

Equation of state - HDD

$$\begin{aligned} Z= & 1+(4+0.00159616*L+1.47158608*L^2-.56526156*L^3+.42923166*L^4+.24001767*L^5-.19160211*L^6- \\ & 0.09153171*L^7+.20637437*L^8-0.05649187*L^9)*y+ \\ & +(6.00000096-0.00228342*L+4.73075013*L^2-1.60709695*L^3+1.68849311*L^4+1.02465652*L^5- \\ & .44544214*L^6-.31163383*L^7+.48290497*L^8+0.03551017*L^9)*y^2+ \\ & +(2.36476669-0.01679602*L+2.27785849*L^2+.79634657*L^3-2.74199849*L^4+4.99232302*L^5- \\ & .38130726*L^6-3.32074191*L^7+2.52121607*L^8-.36652469*L^9)*y^3+ \\ & +(-.86882313-0.516343e-2*L-2.89041393*L^2+4.31406575*L^3-12.3126327*L^4+14.5269527*L^5- \\ & 4.64227128*L^6-12.4745537*L^7+15.4130925*L^8-6.33288166*L^9)*y^4+ \\ & +(1.10125109+0.2594082e-1*L+2.67292861*L^2+.74554749*L^3+4.93849975*L^4- \\ & 11.8729182*L^5+8.39268436*L^6+10.4901565*L^7-16.1398947*L^8+8.01076327*L^9)*y^5+ \\ & +(-1.09401273-2.32237913*L+44.1099927*L^2-620.263632*L^3+3999.40607*L^4- \\ & 13657.0774*L^5+26274.1602*L^6-29249.0158*L^7+18074.9144*L^8-4871.09251*L^9)*y^6+ \\ & +(.70559041+.12745445*L-88.0423973*L^2+212.674564*L^3+947.056276*L^4-1899.88080*L^5- \\ & 371.244824*L^6+2645.90995*L^7-2693.97926*L^8+1246.88103*L^9)*y^7+ \\ & +(-.19691013+2.27965762*L+87.5124963*L^2+349.784185*L^3-4991.26515*L^4+14295.9485*L^5- \\ & 21986.1388*L^6+23119.3571*L^7-14929.0986*L^8+4057.53997*L^9)*y^8 \end{aligned}$$

L .. elongation

$y=\eta/(1-\eta)$

η .. packing fraction