

## Property List

## Steam95 Excel Add-In v2.1

	Property Name	Property ID	SI Units	English Units
1.	Pressure	p	bar	psi
2.	Temperature	t	°C	°F
3.	Density	d	kg/m <sup>3</sup>	lb/ft <sup>3</sup>
4.	Specific Volume	v	m <sup>3</sup> /kg	ft <sup>3</sup> /lb
5.	Specific enthalpy	h	kJ/kg	Btu/lb
6.	Specific entropy	s	kJ/(kg·K)	Btu/(lb·°F)
7.	Specific internal energy	u	kJ/kg	Btu/lb
8.	Specific isobaric heat capacity	cp	kJ/(kg·K)	Btu/(lb·°F)
9.	Specific isochoric heat capacity	cv	kJ/(kg·K)	Btu/(lb·°F)
10.	Speed of sound	w	m/s	ft/s
11.	Isentropic exponent	kapa	-	-
12.	Specific Helmholtz free energy	H	kJ/kg	Btu/lb
13.	Specific Gibbs free energy	G	kJ/kg	Btu/lb
14.	Compressibility factor	Z	-	-
15.	Steam quality	x	%	%
16.	Isobaric volume expansion coefficient	alpha	1/K	1/°F
17.	Isothermal compressibility	Kt	1/MPa	1/psi
18.	Partial derivative (dV/dT) <sub>p</sub>	dvdT	m <sup>3</sup> /(kg·K)	ft <sup>3</sup> /(lb·°F)
19.	Partial derivative (dV/dP) <sub>T</sub>	dvdP	m <sup>3</sup> /(kg·MPa)	ft <sup>3</sup> /(lb·psi)
20.	Partial derivative (dP/dT) <sub>v</sub>	dpdT	MPa/K	psi/°F
21.	Partial derivative (dP/dV) <sub>T</sub>	dpdv	MPa·kg/m <sup>3</sup>	psi·lb/ft <sup>3</sup>
22.	Isothermal Joule-Thomson coefficient	iJTC	kJ/(kg·MPa)	Btu/(lb·psi)
23.	Joule-Thomson coefficient	JTC	K/MPa	°F/psi
24.	Dynamic viscosity	dv	μPa·s	lb/(ft·h)
25.	Kinematic viscosity	kv	μm <sup>2</sup> /s	ft <sup>2</sup> /h
26.	Thermal conductivity	tc	W/(K·m)	Btu/(h·ft·°F)
27.	Thermal diffusivity	td	μm <sup>2</sup> /s	ft <sup>2</sup> /h
28.	Prandtl number	Pr	-	-
29.	Surface tension	Sigma	mN/m	lb/ft
30.	Static dielectric constant	dc	-	-

## Property List

### Steam97 Excel Add-In v2.1

	Property Name	Property ID	SI Units	English Units
1.	Pressure	p	bar	Psi
2.	Temperature	t	°C	°F
3.	Density	d	kg/m <sup>3</sup>	lb/ft <sup>3</sup>
4.	Specific Volume	v	m <sup>3</sup> /kg	ft <sup>3</sup> /lb
5.	Specific enthalpy	h	kJ/kg	Btu/lb
6.	Specific entropy	s	kJ/(kg·K)	Btu/(lb·°F)
7.	Specific internal energy	u	kJ/kg	Btu/lb
8.	Specific isobaric heat capacity	cp	kJ/(kg·K)	Btu/(lb·°F)
9.	Specific isochoric heat capacity	cv	kJ/(kg·K)	Btu/(lb·°F)
10.	Speed of sound	w	m/s	ft/s
11.	Isentropic exponent	kapa	-	-
12.	Specific Helmholtz free energy	H	kJ/kg	Btu/lb
13.	Specific Gibbs free energy	G	kJ/kg	Btu/lb
14.	Compressibility factor	Z	-	-
15.	Steam quality	x	%	%
16.	Region	region	-	-
17.	Isobaric volume expansion coefficient	alpha	1/K	1/°F
18.	Isothermal compressibility	Kt	1/MPa	1/psi
19.	Partial derivative (dV/dT) <sub>p</sub>	dvdt	m <sup>3</sup> /(kg·K)	ft <sup>3</sup> /(lb·°F)
20.	Partial derivative (dV/dP) <sub>T</sub>	dvdp	m <sup>3</sup> /(kg·MPa)	ft <sup>3</sup> /(lb·psi)
21.	Partial derivative (dP/dT) <sub>v</sub>	dpdt	MPa/K	psi/°F
22.	Partial derivative (dP/dV) <sub>T</sub>	dpdv	MPa·kg/m <sup>3</sup>	psi·lb/ft <sup>3</sup>
23.	Isothermal Joule-Thomson coefficient	iJTC	kJ/(kg·MPa)	Btu/(lb·psi)
24.	Joule-Thomson coefficient	JTC	K/MPa	°F/psi
25.	Dynamic viscosity	dv	μPa·s	lb/(ft·h)
26.	Kinematic viscosity	<td>μm<sup>2</sup>/s</td> <td>ft<sup>2</sup>/h</td>	μm <sup>2</sup> /s	ft <sup>2</sup> /h
27.	Thermal conductivity	tc	W/(K·m)	Btu/(h·ft·°F)
28.	Thermal diffusivity	td	μm <sup>2</sup> /s	ft <sup>2</sup> /h
29.	Prandtl number	Pr	-	-
30.	Surface tension	Sigma	mN/m	lbf/ft

## Constant Properties

### Steam95 Excel Add-In v2.1 and Steam97 Excel Add-In v2.1

	Property Name	Constant ID	SI Units	English Units
1.	Specific gas constant	R	$\text{kJ}/(\text{kg}\cdot\text{K})$	$\text{Btu}/(\text{lb}\cdot\text{F})$
2.	Molar gas constant	Rm	$\text{J}/(\text{mol}\cdot\text{K})$	$\text{Btu}/(\text{lbmol}\cdot\text{F})$
3.	Molar mass	Mw	$\text{g}/\text{mol}$	$\text{lbm}/\text{lbmol}$
4.	Critical temperature	Tcr	$^{\circ}\text{C}$	$^{\circ}\text{F}$
5.	Critical pressure	Pcr	bar	Psi
6.	Critical density	Dcr	$\text{kg}/\text{m}^3$	$\text{lb}/\text{ft}^3$
7.	Triple point temperature	Tt	$^{\circ}\text{C}$	$^{\circ}\text{F}$
8.	Triple-point pressure	Pt	bar	psi