Glossary

Symbol	Name	Definition	Mathematical formula
$\Delta P_{f,2\varphi}$	Frictional pressure drop [Pa]	Pressure drop component due to friction between the fluid and the canal's wall and friction within the fluid itself	$\frac{\mathrm{dp}}{\mathrm{dz}}\Big\vert_{2\varphi,f} = \Phi_{\mathrm{Lo}}^2 \frac{\mathrm{dp}}{\mathrm{dz}}\Big\vert_{\mathrm{Lo,f}} = \Phi_{\mathrm{Go}}^2 \frac{\mathrm{dp}}{\mathrm{dz}}\Big\vert_{\mathrm{Go,f}} = \Phi_L^2 \frac{\mathrm{dp}}{\mathrm{dz}}\Big\vert_{\mathrm{L,f}} = \Phi_G^2 \frac{\mathrm{dp}}{\mathrm{dz}}\Big\vert_{\mathrm{v,f}}$
Φ_k $k \in [l, l_o, v, v_o]$	Pressure drop multipliers [-]		
χ	Martinelli parameter [-]	Ratio of pressure drops of single-phase flow terms	$\chi = \sqrt{\frac{(\mathrm{dp/dz})_l}{(\mathrm{dp/dz})_v}}$
ε	Void fraction [-]	Fraction of the channel volume that is occupied by the gas phase	$\varepsilon = \frac{A_v}{A_v + A_l}$
λ_c	Capillary lenth [m]	Length scaling factor that relates surface tension and gravity	$\lambda_c = \sqrt{\frac{\gamma}{\Delta\rho g}}$
B_o	Bond number [-]	Mesure the importance of gravitational forces compared to surface tension forces for the liquid front's movement	$B_0 = \left(\frac{L_c}{\lambda_c}\right)^2 = \frac{\Delta\rho.g.L_c^2}{\sigma}$
C_o	Confinement number [-]		$C_o = \frac{1}{\sqrt{B_o}} = \frac{1}{L_c}.\sqrt{\frac{\sigma}{g.\Delta\rho}}$
CHF	Critical Heat flux [-]	Heat flux at which boiling ceases to be an effective form of transferring heat from a solid surface to a liquid	$\frac{q}{A_{\max}} = \mathrm{CHF}.\rho_v\left[\frac{\sigma.g.(\Delta\rho)}{\mathrm{P}_v^2}\right]^{\frac{1}{4}}\left(1+\frac{\rho_v}{\rho_L}\right)^1$
F_o	Froude number [-]	Ratio of the flow inertia to the external field (the latter in many applications simply due to gravity)	$F_0 = \frac{u}{\sqrt{g.L}}$
f	Fanning friction factor [-]	Ratio of the local shear stress with the local flow kinetic energy density	$f = \frac{\tau}{\rho.\frac{u^2}{2}}$
HTC	Heat Transfert Coefficient [-]	Proportionality constant between the heat flux and temperature difference	$\mathrm{HTC} = \frac{q}{\Delta T}$
ONB	Onset of Nucleate Boilling [-]	Onset activation for the first nucleation sites. "the point of net vapor generation"[2]	N/A
OSV	Onset of Significant Void [-]	Incipient of increased vapor convection : bubbles begin moving toward the core : $Q_{\mathrm{vapor}} = 0^+$	N/A
s	Symmetry [-]	Mesure of the none-uniformity of the liquid's level around the canal's perimeter [-]	$s = \frac{d_{\mathrm{top}}}{r} = 1 - \frac{t_{\mathrm{bottom}} - t_{\mathrm{top}}}{d}$
Y	Chisholm parameter [-]	Ratio of pressure drops of single-phase flow terms considering they occupy the whole volume each	$Y = \sqrt{\frac{(\mathrm{dp/dz})_{\mathrm{lo}}}{(\mathrm{dp/dz})_{\mathrm{vo}}}}$

[1]Zuber, Novak (June 1959). “Hydrodynamic aspects of boiling heat transfer”. doi:10.2172/4175511. Retrieved 4 April 2016.

[2]Kandlikar, S. G. « Heat Transfer Characteristics in Partial Boiling, Fully Developed Boiling, and Significant Void Flow Regions of Subcooled Flow Boiling ». Journal of Heat Transfer 120, nº 2 (1 mai 1998): 395-401. https://doi.org/10.1115/1.2824263.