



US006420588B1

(12) **United States Patent**  
**McCloskey et al.**

(10) **Patent No.:**       **US 6,420,588 B1**  
(45) **Date of Patent:**       **Jul. 16, 2002**

(54) **INTERFACIAL METHOD OF PREPARING  
ESTER-SUBSTITUTED DIARYL  
CARBONATES**

(75) Inventors: **Patrick Joseph McCloskey**, Watervliet;  
**Timothy Brydon Burnell**,  
Schenectady; **Daniel Joseph Brunelle**,  
Burnt Hills; **Elliott West Shanklin**,  
Altamont; **Paul Michael Smigelski, Jr.**,  
Schenectady, all of NY (US); **Ganesh  
Kailasam**, Murcia (ES)

(73) Assignee: **General Electric Company**,  
Niskayuna, NY (US)

(\*) Notice:       Subject to any disclaimer, the term of this  
patent is extended or adjusted under 35  
U.S.C. 154(b) by 0 days.

(21) Appl. No.: **09/911,440**

(22) Filed:       **Jul. 24, 2001**

(51) **Int. Cl.**<sup>7</sup> ..... **C07C 69/96**

(52) **U.S. Cl.** ..... **558/274**

(58) **Field of Search** ..... 558/274

(56)               **References Cited**

**U.S. PATENT DOCUMENTS**

5,874,605 A \* 2/1999 Yoshida et al. .... 558/274

5,900,501 A \* 5/1999 Ooms et al. .... 558/274

5,980,445 A \* 11/1999 Mizukami et al. .... 58/274

6,093,842 A \* 7/2000 Oyevaar et al. .... 558/274

6,262,210 B1 \* 7/2001 Tojo et al. .... 526/270

6,294,684 B1 \* 9/2001 de Bruin et al. .... 558/274

6,348,613 B2 \* 2/2002 Miyamoto et al. .... 558/274

6,350,893 B1 \* 2/2002 Ritzer et al. .... 558/275

**FOREIGN PATENT DOCUMENTS**

EP               980861 A1       2/2000

JP               11302228       11/1999

WO               9845246       10/1998

\* cited by examiner

*Primary Examiner*—Deborah C. Lambkin

(74) *Attorney, Agent, or Firm*—Andrew J. Caruso; Noreen  
C. Johnson

(57)               **ABSTRACT**

High yields of ester-substituted diary carbonates such as bis-methyl salicyl carbonate were obtained by the condensation of methyl salicylate with phosgene in the presence of a phase transfer catalyst (PTC) in an interfacial reaction system in which the pH of the aqueous phase was greater than 9.3. Using the method of the present invention conversions of greater than 99% were obtained whereas under standard conditions using triethylamine as the catalyst conversions were limited to 70–75% of the methyl salicylate starting material even with a 20 mole % excess of added phosgene. The optimized conditions of the of the present invention use only a slight excess of phosgene and represent an attractive route for the manufacture of bis methyl salicyl carbonate and ester-substituted diaryl carbonates generally.

**22 Claims, No Drawings**