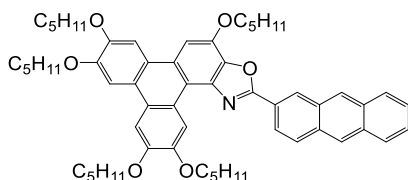


# TpOx-2-An

TpOx-2-An is a UV excitable 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-anthracene) act as the acceptor group. The push-pull, donor-acceptor, structure facilitates intramolecular charge transfer in the excited state that results in a 264 nm emission Stokes Shift. TpOx-2-An is also a photo-conducting Discotic Liquid Crystalline (DLC) material with mesophase transition onset temperature of 162°C. TpOx-2-An is designed for 355 nm and 405 nm excitation with emission at 536 nm with quantum yield of 0.51, high thermal, chemical and photostability. TpOx-2-An has potential uses in fluorescent dye staining, organic electronics and photonics, and imaging applications.

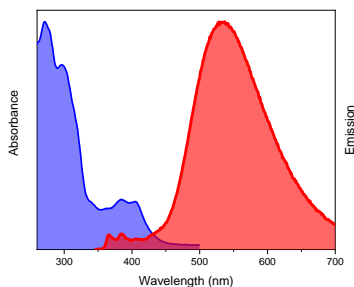
## Chemical Structure



## Chemical Data

- Catalogue Number: **922994**
- Other Name: TpOx-2-An, CT 536 11 102 01 01
- CAS #: 2377209-32-8
- Molecular Formula:  $C_{58}H_{69}NO_6$
- Molecular Weight: 876.19

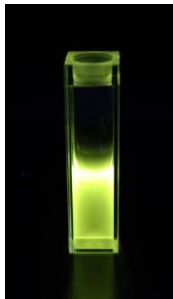
## Absorbance and Emission spectra in Ethyl Acetate



## Photophysical Data

- In Solvent: EtOAc
- Abs  $\lambda_{max}$  (nm) = 272
- Emis  $\lambda_{max}$  (nm) = 536
- pSS (nm) = 264
- $\epsilon$  ( $M^{-1} cm^{-1}$ ) at Abs  $\lambda_{max}$  = 105,000
- Quantum Yield ( $\Phi$ ) = 0.51
- Fluorescence Lifetime (ns) = 6.54
- Band Gap (Optical, Solution state) = 2.8 eV
- HOMO<sub>CV</sub> = -5.50 eV
- LUMO = -2.55 eV

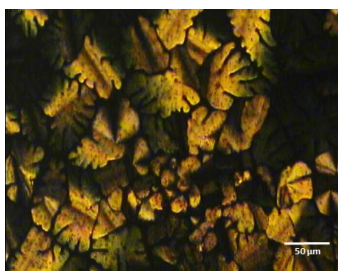
## Fluorescence Emission



## Material Data

- Physical State: Solid
- Appearance (Colour): Pale yellow
- Polymorph crystalline phase: Solid, Discotic Liquid Crystal, Isotropic
- Solubility: DCM, THF > 1 mg/mL, Insoluble in aqueous solvents

## Polarising Optical Microscope Picture



## Phase Transition Data

Phase transition temperature:

- Heating Crys - Col<sub>h</sub> – 162°C, Col<sub>h</sub> - Iso – 172°C
- Cooling Iso - Col<sub>h</sub> – 87°C, Col<sub>h</sub> - Crys – 151°C