

(19) United States

(12) Patent Application Publication (10) Pub. No.: US 2023/0231137 A1 WU et al.

Jul. 20, 2023 (43) **Pub. Date:**

(54) POSITIVE ELECTRODE SLURRY, POSITIVE ELECTRODE PLATE AND SECONDARY BATTERY COMPRISING THE POSITIVE ELECTRODE PLATE

(71) Applicant: CONTEMPORARY AMPEREX TECHNOLOGY CO., LIMITED,

Ningde (CN)

(72) Inventors: Qifan WU, Ningde (CN); Ming

ZHANG, Ningde (CN); Yacheng LIU, Ningde (CN); Ziyi YIN, Ningde (CN); Tongxian ZHANG, Ningde (CN)

(73) Assignee: **CONTEMPORARY AMPEREX** TECHNOLOGY CO., LIMITED,

Ningde (CN)

(21) Appl. No.: 18/120,438

(22) Filed: Mar. 13, 2023

Related U.S. Application Data

(63) Continuation of application No. PCT/CN2021/ 133144, filed on Nov. 25, 2021.

Publication Classification

(51) Int. Cl. H01M 4/62 (2006.01)H01M 4/525 (2006.01)(2006.01)C08G 65/327 C08G 65/14 (2006.01)C08G 65/24 (2006.01)

(52) U.S. Cl.

CPC H01M 4/62 (2013.01); H01M 4/525 (2013.01); C08G 65/327 (2013.01); C08G 65/14 (2013.01); C08G 65/24 (2013.01); H01M 2004/028 (2013.01)

(57)ABSTRACT

Provided is a positive electrode slurry comprising a polyether phosphate, wherein the polyether phosphate may comprise at least the following structural units:

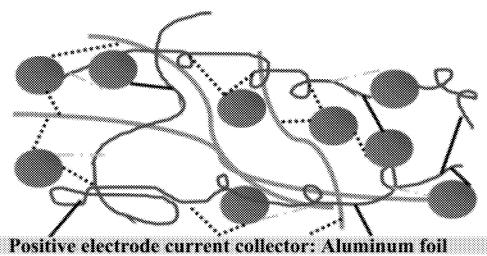
$$\begin{array}{c}
A \\
\downarrow O \\
\downarrow O
\end{array},$$
(II)

$$\underbrace{\mathsf{E}}_{\mathsf{E}}$$

$$\underbrace{\mathsf{O}}_{\mathsf{A}},$$
(III)

and a structural unit (IV) that is a phosphate group,

A being hydrogen, halogen or haloalkyl; B is hydroxyl, R, OR, or ROR', the R and R' being each independently a linear or branched alkyl group containing 1 to 8 carbons; and E is phenyl, alkyl-substituted phenyl, ethersubstituted phenyl, or halophenyl.



Polyether phosphate PVDF

Covalent bond

Benzene ring

Hydrogen 🜑 bond

Positive electrode active material