**The RG model:** The RG (Real Gas) model uses the generalized compressibility chart to extend the applicability of the ideal gas model within reasonable accuracy.

**Assumptions:**

A real gas obeys the real gas equation of state:

 (1)

, where  and  (2)

**RG model equations:**

 (3)

 where ;  (4)

 (5)

 (6)

 where ;  (7)

**General state equations:** (Applies to any substance)

 ; ; ; ; ; ;  (8)

 ; ; ;  (9)

 ; ; ;  (10)

 ; ;  (11)

**Reference:** Chapter 1 introduces the concept of states and properties, Chapter 3 covers various material models and state evaluation, and Chapter 11 introduces advanced concepts on property evaluation. Read more about the RG model in Sec. 3.5.5.