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Fluorescent Monomers

Polymerizable Fluorescent Compounds

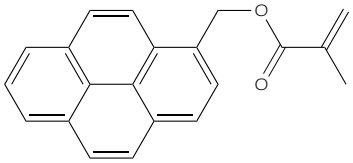
Fluorescent groups have been introduced into polymers by several routes each with its own special limitations. Chain termination by polycyclic hydrocarbons introduces fluorescent groups but fluorescence intensity would not be great at high polymer molecular weights. Reactive fluorescent compounds can be reacted with an appropriate functional group on the polymer chain but in most cases producing the proper reactive dye or polymer and convenient reaction conditions may be difficult. The most elegant and versatile route would be to introduce fluorescence by way of monomers bearing fluorescent moieties which would be a part of the polymer chain at the time it was formed. Such monomers have not, however, been commercially available, at least until now.

Scientists at Polysciences have created a series of fluorescent monomers in the versatile methacrylate ester/methacrylamide family. Structures were chosen to produce fluorescence at a variety of wave lengths and the monomers can be copolymerized with many other monomer types. Fluorescence intensity is easily varied by adjusting the amount of fluorescent monomer in the polymer.

Four of the monomers planned have been prepared and are available for your research use. All of the monomers give a single spot in TLC. Their names, structures, and physical properties are as follows. The other monomers planned will be available in the second quarter of 1995.

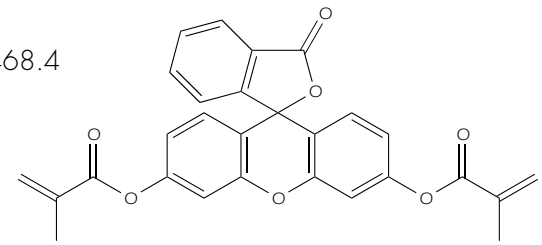
Catalog #23588

1-Pyrenylmethyl methacrylate [86112-79-0]
M.P. 99-101°C
Pale yellow crystals
Exc max 339nm
Emiss max 394nm
$C_{21}H_{16}O_2$ MW 300.3



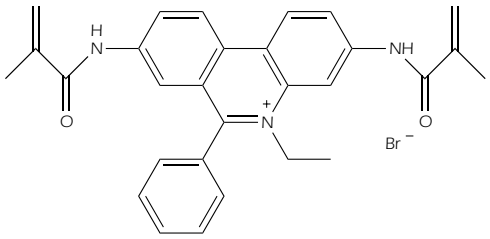
Catalog #23589

Fluorescein dimethacrylate (3′ 6′-dimethacryloxyspirobenzo(c)-furan(1.9′)xanthen-3-one)
M.P. 154.5-156°C
Off-white crystals
Exc max 470nm
Emiss max 511nm
$C_{28}H_{20}O_7$ MW 468.4



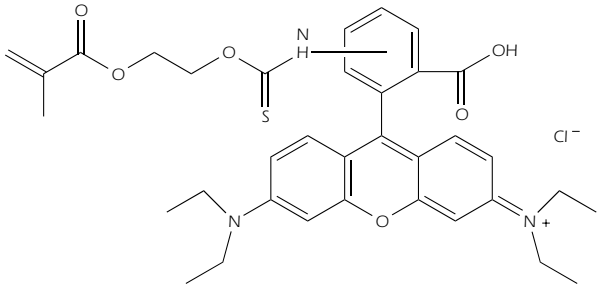
Catalog #23590

3,8-Dimethacryloyl ethidium bromide (5-ethyl-3,8-dimethacrylamido-6-phenylphenanthridinium bromide)
M.P. 245.5-247°C
Orange Crystals
Exc max 439nm
Emiss max 512nm
$C_{29}\ H_{28}\ Br\ N_3\ O_2$ MW 530.2



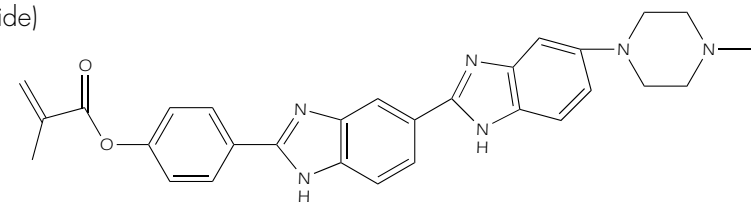
Catalog #23591

Methacryloxyethyl thiocarbamoyl rhodamine B (N-[9-(2-carboxy-x-methacryloxyethylthiocarbamoyl-phenyl)-6-diethylamino-3H-xanthen-3-ylidene]-N-ethylethanaminium chloride)
M.P. > 90°C <105°C
Purple Crystals
Exc max 548nm
Emiss max 570nm
$C_{35}\ H_{40}\ N_3\ O_6\ S\ Cl \cdot H_2O$



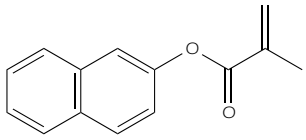
Catalog #23592

O-Methacryloyl Hoechst 33258 (2'-(4-methacryloxyphenyl)-5-(4-methyl-1-piperazinyl)-2, 5'-bibenzimidazolyl dihydrochloride)
M.P. > 280°C
Off-white crystals
Exc max 355nm
Emiss max 497nm
$C_{29}\ H_{28}\ N_6\ O_2 \cdot 5\ H_2O$ MW 580.59



Catalog #23602

2-Naphthyl methacrylate
M.P. 60.5-61.5°C
Colorless crystals
Exc max 285nm
Emiss max 345nm
$C_{14}\ H_{12}\ O_3$ MW 228.24



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