Table 9.1. Theoretical and Experimental Investigation of Condensation

Presence of noncondensable gas	Pure Vapor			Vapor - noncondensable gas		
Vapor-gas boundary layer condition	Stationary vapor	Moving vapor(a)		Stationary (b) vapor-gas	Moving vapor-gas	
					Laminar	Turbulent
Interface condition	Smooth	Smooth	Wavy(c)	Smooth	Smooth(d)	Smooth	Wavy
Solution of conservation equations	Sparrow & Gregg (1959) Koh et al (1961) Chen (1961)	Cess (1960)	*****	Sparrow & Eckert (1961) Sparrow & Lin (1964) Minkowycz & Sparrow (1966)	Sparrow et al (1967) Koh (1962) Denny et al (1971) Asano et al (1978)	Jones & Renz	Kim(1990)
Approximate solution	Nusselt (1961)	Shekriladze & Gomelauri (1966) Mayhew et al (1966)	*****	Rose (1969)	Rose (1979)	Whitley (1976)	Kim(1990)
Experimental work	Mills&Seban (1967) Slegers & Seban (1969)	Mayhew & Aggarwal (1973) Goodykoontz & Dorsh (1966) Jacobs et al (1967)	(1935)	Othmer (1929) Hampson (1951) Akers et al (1960) Slegers &Seban (1970) Al-Diwany & Rose (1973) DuVuono & Christensen (1984)	Mills & Denny (1971) Asano et al (1978)	Dallmeyer (1970)	Barry(1987) Huhtiniemi(1993)

(a) Since there is no heat resistance in a pure vapor boundary layer, the classification of a laminar or turbulent moving vapor are not needed.
(b) For the case of the presence of noncondensable gas, the natural convection flow will be generated from the temperature and the concentration difference on the air-vapor boundary layer.
(c) Even though the wavy interface does not mean the turbulent condensate film, both phenomena enhance the condensation.
(d) The wavy interface with laminar moving vapor-gas mixture is not considered.

*****The analysis or data is sparse and will be discussed in the text.