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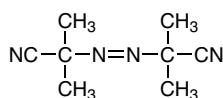
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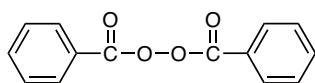
Polymerization Initiators

Initiators are often used in chain-growth polymerization such as radical polymerization to regulate initiation by heat or light.

Thermal polymerization initiators are compounds that generate radicals or cations upon exposure to heat. For example, azo compounds such as 2,2'-azobis(isobutyronitrile) (AIBN) and organic peroxides such as benzoyl peroxide (BPO) are well-known thermal radical initiators, and benzenesulfonic acid esters and alkylsulfonium salts have been developed as thermal cation initiators.

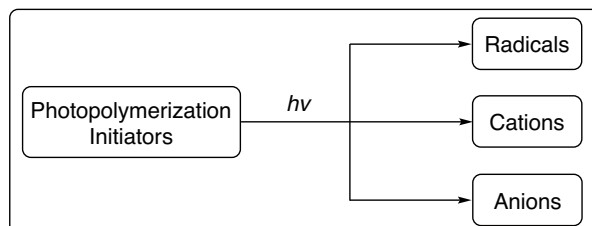


AIBN
[A0566]



BPO
[B3152]

Photopolymerization initiators are used in many fields to generate photocurable composites. These composites are polymerized by irradiation with UV light and electron beam which leads to altered physical properties of the composites such as solubility, viscosity and adhesiveness. In particular, the phenomenon in which a liquid changes into a solid is most useful and is applied to surface-treating techniques in fields including paints, printing inks, dental materials, lithography, photoresist, etc.



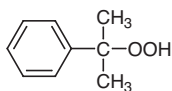
Photopolymerization initiators can be divided roughly into three groups with the generated active species, as shown in the upper figure. The conventional photopolymerization initiators generate free radicals upon light irradiation, and the resulting radical starts the polymerization process. Typical initiators are represented by benzoin derivatives. Photo-acid generators which produce cations (acid) by light irradiation, were put to practical use in the late 1990s. Photo-base generators, which produce anions (base) by light irradiation, are of current interest in research.

References

- The Chemistry of Radical Polymerization*, 2nd ed., ed. by G. Moad, D. H. Solomon, Elsevier B.V., Amsterdam, **2005**.
- Photopolymers: Photoresist Materials, Processes, and Applications*, ed. by K. Nakamura, CRC Press, Florida, **2014**.

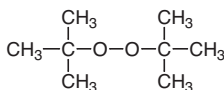
Thermal Polymerization Initiators

C2223 100g



Cumene Hydroperoxide (contains ca. 20% Aromatic Hydrocarbon)
CAS RN: 80-15-9

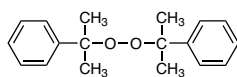
D3411 100mL



Di-tert-butyl Peroxide
CAS RN: 110-05-4

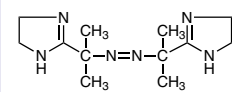
Thermal Radical Initiators

D4894 100g 500g



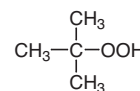
Dicumyl Peroxide (contains ca. 60% CaCO₃)
CAS RN: 80-43-3

A3012 25g 100g



2,2'-Azobis[2-(2-imidazolin-2-yl)propane] Dihydrochloride
CAS RN: 27776-21-2

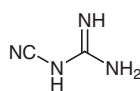
B3153 100g



TBHP (70% in Water)
CAS RN: 75-91-2

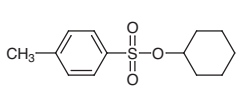
Thermal Cationic Initiators

C0454 25g 500g



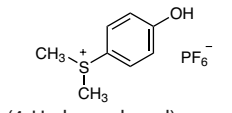
Dicyandiamide
CAS RN: 461-58-5

C2363 5g 25g



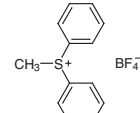
Cyclohexyl Tosylate
CAS RN: 953-91-3

H1776 5g



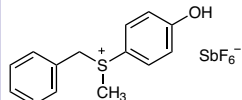
(4-Hydroxyphenyl)-dimethylsulfonium Hexafluorophosphate
CAS RN: 59626-68-5

D2685 1g 5g



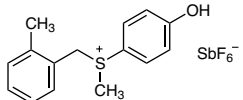
Diphenyl(methyl)sulfonium Tetrafluoroborate
CAS RN: 10504-60-6

B5428 5g 25g



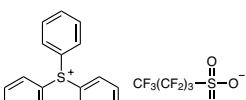
Benzyl(4-hydroxyphenyl)-methylsulfonium Hexafluoroantimonate
CAS RN: 125662-42-2

H1620 5g 25g



(4-Hydroxyphenyl)methyl-(2-methylbenzyl)sulfonium Hexafluoroantimonate
CAS RN: 141651-31-2

T3038 1g 5g

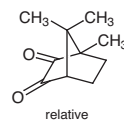


Triphenylsulfonium Nonaflate
CAS RN: 144317-44-2

Photopolymerization Initiators

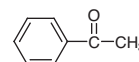
Photo-Radical Initiators

C0014 5g 25g



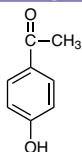
(±)-Camphorquinone
CAS RN: 10373-78-1

A0061 25g 500g



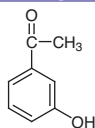
Acetophenone
CAS RN: 98-86-2

H0193 25g 100g 500g



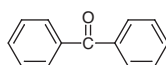
4'-Hydroxyacetophenone
CAS RN: 99-93-4

A0104 25g 100g 500g



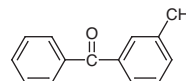
3'-Hydroxyacetophenone
CAS RN: 121-71-1

B0083 25g 500g



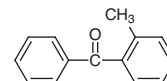
Benzophenone
CAS RN: 119-61-9

M1247 5g 25g



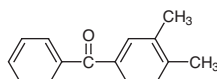
3-Methylbenzophenone
CAS RN: 643-65-2

M0903 25g



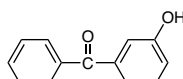
2-Methylbenzophenone
CAS RN: 131-58-8

D3289 25g



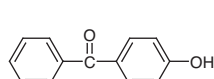
3,4-Dimethylbenzophenone
CAS RN: 2571-39-3

H1518 5g 25g



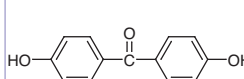
3-Hydroxybenzophenone
CAS RN: 13020-57-0

H0222 25g 500g



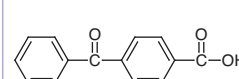
4-Hydroxybenzophenone
CAS RN: 1137-42-4

D0577 25g 100g 500g



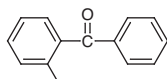
4,4'-Dihydroxybenzophenone
CAS RN: 611-99-4

B1164 5g 25g



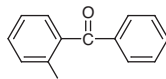
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CAS RN: 611-95-0

B0103 25g 500g



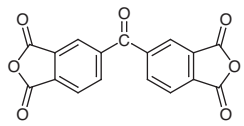
2-Benzoylbenzoic Acid
CAS RN: 85-52-9

B1231 25g 100g 500g



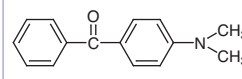
Methyl 2-Benzoylbenzoate
CAS RN: 606-28-0

B0948 25g 100g 500g



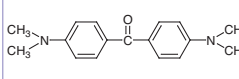
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CAS RN: 2421-28-5

D2561 5g 25g



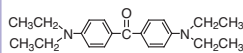
4-(Dimethylamino)-benzophenone
CAS RN: 530-44-9

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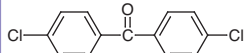
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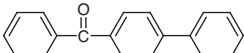
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CAS RN: 90-93-7

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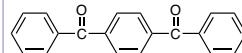
4,4'-Dichlorobenzophenone
CAS RN: 90-98-2

P1116 25g



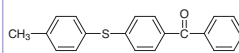
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CAS RN: 2128-93-0

D4196 5g



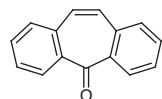
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CAS RN: 3016-97-5

B1267 10g



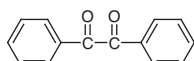
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D1791 25g



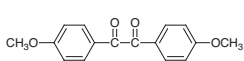
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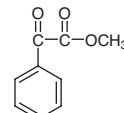
Benzil
CAS RN: 134-81-6

A1028 5g 25g



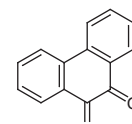
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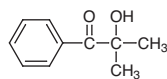
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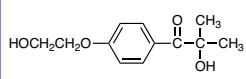
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CAS RN: 84-11-7

H0991 25g 100g 500g



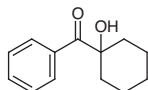
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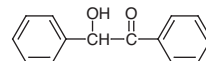
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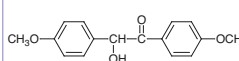
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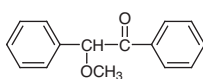
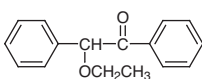
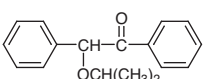
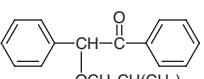
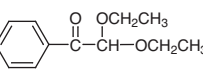
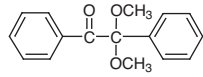
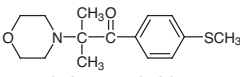
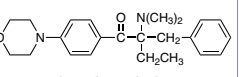
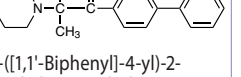
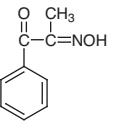
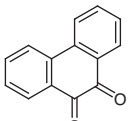
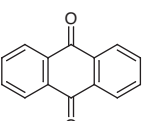
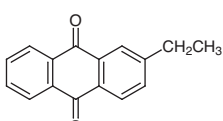
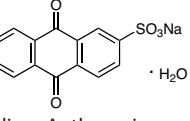
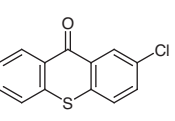
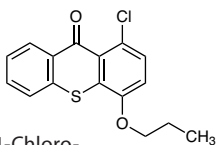
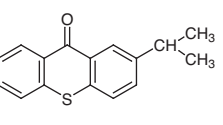
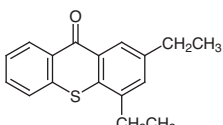
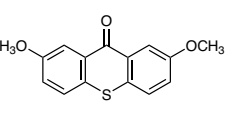
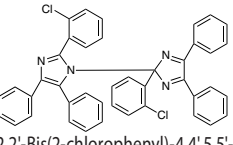
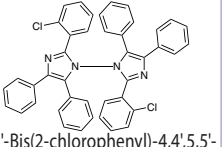
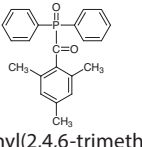
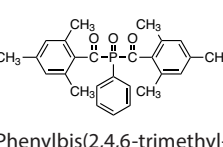
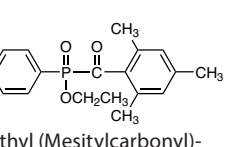
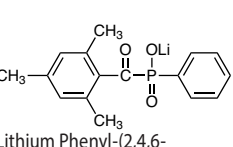
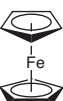
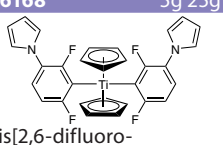
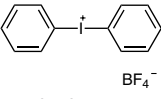
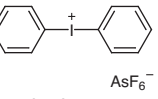
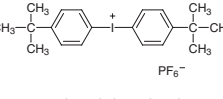
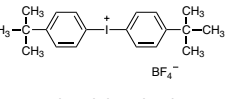
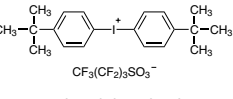
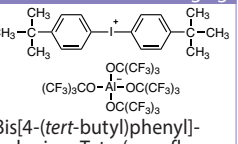
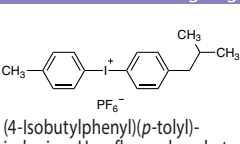
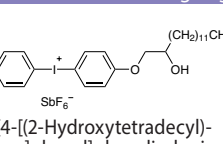
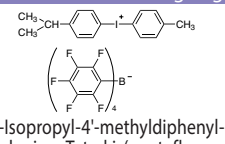
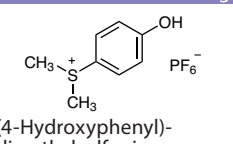


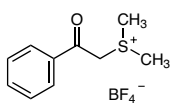
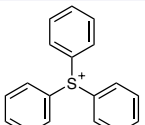
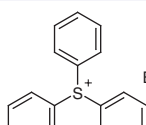
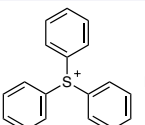
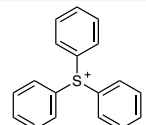
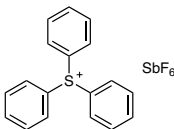
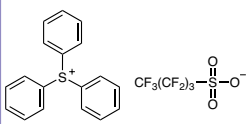
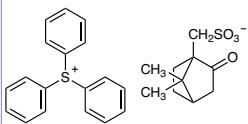
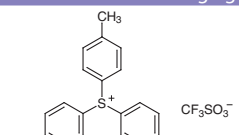
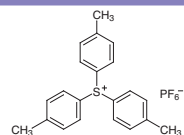
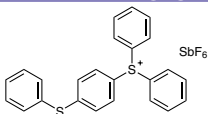
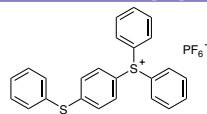
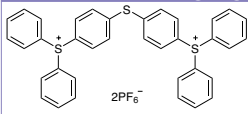
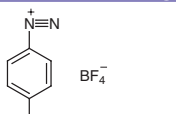
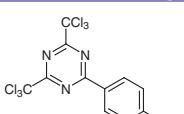
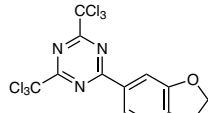
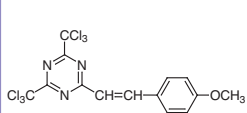
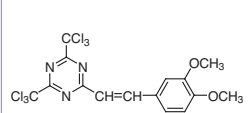
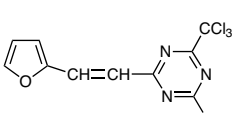
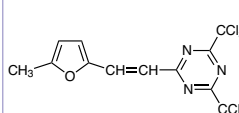
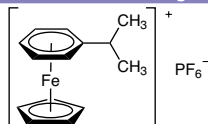
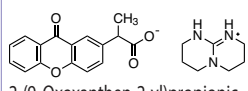
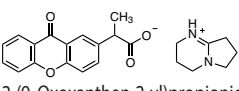
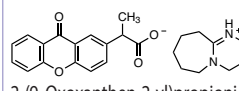
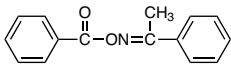
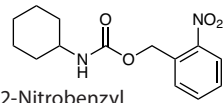
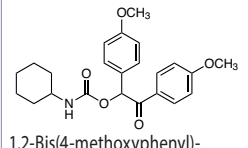
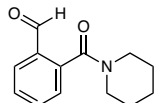
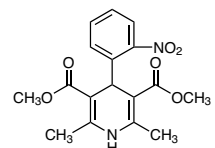
Benzoin
CAS RN: 119-53-9

A1010 25g 100g



Anisoin
CAS RN: 119-52-8

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P00805g 25g  9,10-Phenanthrenequinone CAS RN: 84-11-7	A050225g 500g  Anthraquinone CAS RN: 84-65-1	E006325g 500g  2-Ethylantraquinone CAS RN: 84-51-5	A050825g 500g  Sodium Anthraquinone- 2-sulfonate Monohydrate CAS RN: 153277-35-1	C02925g 25g  2-Chlorothioxanthone CAS RN: 86-39-5
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B403225g  2,2'-Bis(2-chlorophenyl)-4,4',5,5'- tetraphenyl-1,1'-biimidazole CAS RN: 1707-68-2	D335825g  Diphenyl(2,4,6-trimethyl- benzoyl)phosphine Oxide CAS RN: 75980-60-8	P23125g 25g  Phenylbis(2,4,6-trimethyl- benzoyl)phosphine Oxide CAS RN: 162881-26-7	E090825g 100g  Ethyl (Mesitylcarbonyl)- phenylphosphinate CAS RN: 84434-11-7	L02901g 5g  Lithium Phenyl(2,4,6- trimethylbenzoyl)phosphinate CAS RN: 85073-19-4
D044425g 100g 500g  Ferrocene CAS RN: 102-54-5	B61685g 25g  Bis[2,6-difluoro- 3-(1H-pyrrol-1-yl)phenyl]- titanocene CAS RN: 125051-32-3	Photo-Cationic Initiators		
D51181g 5g  Diphenyliodonium Tetrafluoroborate CAS RN: 313-39-3	D22481g  Diphenyliodonium Hexafluoroarsenate CAS RN: 62613-15-4	B23801g 5g  Bis(4-<i>tert</i>-butylphenyl)iodonium Hexafluorophosphate CAS RN: 61358-25-6	B56611g 5g  Bis(4-<i>tert</i>-butylphenyl)iodonium Tetrafluoroborate CAS RN: 62051-09-6	B60711g 5g  Bis(4-<i>tert</i>-butylphenyl)iodonium Nonafate CAS RN: 194999-85-4
B5956100mg 1g  Bis[4-(<i>tert</i>-butyl)phenyl]- iodonium Tetra(nonafluoro- <i>tert</i>-butoxy)aluminate CAS RN: 2350272-68-1	M33795g 25g  (4-Isobutylphenyl)(<i>p</i>-tolyl)- iodonium Hexafluorophosphate (ca. 70% in Propylene Carbonate) CAS RN: 344562-80-7	H16835g 25g  [4-[(2-Hydroxytetradecyl)- oxy]phenyl]phenyliodonium Hexafluoroantimonate CAS RN: 139301-16-9	I05915g 25g  4-Isopropyl-4'-methylidiphenyl- iodonium Tetrakis(pentafluoro- phenyl)borate CAS RN: 178233-72-2	H17765g  (4-Hydroxyphenyl)- dimethylsulfonium Hexafluorophosphate CAS RN: 59626-68-5

D22311g 5g  Dimethylphenacylsulfonium Tetrafluoroborate CAS RN: 24806-57-3	T40255g 25g  Triphenylsulfonium Chloride CAS RN: 4270-70-6	T1609100mg 1g 5g  Triphenylsulfonium Bromide CAS RN: 3353-89-7	T16081g 5g  Triphenylsulfonium Tetrafluoroborate CAS RN: 437-13-8	T40135g 25g  Triphenylsulfonium Hexafluorophosphate CAS RN: 57835-99-1		
T40125g 25g  Triphenylsulfonium Hexafluoroantimonate CAS RN: 57840-38-7	T30381g 5g  Triphenylsulphonium Nonaflate CAS RN: 144317-44-2	T40241g 5g  Triphenylsulfonium 10-Camphorsulfonate CAS RN: 227199-92-0	T20421g 5g  Tri-p-tolylsulfonium Triflate CAS RN: 127820-38-6	T20411g  Tri-p-tolylsulfonium Hexafluorophosphate CAS RN: 146062-15-9		
D59521g 5g 25g  Diphenyl[4-(phenylthio)- phenyl]sulfonium Hexafluorostibate CAS RN: 71449-78-0	D59901g 5g 25g  Diphenyl[4-(phenylthio)- phenyl]sulfonium Hexafluorophosphate CAS RN: 75482-18-7	B63245g 25g  (Thiodi-4,1-phenylene)- bis(diphenylsulfonium) Bis(hexafluorophosphate) CAS RN: 74227-35-3	N013725g  4-Nitrobenzenediazonium Tetrafluoroborate CAS RN: 456-27-9	M12455g 25g  2-(4-Methoxyphenyl)-4,6- bis(trichloromethyl)-1,3,5-triazine CAS RN: 3584-23-4		
B36335g 25g  2-(1,3-Benzodioxol-5-yl)-4,6- bis(trichloromethyl)-1,3,5-triazine CAS RN: 71255-78-2	M21405g 25g  2-(4-Methoxystyryl)-4,6- bis(trichloromethyl)-1,3,5-triazine CAS RN: 42573-57-9	D29635g  2-(3,4-Dimethoxystyryl)-4,6- bis(trichloromethyl)-1,3,5-triazine CAS RN: 42880-07-9	F03625g  2-[2-(Furan-2-yl)vinyl]-4,6- bis(trichloromethyl)-1,3,5-triazine CAS RN: 154880-05-4	M12095g  2-[2-(5-Methylfuran-2-yl)vinyl]-4,6- bis(trichloromethyl)-1,3,5-triazine CAS RN: 156360-76-8		
C37515g 25g  (Cumene)cyclopentadienyliron(II) Hexafluorophosphate CAS RN: 32760-80-8	Photo-Anionic Initiators			O03961g  2-(9-Oxoxanthene-2-yl)propionic Acid 1,5,7-Triazabicyclo[4.4.0]dec- 5-ene Salt CAS RN: 1346753-09-0	O04471g  2-(9-Oxoxanthene-2-yl)propionic Acid 1,5-Diazabicyclo[4.3.0]non- 5-ene Salt CAS RN: 1346753-04-5	O04481g  2-(9-Oxoxanthene-2-yl)propionic Acid 1,8-Diazabicyclo[5.4.0]undec- 7-ene Salt CAS RN: 1346753-05-6
A25021g 5g  Acetophenone O-Benzoyloxime CAS RN: 26060-56-0	N10521g  2-Nitrobenzyl Cyclohexylcarbamate CAS RN: 119137-03-0	B5085200mg 1g  1,2-Bis(4-methoxyphenyl)- 2-oxoethyl Cyclohexylcarbamate CAS RN: 196599-80-1	P27501g 5g  1-(2-Formylbenzoyl)piperidine CAS RN: 84538-49-8	N052810g 25g  Nifedipine CAS RN: 21829-25-4		

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