Calc k_1' value

$$11.087 = X = \frac{k_1}{k_2} \qquad R = \frac{k_1}{k_D} = 1.9952$$

$$1.9237 = Y = \frac{k_1}{k_3} \qquad S = \frac{k_1}{k_T} = 29.831$$

$$k_2 = k_1/11.087 \qquad k_D = k_1/1.9952$$
$$k_3 = k_1/1.9237 \qquad k_T = k_1/29.831$$

$$\text{Moles reacted} = (k_1 + k_2 + k_3)\, B_1 P + k_D \Sigma MCP + k_T DCT$$

stage 1

$$= \left(k_1 + \frac{k_1}{11.087} + \frac{k_1}{1.9237}\right) 1.0$$

$$= k_1\left(1 + \frac{1}{11.087} + \frac{1}{1.9237}\right) 1.0$$

$$k_1(1 + .0902 + .52)$$

$$k_1(1.6102)$$

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$k_1 = 1.27\%$

k_n

stage 2 $= k_1(1.6102)(.5475) + (.35959)(k_1/1.9952) + k_1(.04093)(k_1/29.831)$

$= (1.07896 + .1802 + .003)\, k_1$

$= 1.27116\, k$

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