

# Microemulsion Mediated Organic Synthesis and the Possible Reaction Site

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## Abstract

Microemulsions (mEs), being thermodynamically stable, single phasic transparent mixtures of oil, water, surfactant (either individually or in mixed state) and/or co-surfactant, are exemplary and multi dimensional reaction media in organic synthesis. They can act as an alternative of the phase transfer catalysis and influence the rate of the reaction due to the presence of charged carriers (amphiphiles) at the oil/water interface. The regioselectivity of many organic reactions can also be induced by employing mEs as templates. In particular, organic molecules with different degrees of polarity tend to accumulate at the oil/water interface of mEs. Subsequently, they orient themselves at the interface in such a way that the polar component extends into the water domain and the nonpolar component protrudes towards hydrocarbon domain. In view of this, a water-soluble reagent attacks the polar part of the amphiphile, and a reagent soluble in hydrocarbon reacts at the nonpolar part of the amphiphile. Because of this unique feature, use of mEs (or micro heterogeneous systems) as templates for studying organic reactions, have increased manifolds. In this short review, we mainly exemplify (i) mEs as reaction media, (ii) effect of microstructure of mEs on organic transformations and (iii) the most possible reaction location/site in mEs.

**Keywords:** Effect of Microstructure, Microemulsions (mEs), Phase Transfer Catalysis, Reaction Location, Reaction Media