Derivative of	at constant P	υ	T	u	h	s
P		$-\upsilon\beta$	-1	$\left(\upsilon\beta P - C_p\right)$	$-C_p$	$-\frac{C_p}{T}$
υ	$\upsilon\beta$		$\upsilon\kappa$	$\upsilon\kappa C_v$	$\upsilon\left[\kappa C_v + \upsilon\beta\right]$	$\frac{\upsilon\kappa C_v}{T}$
T	1	$-\upsilon\kappa$		$\upsilon\left[\kappa P - \beta T\right]$	$\upsilon\left(1 - \beta T\right)$	$-\upsilon\beta$
u	$-\left(\upsilon\beta P - C_p\right)$	$-\upsilon\kappa C_\upsilon$	$-\upsilon\left(\kappa P - \beta T\right)$		$\upsilon\left\{C_p - P\left[\upsilon\beta + \kappa C_v\right]\right\}$	$-\frac{\upsilon\kappa C_v P}{T}$
h	C_p	$-\upsilon\left[\kappa C_v + \upsilon\beta\right]$	$-\upsilon\left(1 - \beta T\right)$	$-\upsilon\left\{C_p - P\left[\upsilon\beta + \kappa C_v\right]\right\}$		$-\frac{\upsilon C_p}{T}$
s	$\frac{C_p}{T}$	$-\frac{\upsilon\kappa C_\upsilon}{T}$	$\upsilon\beta$	$\frac{\upsilon\kappa C_\upsilon P}{T}$	$\frac{\upsilon C_p}{T}$	
ρ	$-\rho\beta$		$-\rho\kappa$	$-\rho\kappa C_\upsilon$	$-\rho\left[\kappa C_\upsilon + \upsilon\beta\right]$	$-\frac{\kappa\rho C_\upsilon}{T}$

Definitions

$$C_p = \left(\frac{\partial h}{\partial T}\right)_P$$

$$C_\upsilon = \left(\frac{\partial u}{\partial T}\right)_\upsilon$$

$$\beta = \frac{1}{\upsilon}\left(\frac{\partial \upsilon}{\partial T}\right)_p$$

$$\kappa = -\frac{1}{\upsilon}\left(\frac{\partial \upsilon}{\partial P}\right)_T$$

$$\partial\upsilon = -\frac{1}{\rho^2}\partial\rho$$

$$\partial\rho = -\frac{1}{\upsilon^2}\partial\upsilon$$

$$C_p = C_v + vT\beta^2 / \kappa$$

Table 1. Derivatives of equation of state properties in the sense of Bridgman.