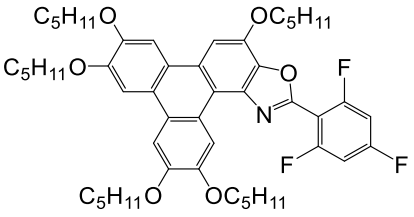
TpOx-Ph-*opo*-3F

TpOx-Ph-*opo*-3F is UV excited fluorescent material with a polycyclic aromatic donor-acceptor structure where the triphenoxazole core acts as a donor and the aromatic group on the two position of the oxazole (2,4,6-trifluoro-phenyl) act as the acceptor group. The push-pull, donor-acceptor, structure facilitates intramolecular charge transfer in the excited state that results in a 226 nm emission Stokes Shift. TpOx-Ph-*opo*-3F is also a photo-conducting Discotic Liquid Crystalline (DLC) material with mesophase transition onset temperature of 105°C. TpOx-Ph-*opo*-3F is designed for 355 nm and 405 nm excitation with emission at 496 nm with quantum yield of 0.63, high thermal, chemical and photostability. TpOx-Ph-*opo*-3F has potential uses in fluorescent dye staining, organic electronics and photonics, and imaging applications.

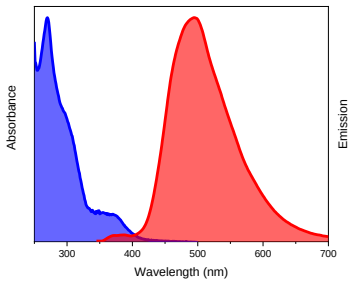
Chemical Structure



Chemical Data

- Catalogue Number: 922269
- Other Name: TpOx-Ph-*opo*-3F, CT 496 11 050 01 01
- CAS #: 2612025-71-3
- Molecular Formula: $C_{50}H_{62}F_3NO_6$
- Molecular Weight: 830.04

Absorbance and Emission spectra in Ethyl Acetate



Photophysical Data

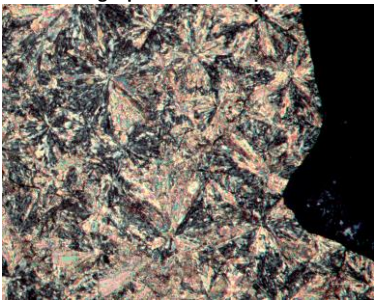
- In Solvent: EtOAc
- Abs λmax (nm) = 270
- Emis λmax (nm) = 496
- pSS (nm) = 226
- ϵ (M^{-1} cm^{-1}) at Abs λmax = 103,000
- Quantum Yield (Φ) = 0.63
- Fluorescence Lifetime (ns) = 6.65

Fluorescence Emission

Material Data

- Physical State: Crystal Powder
- Appearance (Colour): Pale yellow
- Polymorph crystalline phase: Solid, Discotic Liquid Crystal, Isotropic
- Solubility: THF > 1 mg/mL, MeCN < 0.07 mg/mL, DMSO < 0.03 mg/mL, DCM > 1 mg /mL

Polarising Optical Microscope Picture



Phase Transition Data

Phase transition temperature:

- Heating Crys - Col_h – 105°C, Col_h - Iso – 198°C
- Cooling Iso - Col_h – 193°C, Col_h - Crys – 43°C