

NANOMYTE[®] SSE-20 is a solvent-based dispersion fluid designed to be compatible with NANOMYTE[®] SSE-10 LSPS powder (and other sulfide-based solid electrolyte powders). The material is specially formulated to not react with LSPS and contains proprietary additives with an organic lithium salt, which acts as an ionically conductive binder. When SSE-20 is mixed and dispersed with a powder, the material is ready to cast into flexible tapes, providing more options for cell designers to combine with suitable cathode and anode active materials.

Physical Characteristics

Components:	Dichloromethane with proprietary additives*
Recommended Mixing Ratio:	3:1 (fluid to powder) by weight
Final Solids Content:	~25 wt% (after mixing)
Drying Temperature:	20 – 30 °C

**polymeric material with organic lithium salt, which acts as an ionically conductive binder*

CAUTION: READ BELOW BEFORE MIXING WITH SSE-10 (LSPS) POWDER

When mixing with SSE-10 LSPS powder (or similar sulfide), mixing and tape casting must be done in the glovebox. Even when dispersed, the sulfide material is sensitive to moisture and oxygen and can generate H₂S gasses. Ionic conductivity will be lost if exposed to humidity. **Handle materials in a glove box, under inert gas, at all times.**

Instructions for Mixing (in glove box only)

1. In a bottle, combine (by weight): 3 parts SSE-20 dispersion fluid per 1 part solid electrolyte powder.
2. Add a magnetic stir bar to the bottle, and close the cap.
3. Place the bottle on a magnetic stirrer plate and stir for a few minutes until the powder is all wet. Allow the powder and solvent to continue mixing until uniformly dispersed (make sure no dry powder is stuck on the side of the bottle).
4. Remove the stir bar and ensure the dispersion is uniform before casting the tape.

Guidelines for Electrode Tape Fabrication (in glove box only)

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 using a solvent such as acetone, and wipe the surface.

Tape Casting:

The preferred tool for tape casting is doctor blade. Dry tape at room temperature (25 °C) – drying times will vary, depending on environmental conditions.

Storage & Handling (unmixed SSE-20 only)

Precautions for Safe Handling

Appropriate personal protective equipment should be used at all times. Avoid contact with eyes and skin. Provide good ventilation or extraction, and avoid breathing vapors.

Conditions for Safe Storage

Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage. Heat sensitive. Store under inert gas. Storage class (TRGS 510): Non-combustible, acute toxic Category 3 / toxic hazardous materials or hazardous materials causing chronic effects.

Refer to SDS for complete information on the safe handling of this material.

Additional Information

Hazardous Shipping Restrictions: Due to restrictions regarding dangerous goods shipping regulations, this material must be shipped separately from other hazardous (“dangerous when wet”) sulfide-based materials.

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