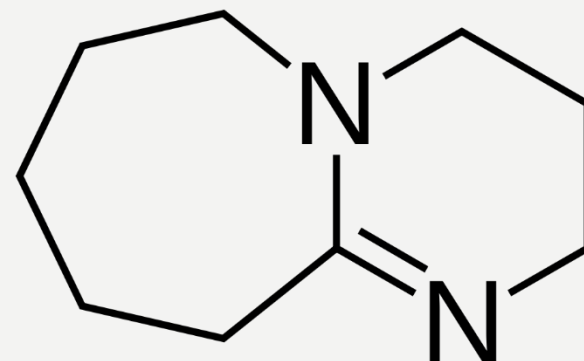
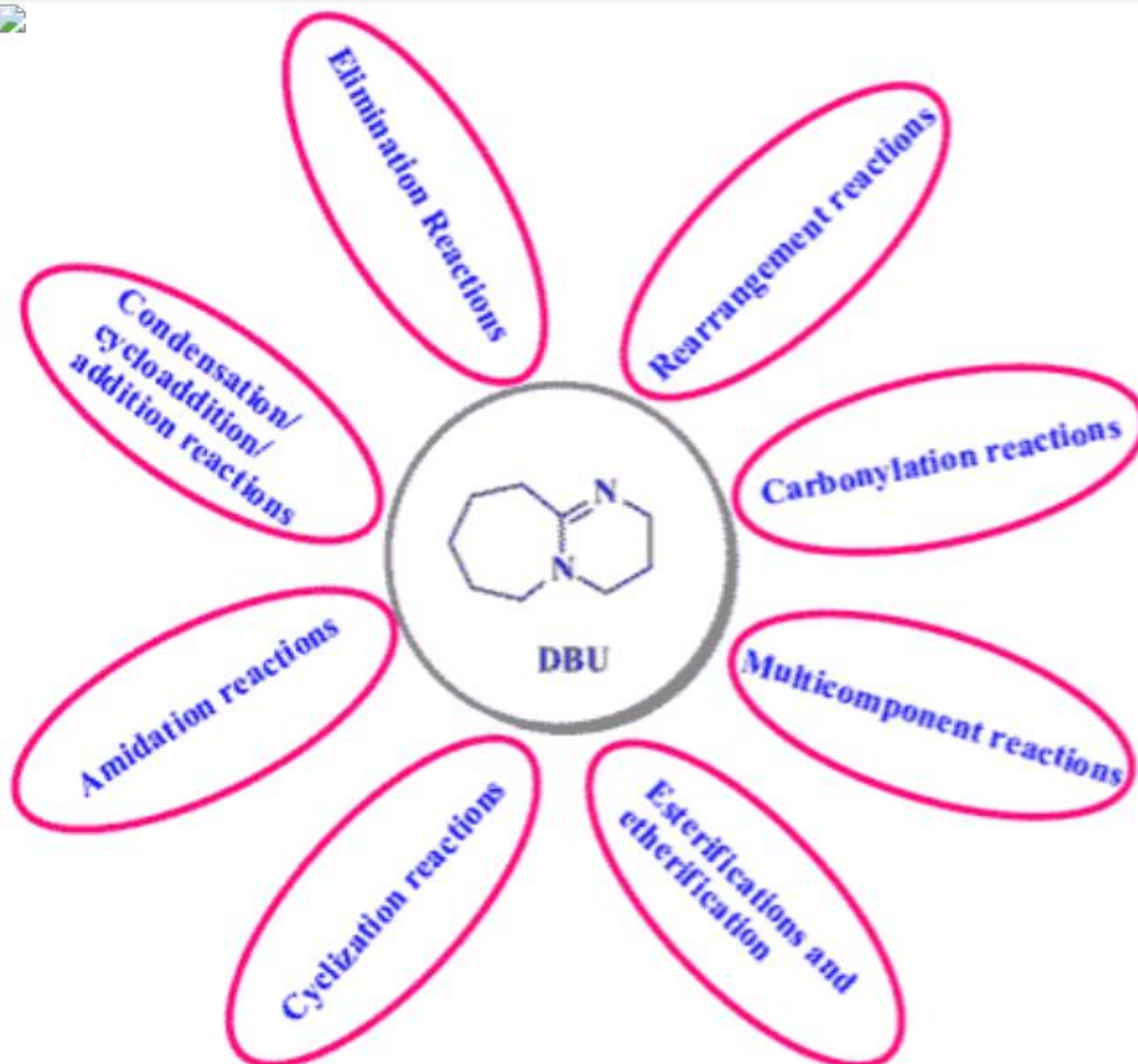


DBU

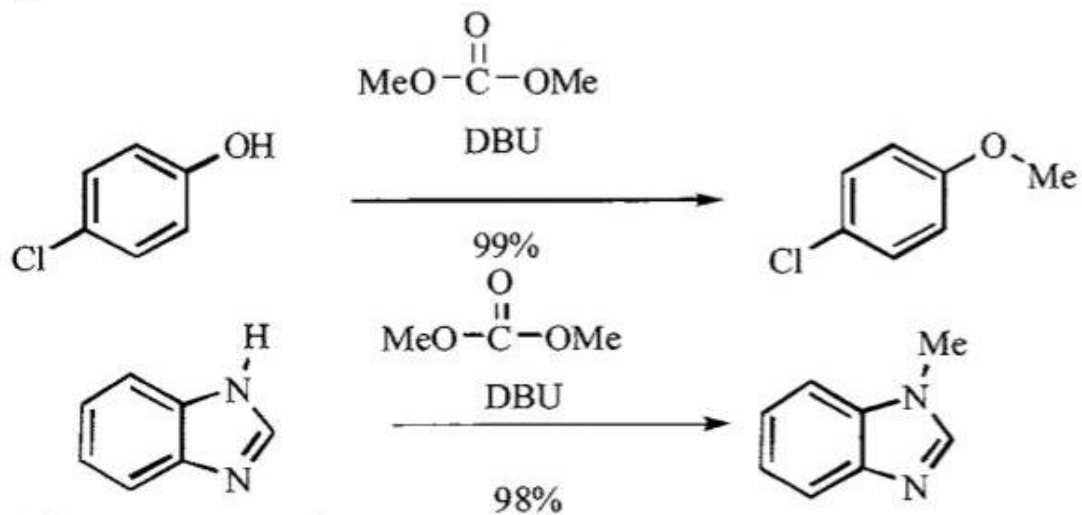
- **1,5-Diazabicyclo[5.4.0]undec-7-ene**, or more commonly **DBU**, is a chemical compound and belongs to the class of amidine compounds.
- It is used in organic synthesis as a catalyst, a complexing ligand, and a non-nucleophilic base.
- . It is also used as a curing agent for epoxy.



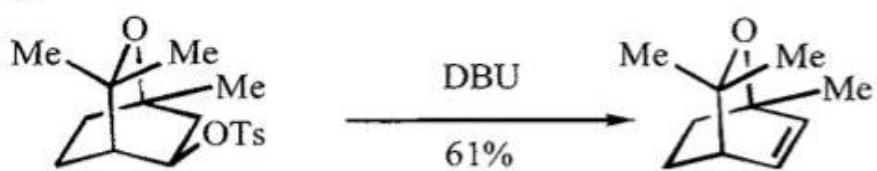
- It is used in fullerene purification with trimethylbenzene (it reacts with C 70 and higher fullerenes, but not to C 60 fullerenes)
- It is also used as a catalyst in polyurethane production.
- It has a strong catalyst effect for the reactions of alicyclic and aliphatic isocyanates.
- It also exhibited its dual character (base and nucleophile) in the synthesis of aryl- and styryl-terminal acetylenes.



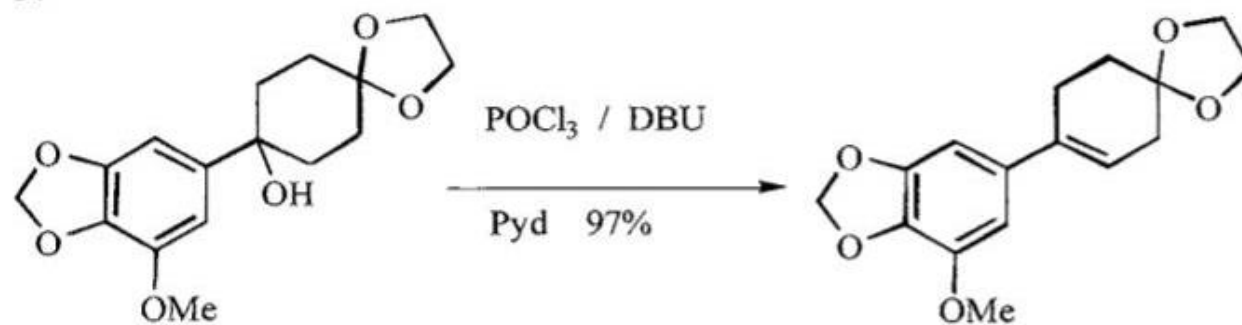
1.²



2.³

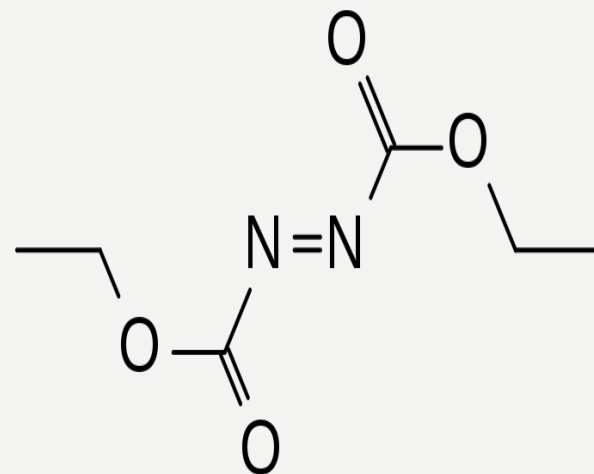


3.⁴



DEAD

- **Diethyl azodicarboxylate**, conventionally abbreviated as DEAD and sometimes as DEADCAT, is an organic compound with the structural formula $\text{CH}_3\text{CH}_2\text{O}_2\text{CN}=\text{NCO}_2\text{CH}_2\text{CH}_3$. Its molecular structure consists of a central azo functional group, $\text{RN}=\text{NR}$, flanked by two ethyl ester groups.

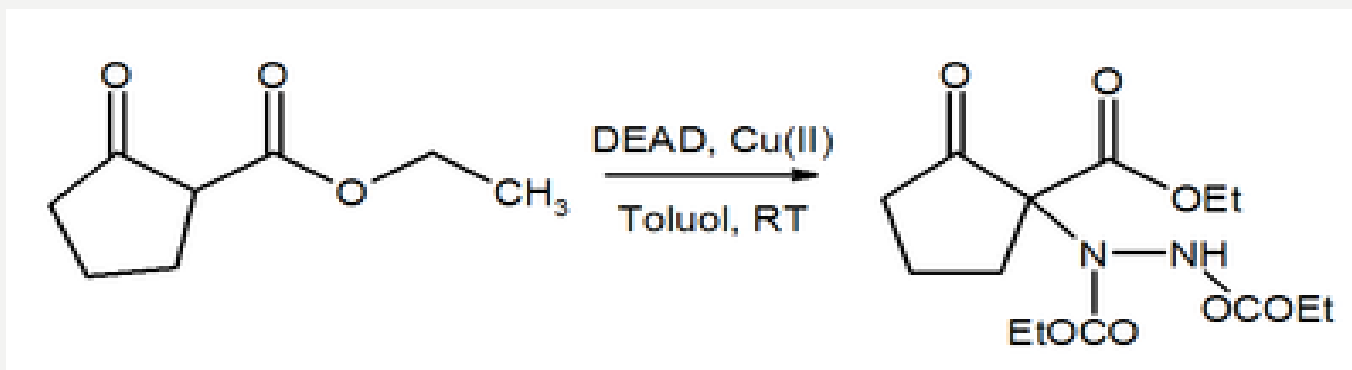


- It is an oxidising agent
- This orange-red liquid is a valuable reagent but also quite dangerous and explodes upon heating.

- Therefore, commercial shipment of pure diethyl azodicarboxylate is prohibited in the United States and is carried out either in solution or on polystyrene particles.
- DEAD is an aza-dienophile and an efficient dehydrogenating agent, converting alcohols to aldehydes, thiols to disulfides and hydrazo groups to azo groups; it is also a good electron acceptor.
- DEAD dissolves in most common organic solvents, such as toluene, chloroform, ethanol, tetrahydrofuran and dichloromethane but has low solubility in water or carbon tetrachloride; the solubility in water is higher for the related azo compound *dimethyl azodicarboxylate*.

- DEAD is a strong electron acceptor and easily oxidizes a solution of sodium iodide in glacial acetic acid.
- It also reacts vigorously with hydrazine hydrate producing diethyl hydrazodicarboxylate and evolving nitrogen.
- DEAD is toxic, shock and light sensitive; it can violently explode when its undiluted form is heated above 100 °C.
- It is most often associated with triphenylphosphine (TPP) in the Mitsunobu reaction.

- The azo group in DEAD is a Michael acceptor.
- In the presence of a copper(II) catalyst, DEAD assists conversion of β -keto esters to the corresponding hydrazine derivatives.



- The substitution of boronic acid esters proceeds similarly

