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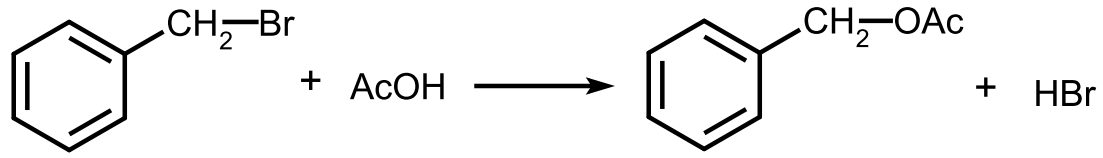
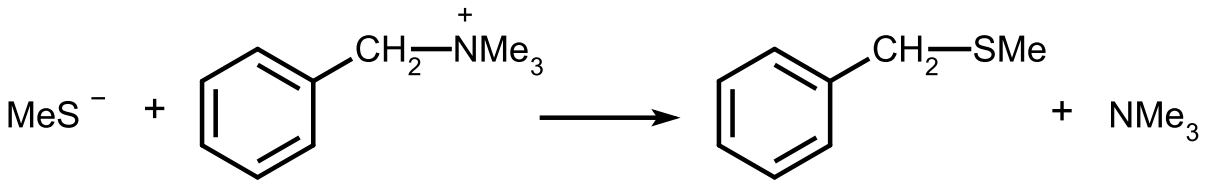
leaving group

An atom or group (charged or uncharged) that becomes detached from an atom in what is considered to be the residual or main part of the substrate in a specified reaction. For example, in the heterolytic solvolysis of benzyl bromide in acetic acid:



the leaving group is Br^-; in the reaction:



the leaving group is NMe_3 ; in the electrophilic nitration of benzene, it is H^+. The term has meaning only in relation to a specified reaction. The leaving group is not, in general, the same as the substituent group present in the substrate (e.g. bromo and trimethylammonio in the substrates of the first two examples above.) A slightly different usage of the term prevails in the (non-mechanistic) naming of transformations, where the actual substituent group present in the substrate (and also in the product) is referred to as the leaving group.

See also: electrofuge, entering group, nucleofuge

Source:

PAC, 1994, *66*, 1077 *(Glossary of terms used in physical organic chemistry (IUPAC Recommendations 1994))* on page 1134

