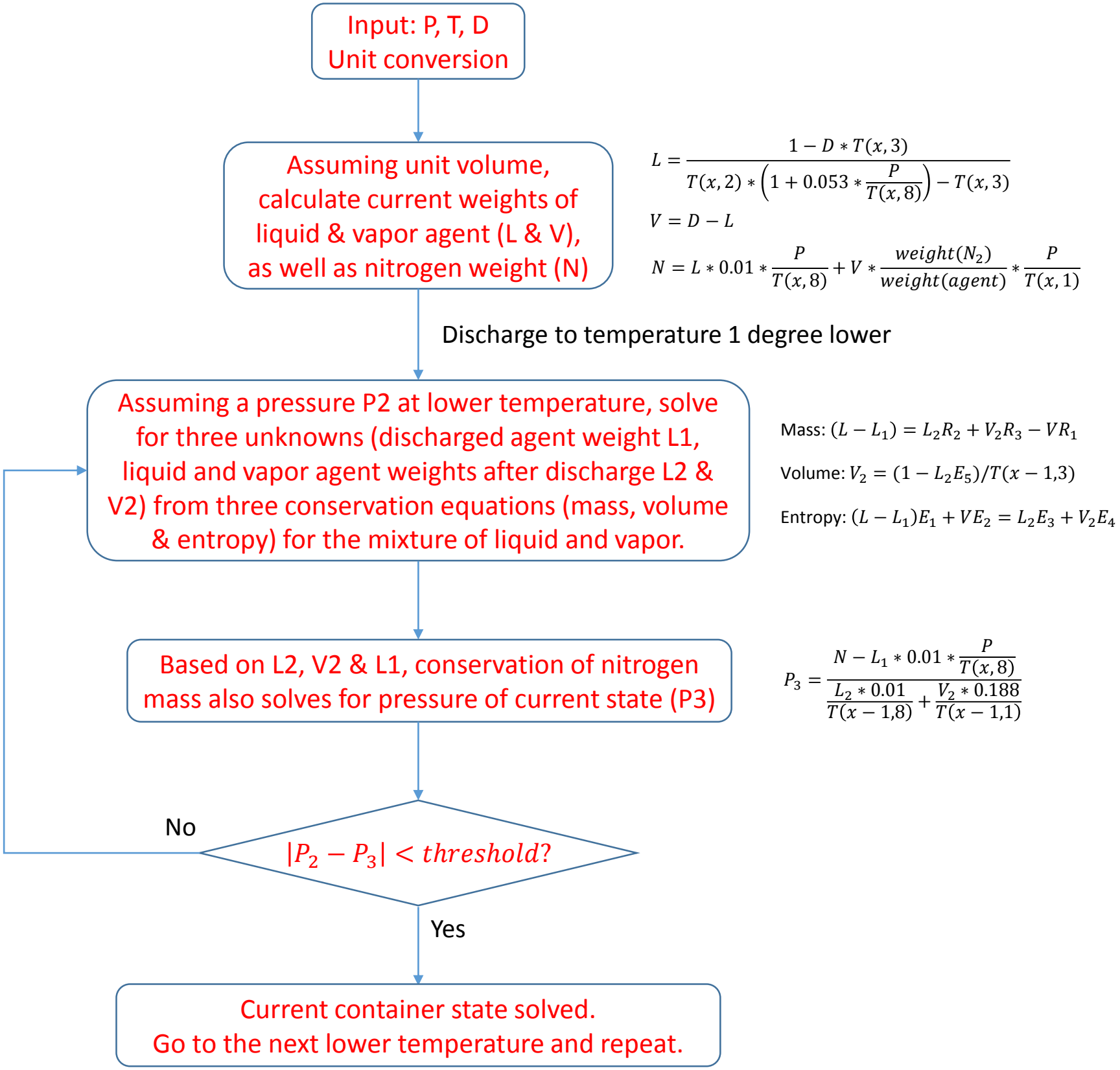
Input: P, T, D
Unit conversion
Assuming unit volume, calculate current weights of liquid & vapor agent (L & V), as well as nitrogen weight (N)
$L = \frac{1 - D * T(x,3)}{T(x,2) * \left(1 + 0.053 * \frac{P}{T(x,8)}\right) - T(x,3)}$
$V = D - L$
$N = L * 0.01 * \frac{P}{T(x,8)} + V * \frac{weight(N_2)}{weight(agent)} * \frac{P}{T(x,1)}$
Discharge to temperature 1 degree lower
Assuming a pressure P2 at lower temperature, solve for three unknowns (discharged agent weight L1, liquid and vapor agent weights after discharge L2 & V2) from three conservation equations (mass, volume & entropy) for the mixture of liquid and vapor.
Mass: $(L - L_1) = L_2R_2 + V_2R_3 - VR_1$
Volume: $V_2 = (1 - L_2E_5)/T(x-1,3)$
Entropy: $(L - L_1)E_1 + VE_2 = L_2E_3 + V_2E_4$
Based on L2, V2 & L1, conservation of nitrogen mass also solves for pressure of current state (P3)
$P_3 = \frac{N - L_1 * 0.01 * \frac{P}{T(x,8)}}{\frac{L_2 * 0.01}{T(x-1,8)} + \frac{V_2 * 0.188}{T(x-1,1)}}$
No
$|P_2 - P_3| < threshold?$
Yes
Current container state solved.
Go to the next lower temperature and repeat.