The magic number behavior of $\text{H}^+ (\text{H}_2\text{O})_{21}$ has been well known. Furthermore, this magic number is observed even in the mixed clusters $\text{H}^+ (\text{H}_2\text{O})_m (\text{NH}_3)_n$ and $\text{H}^+ (\text{H}_2\text{O})_m (\text{MeOH})_n$ $(m + n = 21)$. This means that $\text{NH}_3$ or $\text{MeOH}$ molecules are compatible with water molecules in the hydrogen bond network of the magic number cluster.

In the present study, infrared spectroscopy is applied to $(\text{CH}_3)_3\text{N-H}^+ -(\text{H}_2\text{O})_n$ $(n = 1-22)$, and structures of these clusters are determined with help of density functional theory calculations. As a result, it is demonstrated that no magic number is seen in the case of $(\text{CH}_3)_3\text{N-H}^+ -(\text{H}_2\text{O})_n$. $(\text{CH}_3)_3\text{N}$ is not a spectator to the hydrogen bond network of protonated water clusters, and it is largely changes the network structure.