

Entering data

startVol := 20mL

StockConc :=  $20 \frac{\text{gm}}{\text{L}}$

Estimated from spretsheet

FlowTime :=  $\begin{pmatrix} 171 \\ 180 \\ 189 \\ 198 \\ 207 \\ 216 \\ 225 \end{pmatrix} \cdot \text{sec}$

add :=  $\begin{pmatrix} 0 \\ 0.5 \\ 0.5 \\ .5 \\ .5 \\ .5 \\ .5 \end{pmatrix} \text{mL}$

Entering contsants



DMF 25C from Lutinger, G.; Weill, G.; *Polymer*, **1991**, 32, 877

$k := 4.5 \cdot 10^{-5} \frac{100\text{mL}}{\text{gm}}$

$a := 0.7$

Calculating concentrations

$i := 0.. \text{rows}(\text{add}) - 1$

$\text{conc}_i := \frac{\text{StockConc} \cdot i \cdot 0.5\text{mL}}{\text{startVol} + i \cdot 0.5\text{mL}}$

conc =  $\begin{pmatrix} 0 \\ 0.488 \\ 0.952 \\ 1.395 \\ 1.818 \\ 2.222 \\ 2.609 \end{pmatrix} \frac{\text{gm}}{\text{L}}$

Calculating the specific viscosity

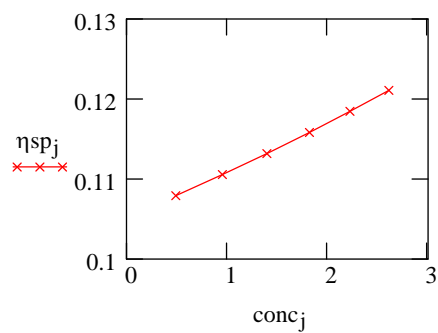
$$\eta_{sp_i} := \frac{\text{FlowTime}_i - \text{FlowTime}_0}{\text{FlowTime}_0 \cdot \text{conc}_i}$$

$$\eta_{sp} = \begin{pmatrix} 0 \\ 0.108 \\ 0.111 \\ 0.113 \\ 0.116 \\ 0.118 \\ 0.121 \end{pmatrix} \frac{\text{L}}{\text{gm}}$$

Making a plot for visualization



$$j := 1 \dots \text{rows}(\text{add}) - 1$$



Noter - Fiktive data  
Normalt er der noget spredning på dem.

Eliminating the first point (solvent only) and units

$$\text{conc1}_{j-1} := \text{conc}_j \cdot \frac{100\text{mL}}{\text{gm}}$$

$$\eta_{sp1}_{j-1} := \eta_{sp_j} \cdot \frac{\text{gm}}{100\text{mL}}$$

Calculating best fit line on the data

$$\text{coor} := \text{line}(\text{conc1}, \eta_{sp1})$$

$$\text{coor} = \begin{pmatrix} 1.047 \\ 0.62 \end{pmatrix}$$

$$\text{MolWeigth} := 10^{\left( \frac{\log(\text{coor}_0) - \log(k)}{a} \right)} \frac{\text{gm}}{\text{mol}}$$

$$\text{MolWeigth} = 1.73 \times 10^6 \frac{\text{gm}}{\text{mol}}$$