

Table: CONDITIONS AND RESULTS OF THE ISOMERIZATION OF ALLYL BENZENE

Quat	Counterion	[NaOH]	$t_{\frac{1}{2}}$ (min) ^a
Adogen 464 ^b	Cl ⁻	50%	12
Adogen 464	Cl ⁻	40%	53
THA ^c	Br ⁻	50%	66
TPA ^d	Br ⁻	50%	82

(a) reactions were carried out to at least 98% conversion; (b) tri-caprylmethylammonium; (c) tetrahexylammonium; (d) tetrapentylammonium.

The marked increase of the half life of the reaction by a factor of 4.5 when decreasing the hydroxide ion concentration by 20% indicates that no simple extraction constant governs the behavior of the system. This enhanced reactivity may be due to a combination of two factors: (1) a large salting out effect of the quat into the organic phase at high aqueous phase ionic strength, (2) decreased hydration of the attacking hydroxide ion due to the reduced availability of water molecules to accompany the hydroxide ion into the organic phase.

At constant hydroxide ion concentration in systems containing the same counterion, homologous quats (THA and TPA) probably demonstrate behavior consistent with their relative extraction constants.

Further investigation of hydroxide ion initiated reactions under PTC conditions is being carried out.

REFERENCES AND NOTES

1. "Compendium of Phase-Transfer Reactions and Related Synthetic Methods", W. Keller, ed. Fluka AG, CH-9470 Buchs, Switzerland, 1979.
2. W. Weker, G. Gokel, "Phase Transfer Catalysis in Organic Synthesis", Springer-Verlag, Berlin, 1977.
3. L. Lindblom, M. Elander, *Pharmaceutical Technology*, 59 (1980).
4. M. Makosza, *Pure Appl. Chem.*, **43**, 439 (1975).
5. A. Herriott, D. Picker, *J. Amer. Chem. Soc.* **97**, 2345 (1975).
6. M. Makosza, *Bull. Acad. Polon. Sci.*, **15**, 1656 (1967). DMSO was required for the success of this reaction.
7. K. Bowden, R. Cook, *J. Chem. Soc. Perkin Trans. 2*, 1407 (1972).

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