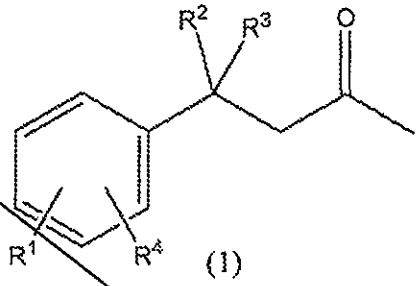
5. The propellant according to any one of claims 1 to 4, wherein the energetic material is nitrocellulose.

6. The propellant according to any one of claims 2 to 5, wherein the compound of formula 1 is in the form of a coating on the surface of the granules.

7. The propellant according to any one of claims 1 to 6, further comprising a graphite layer.

~~8. A burn rate modifier comprising a compound of formula 1~~



(1)

~~wherein~~

~~R^1 is selected from the group consisting of H, -OH, -O(C_{1-4}alkyl), -C_{1-4}alkyl, -NHC_{1-4}alkyl, -N(C_{1-4}alkyl)$_2$, -NO_2, -$NHNH_2$, -N(C_{1-4}alkyl)NH_2, and -CN;~~

~~R^2 is selected from the group consisting of -H, -OH, -O-(C_{1-4}alkyl), -C_{1-4}alkyl, -NHC_{1-4}alkyl, -N(C_{1-4}alkyl)$_2$, -NO_2, -$NHNH_2$, -N(C_{1-4}alkyl)NH_2, and -CN;~~

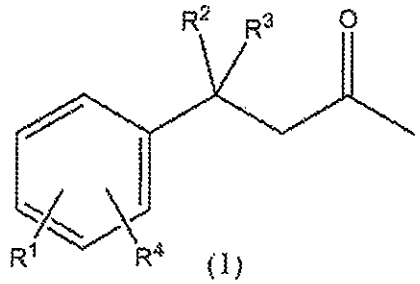
~~R^3 is selected from the group consisting of -H and -C_{1-4}alkyl; and~~

~~R^4 is selected from the group consisting of -H, -OH, -O(C_{1-4}alkyl), -C_{1-4}alkyl, -NHC_{1-4}alkyl, -N(C_{1-4}alkyl)$_2$, -NO_2, -$NHNH_2$, -N(C_{1-4}alkyl)NH_2, and -CN;~~

~~and wherein at least one of R^1, R^2 and R^4 is OH.~~

~~9. The burn rate modifier according to claim 8, wherein the compound is 4-(4-hydroxyphenyl)butan-2-one.~~

8 ~~10.~~ Use of a compound of formula 1



(1)

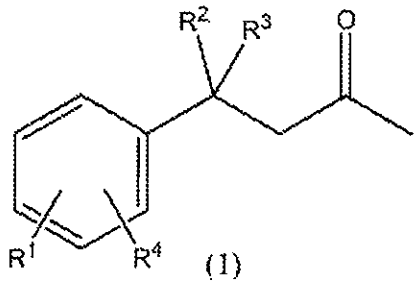
wherein

R^1 is selected from the group consisting of H, -OH, -O(C_{1-4}alkyl), -C_{1-4}alkyl, -NHC_{1-4}alkyl, -N(C_{1-4}alkyl)$_2$, -NO_2, -$NHNH_2$, -N(C_{1-4}alkyl)NH_2, and -CN;

R^2 is selected from the group consisting of -H, -OH, -O-(C_{1-4}alkyl), -C_{1-4}alkyl, -NHC_{1-4}alkyl, -$N(C_{1-4}alkyl)_2$, -NO_2, -$NHNH_2$, -$N(C_{1-4}alkyl)NH_2$, and -CN;
R^3 is selected from the group consisting of -H and -C_{1-4}alkyl; and
R^4 is selected from the group consisting of -H, -OH, -O(C_{1-4}alkyl), -C_{1-4}alkyl, -NHC_{1-4}alkyl, -$N(C_{1-4}alkyl)_2$, -NO_2, -$NHNH_2$, -$N(C_{1-4}alkyl)NH_2$, and -CN;
and wherein at least one of R^1, R^2 and R^4 is OH;
as a burn rate modifier.

9 ~~11~~. The use according to claim 8 ~~10~~, wherein the compound is 4-(4-hydroxyphenyl)butan-2-one.

10 ~~12~~. A method of preparing a propellant, comprising coating granules of an energetic material with a compound of formula 1



(1)

wherein
R^1 is selected from the group consisting of H, -OH, -O(C_{1-4}alkyl), -C_{1-4}alkyl, -NHC_{1-4}alkyl, -$N(C_{1-4}alkyl)_2$, -NO_2, -$NHNH_2$, -$N(C_{1-4}alkyl)NH_2$, and -CN;
R^2 is selected from the group consisting of -H, -OH, -O-(C_{1-4}alkyl), -C_{1-4}alkyl, -NHC_{1-4}alkyl, -$N(C_{1-4}alkyl)_2$, -NO_2, -$NHNH_2$, -$N(C_{1-4}alkyl)NH_2$, and -CN;
R^3 is selected from the group consisting of -H and -C_{1-4}alkyl; and
R^4 is selected from the group consisting of -H, -OH, -O(C_{1-4}alkyl), -C_{1-4}alkyl, -NHC_{1-4}alkyl, -$N(C_{1-4}alkyl)_2$, -NO_2, -$NHNH_2$, -$N(C_{1-4}alkyl)NH_2$, and -CN;
and wherein at least one of R^1, R^2 and R^4 is OH.

11 ~~13~~. The method of claim 10 ~~12~~, wherein the granules of energetic material are formed by extruding a slurry or dough of the energetic material to form an extrudate cord and cutting the extrudate cord.

12 ~~14~~. The method according to claim 11 ~~13~~, wherein the energetic material is extruded with a perforation.

13 ~~15~~. The method according to any one of claims 10 ~~12~~ to 12 ~~14~~, wherein the compound of formula 1 is diffused into the granules of energetic material.

14 ~~16~~. The method according to any one of claims 10 ~~12~~ to 13 ~~15~~, wherein the compound of formula 1 is dispersed evenly throughout the granules of energetic material.

15 ~~17~~. An ammunition cartridge comprising a propellant according to any one of claims 1 to ~~8~~ 7.

16 ~~18~~. An ammunition cartridge comprising a casing, a propellant according to any one of claims 1 to ~~8~~ 7, a primer and a projectile.