Technical Data Sheet

ACS Material LumioTech™ NCEIL-4

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1. Overview

NCEIL-4 is an advanced Electron Injection Layer (EIL) material designed to replace conventional Liq-based EILs in OLED devices. Engineered for enhanced device performance, NCEIL-4 offers superior lifetime, improved electrical characteristics, and scalability in manufacturing. It demonstrates excellent solubility in polar solvents and allows purification via sublimation, making it highly adaptable for OLED fabrication.

2. Specifications

Product Name	NCEIL-4
CAS no.	n/a
Chemical Formula:	n/a
Purity:	Sublimed: >99.0% (NMR purity)
Physical state:	Solid
Color:	Orange
Absorption (nm):	λmax 317, 356 in Methanol
Photoluminescence (nm):	626 in DMSO
HOMO/LUMO (eV):	HOMO = 5.56 / LUMO = 3.25
Melting Point:	n/a

3. Key Features

1. **Significant Lifetime Enhancement**
   - **5x improvement** in LT90@1000 nits compared to conventional Liq-based EILs.
   - Further improvements up to **15x** with optimized device configurations.
2. **Optimized Electrical Performance**
   - Consistent turn-on voltage.
   - Low driving voltage, ensuring energy efficiency.
   - No impact on electroluminescence (EL) spectrum.
3. **Material Advantages**
   - Good solubility in polar solvents for flexible processing.
   - Scalable synthetic process for mass production.
   - Purification via sublimation ensures high purity and reliability.
4. **Enhanced Device Characteristics**
   - Increased external quantum efficiency (EQE) and current efficiency.
   - Stable performance across multiple OLED configurations.
   - Potential integration as an **n-doped Electron Transport Layer (ETL)** for further improvements.

4. Applications

NCEIL-4 is suitable for:

- **OLED displays and lighting** requiring enhanced lifetime and efficiency.
- **Next-generation electronic devices** where improved charge injection and stability are critical.
- **Research and development** in advanced electron transport and injection materials.