

2g

1g $C_{95}H_{192}$

$$M_{95} = (95)(12) + (192)(1) \\ = 1332 \text{ g mol}^{-1}$$

$$n_{95} = \frac{1g}{1332 \text{ g mol}^{-1}} \\ = \underline{7.51 \times 10^{-4} \text{ mol}}$$

1g $C_{105}H_{212}$

$$M_{105} = (105)(12) + (212)(1) \\ = 1472 \text{ g mol}^{-1}$$

$$n_{105} = \frac{1}{1472} \frac{g}{\text{g mol}^{-1}} \\ = \underline{6.79 \times 10^{-4} \text{ mol}}$$

Calculate 2 averages...

$$\bar{M}_n = \frac{1 + 1}{(7.51 + 6.79)(10^{-4})} = 1399 \text{ g mol}^{-1}$$

$$\bar{M}_w = \frac{(1)(1332) + (1)(1472)}{2} = 1402 \text{ g mol}^{-1}$$

$$1399 \approx 1402 \Rightarrow \text{Very little spread.}$$

Alternative

1g $C_{10}H_{22}$

$$M_{10} = 142 \text{ g mol}^{-1}$$

$$n_{10} = 70.42 \times 10^{-4}$$

$$\bar{M}_n = 270 \text{ g mol}^{-1}$$

$$\bar{M}_w = 1402 \text{ g mol}^{-1}$$

1g $C_{190}H_{382}$

$$M_{190} = 2662 \text{ g mol}^{-1}$$

$$n_{190} = 3.76 \times 10^{-4}$$

} more spread
 \Rightarrow wider range