

(19) United States

(12) Patent Application Publication (10) Pub. No.: US 2024/0213477 A1 KO et al.

Jun. 27, 2024 (43) **Pub. Date:**

(54) ANODE COMPOSITION, LITHIUM SECONDARY BATTERY ANODE COMPRISING SAME, AND LITHIUM SECONDARY BATTERY COMPRISING ANODE

(71) Applicant: LG ENERGY SOLUTION, LTD.,

Seoul (KR)

(72)Inventors: Minjin KO, Daejeon (KR); Chan Soo

JUN, Daejeon (KR)

Assignee: LG ENERGY SOLUTION, LTD., (73)

Seoul (KR)

18/288,003 Appl. No.: (21)

(22) PCT Filed: Dec. 14, 2022

(86) PCT No.: PCT/KR2022/020353

§ 371 (c)(1),

(2) Date: Oct. 23, 2023

(30)Foreign Application Priority Data

Dec. 15, 2021 (KR) 10-2021-0180142

Publication Classification

(51) Int. Cl.

H01M 4/62 (2006.01)H01M 4/02 (2006.01)H01M 4/48 (2006.01)

(52)U.S. Cl.

> CPC (2013.01); H01M 2004/021 (2013.01); H01M 2004/027 (2013.01); H01M 2220/30 (2013.01)

(57)**ABSTRACT**

A negative electrode composition, a negative electrode for a lithium secondary battery including the same, and a lithium secondary battery including a negative electrode are disclosed. The negative electrode composition including a negative electrode binder comprising a graphene oxide and at least one water-soluble macromolecular polymer; a negative electrode active material; and a negative electrode conductive material, wherein the graphene oxide has a lateral size of 0.3 µm or greater and 20 µm or less, and wherein the graphene oxide has a ratio of carbon (C)/oxygen (O) of 0.5 or greater and 3.5 or less.

