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United States Patent [19]

Leppard et al.

[11] **Patent Number:** 5,767,169[45] **Date of Patent:** Jun. 16, 1998[54] **PHOTOPOLYMERIZABLE COMPOSITIONS COMPRISING ALKOXYPHENYL-SUBSTITUTED BISACYLPHOSPHINE OXIDES**[75] **Inventors:** David George Leppard, Marly, Switzerland; Manfred Köhler, Freiburg, Germany[73] **Assignee:** Ciba Specialty Chemicals Corporation, Tarrytown, N.Y.[21] **Appl. No.:** 601,595[22] **Filed:** Feb. 14, 1996**Related U.S. Application Data**

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[30] **Foreign Application Priority Data**

Sep. 2, 1994 [CH] Switzerland 2691/94

[51] **Int. Cl.⁶** **C08F 2/46**[52] **U.S. Cl.** **522/64; 522/18; 430/281.1; 430/916; 430/923**[58] **Field of Search** **522/18, 64; 430/281.1, 430/916, 923**[56] **References Cited****U.S. PATENT DOCUMENTS**

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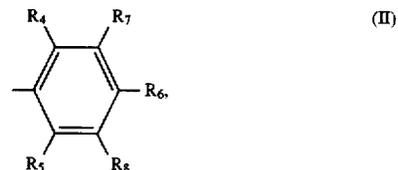
Derwent Abstract 91-269010/37 of EP-A-446175.

Primary Examiner—George F. Lesmes*Assistant Examiner*—Bernard P. Codd*Attorney, Agent, or Firm*—Michele A. Kovaleski; Victoria M. Malia[57] **ABSTRACT**

A photopolymerizable composition comprising (a) at least one ethylenically unsaturated photopolymerizable compound, and (b) alkoxyphenyl-substituted bisacylphosphine oxides of the formula I



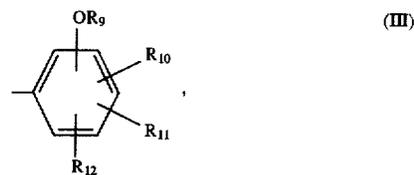
in which R₁ and R₂ are identical or different and are a radical of the formula II



in which R₄ and R₅ independently of one another are C₁-C₁₂ alkyl or C₁-C₁₂ alkoxy, and

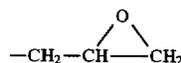
R₆, R₇ and R₈ independently of one another are hydrogen, C₁-C₁₂ alkyl, C₁-C₁₂ alkoxy or halogen,

R₃ is a radical of the formula III

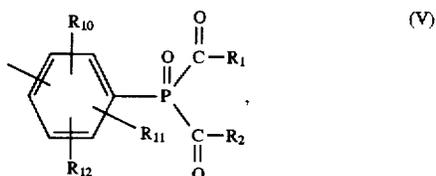
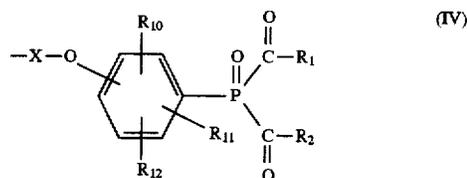


in which

R₉ is C₁-C₂₀ alkyl, C₂-C₂₀ alkyl, C₅-C₆ cycloalkyl, phenyl, naphthyl, phenyl-C₁-C₅ alkyl, C₂-C₁₂ alkenyl, —CF₃ or



or R₉ is a radical of the formula IV or V

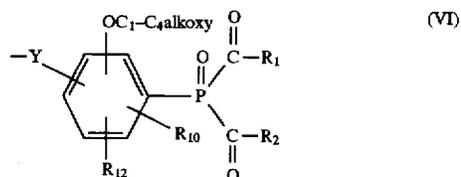


in which

X is for example C₁-C₁₆ alkylene, C₄-C₁₂ alkenylene or is xylylene,

R₁₀ is for example hydrogen, C₁-C₂₀ alkyl, C₂-C₁₂ alkenyl, cyclopentyl, cyclohexyl, phenyl with 1 or 2 C₁-C₄ alkyl and/or C₁-C₄ alkoxy groups, or is C₁-C₄ alkoxy,

R₁₁ is hydrogen, C₁-C₂₀ alkyl, C₂-C₁₂ alkenyl, cyclopentyl, cyclohexyl, phenyl, or is C₁-C₄ alkoxy, or is a radical of the formula VI



or