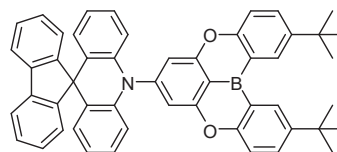


## Highly Efficient Deep-Blue OLEDs using a TADF Emitter with a Narrow Emission Spectrum and High Horizontal Emitting Dipole Ratio

### Product Specifications

#### LT-N6069 TDBA-SAF

Grade	Sublimed, >99%
Formula	C <sub>51</sub> H <sub>42</sub> BNO <sub>2</sub>
M.W.	711.70 g/mole
HOMO/LUMO	-5.7/-2.4 eV



\* *Adv. Mater.* 2020, 2004083

### Features

- The deep-blue TADF emitter, TDBA-SAF, was newly developed by incorporating SAF donor unit with an oxygen-bridged boron acceptor unit.
- The deeper HOMO levels of the acceptor unit resulted in (deep) blue emissions.
- The donor and acceptor units are rigid so that the emission spectra are narrow with the FWHM is 55 nm for TDBA-SAF.  $\Delta$ EST's of the molecule is smaller than 0.11 eV.
- All the combined effects bring out an efficient deep-blue OLED using TDBA-SAF as an emitter with the EQE of 28.2%, CIE coordinate of (0.142, 0.090), and low efficiency roll-off.

**Table 2.** Summarized performances of OLEDs using TDBA-SAF and DBA-SAB.

Emitter	$\lambda_{\max}$ [nm]	EQE <sub>max</sub> [%]			CE <sub>max</sub> [cd A <sup>-1</sup> ]			PE <sub>max</sub> [lm W <sup>-1</sup> ]			CIE (x, y)
		Max	100 cd m <sup>-2</sup>	1000 cd m <sup>-2</sup>	Max	100 cd m <sup>-2</sup>	1000 cd m <sup>-2</sup>	Max	100 cd m <sup>-2</sup>	1000 cd m <sup>-2</sup>	
TDBA-SAF	456	28.2	24.2	17.6	23.7	20.6	14.9	19.9	14.2	7.4	(0.142, 0.090)
DBA-SAB	472	25.7	25.2	23.6	43.8	42.4	37.8	35.1	32.1	20.2	(0.144, 0.212)

\*Table reference: *Adv. Mater.* 2020, 2004083



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