

Gas volume factor,  $B_g$ , is defined as the ratio of gas volume at specified  $p$  and  $T$  to the ideal-gas volume at standard conditions,

$$B_g = \left( \frac{p_{sc}}{T_{sc}} \right) \frac{ZT}{p} \cdot \dots \dots \dots (3.38)$$

For customary units ( $p_{sc} = 14.7$  psia and  $T_{sc} = 520^\circ\text{R}$ ), this is

$$B_g = 0.02827 \frac{ZT}{p}, \dots \dots \dots (3.39)$$

with temperature in  $^\circ\text{R}$  and pressure in psia. This definition of  $B_g$  assumes that the gas volume at  $p$  and  $T$  remains as a gas at standard conditions.