The Fixation with Fixation: Chemical Transformations of N_2

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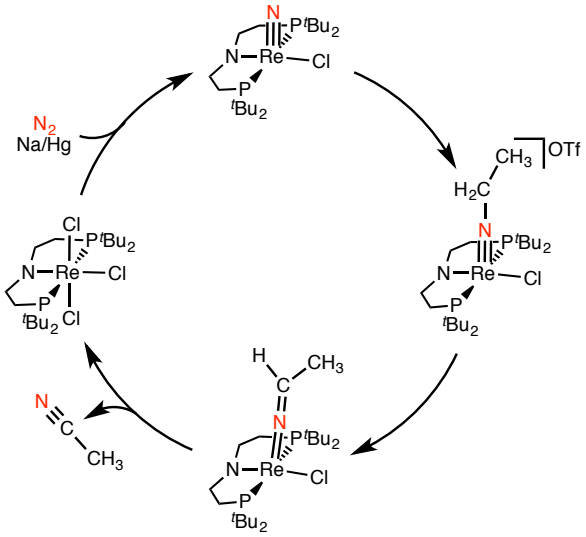
The functionalization of dinitrogen to ammonia and particularly to organic nitrogen compounds, such as amines, nitriles or nitro compounds, at ambient conditions remains as one of the most challenging tasks in homogeneous catalysis. In turn, selective oxidations of ammonia or organic amines are of great importance, e.g. in the context of electrocatalytic ammonia combustion or nitrene transfer catalysis. In recent years, we examined elementary reactions relevant to such processes, such as nitride hydrogenolysis to ammonia [1], nitride coupling to N_2 [2-4], N_2 splitting to terminal nitrides [5], or the direct conversion of N_2 to organic molecules (Figure),[6] mediated by transition metal pincer complexes. This reactivity will be discussed on the basis of electronic structure / reactivity relationships.



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