A Step by Step Recipe for Preparing Water-based Electrode Slurry (Graphite Anode):

1. Weight Ratio (All other weights depends on how much active powder you will use):

- **Anode Active Powder -** MCMB**: 94.5%**
- CMC**: 2.25%**
- SBR**: 2.25%**
- **Conductive-** Super P**: 1%**
- **De-Ionized water: At least 120% of MCMB**

2. Heat treat the active powder in the inert gas environment, 300~400C for an hour, *Heat treatment via MTI 500C vacuum ovens is suggested, please click the underline to view product details.*

3. Grind mill the active and conductive power for about 30 minutes. *Grind milling via MTI MSK-SFM series Ball miller is suggested, please click the underline to view product details.*

4. Make liquid thickening agent: heat up de-ionized water to 80C and then slowly add CMC into the water and keep stirring until the CMC is fully dissolved. Usually this process will take >60 minutes.

5. Slowly add SBR and stir for another 60 minutes. You may add some more water if the SBR can not be dully dissolved.

6. Add active and conductive powder into the slurry and stir. It is suggested to separate the powders into 2 or 3 piles, add the first pile and mix for 30 minutes...add the second pile and mix for another 30 minutes...until all the piles are finished. This will help improve the mixing uniformity. *Slurry stirring by MTI MSK-SFM Series Vacuum Mixer is preferred, please click underline to view the recommended instruments*

7. Take sample and test the viscosity. The recommended viscosity for the slurry is between 5000 and 6000 CPS. If the viscosity is above this range, add more de-ionized water; if the viscosity is lower, add more binder (CMC and SBR)
It is suggested to use MTI MSK-SFM-VT viscosity tester to verify the slurry's viscosity, please click underline to view product details.

A Step by Step Recipe for Preparing Cathode Electrode Slurry:

1. Weight Ratio (All other weights depends on how much active powder you will use):

- **Cathode Active Powder -** LiFePO4, LiCoO2**... : 93.5%**
- PVDF**: 2.25%**
- **Conductive** Super- C45**: 4.0%**
- NMP**: 8/15 of the solid content by weight**

2. Heat treat the active powder in the inert gas or vacuum environment, 120~140C for two hours,

3. Grind mill the active and conductive power for about 30 minutes.

4. Heat up NMP solution to 80C. Slowly add PVDF and keep stirring until the PVDF is fully dissolved. Usually this process will take around 120 minutes.

5. Add active and conductive powder into the slurry and stir. It is suggested to separate the powders into 2 or 3 piles, add the first pile and mix for 30 minutes...add the second pile and mix for another 30 minutes...until all the piles are finished. This will help improve the mixing uniformity.

6. Take sample and test the viscosity. The recommended viscosity for the slurry is around 6000 CPS.