



OSAKA ORGANIC CHEMICAL INDUSTRY LTD.

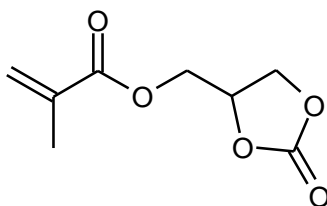
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GMEC

(2-Oxo-1,3-dioxolan-4-yl)methyl methacrylate, CAS No. 13818-44-5



Description

GMEC is methacrylate monomer with propylene carbonate (PC) moiety. The reactivity of this monomer has been widely studied [1, 2, 3] but it seems that it has not been commercially available. Thermosetting coatings based on the cyclic carbonate-amine reaction are attractive because polyurethane coatings can be made neither isocyanate nor tin catalyst under moderate conditions like 80°C [1, 2, next page]. That means we can make acryl urethane paint without residual isocyanate and harmful tin.

In addition, PC is well used as battery electrolyte solution of ultracapacitor because of its high polarizability, electrolyte solubility, and boiling point. Therefore, the polymer having cyclic carbonate group solves great amount of electrolyte, then the solution (or gel) has high ionic conductivity [3].

Suggested Applications

Low toxicity cross-linker

Electrolyte support polymer

Performance properties

Medium reactivity as cross-linker

High polarity

Typical chemical properties

Appearance	Colorless liquid
Color, APHA	20 or less
Purity, GC%	over 97
Acid value, %	0.10 or less
Water, %	0.10 or less

References

[1] Dean C. Webster, Allen L. Crain, Progress in Organic Coatings 40 (2000) 275-282

[2] Dean C. Webster, Progress in Organic Coatings 47, 2003, 77-86

[3] Josh H. Golden, Benjamin G. M. Chew, David B. Zax, Macromolecules 1995, 28, 3468-70

Reactions

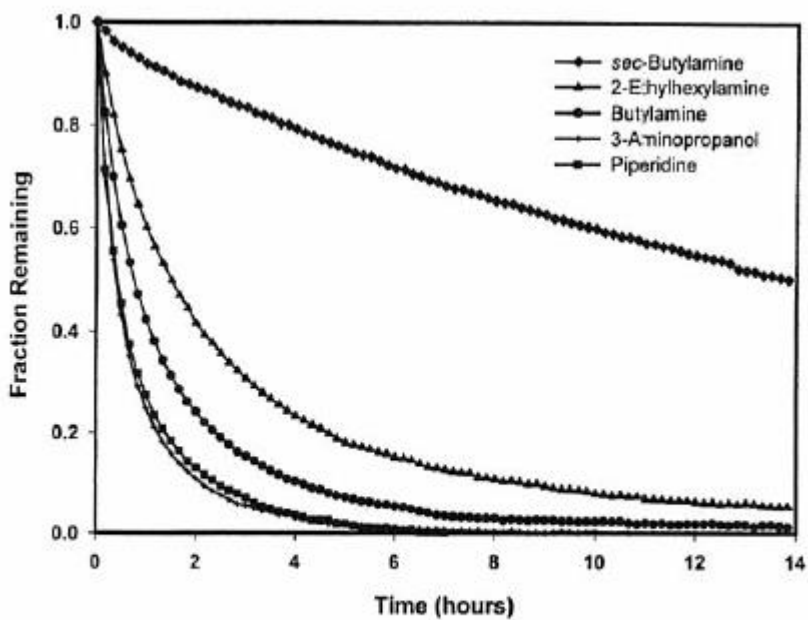
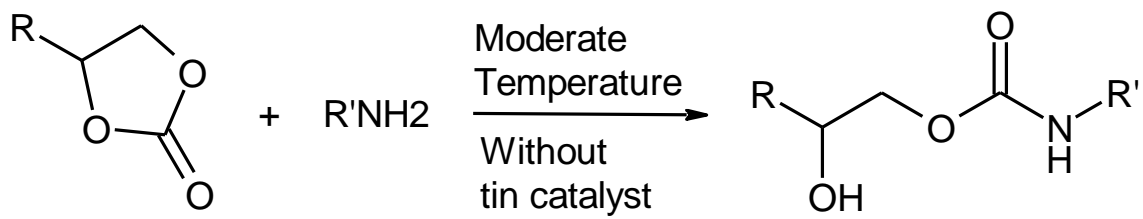


Fig. 1. Disappearance of propylene carbonate at 80°C in PM for mono-functional amines. $C_{\text{amine}}/C_{\text{carbonate}} = 2.0$.