

(12) 특허협력조약에 의하여 공개된 국제출원

(19) 세계지식재산권기구
국제사무국



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의왕시 고천동 332-2 제일모직 주식회사, 437-711 Gyeonggi-do (KR). **정호국 (JUNG, Ho-Kuk)** [KR/KR]; 경기도 의왕시 고천동 332-2 제일모직 주식회사, 437-711 Gyeonggi-do (KR). **이남현 (LEE, Nam-Heon)** [KR/KR]; 경기도 의왕시 고천동 332-2 제일모직 주식회사, 437-711 Gyeonggi-do (KR). **김남수 (KIM, Nam-Soo)** [KR/KR]; 경기도 의왕시 고천동 332-2 제일모직 주식회사, 437-711 Gyeonggi-do (KR).

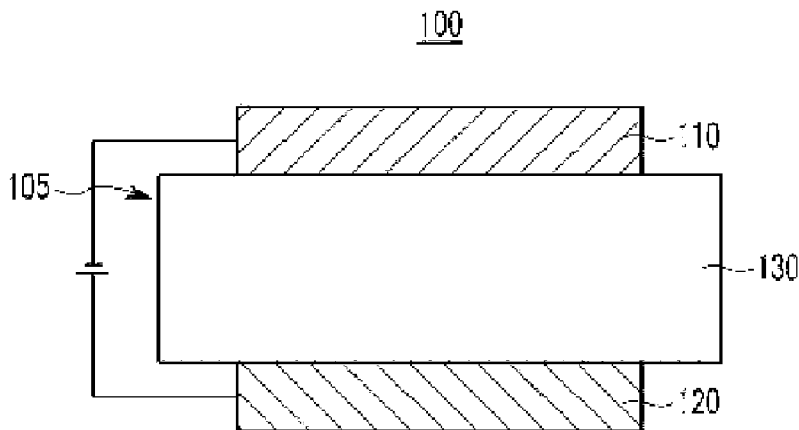
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- (81) 지정국 (별도의 표시가 없는 한, 가능한 모든 종류의 국내 권리의 보호를 위하여): AE, AG, AL, AM, AO, AT, AU, AZ, BA, BB, BG, BH, BR, BW, BY, BZ, CA, CH, CL, CN, CO, CR, CU, CZ, DE, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KZ, LA, LC, LK, LR, LS, LT, LU, LY, MA, MD, ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PE, PG, PH, PL, PT, RO, RS, RU, SC, SD, SE, SG, SK, SL, SM, ST, SV, SY, TH, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW.
- (84) 지정국 (별도의 표시가 없는 한, 가능한 모든 종류의 역내 권리의 보호를 위하여): ARIPO (BW, GH, GM,

[다음 쪽 계속]

(54) Title: COMPOUND FOR AN ORGANIC PHOTOELECTRIC DEVICE AND PHOTOELECTRIC DEVICE INCLUDING SAME

(54) 발명의 명칭 : 유기광전소자용 화합물 및 이를 포함하는 유기광전소자

[Fig. 1]



(57) Abstract: The present invention relates to a compound for an organic photoelectric device and a photoelectric device including same, wherein the compound for the organic photoelectric device is expressed as chemical formula 1 below. The definition of chemical formula 1 is the same as that described in the specification. An organic photoelectric device, which has a low driving voltage and has excellent thermal/electrochemical stability, lifespan, and efficiency, can be provided by using the compound for the organic photoelectric device.

(57) 요약서: 유기광전소자용 화합물 및 이를 포함하는 유기광전소자에 관한 것으로, 상기 유기광전소자용 화합물은 상기 화학식 1로 표시되는 것을 제공한다. 상기 화학식 1의 정의는 명세서에 기재된 바와 같다. 상기 유기광전소자용 화합물을 이용하면, 낮은 구동전압을 가지며, 열적/전기화학적 안정성 및 수명, 효율이 우수한 유기광전소자를 제공할 수 있다.

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KE, LR, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), 유라시아 (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), 유럽 (AL, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LT, LU, LV, MC, MK, MT, NL, NO, PL, PT, RO, RS, SE, SI, SK, SM, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

공개:

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- 청구범위 보정서와 함께 (조약 제 19 조(1))

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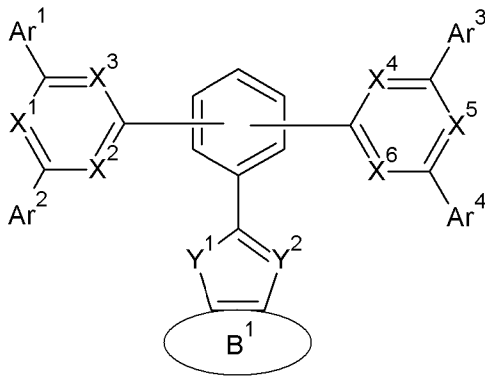
2011년 12월 22일

청구범위 보정서
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【청구항 1】 (유지)

5 하기 화학식 1로 표시되는 유기광전소자용 화합물:

[화학식 1]



상기 화학식 1에서,

10 Ar¹ 내지 Ar⁴는 서로 동일하거나 상이하며, 독립적으로 치환 또는 비치환된 C6 내지 C30 아릴기 또는 치환 또는 비치환된 C3 내지 C30 헤테로아릴기이고,

X¹ 내지 X⁶은 서로 동일하거나 상이하며, 독립적으로 -N- 또는 -CH- 이고,

X¹ 내지 X³ 중 적어도 하나는 -N- 이고,

X⁴ 내지 X⁶ 중 적어도 하나는 -N- 이고,

15 Y¹은 -O-, -S-, -NH- 및 -NR- 로 이루어진 군에서 선택되며, 상기 R은 치환 또는 비치환된 C6 내지 C30 아릴기, 치환 또는 비치환된 C3 내지 C30 헤테로아릴기, 치환 또는 비치환된 C1 내지 C6 알킬기, 치환 또는 비치환된 C3

내지 C30 시클로알킬기, 치환 또는 비치환된 시아노기, 치환 또는 비치환된 니트로기, 치환 또는 비치환된 카르보닐기 및 치환 또는 비치환된 아미드기로 이루어진 군에서 선택되고,

Y^2 는 -CH- 또는 -N- 이고,

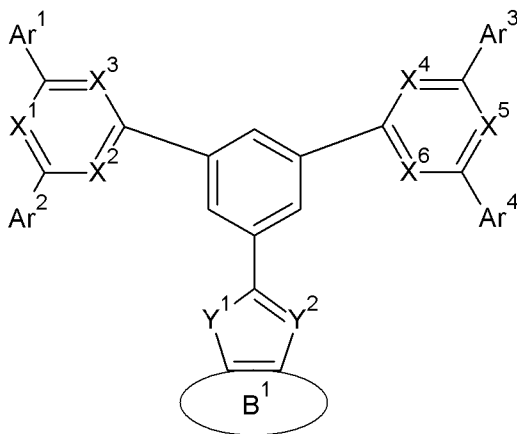
5 B^1 은 치환 또는 비치환된 C6 내지 C30 아릴기 또는 치환 또는 비치환된 C3 내지 C30 헤테로아릴기이며, 인접한 원소와 융합고리를 형성한다.

【청구항 2】 (유지)

제 1 항에 있어서,

10 상기 유기광전소자용 화합물은 하기 화학식 2로 표시되는 것인 유기광전소자용 화합물:

[화학식 2]



상기 화학식 2에서,

15 Ar^1 내지 Ar^4 는 서로 동일하거나 상이하며, 독립적으로 치환 또는 비치환된 C6 내지 C30 아릴기 또는 치환 또는 비치환된 C3 내지 C30

헤테로아릴기이고,

X^1 내지 X^6 은 서로 동일하거나 상이하며, 독립적으로 -N- 또는 -CH- 이고,

X^1 내지 X^3 중 적어도 하나는 -N- 이고,

X^4 내지 X^6 중 적어도 하나는 -N- 이고,

- 5 Y^1 은 -O-, -S-, -NH- 및 -NR- 로 이루어진 군에서 선택되며, 상기 R은 치환 또는 비치환된 C6 내지 C30 아릴기, 치환 또는 비치환된 C3 내지 C30 헤테로아릴기, 치환 또는 비치환된 C1 내지 C6 알킬기, 치환 또는 비치환된 C3 내지 C30 시클로알킬기, 치환 또는 비치환된 시아노기, 치환 또는 비치환된 니트로기, 치환 또는 비치환된 카르보닐기 및 치환 또는 비치환된 아미드기로
- 10 이루어진 군에서 선택되고,

Y^2 는 -CH- 또는 -N- 이고,

B^1 은 치환 또는 비치환된 C6 내지 C30 아릴기 또는 치환 또는 비치환된 C3 내지 C30 헤테로아릴기이며, 인접한 원소와 융합고리를 형성한다.

15 **【청구항 3】** (유지)

제 1 항에 있어서,

- Ar^1 내지 Ar^4 는 서로 동일하거나 상이하며, 독립적으로 치환 또는 비치환된 페닐기, 치환 또는 비치환된 나프틸기, 치환 또는 비치환된 안트라세닐기, 치환 또는 비치환된 페난트레닐기, 치환 또는 비치환된
- 20 페릴레닐기, 치환 또는 비치환된 크라이세닐기, 치환 또는 비치환된 피리디닐기, 치환 또는 비치환된 피리다지닐기, 치환 또는 비치환된 퀴놀리닐기 및 치환 또는

비치환된 이소퀴놀리닐기로 이루어진 군에서 선택되는 것인 유기광전소자용 화합물.

【청구항 4】 (유지)

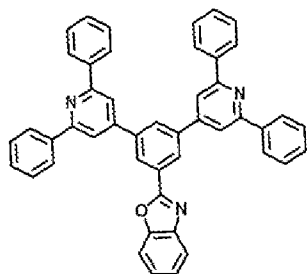
5 제 1 항에 있어서,

상기 B¹은 치환 또는 비치환된 페닐기, 치환 또는 비치환된 나프틸기, 치환 또는 비치환된 안트라세닐기, 치환 또는 비치환된 페난트레닐기, 치환 또는 비치환된 파이레닐기, 치환 또는 비치환된 페릴레닐기, 치환 또는 비치환된 크라이세닐기, 치환 또는 비치환된 피리디닐기, 치환 또는 비치환된 퀴놀리닐기,
 10 치환 또는 비치환된 벤조퀴놀리닐기 및 치환 또는 비치환된 페난트롤리닐기로 이루어진 군에서 선택되는 것인 유기광전소자용 화합물.

【청구항 5】 (유지)

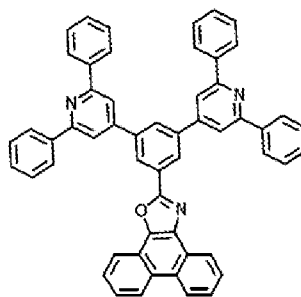
하기 화학식 3 내지 186 중 어느 하나로 표시되는 유기광전소자용 화합물.

15 [화학식 3]

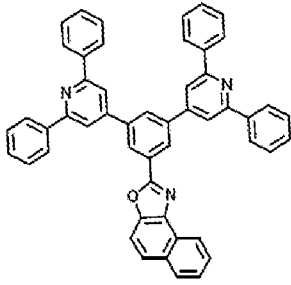


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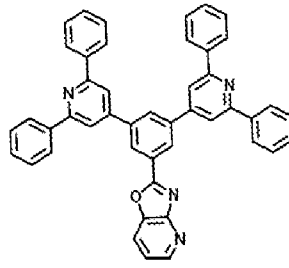
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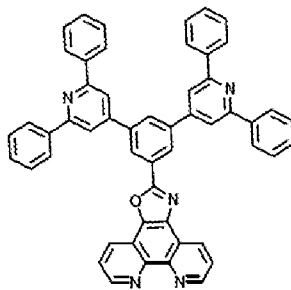
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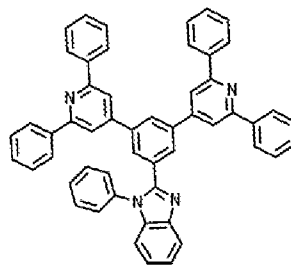
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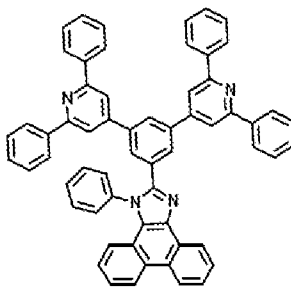
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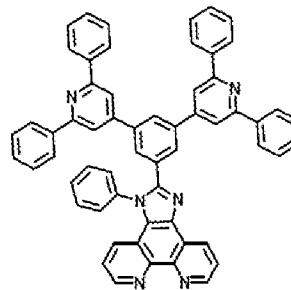
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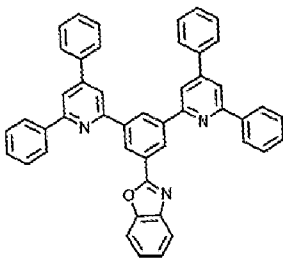
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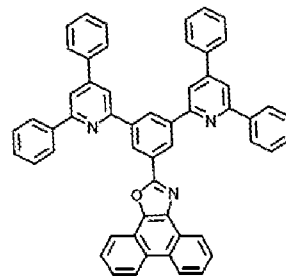
[화학식 11]



[화학식 12]

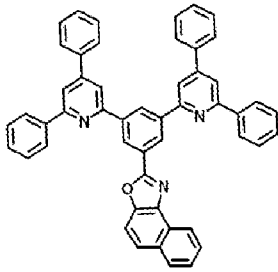


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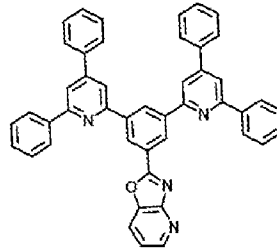


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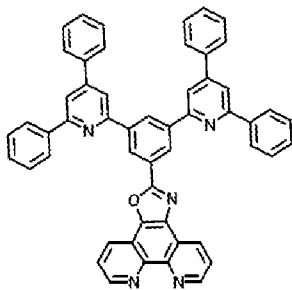
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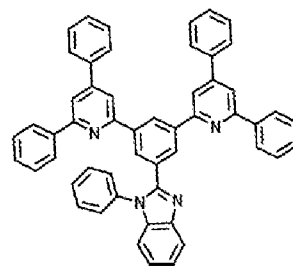
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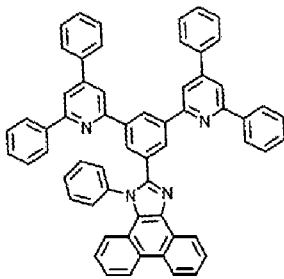
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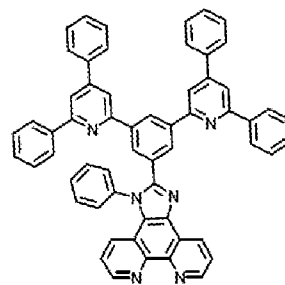
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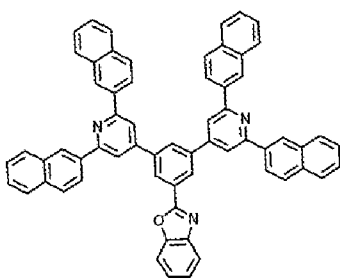
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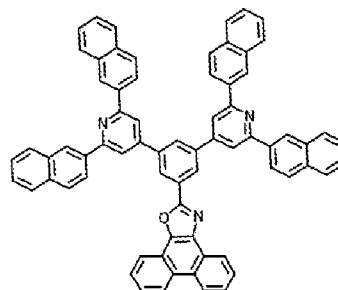
[화학식 19]



[화학식 20]

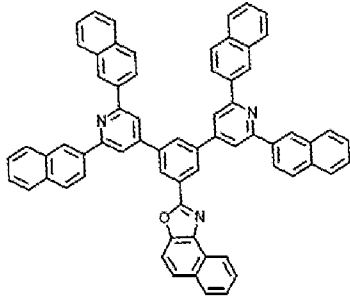


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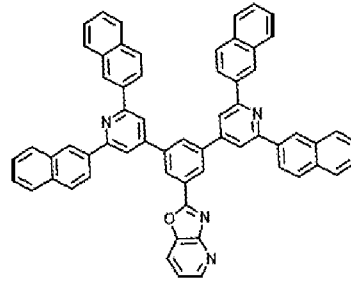


[화학식 22]

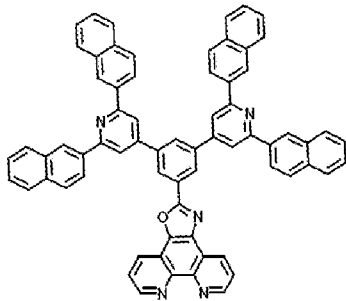
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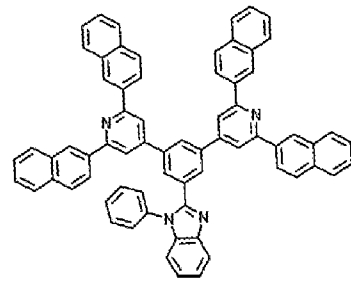
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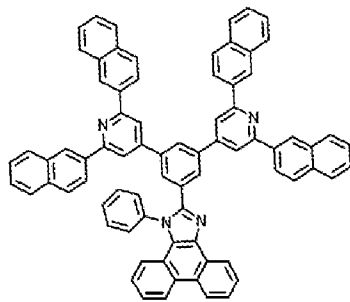
[화학식 24]



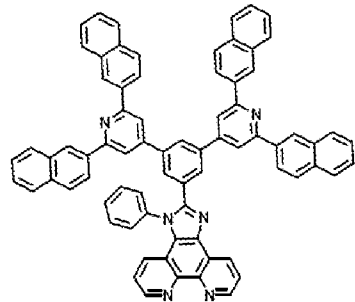
[화학식 25]



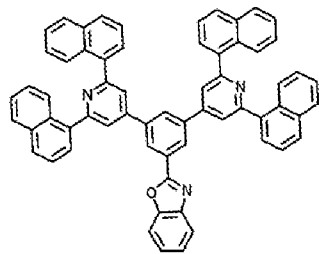
[화학식 26]



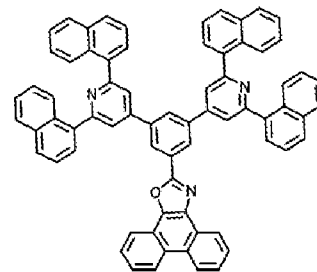
[화학식 27]



[화학식 28]

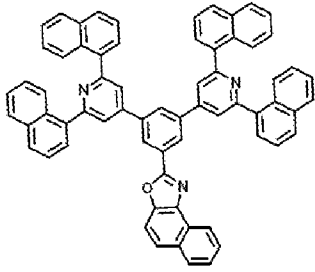


[화학식 29]

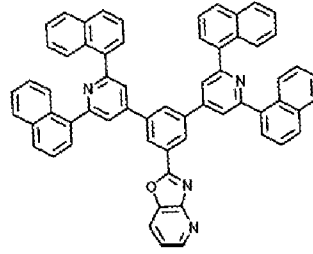


[화학식 30]

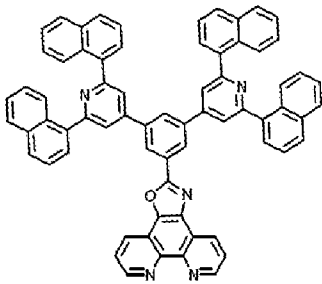
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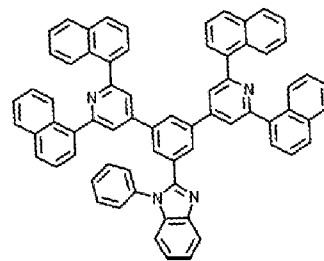
[화학식 31]



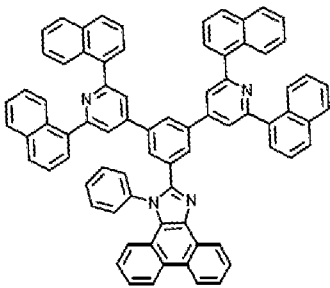
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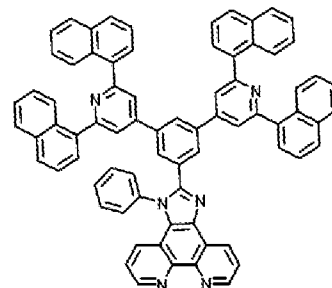
[화학식 33]



[화학식 34]

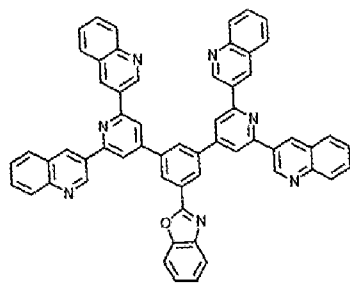


[화학식 35]

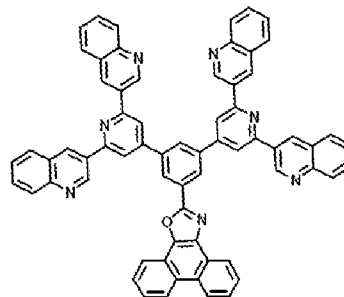


[화학식 36]

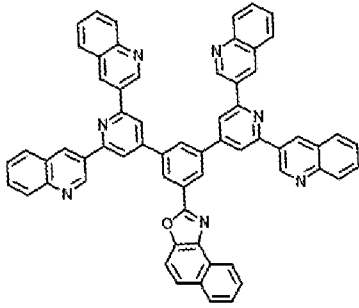
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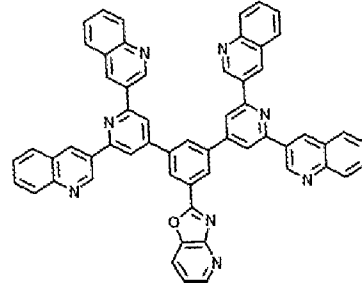
[화학식 37]



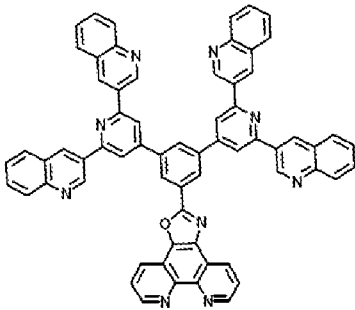
[화학식 38]



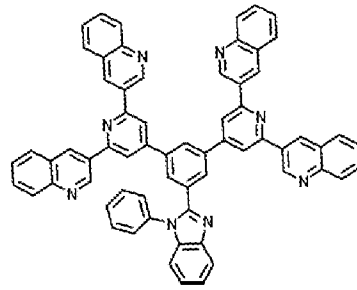
[화학식 39]



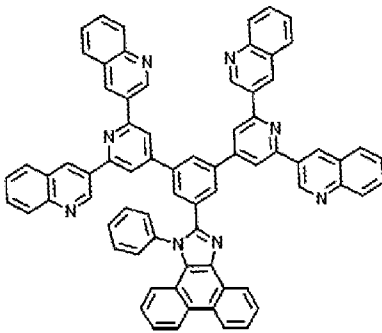
[화학식 40]



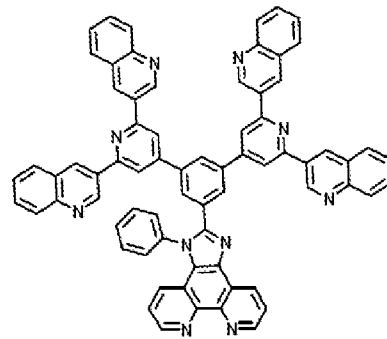
[화학식 41]



[화학식 42]

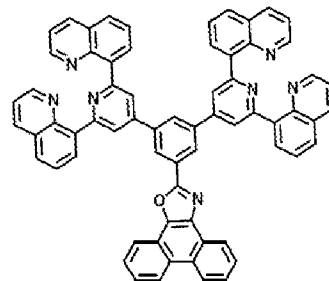
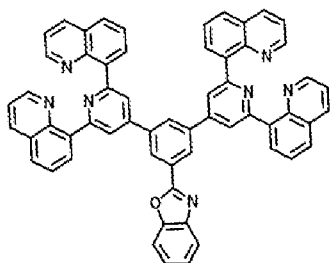


[화학식 43]

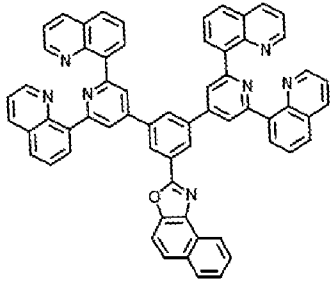


[화학식 44]

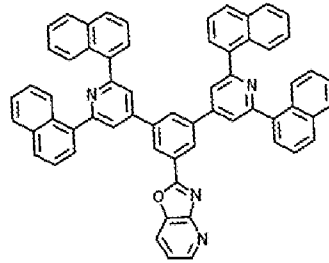
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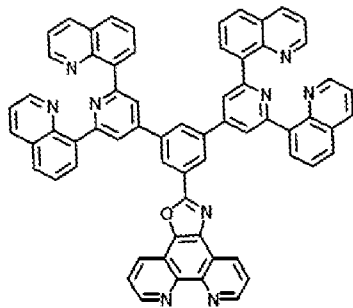
[화학식 45]



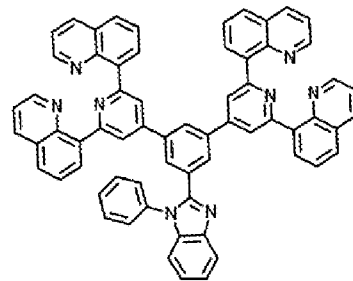
[화학식 46]



[화학식 47]

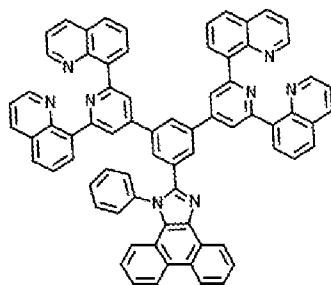


[화학식 48]

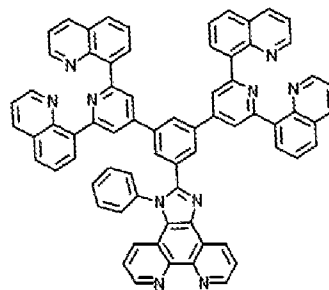


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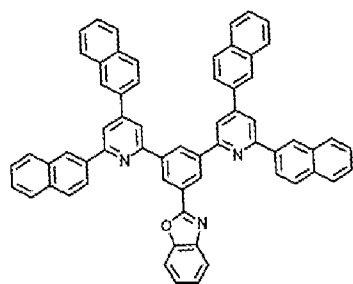
[화학식 49]



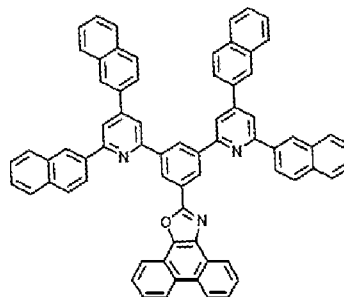
[화학식 50]



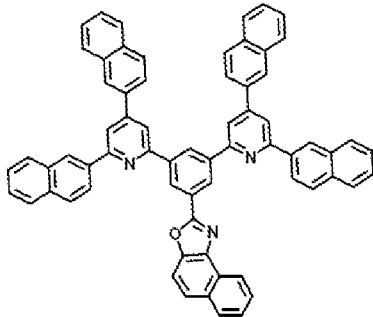
[화학식 51]



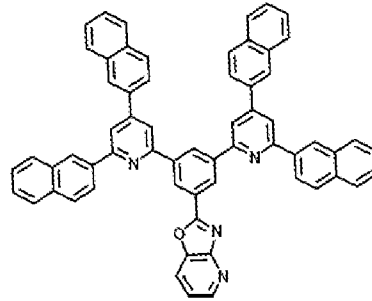
[화학식 52]



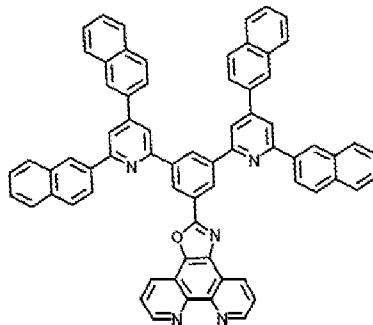
[화학식 53]



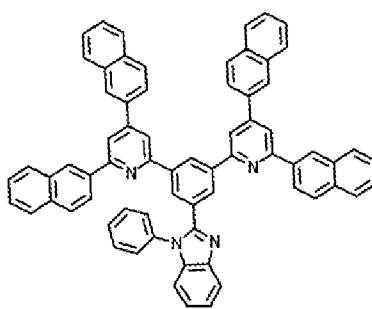
[화학식 54]



[화학식 55]

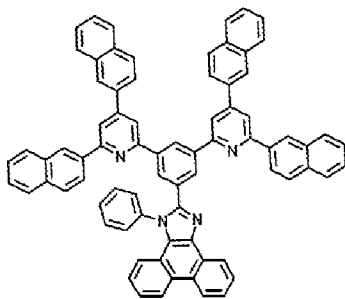


[화학식 56]

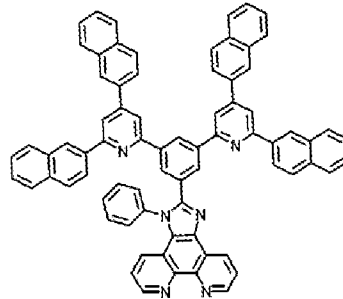


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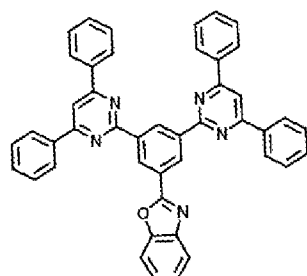
[화학식 57]



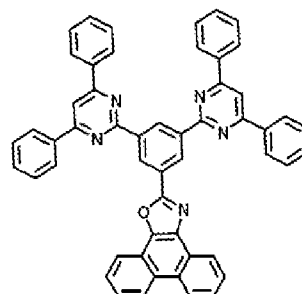
[화학식 58]



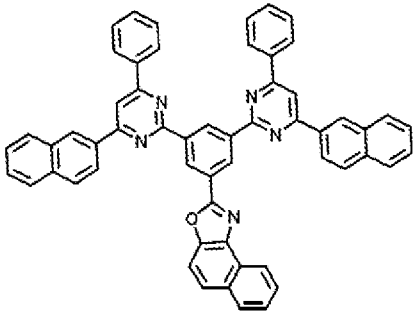
[화학식 59]



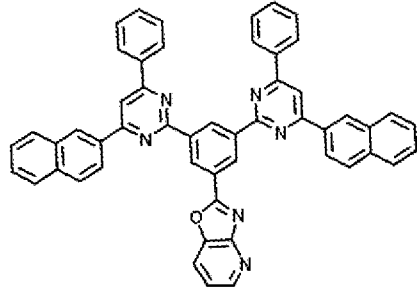
[화학식 60]



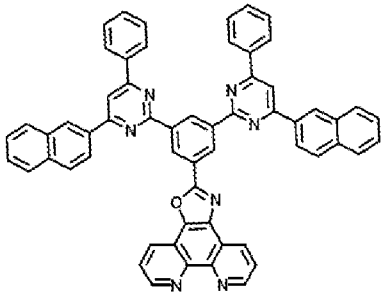
[화학식 69]



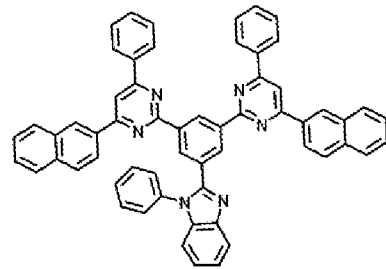
[화학식 70]



[화학식 71]

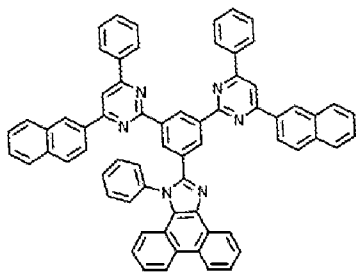


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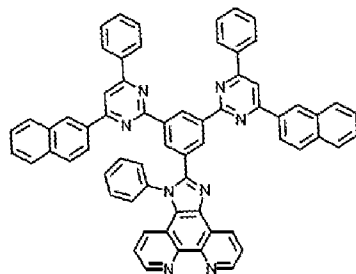


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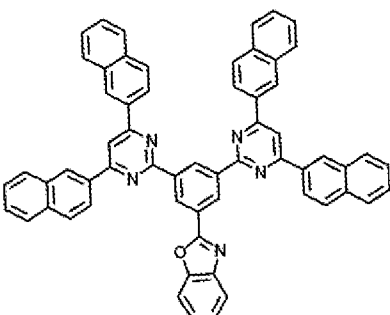
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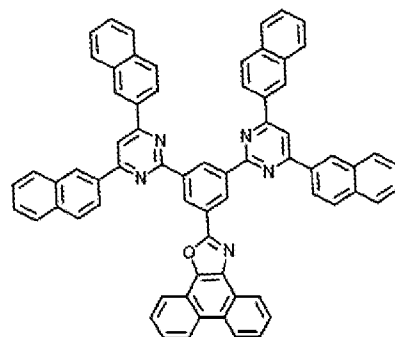
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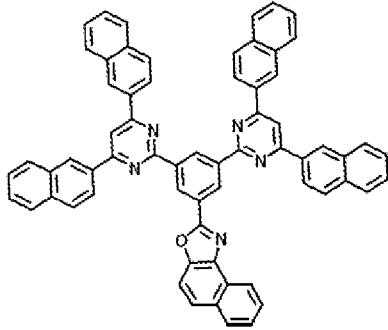
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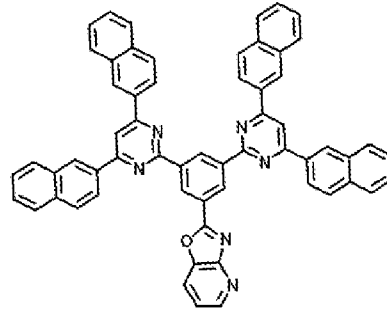
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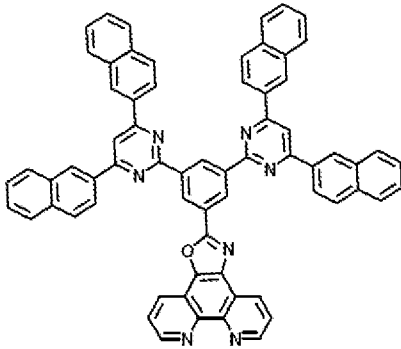
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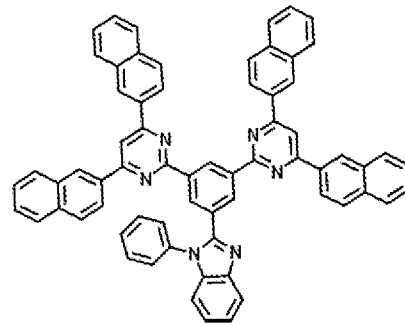
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[화학식 79]

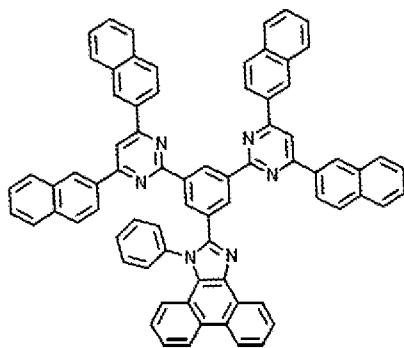


[화학식 80]

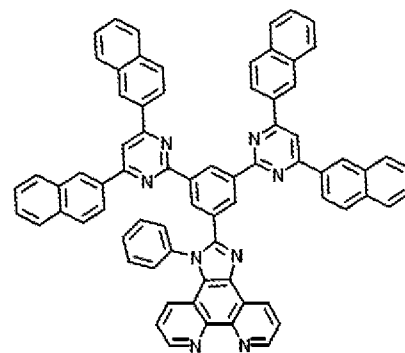


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[화학식 81]

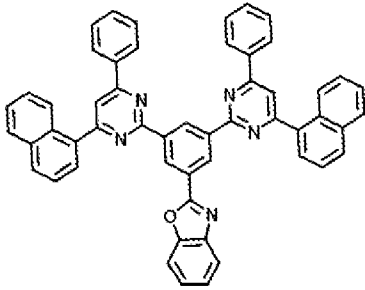


[화학식 82]

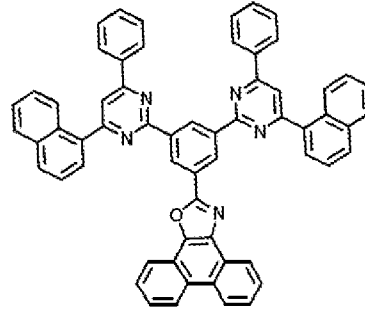


[화학식 83]

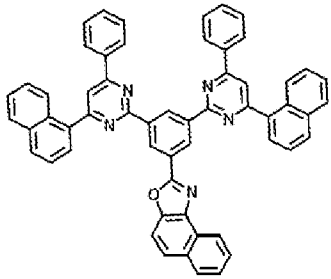
[화학식 84]



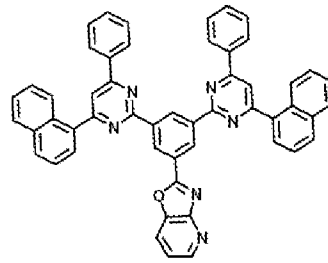
[화학식 85]



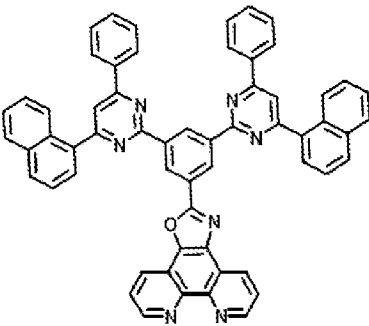
[화학식 86]



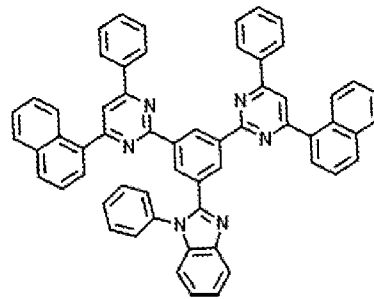
[화학식 87]



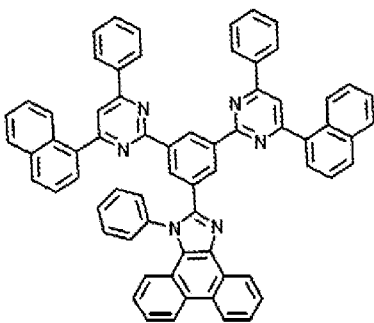
[화학식 88]



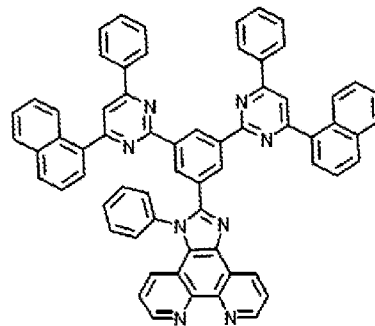
[화학식 89]



[화학식 90]

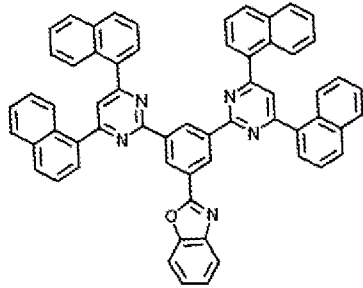


[화학식 91]

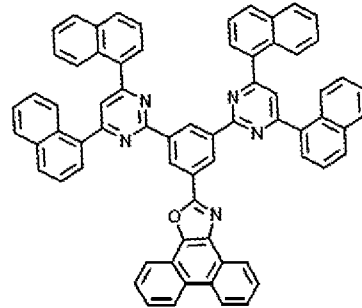


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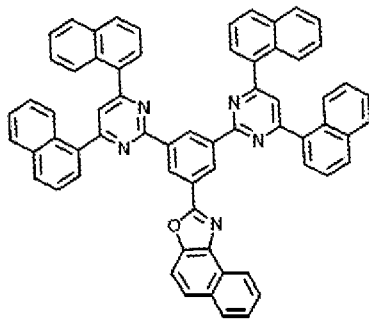
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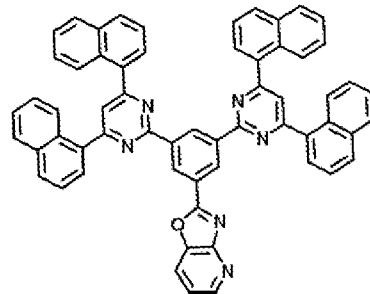
[화학식 93]



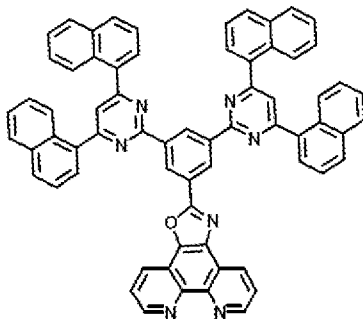
[화학식 94]



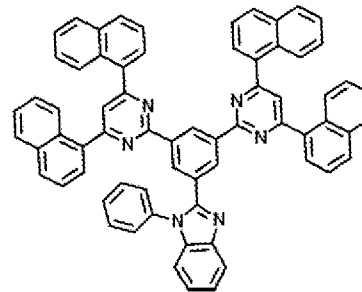
[화학식 95]



[화학식 96]

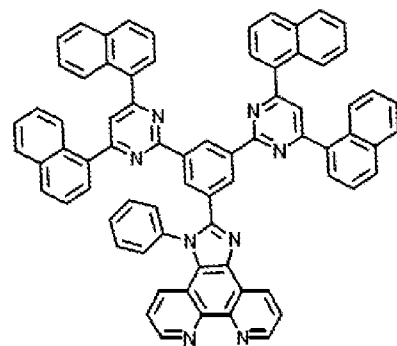
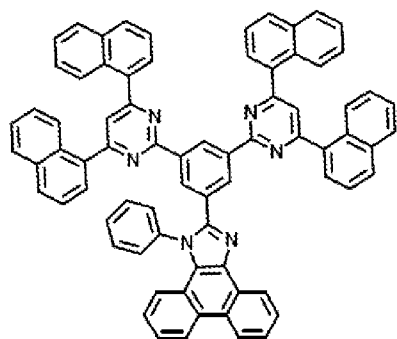


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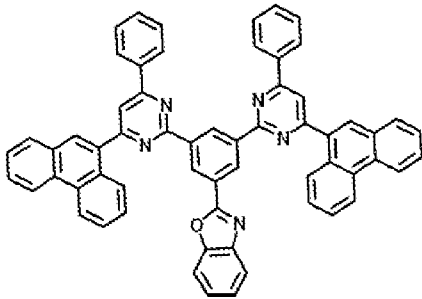


[화학식 98]

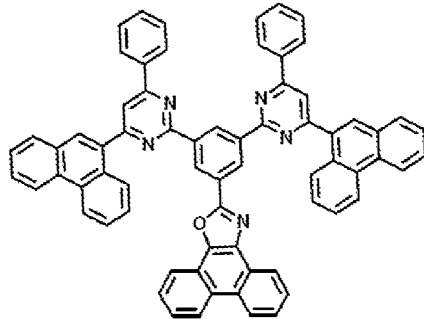
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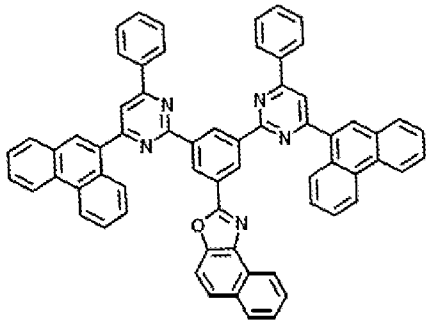
[화학식 99]



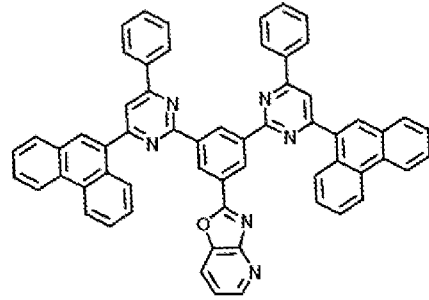
[화학식 100]



[화학식 101]

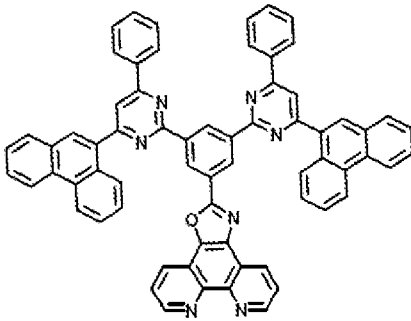


[화학식 102]

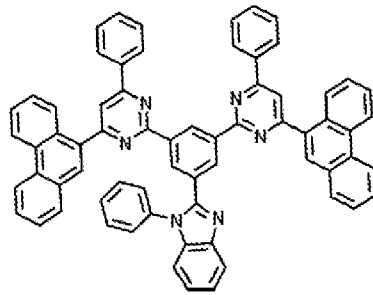


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[화학식 103]

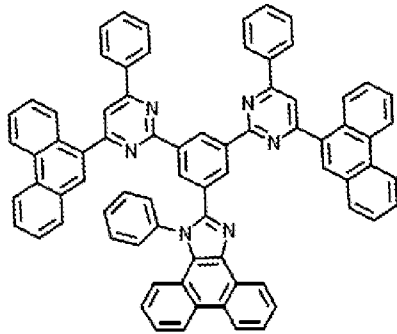


[화학식 104]

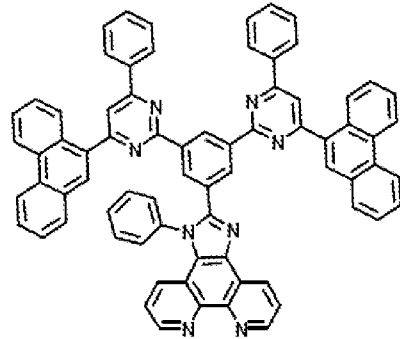


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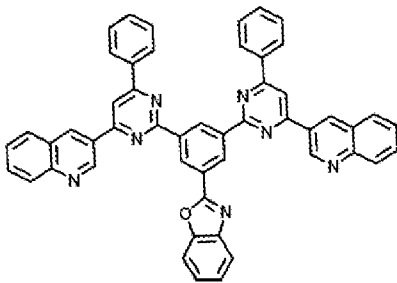
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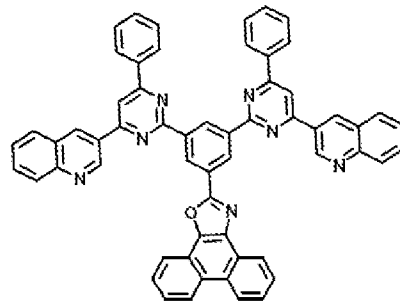
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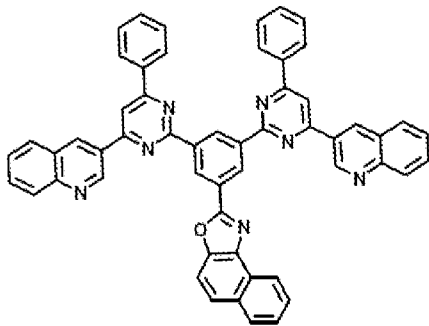
[화학식 108]



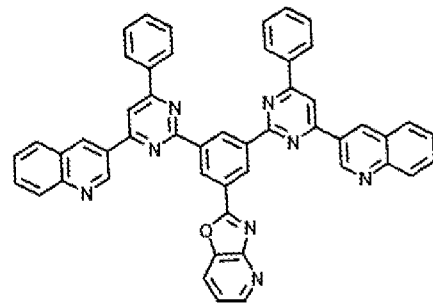
[화학식 109]



[화학식 110]

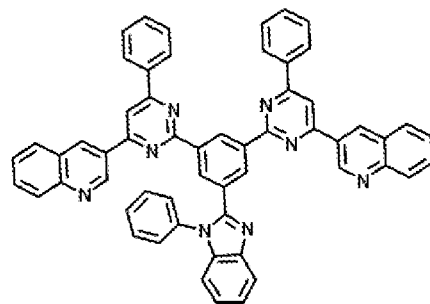
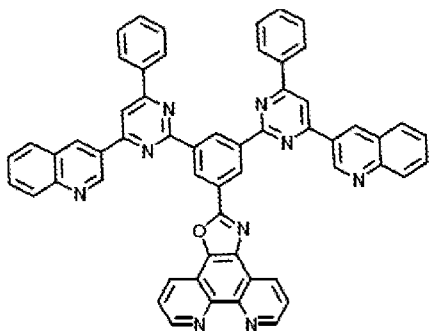


[화학식 111]

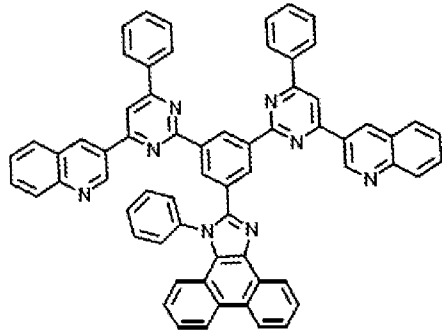


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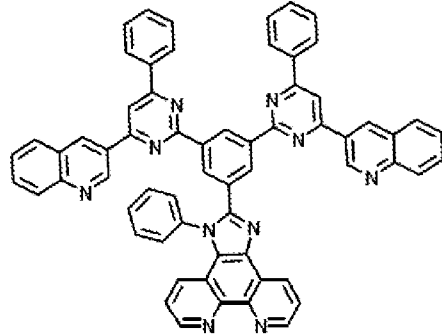
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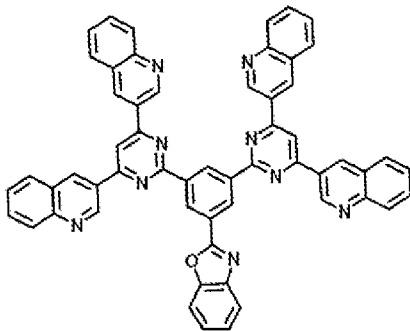
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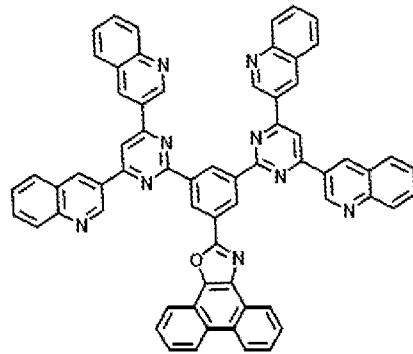
[화학식 114]



[화학식 115]

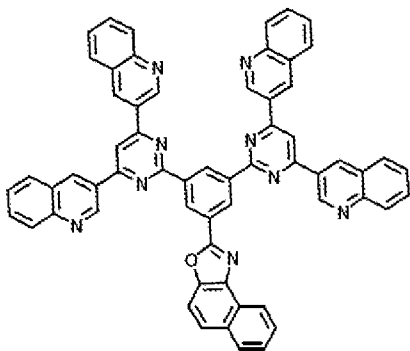


[화학식 116]

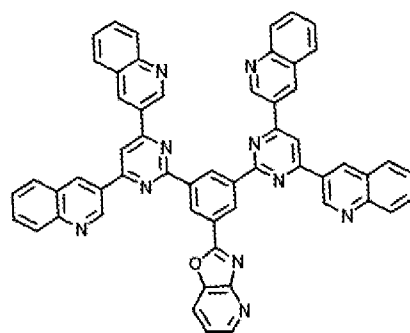


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[화학식 117]

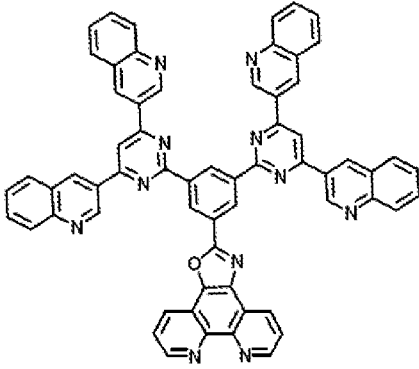


[화학식 118]

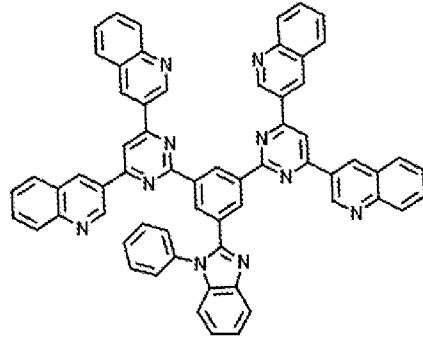


[화학식 119]

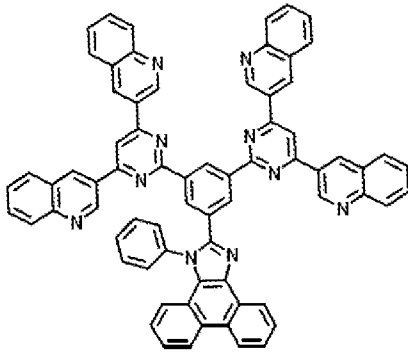
[화학식 120]



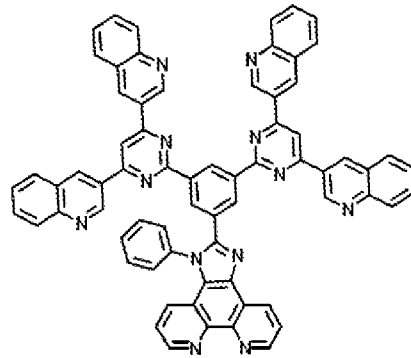
[화학식 121]



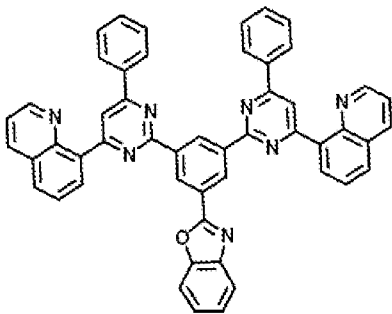
[화학식 122]



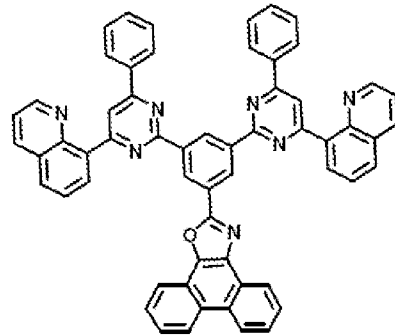
[화학식 123]



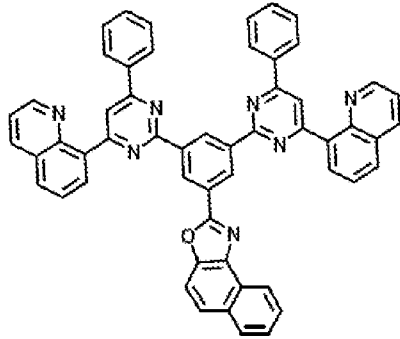
[화학식 124]



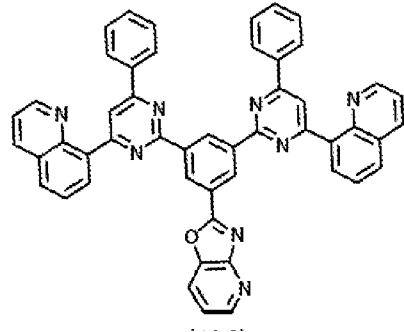
[화학식 125]



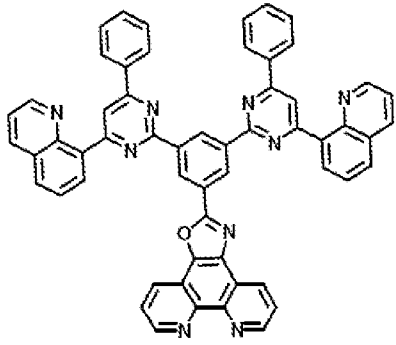
[화학식 126]



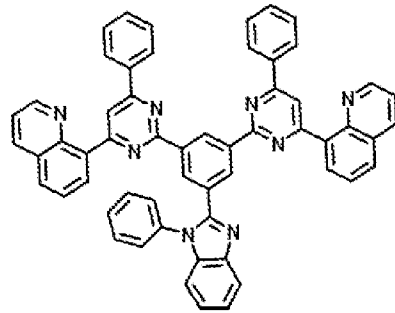
[화학식 127]



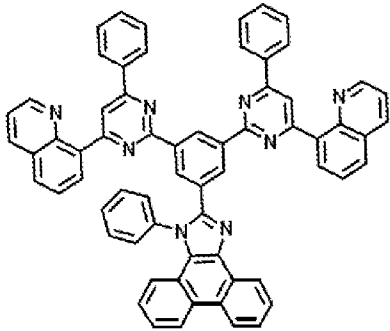
[화학식 128]



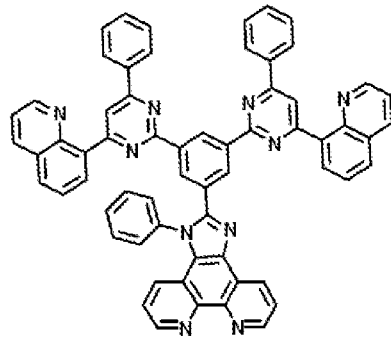
[화학식 129]



[화학식 130]

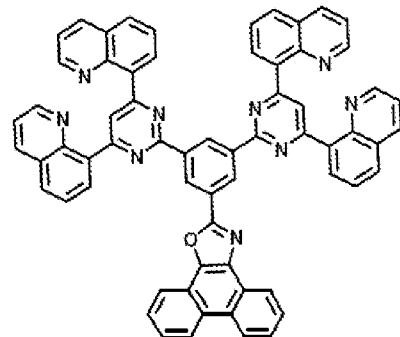
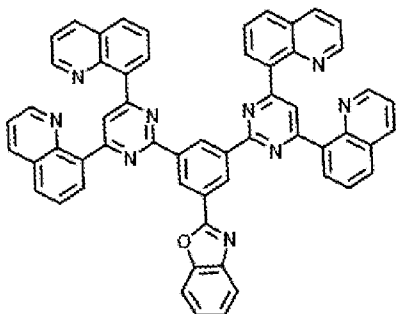


[화학식 131]

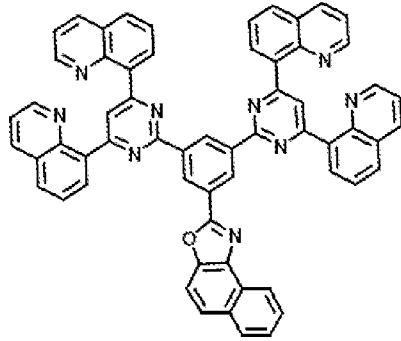


[화학식 132]

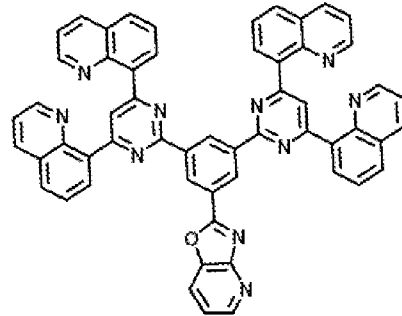
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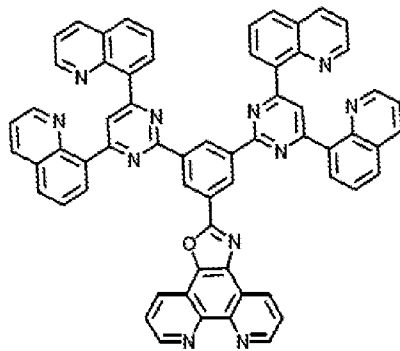
[화학식 133]



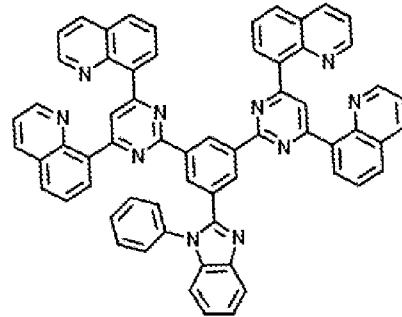
[화학식 134]



[화학식 135]

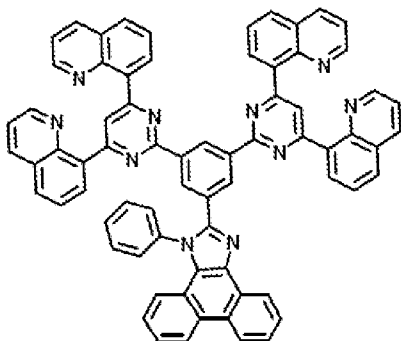


[화학식 136]

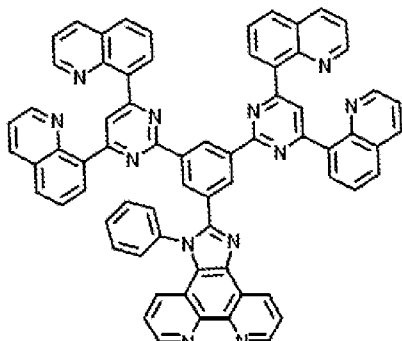


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[화학식 137]

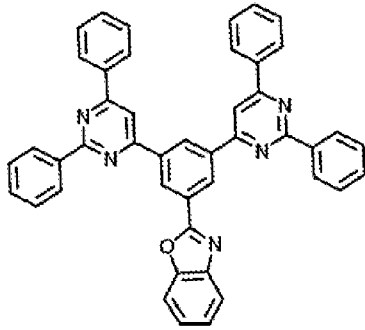


[화학식 138]

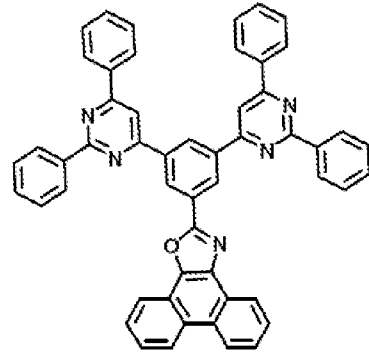


[화학식 139]

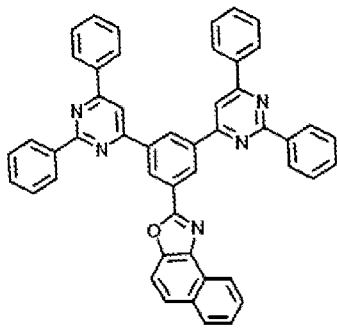
[화학식 140]



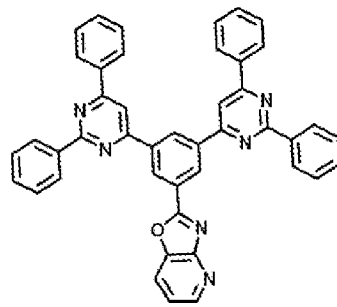
[화학식 141]



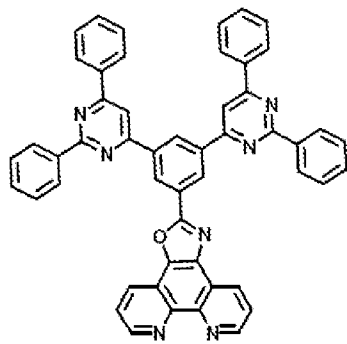
[화학식 142]



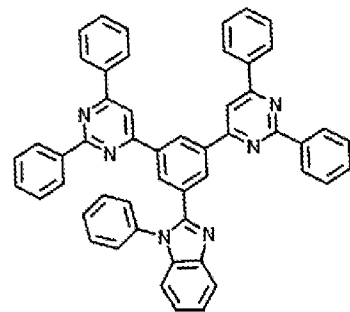
[화학식 143]



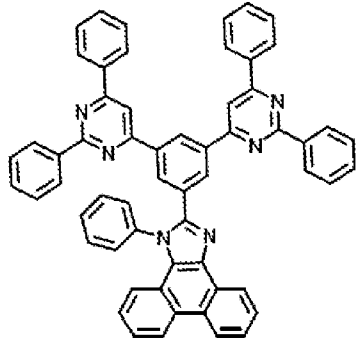
[화학식 144]



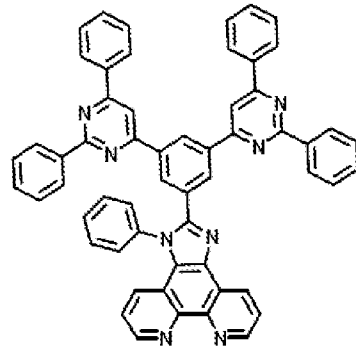
[화학식 145]



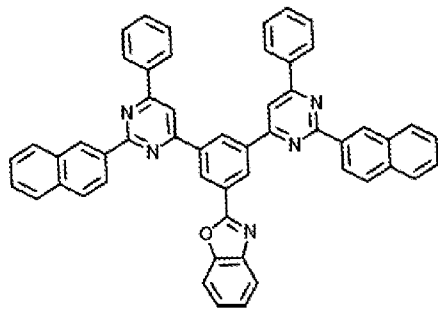
[화학식 146]



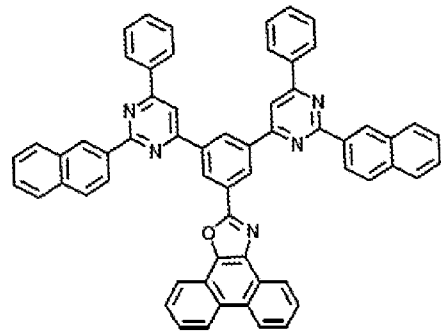
[화학식 147]



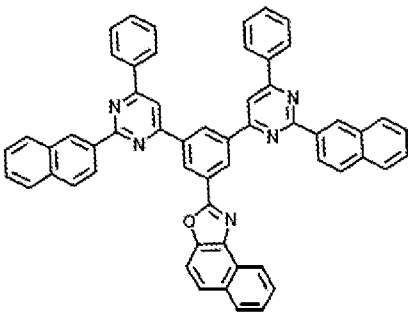
[화학식 148]



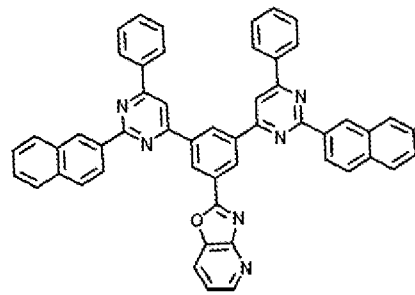
[화학식 149]



[화학식 150]

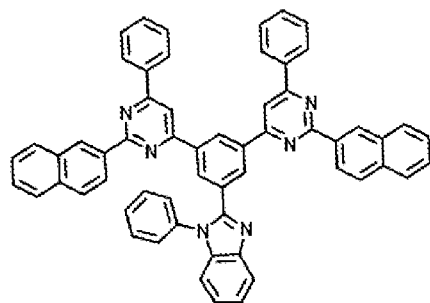
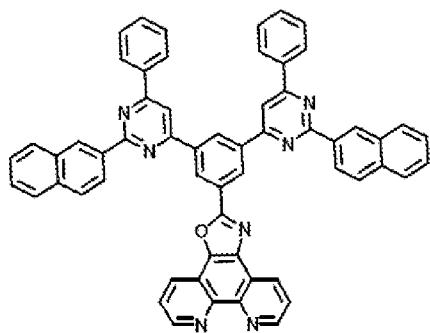


[화학식 151]

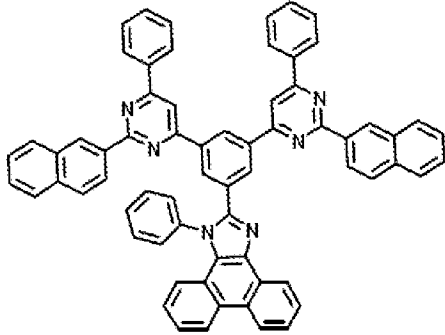


[화학식 152]

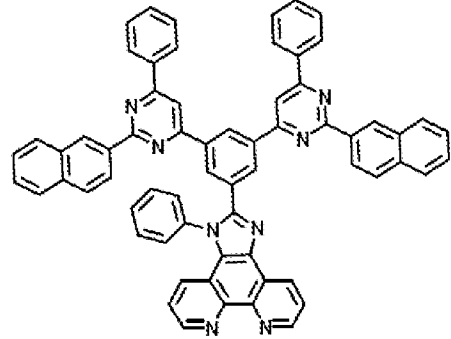
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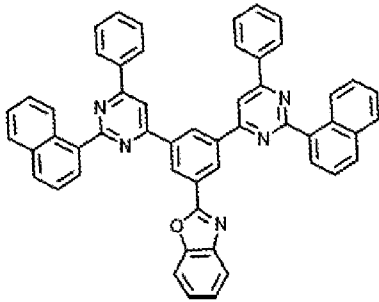
[화학식 153]



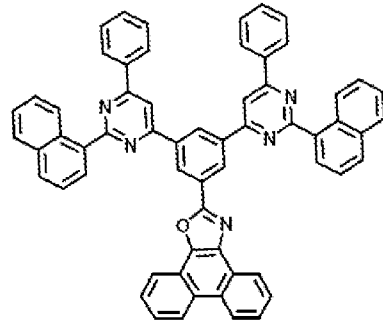
[화학식 154]



[화학식 155]

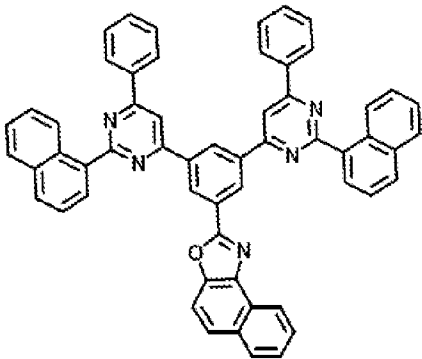


[화학식 156]

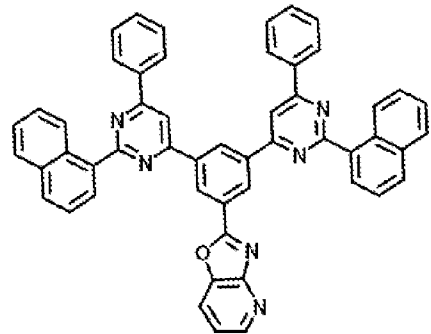


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[화학식 157]

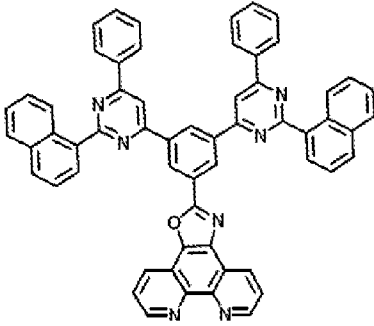


[화학식 158]

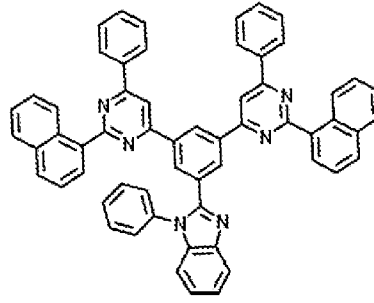


[화학식 159]

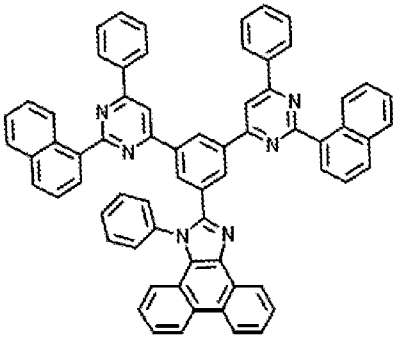
[화학식 160]



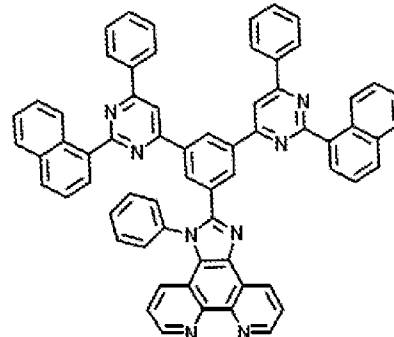
[화학식 161]



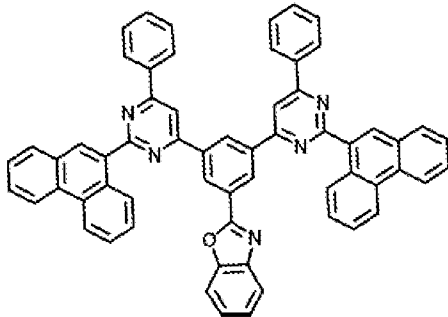
[화학식 162]



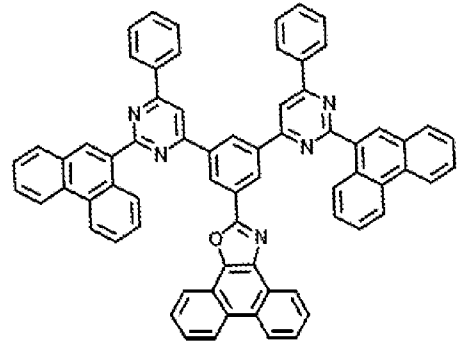
[화학식 163]



[화학식 164]

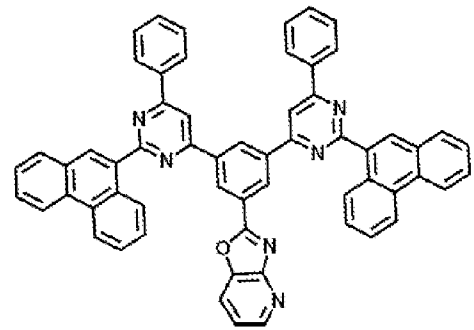
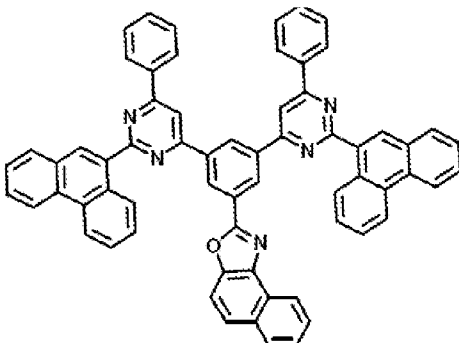


[화학식 165]

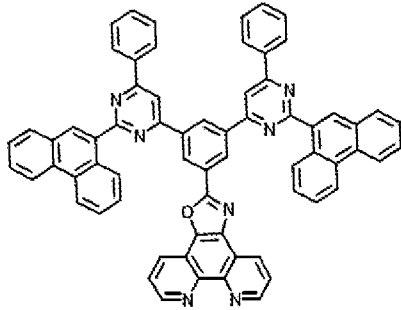


[화학식 166]

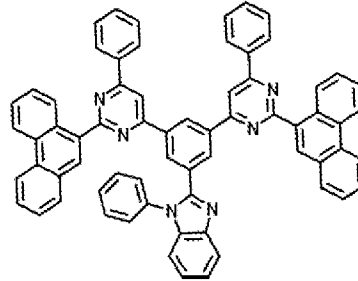
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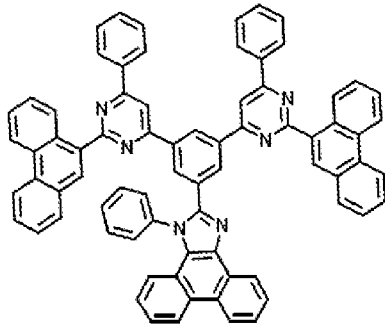
[화학식 167]



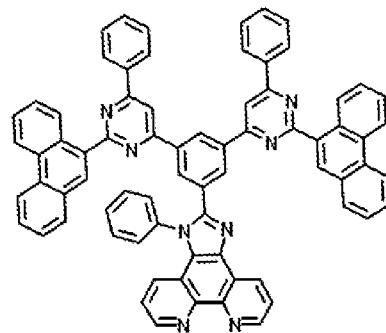
[화학식 168]



[화학식 169]

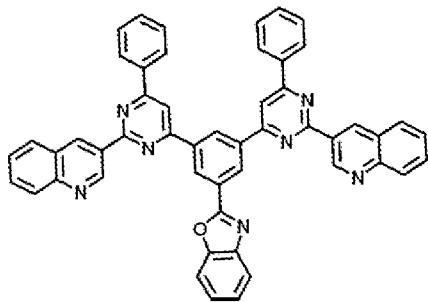


[화학식 170]

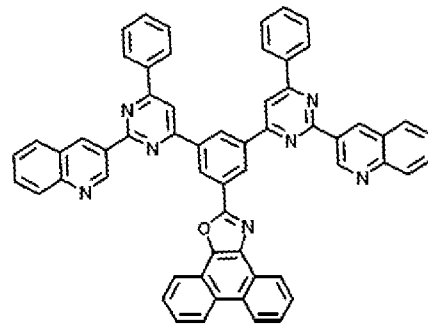


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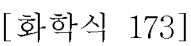
[화학식 171]



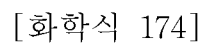
[화학식 172]

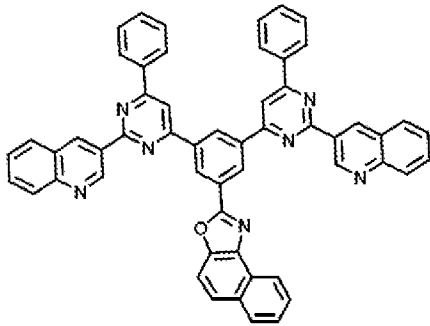


[화학식 173]

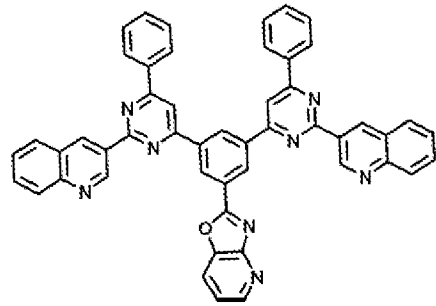


[화학식 174]

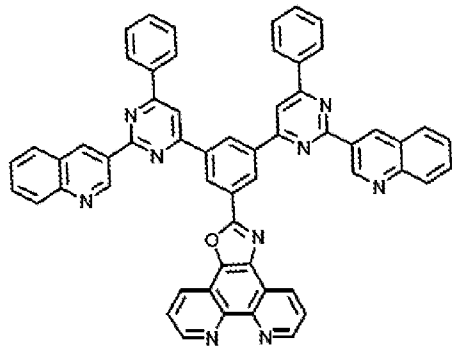




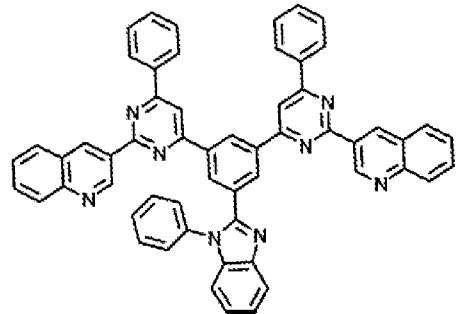
[화학식 175]



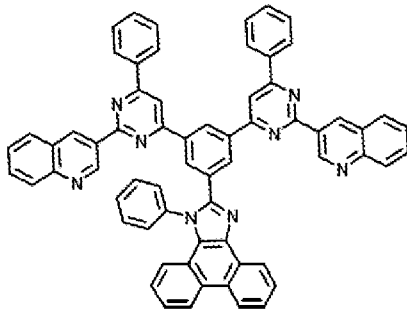
[화학식 176]



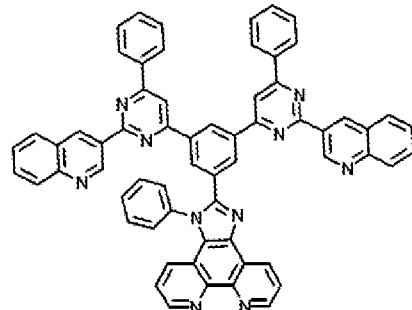
[화학식 177]



[화학식 178]

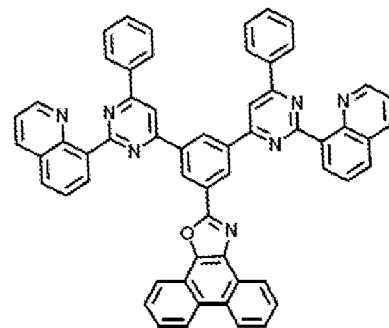
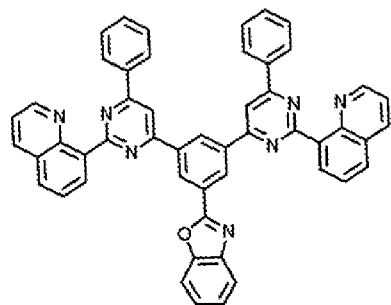


[화학식 179]

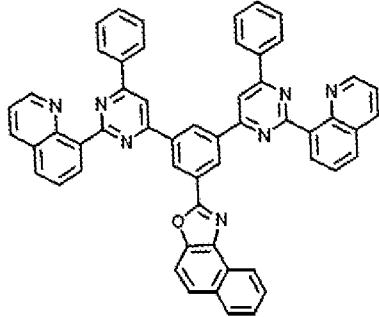


[화학식 180]

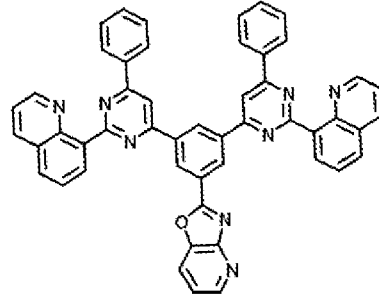
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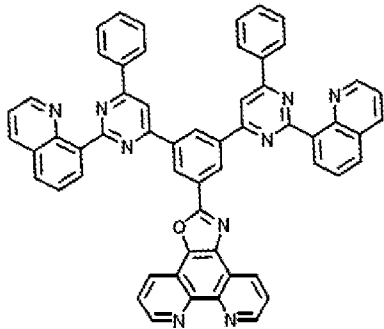
[화학식 181]



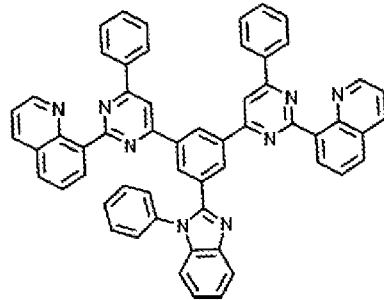
[화학식 182]



[화학식 183]

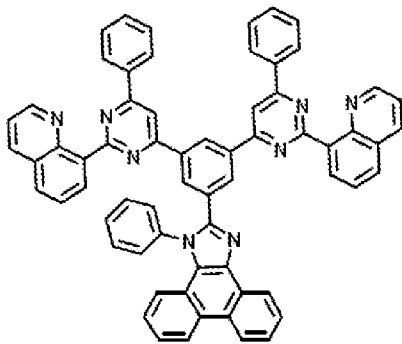


[화학식 184]

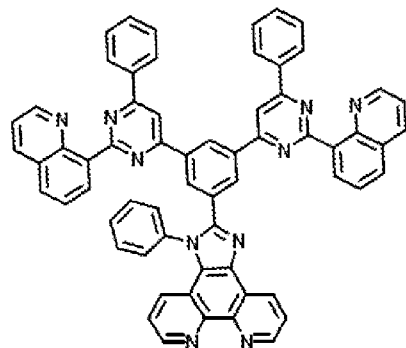


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[화학식 185]



[화학식 186]



【청구항 6】 (유지)

양극, 음극 및 상기 양극과 음극 사이에 개재되는 적어도 한 층 이상의
 10 유기박막층을 포함하는 유기광전소자에 있어서,
 상기 유기박막층 중 적어도 어느 한 층은 상기 제 1 항 내지 제 5 항 중

어느 한 항에 따른 유기광전소자용 화합물을 포함하는 것인 유기광전소자.

【청구항 7】 (유지)

제 6 항에 있어서,

- 5 상기 유기박막층은 발광층, 정공수송층, 정공주입층, 전자수송층, 전자주입층, 정공차단층 및 이들의 조합을 이루어진 군에서 선택되는 것인 유기광전소자.

【청구항 8】 (유지)

- 10 제 6 항에 있어서,

 상기 유기광전소자용 화합물은 전자수송층 또는 전자주입층 내에 포함되는 것인 유기광전소자.

【청구항 9】 (유지)

- 15 제 6 항에 있어서,

 상기 유기광전소자용 화합물은 발광층 내에 포함되는 것인 유기광전소자.

【청구항 10】 (보정)

제 6 항에 있어서,

- 20 상기 유기광전소자용 화합물은 발광층 내에 인광 또는 형광 호스트 재료로서 사용되는 것인 유기광전소자.

【청구항 11】 (유지)

제 6 항에 있어서,

상기 유기 광전 소자용 화합물은 발광층 내에 형광 청색 도펀트 재료로서

5 사용되는 것인 유기광전소자.

【청구항 12】 (유지)

제 6 항에 있어서,

상기 유기광전소자는 유기 발광 소자, 유기 태양 전지, 유기 트랜지스터,

10 유기 감광체 드럼 및 유기 메모리 소자로 이루어진 군에서 선택되는 것인
유기광전소자.

【청구항 13】 (유지)

제 6 항의 유기광전소자를 포함하는 것인 표시장치.