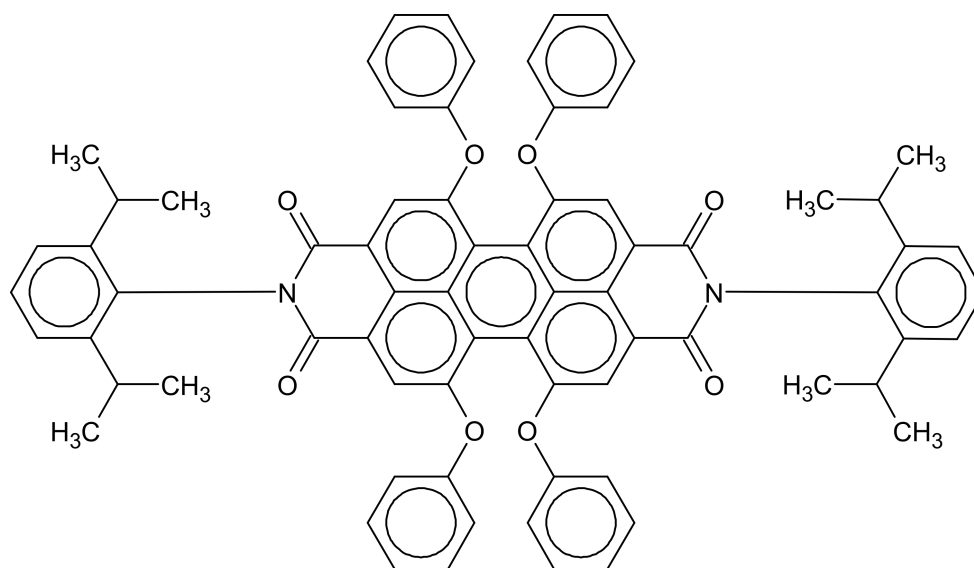


Luminophore

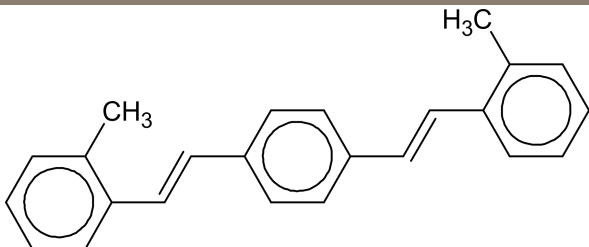
1. Voraussetzungen für Luminophore und Wahl der Substanzklasse

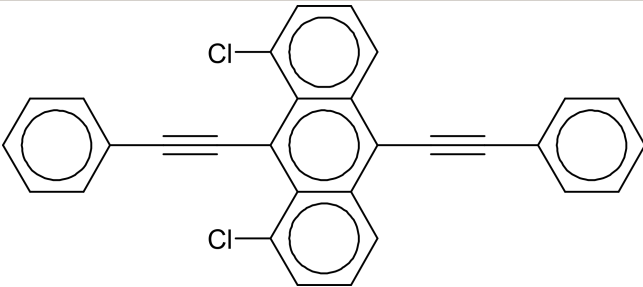
Damit eine ausreichende elektronische Anregung des Luminophors erfolgen kann, sollte es so beschaffen sein, dass die Elektronen des betreffenden Stoffes gut „erreichbar“, großflächig verteilt und in großer Zahl vorhanden sind. Das π -Elektronensystem der Aromaten ist hierzu hervorragend geeignet. Erst recht, wenn wir ein komplexes System aus mehreren einzelnen π -Systemen vorliegen haben. Solch eine Situation hätten wir bei den kondensierten benzoiden Aromaten vorliegen. Es eignen sich hierfür gleichermaßen die linear kondensierten Vertreter, vor allem Anthracen und Naphthacen, wie auch die angular kondensierten, wie Phenanthren oder Benz[*b*]anthracen. Weitere Variationsmöglichkeiten ergeben sich, wenn in die betreffenden Moleküle Chromophore, wie z. B. Nitrogruppen, Halogenatome u. Ä., eingeführt werden.

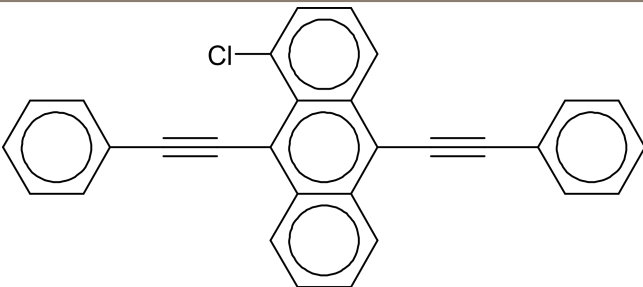
Wie so etwas im „Extremfall“ aussehen kann, zeigt die BASF mit dem von ihr entwickelten Luminophor „KF 856“:



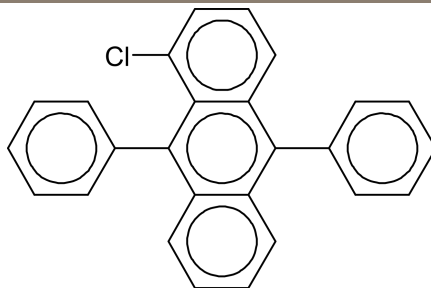
2. Geeignete Luminophore für die Chemolumineszenz

1,4-Bis(2-methylstyryl)-benzol			
			
Summenformel	Molare Masse (M)	CAS-Nr.	EG-Nr.
C ₂₄ H ₂₂	310.43 g/mol	13280-61-0	236-285-5

1,8-Dichlor-9,10-bis(phenylethynyl)-anthracen			
			
Summenformel	Molare Masse (M)	CAS-Nr.	EG-Nr.
C ₃₀ H ₁₆ Cl ₂	447.354 g/mol	51749-83-8	-

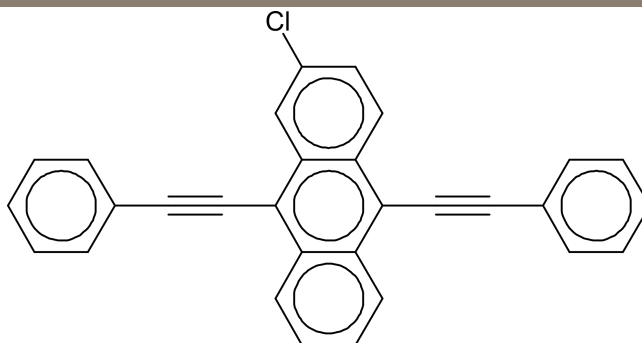
1-Chlor-9,10-bis(phenylethynyl)-anthracen			
			
Summenformel	Molare Masse (M)	CAS-Nr.	EG-Nr.
C ₃₀ H ₁₇ Cl	412.909 g/mol	41105-35-5	225-220-1

1-Chlor-9,10-diphenylanthracen



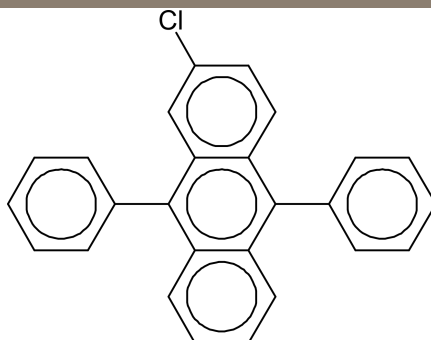
Summenformel	Molare Masse (M)	CAS-Nr.	EG-Nr.
$C_{26}H_{17}Cl$	364.866 g/mol	43217-27-2	-

2-Chlor-9,10-bis(phenylethynyl)-anthracen



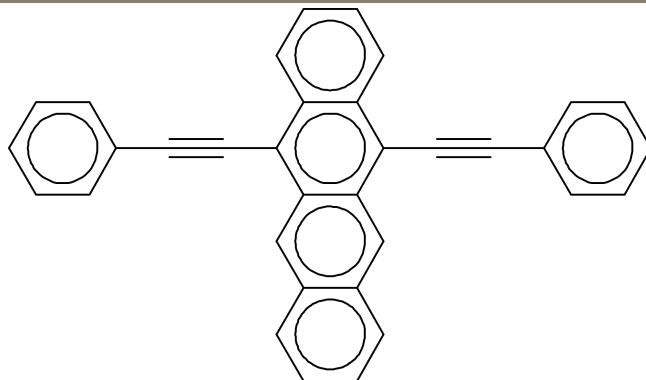
Summenformel	Molare Masse (M)	CAS-Nr.	EG-Nr.
$C_{30}H_{17}Cl$	412.909 g/mol	41105-36-6	-

2-Chlor-9,10-diphenylanthracen



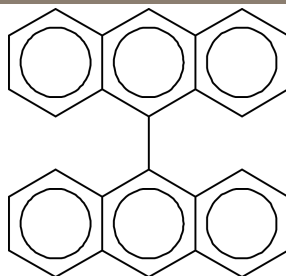
Summenformel	Molare Masse (M)	CAS-Nr.	EG-Nr.
$C_{26}H_{17}Cl$	364.866 g/mol	43217-28-3	-

5,12-Bis(phenylethynyl)-naphthacen



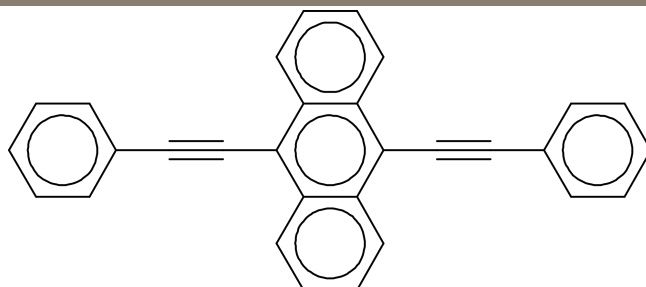
Summenformel	Molare Masse (M)	CAS-Nr.	EG-Nr.
C ₃₄ H ₂₀	428.523 g/mol	18826-29-4	242-605-4

9,9'-Bianthryl



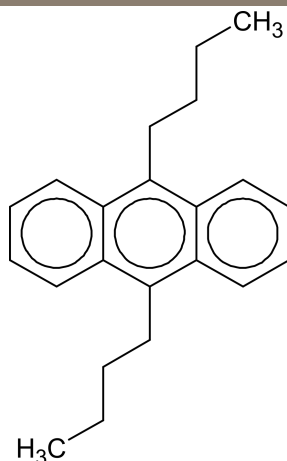
Summenformel	Molare Masse (M)	CAS-Nr.	EG-Nr.
C ₂₈ H ₁₈	354.456 g/mol	1055-23-8	-

9,10-Bis(phenylethynyl)-anthracen



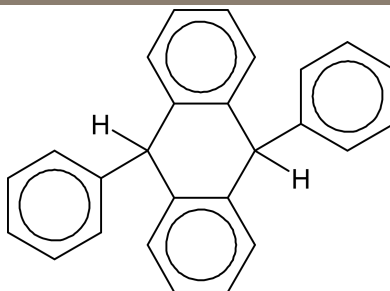
Summenformel	Molare Masse (M)	CAS-Nr.	EG-Nr.
C ₃₀ H ₁₈	378.46 g/mol	10075-85-1	233-210-8

9,10-Di-*n*-butylanthracen



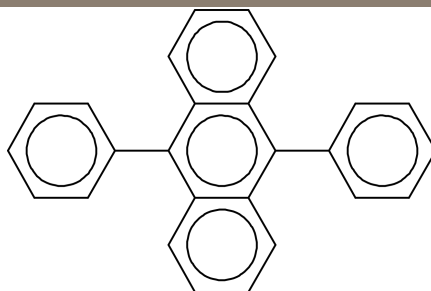
Summenformel	Molare Masse (M)	CAS-Nr.	EG-Nr.
C ₂₂ H ₂₆	290.44 g/mol	1624-34-6	-

9,10-Diphenyl-9,10-dihydro-anthracen



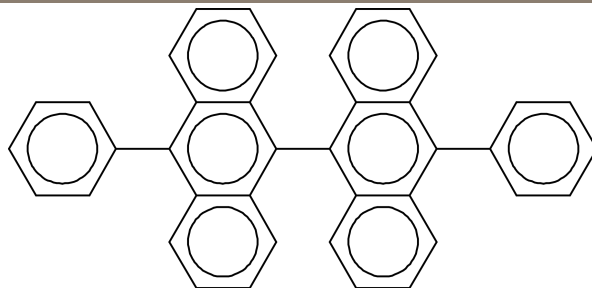
Summenformel	Molare Masse (M)	CAS-Nr.	EG-Nr.
C ₂₆ H ₂₀	332.437 g/mol	803-58-7	-

9,10-Diphenylanthracen



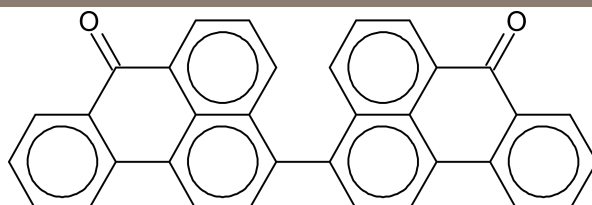
Summenformel	Molare Masse (M)	CAS-Nr.	EG-Nr.
C ₂₆ H ₁₈	330.43 g/mol	1499-10-1	216-105-1

10,10'-Diphenyl-9,9'-bianthryl



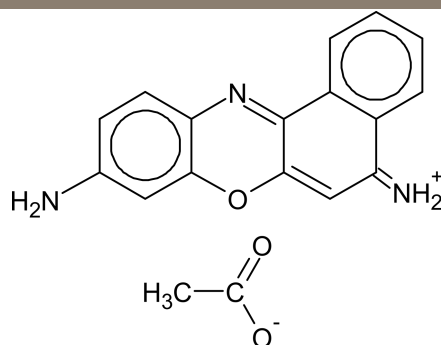
Summenformel	Molare Masse (M)	CAS-Nr.	EG-Nr.
C ₄₀ H ₂₆	506.63 g/mol	23102-67-2	-

13,13'-Dibenzanthronyl



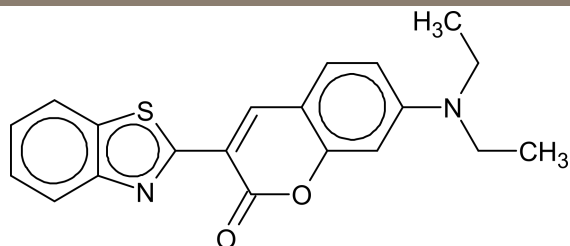
Summenformel	Molare Masse (M)	CAS-Nr.	EG-Nr.
C ₃₄ H ₁₈ O ₂	458.13 g/mol	116-96-1	204-166-7

Cresylviolettacetat



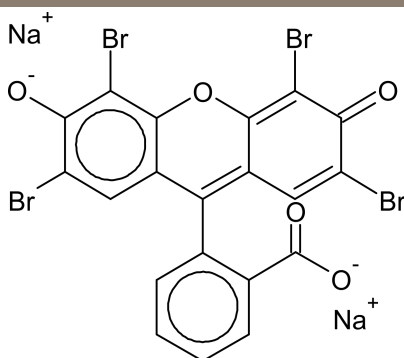
Summenformel	Molare Masse (M)	CAS-Nr.	EG-Nr.
C ₁₈ H ₁₅ N ₃ O ₃	321.33 g/mol	10510-54-0	234-043-3

Cumarin 6



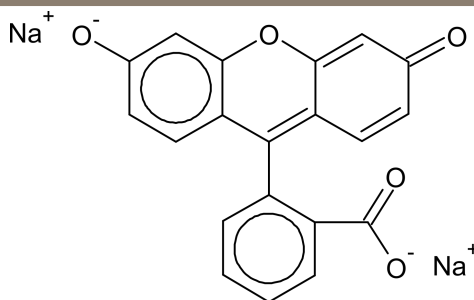
Summenformel	Molare Masse (M)	CAS-Nr.	EG-Nr.
C ₂₀ H ₁₈ N ₂ O ₂ S	350.43 g/mol	38215-36-0	253-830-2

Eosin Natriumsalz



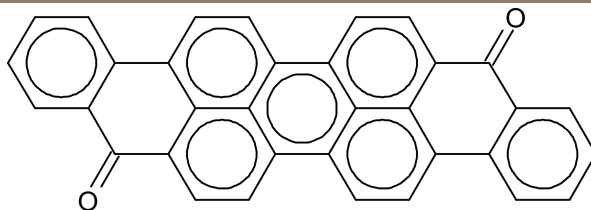
Summenformel	Molare Masse (M)	CAS-Nr.	EG-Nr.
C ₂₀ H ₆ Br ₄ Na ₂ O ₅	691.85 g/mol	17372-87-1	241-409-6

Fluorescein Natriumsalz (Natriumfluorescein)



Summenformel	Molare Masse (M)	CAS-Nr.	EG-Nr.
C ₂₀ H ₁₂ Na ₂ O ₅	378.29 g/mol	518-47-8	208-253-0

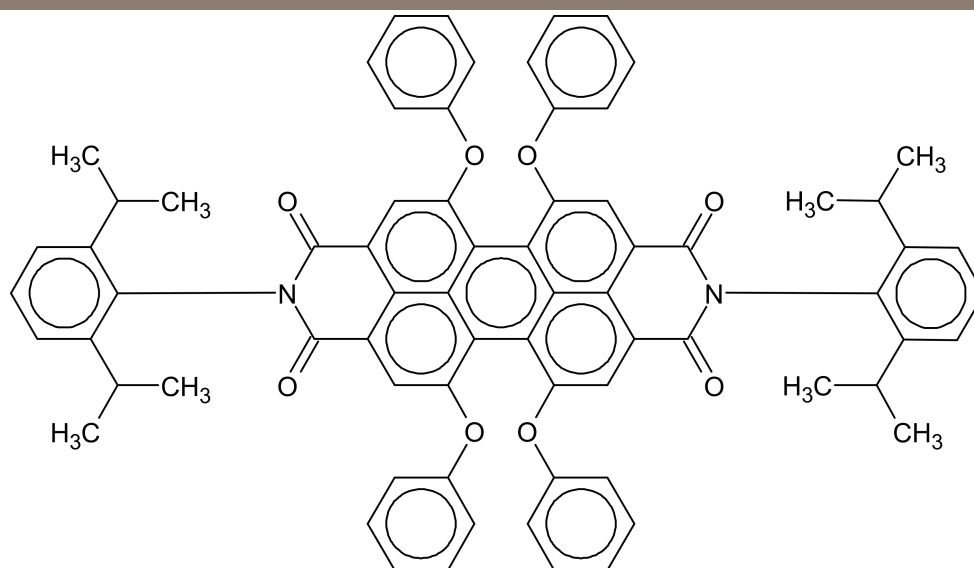
Isoviolanthron



Summenformel	Molare Masse (M)	CAS-Nr.	EG-Nr.
$C_{34}H_{16}O_2$	456.49 g/mol	128-64-3	204-901-1

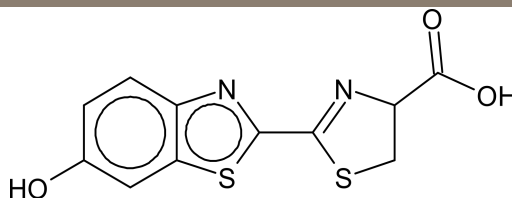
KF 856 (BASF)

(N,N-Bis(2,6-diisopropylphenyl)-1,6,7,12-tetraphenoxyperylen-3,4:9,10-tetracarboxidiimid)



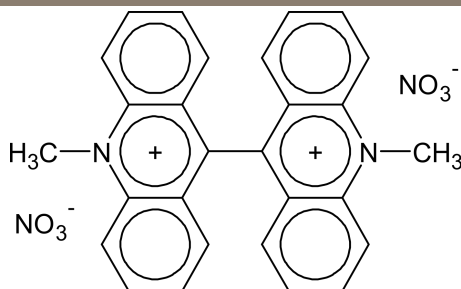
Summenformel	Molare Masse (M)	CAS-Nr.	EG-Nr.
$C_{72}H_{58}N_2O_8$	1079.24 g/mol	123174-58-3	-

Luciferin



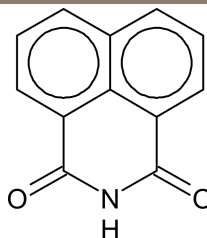
Summenformel	Molare Masse (M)	CAS-Nr.	EG-Nr.
$C_{11}H_8N_2O_3S_2$	280.32 g/mol	2591-17-5	219-981-3

Lucigenin



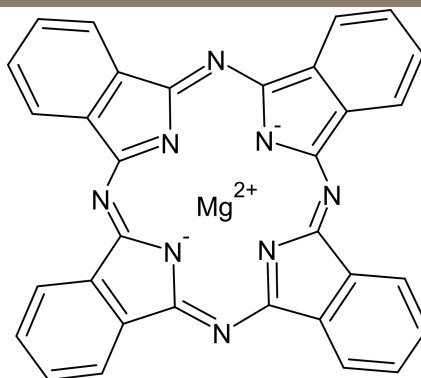
Summenformel	Molare Masse (M)	CAS-Nr.	EG-Nr.
$C_{28}H_{22}N_4O_6$	510.50 g/mol	2315-97-1	219-023-4

Luminogen F violett



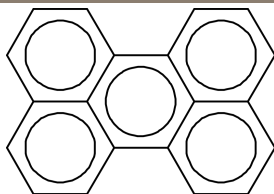
Summenformel	Molare Masse (M)	CAS-Nr.	EG-Nr.
$C_{12}H_7NO_2$	197.19 g/mol	81-83-4	201-379-7

Magnesiumphthalocyanin



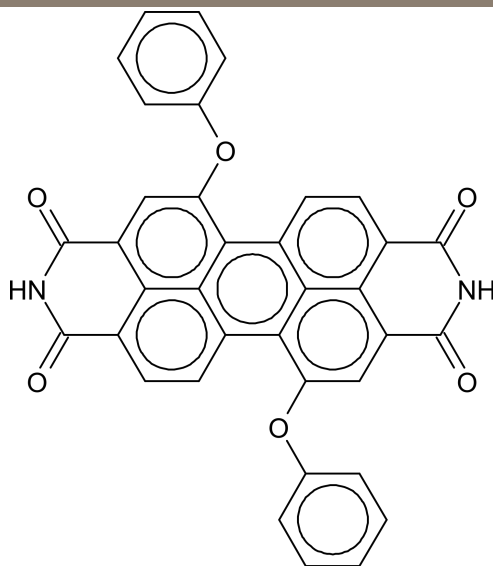
Summenformel	Molare Masse (M)	CAS-Nr.	EG-Nr.
$C_{32}H_{16}MgN_8$	536.84 g/mol	1661-03-6	216-766-6

Perylen



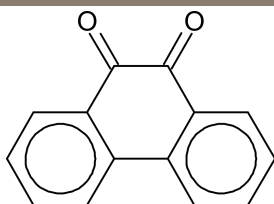
Summenformel	Molare Masse (M)	CAS-Nr.	EG-Nr.
$C_{20}H_{12}$	252.31 g/mol	198-55-0	205-900-9

Perylenimid PP 27



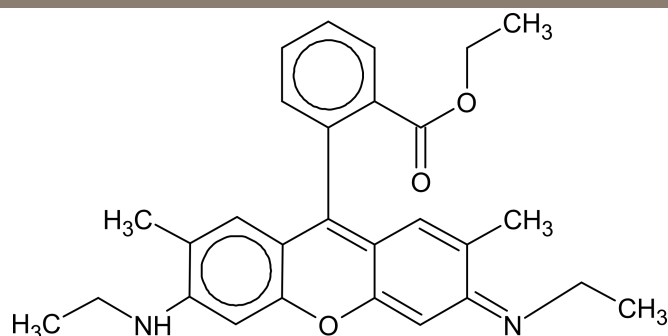
Summenformel	Molare Masse (M)	CAS-Nr.	EG-Nr.
$C_{36}H_{18}N_2O_6$	574.54 g/mol	-	-

Phenanthrenchinon



Summenformel	Molare Masse (M)	CAS-Nr.	EG-Nr.
$C_{14}H_8O_2$	208.22 g/mol	84-11-7	201-515-5

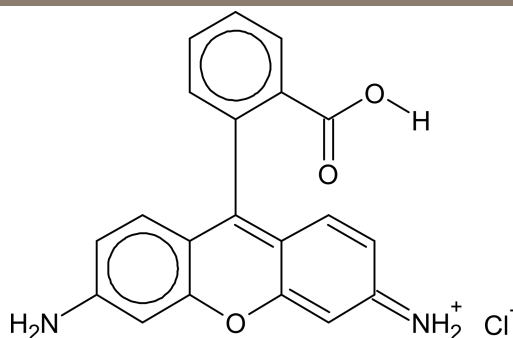
Rhodamin 6G



HCl

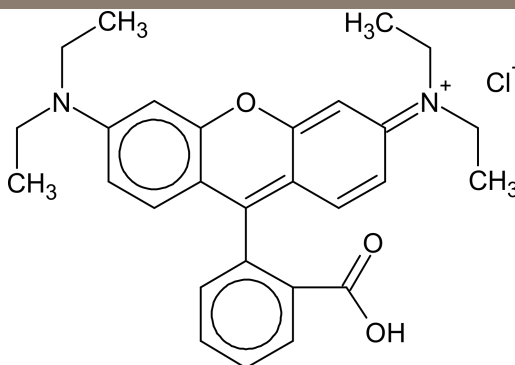
Summenformel	Molare Masse (M)	CAS-Nr.	EG-Nr.
$C_{28}H_{31}N_2O_3Cl$	479.02 g/mol	989-38-8	213-584-9

Rhodamin 110



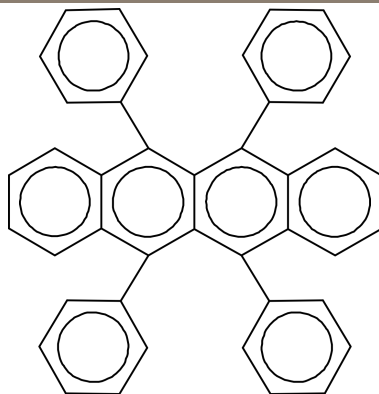
Summenformel	Molare Masse (M)	CAS-Nr.	EG-Nr.
$C_{20}H_{14}N_2O_3 \cdot HCl$	366.80 g/mol	13558-31-1	236-944-7

Rhodamin B



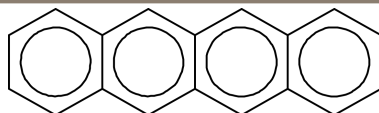
Summenformel	Molare Masse (M)	CAS-Nr.	EG-Nr.
$C_{28}H_{31}ClN_2O_3$	479.01 g/mol	81-88-9	201-383-9

Rubren



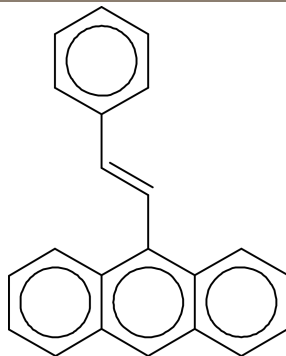
Summenformel	Molare Masse (M)	CAS-Nr.	EG-Nr.
$C_{42}H_{28}$	532.68 g/mol	517-51-1	208-424-0

Tetracen



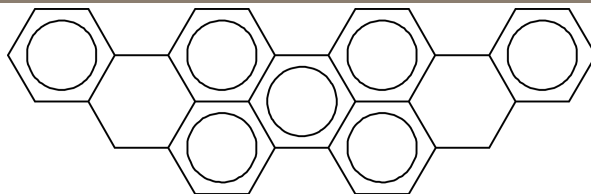
Summenformel	Molare Masse (M)	CAS-Nr.	EG-Nr.
$C_{18}H_{12}$	228.29 g/mol	92-24-0	202-138-9

trans-9-(2-phenylethenyl)-anthracen



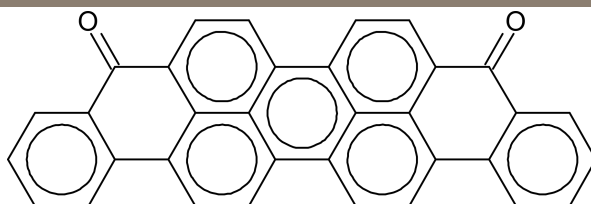
Summenformel	Molare Masse (M)	CAS-Nr.	EG-Nr.
$C_{22}H_{16}$	280.36 g/mol	42196-97-4	255-705-8

Violanthren



Summenformel	Molare Masse (M)	CAS-Nr.	EG-Nr.
C ₃₄ H ₂₀	428.52 g/mol	81-31-2	-

Violanthron



Summenformel	Molare Masse (M)	CAS-Nr.	EG-Nr.
C ₃₄ H ₁₆ O ₂	456.50 g/mol	116-71-2	204-152-0