

CPS-LiPP25 Water-Based Binder Additive

For Si-Based Anodes & Water-Based LFP/LMFP Cathodes | Adhesion · Electrode Structural Stability · Rate/Cycle Performance Support

pH	Solid Content	Viscosity	Application
7.0 ± 0.2	8.0 ± 0.5%	1,000 ± 200 cP	Si-Based · LFP/LMFP

1. Product Overview

CPS-LiPP25 is a water-based binder additive combining CPS's ion-conductive Li-PAN polymer with PAA (approx. MW 250,000). It is designed for use with existing binder systems in Si/C and Si-based anodes and water-based LFP/LMFP cathodes to support electrode adhesion and structural stability, with the goal of improving rate capability and cycle performance.

2. Typical Properties

Item	Typical Specification	Test / Reporting Condition	Remarks
Appearance	Clear yellowish-brown aqueous solution	Visual	Homogeneous aqueous solution
pH	7.0 ± 0.2	25°C	Near-neutral range
Solid Content	8.0 ± 0.5%	Dry residue basis	QC control range
Viscosity	1,000 ± 200 cP	Brookfield, 2 rpm, 25°C	Low-shear condition

3. Key Features

Water-Based Process	Applicable to water-based electrode slurries without organic NMP
Hybrid Application	Used as a functional additive in existing anode/cathode binder systems
Adhesion & Structural Stability	Combines PAA-based binding characteristics with the ion-conductive functionality of Li-PAN
Rate & Cycle Performance Support	Supports rate capability and repeated charge/discharge performance of Si-based anodes and LFP/LMFP electrodes
Processability	Approx. 1,000 cP for easy metering, mixing, and slurry processing

4. Recommended Applications

Electrode	Target Application	Recommended Positioning
Anode	Si/C, Si-containing graphite, and Si-based anodes	Functional additive for existing water-based binders such as CMC/SBR
Cathode	Water-based LFP and LMFP cathodes	Additive supporting adhesion, interfacial properties, and ion transport in existing water-based binder systems

Application Method: Rather than fully replacing the existing binder, CPS-LiPP25 is recommended as a functional additive blended into the existing water-based binder system. The optimum addition level should be determined according to the customer's electrode formulation.

5. Performance Trends Observed in CPS Internal Cell Tests

Si/C Anode: In previous evaluations of the CPS-LiPP25 series, depending on formulation, ICE of approximately 92–93%, 5C retention of up to approximately 96%, 7C retention of up to approximately 92%, and 50-cycle retention of up to approximately 97% were observed.

LFP/LMFP Cathode: Applicable as a water-based binder additive, with optimization focused on adhesion, rate capability, cycle life, and performance versus the existing binder system.

Product Positioning | Functional binder additive that complements electrode adhesion, structural stability, and electrochemical performance rather than fully replacing the existing water-based binder.

6. Handling & Storage

- Evaluate stepwise from a low addition level according to the active material, conductive additive, and existing binder formulation.
- Store tightly sealed, away from direct sunlight and high temperatures. Protect from freezing.