sup> /kg	kJ/kg	kJ/kgK
52	6.43	376.60	1.5583
55	6.80	382.11	1.5752
60	7.32	390.28	1.5999
65	7.78	397.71	1.6220
70	8.18	404.68	1.6425
75	8.55	411.35	1.6618
80	8.90	417.79	1.6802
85	9.22	424.07	1.6978
90	9.53	430.23	1.7149
95	9.83	436.28	1.7315
100	10.12	442.27	1.7476
105	10.40	448.19	1.7634
110	10.67	454.07	1.7788
115	10.93	459.92	1.7940
120	11.18	465.74	1.8089
125	11.44	471.54	1.8235
130	11.68	477.33	1.8380
135	11.92	483.11	1.8522

### 28,25bar 58,00°C

<i>t</i>	<i>v</i>	<i>h</i>	<i>S</i>
°C	dm <sup>3</sup> /kg	kJ/kg	kJ/kgK
58	5.22	375.01	1.5473
60	5.51	379.65	1.5612
65	6.08	389.31	1.5900
70	6.54	397.59	1.6143
75	6.94	405.15	1.6362
80	7.30	412.26	1.6565
85	7.63	419.05	1.6756
90	7.93	425.62	1.6938
95	8.22	432.03	1.7113
100	8.50	438.30	1.7283
105	8.77	444.48	1.7447
110	9.02	450.58	1.7607
115	9.27	456.62	1.7764
120	9.51	462.61	1.7917
125	9.74	468.56	1.8068
130	9.97	474.49	1.8216
135	10.19	480.39	1.8361
140	10.41	486.28	1.8505

### 22,60 bar 48,00°C

<i>t</i>	<i>v</i>	<i>h</i>	<i>s</i>
°C	dm <sup>3</sup> /kg	kJ/kg	kJ/kgK
48	7.31	376.85	1.5636
50	7.55	380.23	1.5741
55	8.09	388.00	1.5980
60	8.56	395.16	1.6196
65	8.99	401.92	1.6398
70	9.38	408.41	1.6588
75	9.74	414.71	1.6771
80	10.09	420.86	1.6946
85	10.42	426.89	1.7116
90	10.74	432.84	1.7281
95	11.05	438.73	1.7442
100	11.35	444.56	1.7599
105	11.63	450.35	1.7753
110	11.92	456.12	1.7905
115	12.19	461.86	1.8053
120	12.46	467.59	1.8200
125	12.73	473.30	1.8345
130	12.99	479.01	1.8487

### 25,87 bar 54,00°C

<i>t</i>	<i>v</i>	<i>h</i>	<i>S</i>
°C	dm <sup>3</sup> /kg	kJ/kg	kJ/kgK
54	6.01	376.26	1.5551
55	6.15	378.30	1.5613
60	6.73	387.34	1.5887
65	7.20	395.26	1.6123
70	7.62	402.56	1.6337
75	7.99	409.46	1.6537
80	8.34	416.09	1.6726
85	8.67	422.52	1.6907
90	8.98	428.79	1.7081
95	9.27	434.95	1.7249
100	9.55	441.02	1.7413
105	9.83	447.02	1.7573
110	10.09	452.97	1.7729
115	10.35	458.87	1.7882
120	10.60	464.75	1.8032
125	10.84	470.59	1.8180
130	11.08	476.42	1.8326
135	11.32	482.24	1.8469

### 29,50 bar 60,00°C

<i>t</i>	<i>v</i>	<i>h</i>	<i>s</i>
°C	dm <sup>3</sup> /kg	kJ/kg	kJ/kgK
60	4.84	374.00	1.5423
65	5.52	385.54	1.5767
70	6.02	394.62	1.6034
75	6.44	402.65	1.6266
80	6.80	410.08	1.6478
85	7.14	417.11	1.6676
90	7.45	423.87	1.6863
95	7.74	430.42	1.7042
100	8.01	436.82	1.7215
105	8.27	443.10	1.7382
110	8.53	449.29	1.7545
115	8.77	455.40	1.7703
120	9.00	461.46	1.7858
125	9.23	467.47	1.8010
130	9.46	473.45	1.8160
135	9.67	479.40	1.8306
140	9.89	485.34	1.8451
145	10.10	491.26	1.8593

### 23,65 bar 50,00°C

<i>t</i>	<i>v</i>	<i>h</i>	<i>s</i>
°C	dm <sup>3</sup> /kg	kJ/kg	kJ/kgK
50	6.86	376.79	1.5611
55	7.44	385.28	1.5872
60	7.93	392.86	1.6101
65	8.37	399.92	1.6312
70	8.77	406.63	1.6509
75	9.13	413.09	1.6696
80	9.48	419.38	1.6875
85	9.81	425.53	1.7048
90	10.12	431.57	1.7215
95	10.42	437.54	1.7379
100	10.72	443.45	1.7538
105	11.00	449.30	1.7694
110	11.27	455.12	1.7847
115	11.54	460.91	1.7997
120	11.81	466.68	1.8145
125	12.06	472.44	1.8290
130	12.32	478.19	1.8434
135	12.56	483.93	1.8575

### 27,03 bar 56,00°C

<i>t</i>	<i>v</i>	<i>h</i>	<i>s</i>
°C	dm <sup>3</sup> /kg	kJ/kg	kJ/kgK
56	5.61	375.75	1.5515
60	6.13	383.88	1.5761
65	6.64	392.49	1.6017
70	7.07	400.21	1.6244
75	7.46	407.40	1.6452
80	7.81	414.25	1.6647
85	8.13	420.85	1.6833
90	8.44	427.26	1.7010
95	8.73	433.54	1.7182
100	9.01	439.70	1.7348
105	9.28	445.79	1.7510
110	9.54	451.81	1.7669
115	9.79	457.78	1.7823
120	10.04	463.70	1.7975
125	10.28	469.60	1.8124
130	10.51	475.48	1.8271
135	10.74	481.34	1.8415
140	10.96	487.19	1.8558

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