



$$\Delta_r U = \sum (\text{BDE's of reactants}) - \sum (\text{BDE's of products})$$

$$= \cancel{2 \text{ BDE}(\text{N}-\text{O})} + \cancel{2 \text{ BDE}(\text{N}=\text{O})} + \text{BDE}(\text{N}-\text{N}) \\ - \cancel{2 \text{ BDE}(\text{N}-\text{O})} - \cancel{2 \text{ BDE}(\text{N}=\text{O})}$$

$$= \text{BDE}(\text{N}-\text{N}) \quad (\text{only net bonding changes affect } \Delta_r U)$$

$$\underline{\Delta_r U = 160 \text{ kJ mol}^{-1}}$$

Boy, this sucks!

(the N-N in N_2O_4 is unusually weak due to repulsions btwn O lone pairs)