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Datasheet for the decision of 18 September 2026

Case Number: T 0265/25 - 3.4.02

Application Number: 20951684.8

Publication Number: 4083608

IPC: G01N21/29, H01M4/04, G01N21/81, H01M4/505, H01M4/525, F26B3/04, F26B3/30, F26B13/00, F26B13/10, F26B25/22

Language of the proceedings: EN

Title of invention:

Dry quality evaluation device for electrode and dry quality evaluation method for electrode

Applicant:

LG Energy Solution, Ltd.

Relevant legal provisions:

EPC Art. 54(2), 56

Keyword:

Novelty - (yes)
Inventive step - (yes)

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Case Number: T 0265/25 - 3.4.02

D E C I S I O N
of Technical Board of Appeal 3.4.02
of 18 September 2026

Appellant: (Applicant)	LG Energy Solution, Ltd. Tower 1, 108, Yeoui-daero Yeongdeungpo-gu Seoul 07335 (KR)
Representative:	Goddar, Heinz J. Boehmert & Boehmert Anwaltspartnerschaft mbB Pettenkoferstrasse 22 80336 München (DE)
Decision under appeal:	**Decision of the Examining Division of the European Patent Office posted/electronically transmitted on 20 September 2024 refusing European patent application No. 20951684.8 pursuant to Article 97(2) EPC.**

Composition of the Board:

Chairman	R. Bekkering
Members:	H. Bronold
	W. Ungler

Summary of Facts and Submissions

I. The appeal of the applicant (appellant) lies from the decision of the examining division refusing European patent application No. 20951684.8 on the ground that the subject-matter of the independent claims then on file did not involve an inventive step (Article 56 EPC).

II. The appellant initially requested *inter alia* that the contested decision be set aside and that a patent be granted on the basis of the claims of its main request as filed with the statement of grounds of appeal.

III. In the appeal proceedings, the following documents were of particular relevance:

D1: US 2020/0240915 A1
D4: CN 103 344 575 A
D7: CN 108 050 773 A

IV. In a communication under Article 15(1) RPBA the Board informed the appellant *inter alia* that it considered the subject-matter of the independent claims according to the appellant's main request as filed with the statement of grounds of appeal to be novel and inventive. However, the Board raised objections under Article 83 and 84 EPC against claims 1, 2, 3, 7 and 9 and objections under Article 84 EPC and Rule 42(1)(c) EPC against parts of the description.

V. In reaction to the Board's communication the appellant filed amended claims 1 to 15 and amended description pages 1 to 29 according to an amended main request with

letter dated 13 May 2026 and requested further prosecution on the basis of this main request. The amendments to the claims and to the description of the main request address all objections raised in the Board's communication under Article 15(1) RPBA.

VI. Claim 1 according to the main request of 13 May 2026 reads as follows:

"An apparatus for evaluating drying quality of an electrode for use in manufacturing a lithium secondary battery, the apparatus comprising:

an oven configured to provide a space in which an electrode is dried;

a measuring unit positioned at an outlet of the oven and configured to measure a color coordinate value of an electrode active material layer with respect to the dried electrode; and

an [sic] determination unit configured to determine whether a dry state of the electrode is defective from the color coordinate value,

wherein the determination unit sets a reference value, and determines that a dry state of the electrode is defective if the measured color coordinate value is less than the reference value, and a difference between the measured color coordinate value and the reference value is more than a preset value; and

wherein the color coordinate value is L* defined by the CIE."

Claims 2 to 5 are dependent on claim 1.

VII. Independent method claim 6 defines a corresponding method for evaluating drying quality of an electrode for use in manufacturing a lithium secondary battery.

Claims 7 to 15 are dependent on claim 6.

Reasons for the Decision

Main request – Inventive step (Article 56 EPC)

Closest prior art

1. The examining division considered document D1 to represent the closest prior art. The Board sees no reason to depart from this assessment. D1 relates to a drying apparatus for an electrode substrate of a lithium secondary battery, in which optical measurements are performed in order to estimate a drying rate and to control the temperature of drying chambers during the drying process.

Distinguishing features

2. Contrary to the contested decision, the Board is not convinced that the only feature distinguishing the subject-matter of claim 1 from the disclosure of D1 is the use of a colour coordinate L* defined in the CIE system.

3. Upon a careful analysis of D1, the Board considers that the subject-matter of claim 1 further differs from D1 at least in that:

(1) the measuring unit is positioned at an outlet of the oven, i.e. downstream of the drying chamber;

(2) the colour coordinate is measured on the dried electrode, rather than during the drying process;

(3) a reference colour value is defined; and

(4) a difference between the measured colour coordinate value and the reference value is determined.

4. With respect to feature (1), D1 consistently discloses that the measuring unit is arranged inside the drying chamber (see e.g. paragraphs [0042], [0053] and Figure 1 of D1). When read in its technical context, the expression "at an outlet of the oven" in claim 1 implies a position downstream of the drying chamber and therefore outside the oven itself.

5. Regarding feature (2), D1 explicitly teaches that optical measurements are taken during drying in order to estimate a drying rate, which is then used for controlling the drying conditions (see paragraph [0052]). Consequently, the measurements disclosed in D1 cannot relate to a dried electrode. Furthermore, the luminous intensity is measured rather than a colour coordinate value.

6. As to features (3) and (4), D1 discloses a comparison of measured data with pre-collected drying-rate reference data. It does not disclose the definition of a reference colour coordinate value nor the determination of a difference between a measured colour coordinate and such a reference value.

Technical effect and objective technical problem

7. The distinguishing features identified above in combination result in the technical effect that the drying quality of a dried lithium secondary battery electrode can be reliably evaluated before the electrode undergoes further production steps.

8. Accordingly, the objective technical problem may be formulated as:

providing an apparatus for reliably evaluating the drying quality of a dried lithium secondary battery electrode prior to further processing.

Obviousness

9. Neither D1 nor documents D4 or D7 provide any teaching or suggestion that would lead the skilled person, starting from D1 and faced with the above objective technical problem, to the claimed solution.

10. D1 is concerned with monitoring and controlling the drying process itself, based on measurements taken during drying, in order to regulate drying conditions. It does not address post-drying quality verification prior to further processing.

11. Document D4 relates to the evaluation of the quality of dried edamame beans, while document D7 concerns a drying device for agricultural products capable of real-time monitoring of colour and shape changes during drying. Even if considered by the skilled person, these documents do not address the problem of assessing the drying quality of a battery electrode after completion

of drying and before continuation of an industrial manufacturing process. The Board therefore sees no incentive for the skilled person to combine the teaching of D1 with that of D4 or D7 in the manner required to arrive at the claimed subject-matter.

12. The Board therefore concludes that the subject-matter of claim 1 according to the main request involves an inventive step within the meaning of Article 56 EPC.

Independent claim 6

13. The same considerations apply *mutatis mutandis* to independent claim 6 of the main request. The Board therefore concludes that the subject-matter of claim 6 also involves an inventive step within the meaning of Article 56 EPC.

Order

For these reasons it is decided that:

1. The decision under appeal is set aside

2. The case is remitted to the examining division with the order to grant a patent in the following version:

Claims: No. 1 to 15 of the main request filed on 13 May 2026;

Description: Pages 1 to 29 filed on 13 May 2026;

Drawings: Figures 1 to 6 filed with entry into the regional phase before the EPO.

The Registrar: The Chairman:

L. Gabor R. Bekkering

Decision electronically authenticated