SYNLETT
# Spotlight 72

This feature focuses on a reagent chosen by a postgraduate, highlighting the uses and preparation of the reagent in current research

## Magnesium/Methanol

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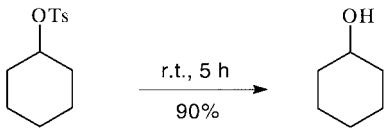
### Introduction

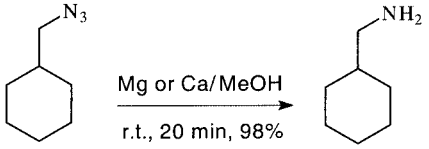
Mg/MeOH has proved to be a very useful reagent for various organic transformations. All the organic transformations using this reagent are carried out at room temperature. Anhydrous methanol is used for the reactions involving Mg/MeOH. The mildness, ease of availability of magnesium, both commercially and its natural abundance, coupled with convenient reaction conditions makes this reagent a useful choice over other methods which are expensive, toxic, and inconvenient. These aspects of this reagent are exemplified in the reductive cyclization of activated dienes where toxic and expensive reagents such as $Bu_3SnH$ and $SmI_2$ are used.

### Abstract

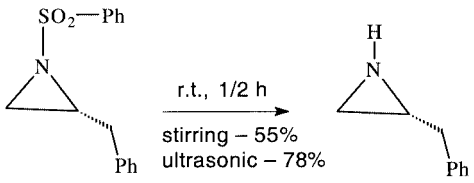
(A) Treatment of akyl and aryl touene sulfonates with Mg/MeOH constitutes an ideal procedure for regeneration of corresponding alcohols through S–O bond cleavage.[1]



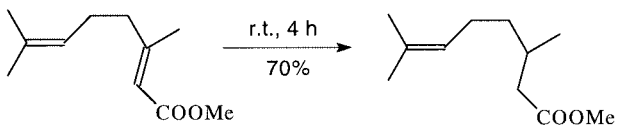

(B) Mg or Ca/MeOH provides a facile method for the reduction of alkyl and aryl azides to the corresponding amines.[2]




(C) Desulfonylation of chiral N-sulfonyl aziridines to the corresponding aziridines is carried in a mild and facile manner by Mg/MeOH.[3]




(D) Mg/MeOH offers an efficient, convenient, and selective methodology for reduction of α,β-unsaturated esters, nitriles, amides, lactams etc in the presence of a nonconjugated double bond.[4a–d]

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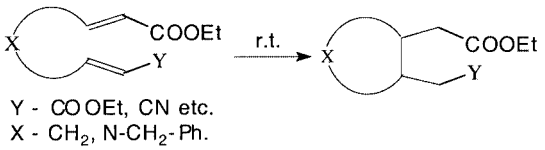
(E) When activated tethered dienes were subjected to treatment with Mg/MeOH at room temperature, facile conversion to carbocycles and heterocycles occurred in good yields.[5,6]




Y - COOEt, CN etc.
X - $CH_2$, N-$CH_2$-Ph.

## References

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