

Photocatalysts

Photopolymerization of free radical curing monomers has the advantage over heat curing as it allows solvent-free continuous systems, low temperature cure, and energy savings. The cure rate of coatings is a function of surface thickness, monomer reactivity and radiation intensity.¹⁻⁶ When irradiated, the photocatalyst undergoes pi electron transition to the singlet state which may stabilize at the triplet state, which a life time of $> 10^6$ seconds. Free radical formation from the triplet state may occur by H-abstraction or by intramolecular splitting. Most photocatalysts are energized by ultraviolet light. Camphorquinone is unique in that it develops free radicals by blue-light irradiation. It is most efficiently used with electron transfer accelerators such as amines or amines containing monomers.

If other photocatalysts are of interest to you, please let us know as we welcome suggestions for additions to the products listed below.

NOTE: The full chemical, physical and toxicological properties of the products mentioned herein are not known. Avoid contact with eyes or skin or respiratory tract. Wear protective goggles and gloves. Avoid breathing vapors and mist. Use only with adequate ventilation. In case of accident, immediately flush either eyes or skin with plenty of water for at least 15 minutes; for eyes, get medical attention. Remove contaminated clothing and shoes at once and wash them thoroughly before re-use. Wash immediately after handling.

Ordering Information:

Cat. #	Description	Size
01946	Benzil	25g 500g
01359	Benzoin ethyl ether	250g
00425	Benzoin methyl ether	100g
17181	Camphorquinone (Blue-light activated)	10g 50g
00932	Benzoin iso-propyl ether	100g
03440	4,4' Bis(dimethylamino)benzophenone	50g
21260	4-(2-Hydroxyethoxy)phenyl 2-hydroxy-2-propyl ketone	25g
18430	4-Hydroxy-2-methyl-1-phenyl-1-propanone	25g
21314	2-iso-Propylthioxanthone 97%	25g
24067	2,4,6-Trimethylbenzoyldiphenylphosphine oxide	10g

To Order:

In The U.S. Call: 1-800-523-2575 • 215-343-6484 In Germany Call: (49) 6221-765767
In The U.S. FAX: 1-800-343-3291 • 215-343-0214 In Germany FAX: (49) 6221-764620

Order online anytime at www.polysciences.com

References:

1. Farben und Lack, 83, 171 (1977); 84, 27 (1978).
2. Adhaison, 1976, 234.
3. J. Oil Colour Chem. Assoc., 59, 240 (1976); 60, 474 (1977); 61, 179 (1978).
4. J. Rad. Curing, 3, 2 (1976).
5. Prog. Org. Coatings, 3, 115 (1975).
6. U.S. Pat. Nos. 3,715,293; 3,801,329; 4,503,169.

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