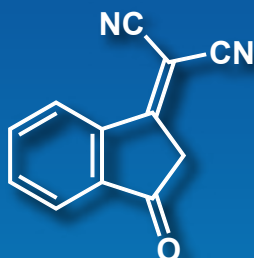
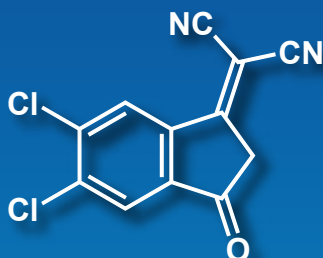


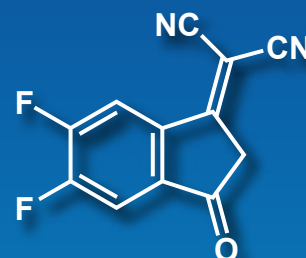
Building Blocks for Organic Semiconducting Non-Fullerene Acceptor Materials



1g / 5g
[D2054]



1g
[D5945]



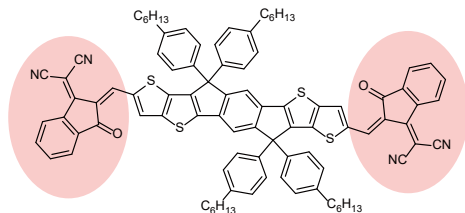
1g
[D5815]

Advantages

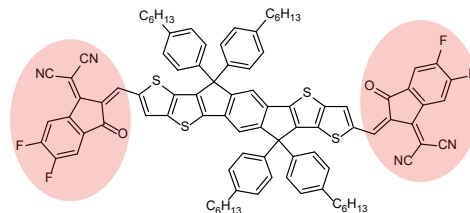
- 2-(3-Oxoindene-1-ylidene)propanedinitrile type building blocks commonly used for non-fullerene acceptor (NFA) materials
- The properties of NFA materials can be tuned by the containing atoms
- NFA materials realize a high-performance organic solar cell with over 15% of PCE

Applications

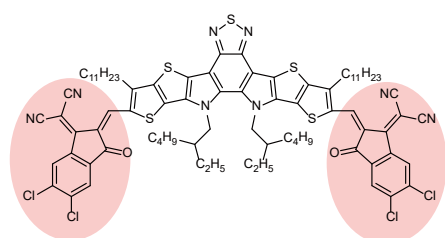
Highly Efficient NFA Materials for Organic Solar Cells



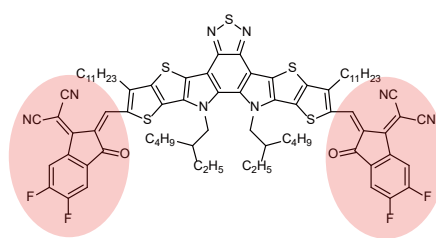
ITIC: PCE = 11.2%¹⁾



IT4F: PCE = 13.1%²⁾



BTP-4Cl (Y7): PCE = 16.5%³⁾



BTP-4F (Y6): PCE = 18.2%⁴⁾

References

- 1) W. Zhao, D. Qian, S. Zhang, S. Li, O. Inganäs, F. Gao, J. Hou, *Adv. Mater.* **2016**, 28, 4734.
- 2) W. Zhao, S. Li, H. Yao, S. Zhang, Y. Zhang, B. Yang, J. Hou, *J. Am. Chem. Soc.* **2017**, 139, 7148.
- 3) Y. Cui, H. Yao, J. Zhang, T. Zhang, Y. Wang, L. Hong, K. Xian, B. Xu, S. Zhang, J. Peng, Z. Wei, F. Gao, J. Hou, *Nat. Commun.* **2019**, 10, 2515.
- 4) Q. Liu, Y. Jiang, K. Jin, J. Qin, J. Xu, W. Li, J. Xiong, J. Liu, Z. Xiao, K. Sun, S. Yang, X. Zhang, L. Ding, *Sci. Bull.* **2020**, 65, 272.

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