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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
90/019,470	04/04/2024	10964987	Z040-30067RE	3106
826	7590	01/14/2026		
ALSTON & BIRD LLP VANTAGE SOUTH END 1120 SOUTH TRYON STREET SUITE 300 CHARLOTTE, NC 28203-6818			EXAMINER SANDERSON, LEE E	
			ART UNIT	PAPER NUMBER
			3991	
			MAIL DATE	DELIVERY MODE
			01/14/2026	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.



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(THIRD PARTY REQUESTER'S CORRESPONDENCE ADDRESS)

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***EX PARTE* REEXAMINATION COMMUNICATION TRANSMITTAL FORM**

REEXAMINATION CONTROL NO. 90/019,470 .

PATENT UNDER REEXAMINATION 10964987 .

ART UNIT 3991 .

Enclosed is a copy of the latest communication from the United States Patent and Trademark Office in the above identified *ex parte* reexamination proceeding (37 CFR 1.550(f)).

Where this copy is supplied after the reply by requester, 37 CFR 1.535, or the time for filing a reply has passed, no submission on behalf of the *ex parte* reexamination requester will be acknowledged or considered (37 CFR 1.550(g)).

Notice of Intent to Issue Ex Parte Reexamination Certificate	Control No. 90/019,470	Patent Under Reexamination 10964987	
	Examiner LEE E SANDERSON	Art Unit 3991	AIA (First Inventor to File) Status Yes

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

1. ☒ Prosecution on the merits is (or remains) closed in this *ex parte* reexamination proceeding. This proceeding is subject to reopening at the initiative of the Office or upon petition. *Cf.* 37 CFR 1.313(a). A Certificate will be issued in view of
 - (a) ☒ Patent owner's communication(s) filed: 24 November 2025.
 - (b) ☐ Patent owner's failure to file an appropriate timely response to the Office action mailed: _____.
 - (c) ☐ Patent owner's failure to timely file an Appeal Brief (37 CFR 41.31).
 - (d) ☐ The decision on appeal by the ☐ Board of Patent Appeals and Interferences ☐ Court dated _____
 - (e) ☐ Other: _____.
2. The Reexamination Certificate will indicate the following:
 - (a) Change in the Specification: ☐ Yes ☒ No
 - (b) Change in the Drawing(s): ☐ Yes ☒ No
 - (c) Status of the Claim(s):
 - (1) Patent claim(s) confirmed: 1 and 17.
 - (2) Patent claim(s) amended (including dependent on amended claim(s)): _____
 - (3) Patent claim(s) canceled: _____.
 - (4) Newly presented claim(s) patentable: _____.
 - (5) Newly presented canceled claims: _____.
 - (6) Patent claim(s) ☐ previously ☐ currently disclaimed: _____
 - (7) Patent claim(s) not subject to reexamination: 2-16.
3. ☐ A declaration(s)/affidavit(s) under **37 CFR 1.130(b)** was/were filed on _____.
4. ☐ Note the attached statement of reasons for patentability and/or confirmation. Any comments considered necessary by patent owner regarding reasons for patentability and/or confirmation must be submitted promptly to avoid processing delays. Such submission(s) should be labeled: "Comments On Statement of Reasons for Patentability and/or Confirmation."
5. ☐ Note attached NOTICE OF REFERENCES CITED (PTO-892).
6. ☒ Note attached LIST OF REFERENCES CITED (PTO/SB/08 or PTO/SB/08 substitute).
7. ☐ The drawing correction request filed on _____ is: ☐ approved ☐ disapproved.
8. ☒ Acknowledgment is made of the priority claim under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☒ All b) ☐ Some* c) ☐ None of the certified copies have
 - ☐ been received.
 - ☐ not been received.
 - ☒ been filed in Application No. 16013887.
 - ☐ been filed in reexamination Control No. _____.
 - ☐ been received by the International Bureau in PCT Application No. _____.

* Certified copies not received: _____.
9. ☐ Note attached Examiner's Amendment.
10. ☐ Note attached Interview Summary (PTO-474).
11. ☐ Other: _____.

All correspondence relating to this reexamination proceeding should be directed to the **Central Reexamination Unit** at the mail, FAX, or hand-carry addresses given at the end of this Office action.

/LEE E SANDERSON/ Reexamination Specialist, Art Unit 3991	
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cc: Requester (if third party requester)

U.S. Patent and Trademark Office
PTOL-469 (Rev. 08-13)

Notice of Intent to Issue Ex Parte Reexamination Certificate

Part of Paper No. 20251229A

NOTICE OF INTENT TO ISSUE A REEXAMINATION CERTIFICATE

Claims Subject to Reexamination

Claims 1 and 17 of U.S. Patent No. 10,964,987.

5

Claim Status

Claims 1-17 are patented claims.

Claims 1 and 17 are confirmed.

Claims 2-16 are not subject to reexamination.

10

Statement for Reasons for Patentability and/or Confirmation

The following is an Examiner's statement of reasons for patentability and/or confirmation of the claims found to be patentable in this reexamination proceeding.

Independent claim 1 and dependent claim 17 of U.S. Patent No. 10,964,987
15 (hereafter "the '987 Patent") are under reexamination. Claim 1 of the '987 Patent recites the following:

1. A separator, comprising: a porous substrate; and
a porous layer arranged on a surface of the porous substrate, wherein the porous
20 layer comprises inorganic particles, and a binder, and a ratio of Dv90 of the inorganic particles to the thickness of the porous layer is in a range from 0.3 to 3.0.

In the Request for *Ex Parte* Reexamination filed 4 April 2024 the third party
25 requester asserts that claim 1 is anticipated by US 2016/0013465 to Akiike ("Akiike").

The third party also asserts that claim(s) 1 and/or 17 are rendered obvious by Akiike or US 2015/0280195 to Schmitz et al. ("Schmitz") and various combinations of Akiike, Schmitz, US 9,172,074 to Weber et al. ("Weber"), US 2011/0293976 to Chiba et al. ("Chiba"), and ISO 13320-1.

5 On 22 August 2025 a non-final Office action was filed in which claims 1 and/or 17 was/were rejected over the prior art cited by the third party requester. As is described at page 3 line 17-page 4 line 9 of the non-final Office action Akiike was indicated as anticipating claim 1. Akiike discloses a separator for a lithium ion battery wherein the separator comprises a porous membrane disposed on a porous separator layer. The
10 porous membrane is formed from a slurry comprising non-conductive inorganic particles and a particulate polymer (i.e., a binder). The inorganic particles in the porous membrane of Akiike correspond to the claimed inorganic particles.

Akiike presents a working example (Example 1) of the disclosed separator in which the porous membrane has a thickness of 3 μm and comprises inorganic particles
15 having a Dv90 of 1.38 μm which equates to a Dv90 to thickness ratio of 0.46. However, Akiike discloses that the Dv90 of the inorganic particles was determined via laser diffraction from a slurry comprising both the inorganic particles as well as the particulate polymer. As is noted by the Patent Owner and explained in the declaration of Dr. Dean R. Wheeler, it is impossible to determine the Dv90 of just the inorganic particles from a
20 slurry comprising a mixture of particles using a laser diffraction method. Additionally, as is explained by Dr. Wheeler at paragraphs 34 and 35 of his declaration, the volume amount of the particulate polymer relative to the inorganic particles may reasonably be estimated to be 18.4%. Thus, the volume percentage of the particulate polymer

represents a significant proportion of the total volume of the particles in the slurry. As such, one cannot reasonably conclude that the size of the inorganic particles present in the porous membrane would necessarily have a size of 1.38 μm as reported by Akiike. As a result, it not reasonable to conclude that the inorganic particles in the porous

5 membrane of the working example separator of Akiike would necessarily have a Dv90 that results in a Dv90 to thickness ratio which anticipates the range recited in claim 1. For this reason, the rejection of claim 1 for being anticipated by Akiike set forth in the non-final Office action is withdrawn.

Additionally, as is set forth at page 4 line 21-page 5 line 12 of the non-final Office

10 action, the broader disclosure of Akiike fairly teaches a Dv90 to thickness ratio which renders obvious the range recited in claim 1. However, Table 2 of the '987 Patent shows that a separator having an inorganic particle Dv90 to porous layer thickness ratio of 0.2 (i.e., less than 0.3) or 3.2 (i.e., greater than 3.0) results in a battery which having discharge and cycle performance which is significantly less than a battery comprising a

15 separator having an inorganic particle Dv90 to porous layer thickness ratio within the range recited in claim 1 of the '987 Patent. The significant improvement associated with the claimed inorganic particle Dv90 to porous layer thickness ratio would not have been expected by one of ordinary skill in the art. In light of this unexpected result claim 1 of the '987 Patent is not rendered obvious by Akiike in accordance with MPEP 2141.

20 The non-final Office action further indicates that claims 1 and/or 17 is/are rendered obvious by Schmitz and various combinations of Schmitz, Chiba, Akiike, and Weber. However, as is noted above, the '987 Patent presents objective evidence which demonstrates that the claimed inorganic particle Dv90 to porous layer thickness ratio is

5 Any comments considered necessary by the Patent Owner regarding the above statement must be submitted to avoid processing delays. Such submission by the Patent Owner should be labeled: "Comments on Statement of Reasons for Patentability and/or Confirmation" and will be placed in the reexamination file.

By mail to: Mail Stop Ex Parte Reexam
Central Reexamination Unit Commissioner for Patents United States
Patent & Trademark Office, P.O. Box 1450 Alexandria, VA 22313-1450

By hand to: Customer Service Window
Randolph Building
401 Dulany St., Alexandria, VA 22314

Signed:

25 /LEE E SANDERSON/
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