MATERIALS

OLED Guide Book

TCI · SEJIN CI

Organic Light Emitting Diode

OLED device

- ETL
- Host
- HTL
- Dopant

OLED synthetic materials

- Carbazoles
- Dibenzofurans
- Dibenzothiophenes
- Arenes
- Aryl halides
- Azines
- Fluorenes
- Reagents

Organic Light Emitting Diode

유기발광다이오드(OLED) 장치는 가볍고 유연한 유기 소재 덕분에 차세대 디스플레이가 될 것으로 예상돼 많은 주목을 받았습니다. Tang 박사팀이 얇은 2개의 유기 박막 이용해 OLED 소자를 제작한 이후, OLED는 실용화에 초점을 맞췄습니다.

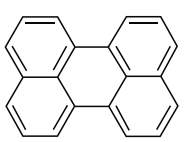
Adachi 교수진은 추가로 호스트 층이 전자수송층과 정공수송층 사이에 들어 있는 3-layered 소자를 보고했습니다. 또한, 전자와 정공 주입의 효율성을 높이기 위해 전자주입층과 정공주입층 등 5-layered 소자도 연구되었습니다. 도판트를 통해 RGB 색상을 제어할 수 있으며 도판트의 적절한 조합은 흰색 빛을 낼 수 있기에 OLED 조명에도 응용이 가능합니다.

트리페닐아민 유도체(ex:TPD)를 기반으로 한 많은 정공수송재료는 내열성이 있고 널리 사용할 수 있으며, TPD 외에도 전자수송 특성을 가진 트리아진 유도체, 호스트 물질로 Alq_3 및 각 색을 발광하는 RGB dopant 등이 OLED 소자의 재료로 많이 이용됩니다.

다음은 sublimation 과정을 통해 고순도로 정제된 OLED 각 층의 재료들 입니다.

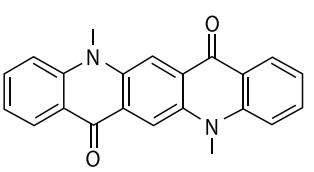
더 많은 제품의 종류와 자료는 www.sejinci.co.kr 에서 확인 할 수 있습니다.

OLED dopant



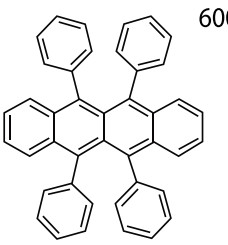
Perylene

P1629



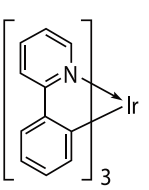
Quinacridone

Q0083



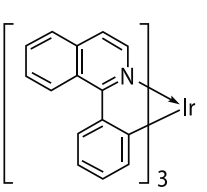
Rubrene

T2233



$Ir(ppy)_3$

T1946



$Ir(piq)_3$

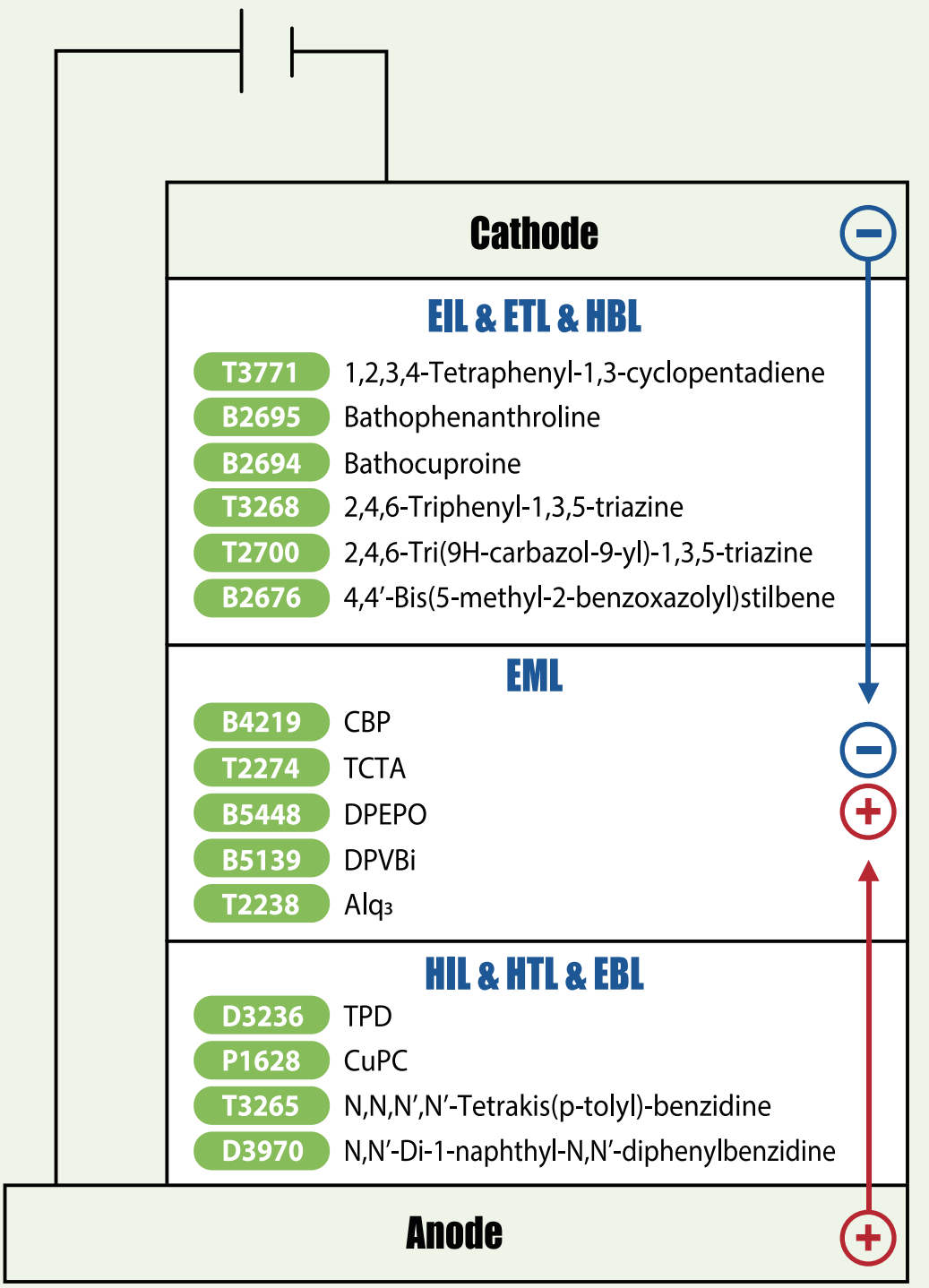
T2685

OLED device

소자연구를 통한 고효율, 장수명의 대면적 및 소면적 OLED 개발

HTL / ETL / EML 까지 TCI 제품만으로 완성!

'전 제품 purified by sublimation'



OLED synthetic materials

OLED의 효율 및 수명을 개선하기 위한 연구가 지속되어 왔으며, 이는 소자연구를 통한 방법으로 개선할 수도 있고, 새로운 소재의 개발로도 가능합니다. 현재 OLED 에서 발광층을 구성하는 소재 중 녹색 및 적색 발광 재료는 인광 재료가 채택되어 고효율, 장수명 특성을 보여주고 있으나, 청색 발광층에는 상대적으로 효율이 떨어지는 형광 재료를 사용하는 중 입니다.

따라서 고효율, 장수명의 진청색 재료의 개발이 필수적이며 기존의 인광 재료에 대한 연구와 함께 인광 수준의 효율 특성을 구현할 수 있는 열 활성 지연 형광 재료에 대한 연구가 진행되고 있습니다.

팔라듐과 같은 촉매 결합 반응들은 다양한 유기 화합물을 체계적이고 빠르게 생성해 새로운 물질을 개발할 수 있습니다. 다음은 퓨란, 사이오펜, 카바졸 유도체등 다양한 정공 수송 성질을 갖는 제품들과 아진 유도체등 전자 수송 성질을 갖는 제품들, 그리고 다양하게 합성을 할 수 있는 아릴 할라이드와 합성시약들 목록입니다.

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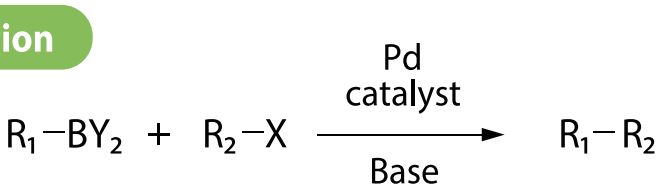
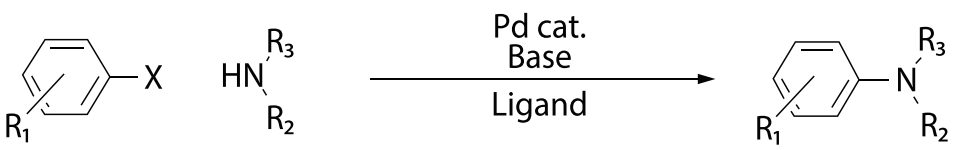
Suzuki reaction



$R_1-BY_2 + R_2-X \xrightarrow[\text{Base}]{\text{Pd catalyst}} R_1-R_2$

R_1 , R_2 = Alkyl, Aryl
X = I, Br, Cl, OTf

Buchwald–Hartwig amination



R_2 , R_3 = Alkyl, Aryl
X = I, Br, Cl, OTf

Carbazoles

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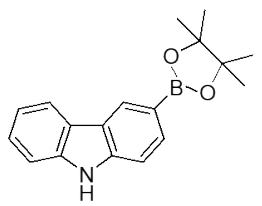

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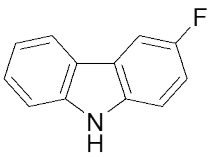

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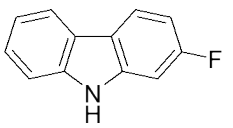

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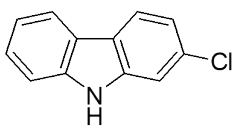

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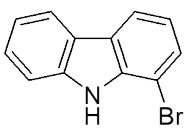

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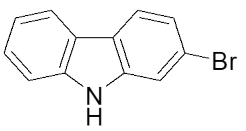

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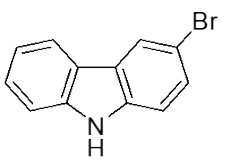

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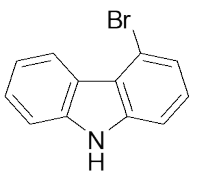

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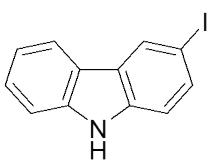

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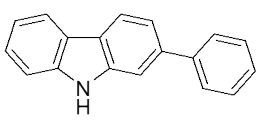

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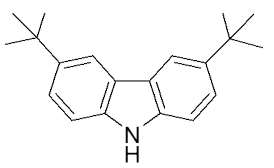

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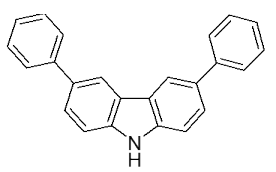

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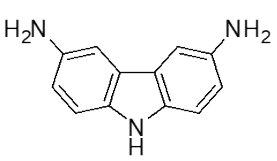

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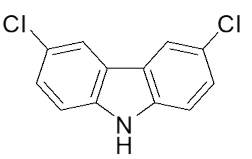

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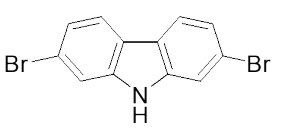

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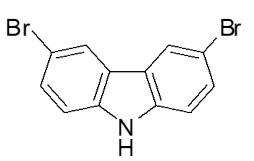

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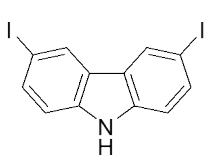

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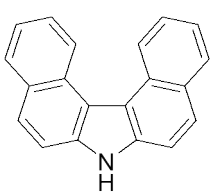

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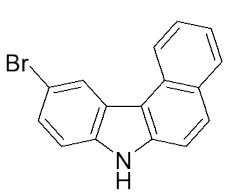

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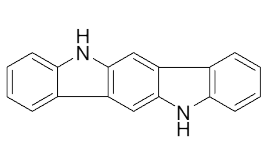

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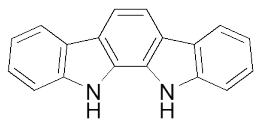

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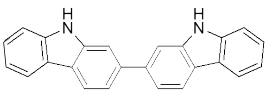

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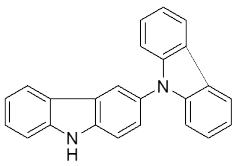

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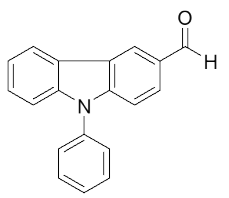

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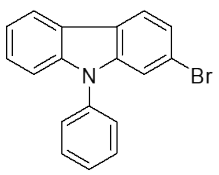

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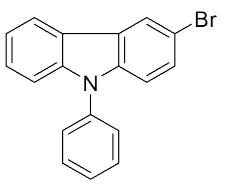

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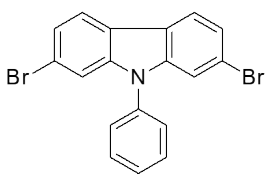

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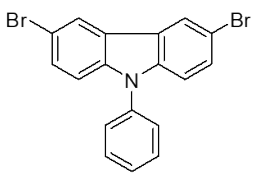

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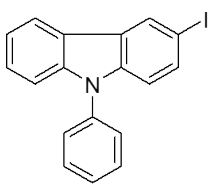

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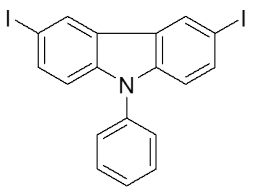

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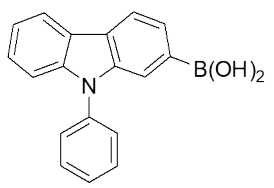

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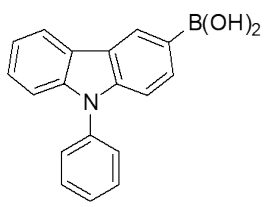

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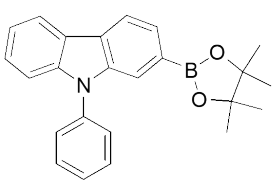

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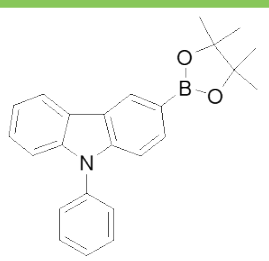

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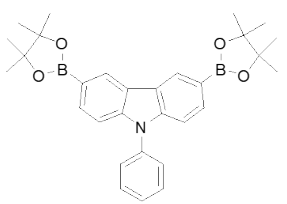

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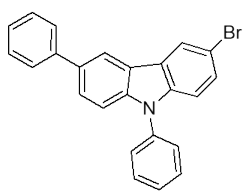

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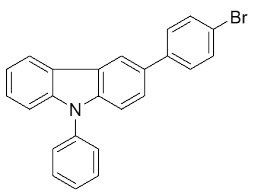

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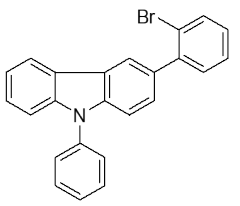

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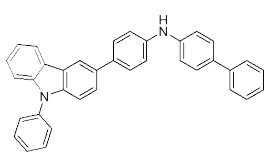

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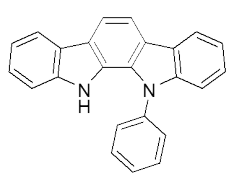

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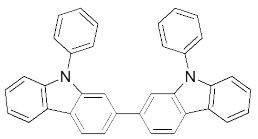

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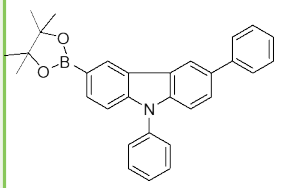

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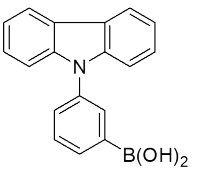

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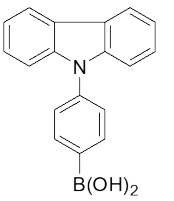

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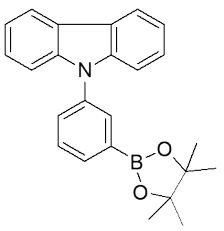

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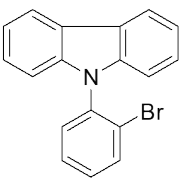

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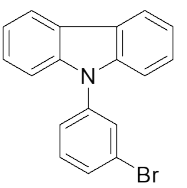

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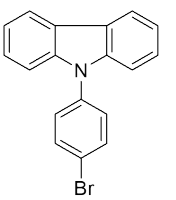

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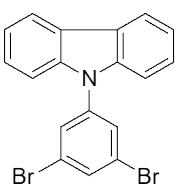

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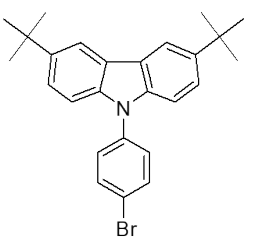

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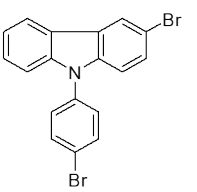

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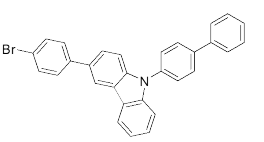

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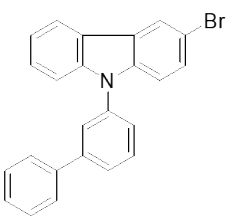

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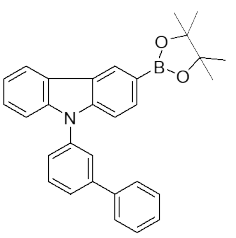

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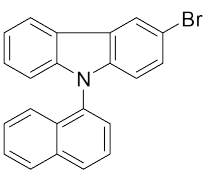

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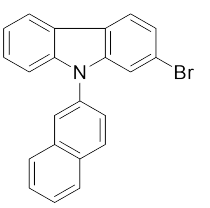

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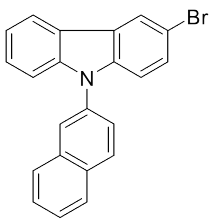

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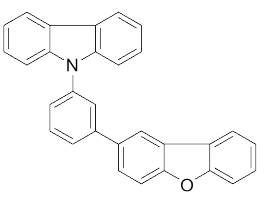

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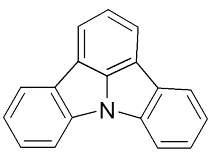

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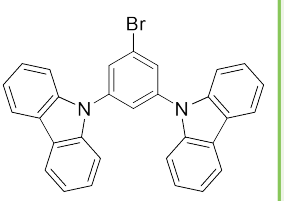

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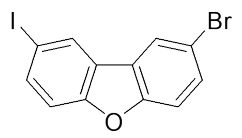

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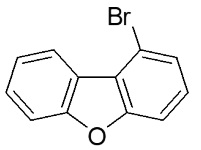

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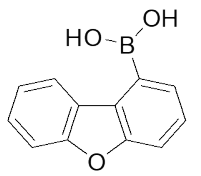

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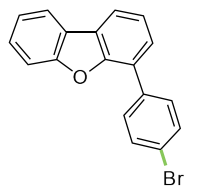

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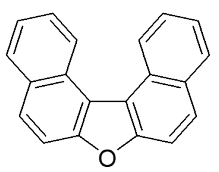

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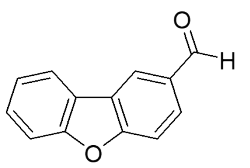

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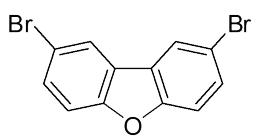

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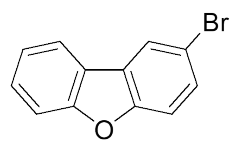

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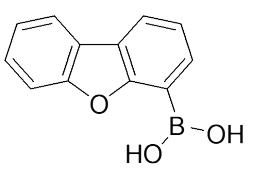

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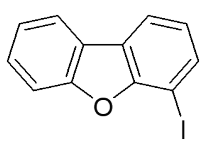

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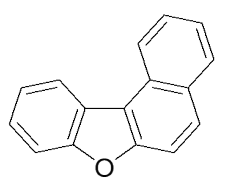

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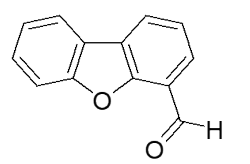

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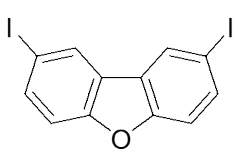

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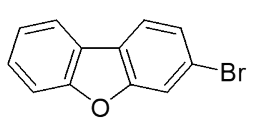

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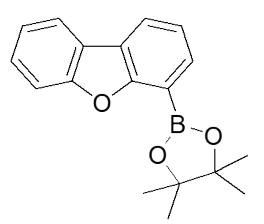

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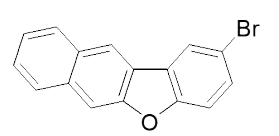

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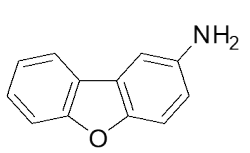

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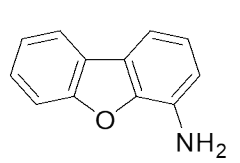

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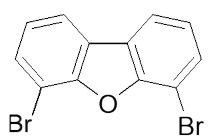

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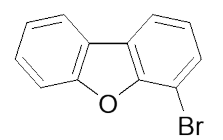

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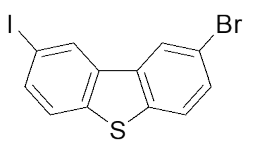

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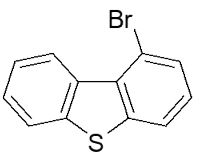

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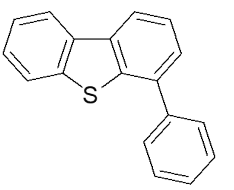

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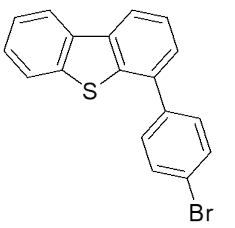

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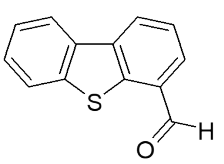

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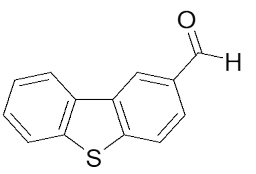

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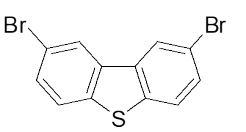

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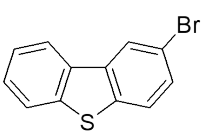

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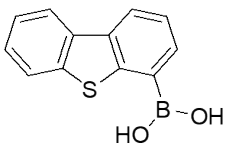

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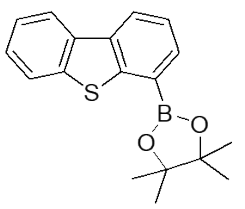

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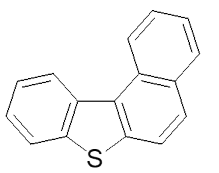

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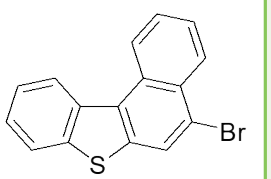

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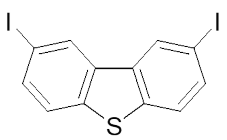

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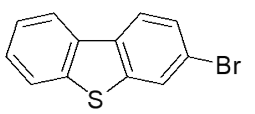

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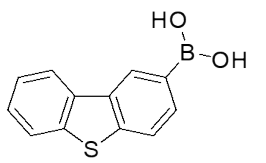

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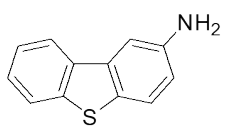

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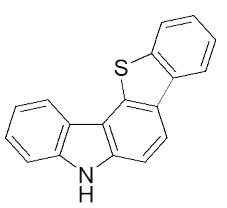

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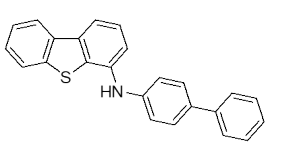

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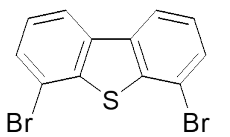

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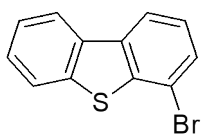

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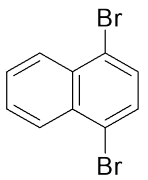

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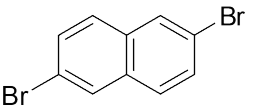

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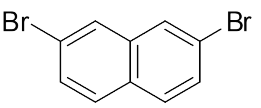

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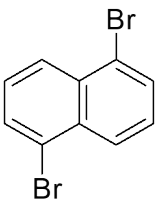

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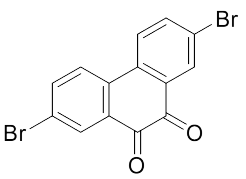

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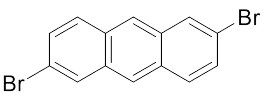

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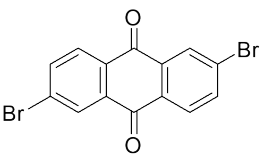

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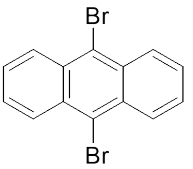

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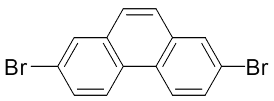

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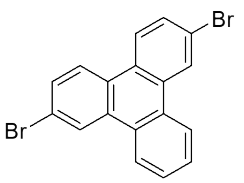

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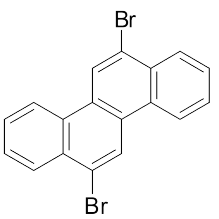

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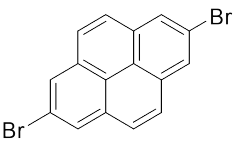

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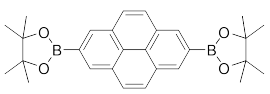

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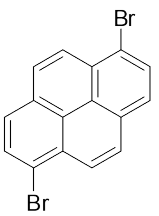

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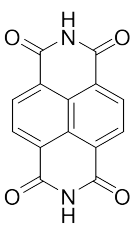

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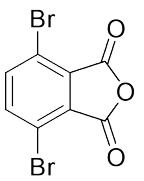

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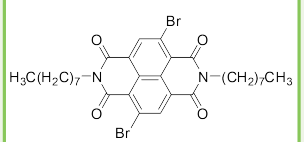

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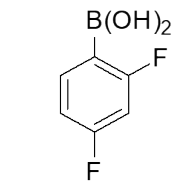

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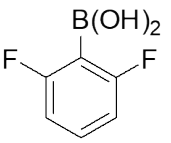

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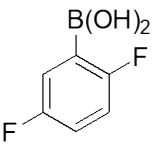

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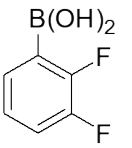

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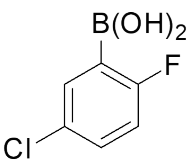

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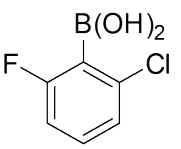

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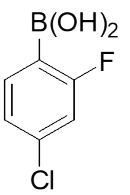

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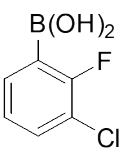

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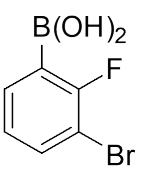

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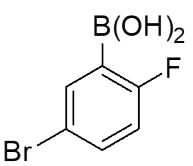

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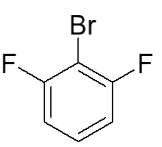

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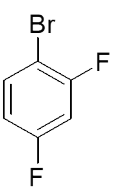

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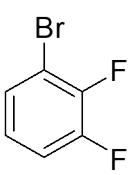

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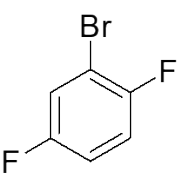

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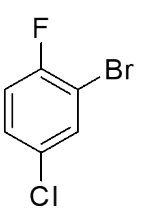

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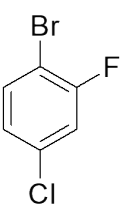

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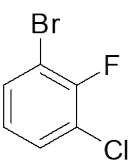

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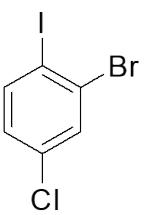

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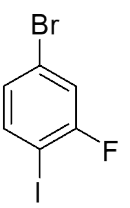

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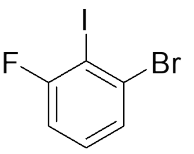

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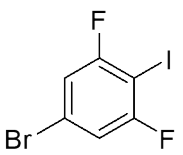

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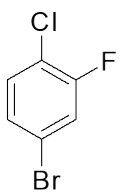

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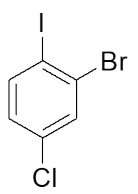

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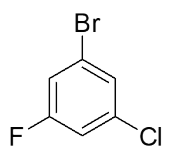

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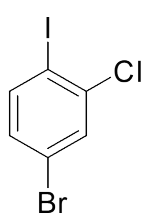

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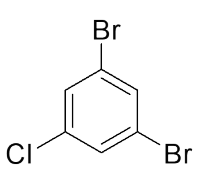

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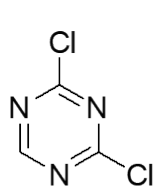

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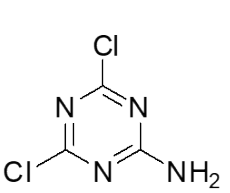

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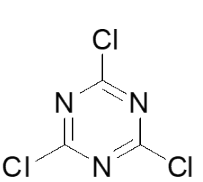

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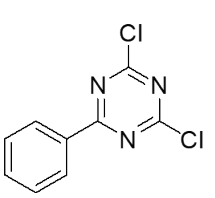

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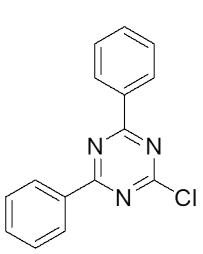

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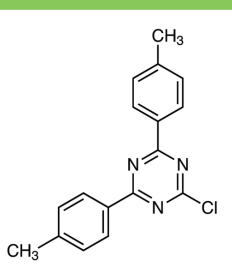

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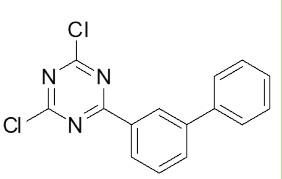

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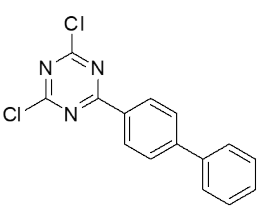

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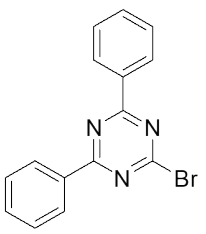

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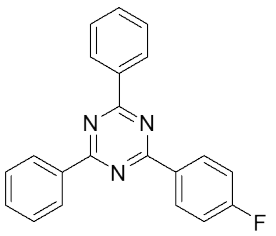

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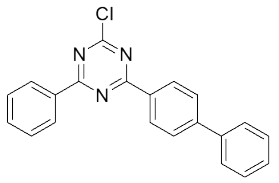

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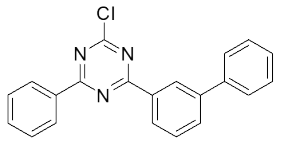

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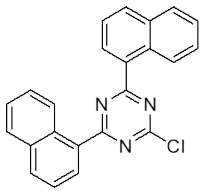

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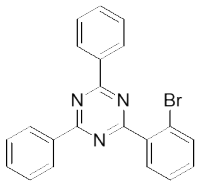

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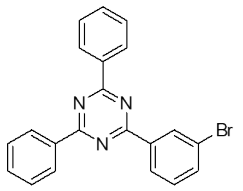

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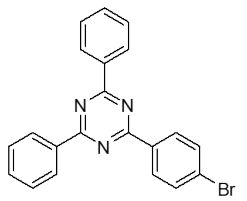

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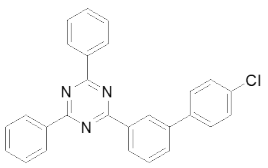

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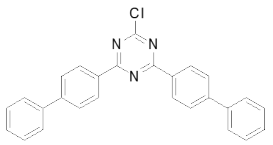

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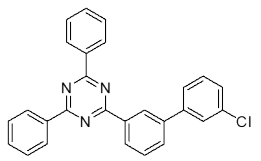

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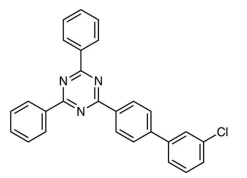

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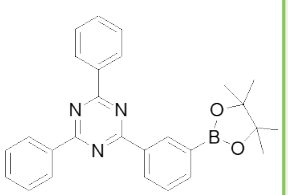

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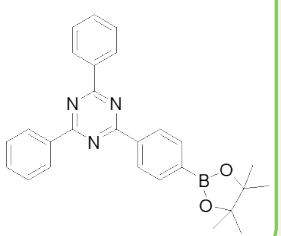

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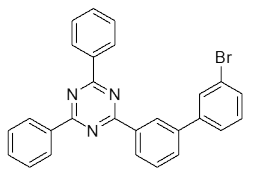

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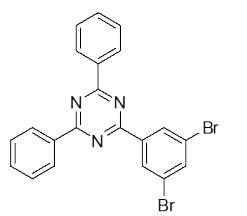

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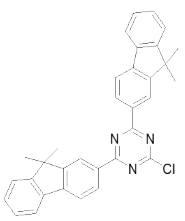

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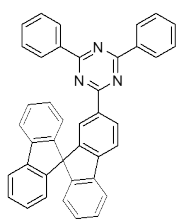

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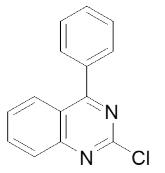

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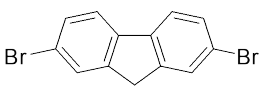

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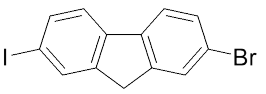

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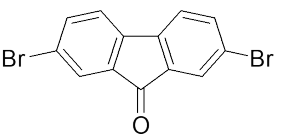

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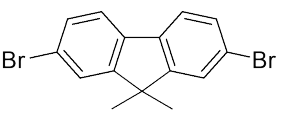

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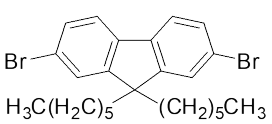

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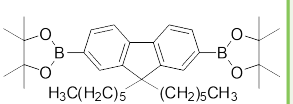

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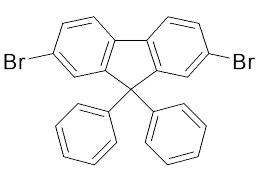

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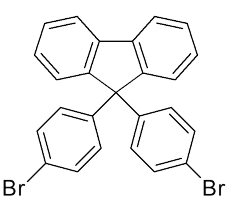

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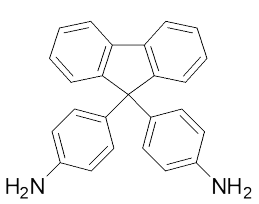

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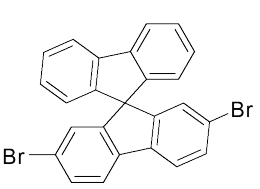

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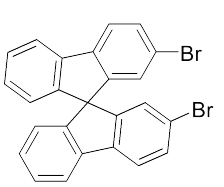

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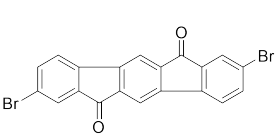

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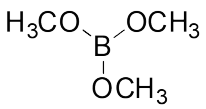

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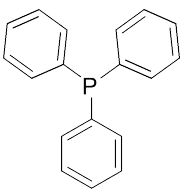

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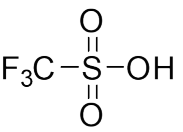

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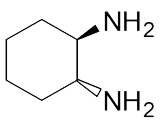

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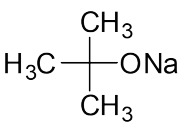

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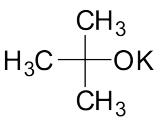

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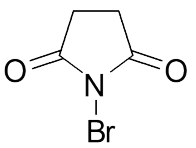

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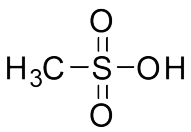

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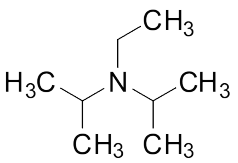

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T2184 51364-51-3

$Pd_2(dba)_3$

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