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United States Patent [19]

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[45] Oct. 25, 1983

[54] UNSYMMETRICAL POLYNITROCARBONATES AND SYMMETRICAL 1,3-BIS(HALO- AND NITROALKYL CARBONYLDIOXY)-2,2-DINITROPROPANES AND METHODS OF PREPARATION

[75] Inventors:

[73] Assignee: The United States of America as represented by the Secretary of the Navy, Washington, D.C.

[21] Appl. No.: 354,260

[22] Filed: Mar. 3, 1982

Related U.S. Application Data

[62] Division of Ser. No. 224,776, Jan. 13, 1981, Pat. No. 4,332,744.

[51] Int. Cl.[3] C07C 69/96

[52] U.S. Cl. 260/463

[58] Field of Search 260/463

[56] References Cited

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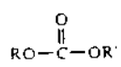
Attorney, Agent, or Firm—R. S. Sciascia; A. L. Branning; R. D. Johnson

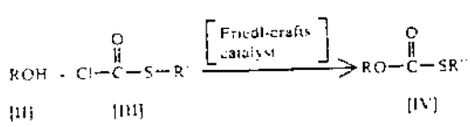
[57] ABSTRACT

Unsymmetrical carbonates of the formula



[I]

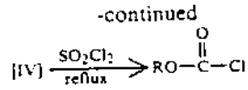
are prepared by the following reaction sequence



(1)

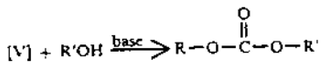
[II] [III] [IV]

-continued



(2)

[IV] [V]

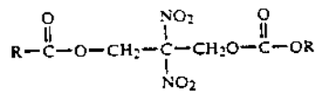


(3)

[V] [VI] [I]

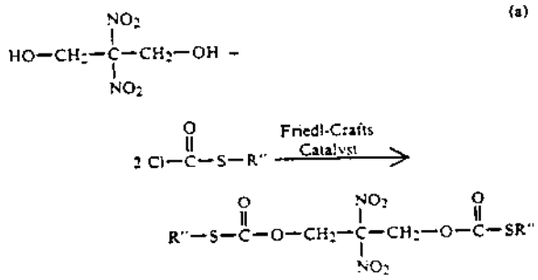
where R and R' can each be $-CH_2C(NO_2)_3$, $CH_2CF(NO_2)_2$, $-CH_2CF_2(NO_2)$, $-CH_2CCl(NO_2)_2$, $-CH_2CF_3$, $-CH_2CCl_3$, $-CH_2C(NO_2)_2CH_3$, or $-CH_2CF_2CF_2H$, provided that R≠R' and wherein R'' is a lower alkyl group of from 1 to 6 carbon atoms.

Also included are symmetrical 1,3-bis(halo- and nitroalkyl carbonyldioxy)-2,2-dinitropropanes of the formula



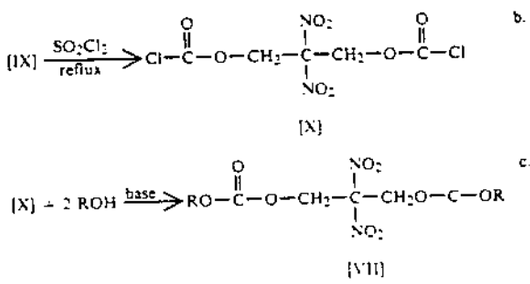
[VII]

which are synthesis by the following reaction sequence



(a)

[IX]



b.

[IX] [X]

c.

[X] [VII]

wherein R and R'' are as defined above.

The carbonates of this invention are useful as energetic additives to propellants and explosive.

1 Claim, No Drawings