

NMR Determination of the Rotational Barrier in N,N-dimethylacetamide

Name _____

$\Delta\nu_0$ _____ sec^{-1} $(\Delta\nu_A)_0^{1/2}$ _____ sec^{-1}

T(°C)	$(\Delta\nu_A)_e^{1/2}$	$\Delta\nu_e$ See note*	Approx. k (sec ⁻¹)	Used Eq #
				Eq. 11 Coalescence

* You will use the $(\Delta\nu_A)_e^{1/2}$ **or** $\Delta\nu_e$ value, but **not both**, for a given calculation. List only the value that you used (you don't need to list both).

T(°C)	k (sec ⁻¹)	T(K)	1/T	ln k	fit ln k	ln k/T	fit ln(k/T)

Attach Both Plots

Plot ln k: Slope _____ ± _____ units _____

Intercept _____ ± _____ units _____

E_a _____ ± _____ units _____

A _____ ± _____ units _____

Plot ln k/T: Slope _____ ± _____ units _____

Intercept _____ ± _____ units _____

$\Delta_r H^\ddagger$ _____ ± _____ units _____

$\Delta_r S^\ddagger$ _____ ± _____ units _____

$\Delta_r G^\ddagger$ _____ ± _____ units _____