We have measured the dissociation threshold energy, $D_0$, of the six $NO_2$ isotopologues made with $^{14}N$, $^{15}N$, or $^{16}O$ or $^{18}O$ isotopes. These $NO_2$ isotopologues are cooled in a Helium supersonic jet at $T_{rot} \approx 2K$. For each isotopologue, the very dense set of bound rovibronic eigenstates is readily observed by LIF up to $J \approx 50$. Above $D_0$, the LIF signal disappear abruptly, within $0.03 cm^{-1}$ which is the average spacing between observed $R_0$ lines just below $D_0$. Note that resonances (lifetime $\approx 10^{-10}$ sec.) located above $D_0$ can be observed in absorption (by CRDS) but no fluorescence can be detected from these. The six measured $D_0$ range from 25128.56 cm$^{-1}$ for $^{16}O^{14}N^{16}O$, noted (646), to 25171.80 cm$^{-1}$ for (858). At the B.O. approximation, these six $D_0$ should have a common $S$. The shifts between these six $D_0$ are due to the ZPE shifts of $NO_2$ and $NO$. We have used and check the following relation:

$D_0(^{15}N^{16}O) = D_0(NO_2) + ZPE(^{15}N^{16}O) - ZPE(^{15}O^{14}N^{16}O)$

The ZPEs of the various $NO$ and $NO_2$ isotopologues have been determined from Dunham parameters and, for $NO_2$, also by Canonical Perturbation Theory (CPT) using two PESs of $NO_2$. The $NO_2$ ZPE isotopologue shifts are estimated to be within $0.5 cm^{-1}$. The uncertainties on ZPE of $NO$ are significantly smaller. The six values of $D_0$ are located within $0.5 cm^{-1}$ around 26051.17 cm$^{-1}$, in agreement with the ZPE uncertainties.