

Technical Data Sheet

NANOMYTE[®] SSE-10D (LSPS Dispersion)

PRODUCT DESCRIPTION

NANOMYTE[®] SSE-10D is a dispersion of $\text{Li}_{10}\text{SnP}_2\text{S}_{12}$ (SSE-10, or LSPS) solid electrolyte in a solvent that can be cast into flexible tapes, providing more options for cell designers to combine with suitable cathode and anode active materials. NEI's patent-pending, solid electrolyte material is designed to eliminate flammability issues associated with currently used liquid electrolytes, while providing high Li-ion conductivity (10^{-4} to 10^{-2} S/cm @ RT). Additionally, SSE-10D allows limited atmospheric stability to the solid electrolyte particles, which otherwise need to be handled in a controlled environment.

TECHNICAL DATA

Appearance:	Grey-black color dispersion
Solids Content:	25 wt%
Major Solid Component:	$\text{Li}_{10}\text{SnP}_2\text{S}_{12}$
Major Solvent:	Dichloromethane
Specific Density:	1.7 g/cc at 20 °C
Viscosity:	420 cP @ 20 °C (Shear rate 6.6 sec^{-1})
Typical ionic conductivity of solid electrolyte powder:	$\sim 10^{-3}$ S/cm at 25 °C
Drying Temperature:	20 – 30 °C

SURFACE PREPARATION

The current collector surface must be clean, dry, and in sound condition. Before casting the dispersion, remove all oil, grease, dust, dirt and other foreign material by wiping the surface with a solvent, such as acetone.

ELECTRODE TAPE FABRICATION

The electrode tapes of LSPS, using the dispersion, can be cast on a current collector in an inert atmosphere. The preferred tool for tape casting is doctor blade. Typically, the tape will dry in 30 minutes at room temperature (25 °C), but drying times may vary based on environmental conditions.

CLEAN UP

Clean tools immediately with acetone, under adequate ventilation, after tape fabrication is completed.

STORAGE & HANDLING

Conditions for Safe Storage:

Keep container tightly sealed. Store in cool, dry, well-ventilated place. Store under inert gas. Protect from moisture. Never allow product to get in contact with water during storage. Avoid storage over 40 °C and contamination with incompatible materials. Do not apply heat, cut, drill, and grind or weld on or near this container.

Precautions for Safe Handling:

Appropriate personal protective equipment should be used at all times. Provide good ventilation or extraction. Avoid prolonged or repeated breathing of vapor. Avoid contact with eyes, skin and clothing. Keep away from heat, sparks, flames and other sources of ignition. Wash hands thoroughly after handling.

Refer to MSDS for further information.