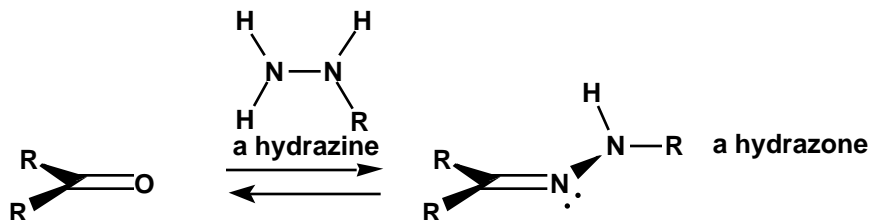
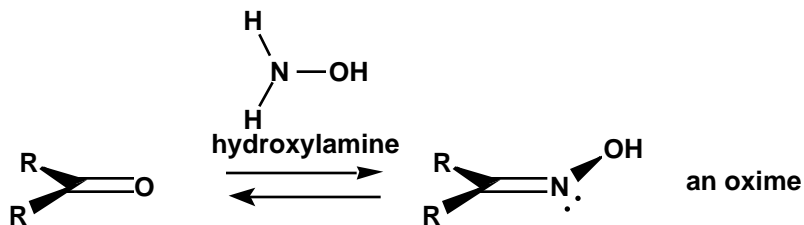
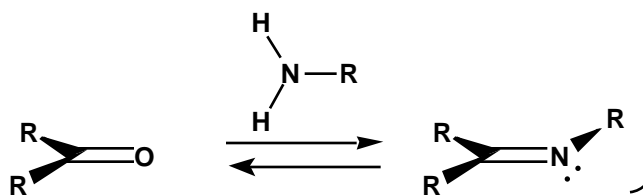
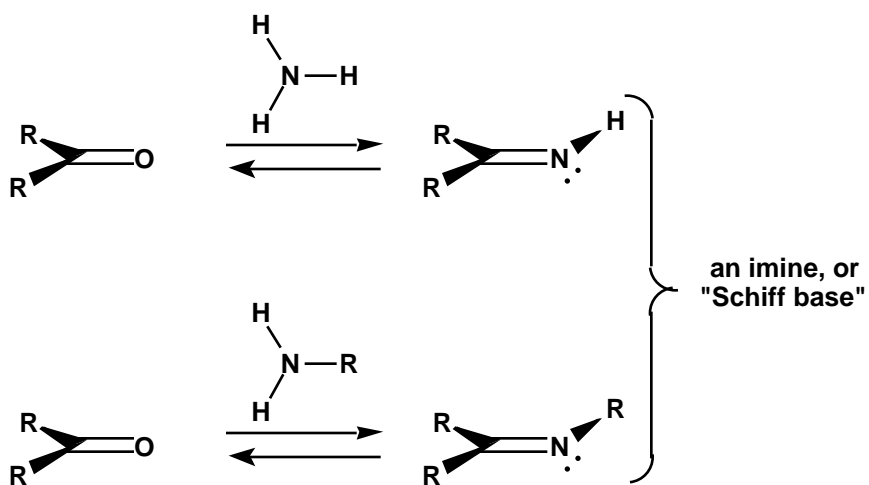
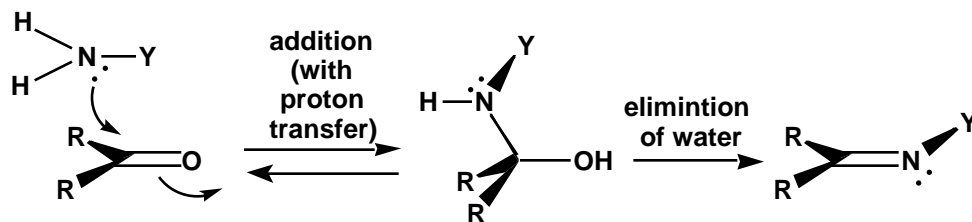
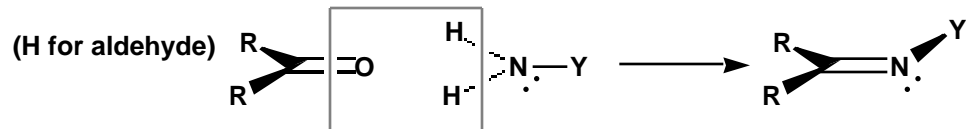


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When ammonia, amines, or hydrazines interact with aldehydes or ketones in aqueous media, it is the highly nucleophilic nitrogen atom which initiates the attack on the carbonyl group most efficiently in reactions that otherwise run a course parallel to the oxygen cases already discussed, with the difference that subsequent dehydration to an imine or its equivalent frequently is the sequel. It will be seen, then, that such reactions are the result of addition followed by elimination. Again the products may or may not be stable with respect to the starting materials; in many cases, however, the products are crystalline compounds which, by precipitating and hence being removed from the equilibrium, inevitably lead to the equilibrium being driven to the right in the sense written in the figure.



carbonyl addition reactions involving attack by nitrogen nucleophiles
on aldehydes or ketones, with subsequent elimination of water

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