CC GasMix Tutorial

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Loop	Diluent
Constraints: $PO_2 = SetPoint\ SP \rightarrow \ FO_2^{loop} = \frac{SP}{D_{ata}}$ $PN_2 = 2.7$ or better for EAD = 80fsw Total Gas Density = TGD or better	Constraints: $PO_2\ at\ MOD = \text{"diluent flush } PO_2\text{"} = DF \rightarrow FO_2^{dil} = \frac{DF}{D_{ata}}$
To address PN_2 constraint, $FN_2^{loop} = \frac{PN_2}{D_{ata}}$ then $FHe^{loop} = 1 - \ FN_2^{loop} - FO_2^{loop}$ Calculate loop gas density using loop gas fractions and compare to TGD. If it is less than TGD, then finish by calculating diluent gas fraction as seen to the right →	$\omega = \frac{D_{ata} - SP}{D_{ata} - DF}$ $FN_2^{dil} = \frac{FN_2^{loop}}{\omega}$ $FHe^{d} = \frac{FHe^{loop}}{\omega}$
If total gas density from above is greater than TGD, then we must calculate inert gas loop fractions that yield the required gas density (at MOD). $FHe^{loop} = \frac{SP \cdot d_{O_2} + (D_{ata} - SP) \cdot d_{N_2} - TGD}{D_{ata} \cdot (d_{N_2} - d_{He})}$ and $FN_2^{loop} = 1 - \ FHe^{loop} - FO_2^{loop}$ Finish by calculating diluent gas fractions that give the above loop gas fractions upon reaching SetPoint →	$\omega = \frac{D_{ata} - SP}{D_{ata} - DF}$ $FN_2^{dil} = \frac{FN_2^{loop}}{\omega}$ $FHe^{d} = \frac{FHe^{loop}}{\omega}$