

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

URT Umwelt und Recyclingtechnik GmbH,
Petitioner,

v.

Duesenfeld GmbH,
Patent Owner.

Case No. IPR2024-00887
U.S. Patent 11,050,097

**PETITIONER'S REPLY
TO PATENT OWNER'S PRELIMINARY RESPONSE**

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Patent Trial and Appeal Board
U.S. Patent Trademark Office
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EXHIBIT LIST

Exhibit No.	Document
1001	U.S. Patent No. 11,050,097 to Hanisch <i>et al.</i> (the '097 patent")
1002	Prosecution History of U.S. Patent No. 11,050,097 ("Prosecution History")
1003	Declaration of Volker Spies in Support of Petition for <i>Inter Partes</i> Review of U.S. Patent No. 11,050,097 ("Spies Declaration")
1004	Arno Kwade <i>et al.</i> , "LithoRec Recycling of Lithium-Ion Batteries", Culliver Verlag (2012) ("LithoRec")
1005	Declaration of Dr. Sylvia Hall-Ellis Regarding the Authenticity and Public Accessibility of LithoRec, Perry, and Din 28400 ("Ellis Declaration")
1006	"Perry's Chemical Engineers' Handbook 7th Edition". New York: McGraw-Hill, 1997. ("Perry")
1007	"Vacuum Technology; Terms and Definitions; General Terms." DIN 28400-1, German Institute for Standards e.V., 1990. ("DIN 28400")
1008	Curriculum Vitae of Volker Spies
1009	U.S. Patent No. 8,210,456
1010	DE 4 424 825
1011	US 2003/0186110
1012	US 5,632,863
1013	WO 2013/023640 ("Hanisch")
1014	U.S. 2016/0043450
1015	CN 102496752

Petitioner's Reply to Patent Owner's Preliminary Response
Filed: September 19, 2024

Exhibit No.	Document
1016	English Translation of LithoRec
1017	Certificate for English Translation of LithoRec
1018	English Translation of DIN 24800
1019	Certificate for English Translation of DIN 24800
1020	English Translation of Hanisch
1021	Certificate for English Translation of Hanisch
1022	Declaration of Volker Spies in Support of Petitioner's Reply to Patent Owner's Preliminary Response ("Supplemental Spies Declaration")

Patent Owner (PO) concedes that a team had been working on and publishing about the subject matter leading to the '097 Patent years before its priority application was ever filed. PO thus launches a longshot effort, urging the PTAB to find that (a) some of that research is non-enabling while conceding that other parts of that same research are presumed enabling, and (b) a lexicographic definition simply does not apply. The PTAB should reject both efforts. The challenged claims are unpatentable over PO's own earlier-published works.

I. The Presumption of Enablement Afforded to Patents, Patent Publications, and Non-Patent Publications Previously Considered by the USPTO Also Applies to the LithoRec Reference.

PO acknowledges that patents, patent publications, and non-patent publications that have been cited by a USPTO examiner are presumed enabling. POPR, 24. Yet, PO asserts that such a presumption does not extend to non-patent publications that were **not** previously cited by a USPTO examiner—apparently because PO “is unaware of precedential authority relieving a challenger of the burden to prove enablement of the prior art in the context of non-patent publications that have not been considered by the Patent Office, such as LithoRec.” *Id.* PO's assertion is not well founded; it conflicts with the caselaw PO cited and runs contrary to how the law of enabling art has developed. PO thus fails to credibly explain why non-patent publications that have not been considered by the

USPTO should be treated differently from patents, patent publications, and non-patent publications that have already been considered by the USPTO.

Both the portions of patents and patent publications that have been examined by a USPTO examiner and those portions that have not been examined by a USPTO examiner are afforded the presumption of enablement for proceedings before the USPTO. *Amgen Inc. v. Hoechst Marion Roussel, Inc.*, 314 F.3d 1313 (Fed. Cir. 2003). Although it was at one time an open question, the same presumption of enablement applies to proceedings before the district court. See *id.* And the presumption of enablement also applies to prior art non-patent publications cited by a USPTO examiner. *In re Antor Media Corp.*, 689 F.3d 1282, 1288 (Fed. Cir. 2012). In other words, the presumption of enablement exists for all portions of patents, patent publications, and non-patent publications cited by a USPTO examiner, regardless of the forum. And although PO never addresses it, *Apple Inc. v. Corephotonics, Ltd.*, 861 Fed. App'x. 443, 450 (Fed. Cir. 2021) (non-precedential), cited in the POPR, even confirms that these types of references are presumed enabling in these forums, and before the PTAB.

Given that prior art patents, patent publications, and non-patent publications considered by examiners are presumed enabling, it stands to reason that the presumption of enablement extends to non-patent publications that were not previously cited by a USPTO examiner. With respect to enablement, there should

be no difference between a non-patent publication that has been cited by an examiner and a non-patent publication that has **not** been cited by an examiner.

The Board in *Samsung Elecs. Co., Ltd. v. Arbor Glob. Strategies LLC.*, No. IPR2020-01021, Paper 30, p.40 (PTAB November 24, 2021) came to the same conclusion, stating “Moreover, Koyanagi and Alexander, as prior art references, carry a presumption of enablement.” Koyanagi and Alexander are non-patent publications that were not previously cited by the examiner in the relevant proceeding, yet they were still presumed to be enabling. *Corephotonics* likewise suggested that “regardless of the forum, prior art patents and publications enjoy a presumption of enablement, and the patentee/applicant has the burden to prove nonenablement for such prior art.” *Corephotonics*, 861 Fed. App’x. at 450. Therefore, based on the way the Federal Circuit historically and recently has been resolving enabling reference presumption issues, and given the PTAB decision cited by PO, contrary to PO’s assertion, LithoRec is presumed to be enabling. The burden to show otherwise rests with PO.

II. Regardless of Who Has the Burden, LithoRec Is Enabling.

The test for determining whether a prior art reference is enabling is that a prior art reference must enable one of ordinary skill in the art to make the invention without undue experimentation. *Impax Labs., Inc. v. Aventis Pharms. Inc.*, 545 F.3d 1312, 1314 (Fed. Cir. 2008). In addition, a prior-art reference does not have to

enable the invention as broadly as claimed to anticipate the claim. Rather, the reference only needs to enable any embodiment of the invention falling within the scope of the claim. *Schering Corp. v. Geneva Pharmaceuticals*, 339 F.3d 1373, 1381 (Fed. Cir. 2003).

Claim 12 of the '097 Patent relates to a battery processing installation for treatment of used batteries that includes a comminuting device that comminutes batteries, a dryer that inactivates the comminuted material under vacuum, and a filling device that fills a transport container with inactivated comminuted material. EX1003, ¶¶132-153 and EX1022, ¶17.

LithoRec provides an instruction manual for building a battery recycling plant that identifies existing, well-known equipment that can be used in the recycling plant, explains how to arrange the equipment, and explains why the well-known equipment is used in the recycling plant. EX 1016, 223-235. This section of LithoRec provides several embodiments that would allow one of ordinary skill to achieve the invention of claim 12 without undue experimentation. EX1003, ¶¶132-153 and EX1022, ¶¶16-18.

For example, LithoRec teaches that “various types of shredding machines that have become established in the field of shredding metallic secondary raw materials can be used for pre-shredding. Slow or high-speed rotor shredders (e.g. hammer shredders) or the so-called cross-flow shredders - QZ - appear to be

suitable.” LithoRec also provides guidance for operating the shredder (comminuting device) by teaching that the comminuting device should be performed under inert conditions due to the flammability of the solvents in the batteries should be taken into account. EX1016, 226.

LithoRec also teaches that:

electrolytes need to be evaporated for the subsequent dry treatment processes, which are primarily aimed at extracting the active mass. On the one hand, this step eliminates the potential hazard of flammable solvents and, on the other hand, converts the active mass into the dry powder form required for dry processing. Convection dryers are used for drying, as they provide the best drying result for the very inhomogeneous composition of the material. There is also the question of whether drying should also take place in a batch or continuously. As some of the liquids to be vaporized are highly flammable solvents, the drying temperature should probably be severely restricted. This in turn speaks in favor of drying under vacuum, as the drying temperature can be kept low.

EX1016, 226.

For 35 U.S.C. §103, a standalone reference must enable the portions of its disclosure being relied upon. *Ashland Oil, Inc. v. Delta Resins & Refractories, Inc.*, 776 F.2d 281, 297 (Fed. Cir. 1985).

Claim 1 of the ‘097 Patent is a method for the treatment of used batteries that includes comminuting batteries, inactivating the comminuted material by way

of drying at a maximum pressure of 300 hPa, and filling a transport container with the inactivated comminuted material.

As discussed above with respect to claim 12, LithoRec provides an instruction manual for building a battery recycling plant that identifies existing, well-known equipment that can be used in the recycling plant, explains why the well-known equipment is used in the recycling plant, and explains how to arrange the equipment. EX1016, 223-235. Accordingly, this section of LithoRec provides several embodiments that would allow one of ordinary skill to achieve the invention of claim 12 without undue experimentation. EX1003, ¶¶132-153 and EX1022, ¶¶16-18.

It is clear that PO's "non-enablement" arguments are thinly veiled obviousness arguments couched as non-enablement arguments. In particular, PO asserts that the "proposed combination of LithoRec with Perry and DIN 28400 would not have enabled a person of skill to practice the claimed invention of the '097 Patent" because LithoRec merely teaches a concept of a pilot plant. However, there is no requirement for enablement that the invention be actually created or reduced to practice. *In re Gleave*, 560 F.3d 1331, 1334 (Fed. Cir. 2009).

PO also asserts that "too many components of the conceptual pilot plant would have worked at cross-purposes with one another to allow for inactivation of shredded battery material by vacuum drying without undue experimentation." But

PO's argument improperly focuses on *some* "recommended" components of the pilot plant and *some* specific examples provided by LithoRec while ignoring the overall teachings of LithoRec, as explained in the Petition. *Cf.* POPR, 16, 41-43 and 54. PO's argument perhaps amounts to a "teaching away" argument, which is not relevant to the anticipation ground and does not apply to Petitioner's obviousness analysis because "all elements of the device are shown in a single prior art reference...[so] the question of "teaching away" does not arise." *Krippelz v. Ford Motor Co.*, 667 F.3d 1261, 1269 (Fed. Cir. 2012).

To the extent that PO argues LithoRec is non-enabling because one skilled in the art could not use it, PO's argument completely fails. LithoRec provides detailed instructions on how to use its specifically arranged components for the same purpose and with the same caveats and benefits. EX1003, ¶¶132-153 and EX1022, ¶¶16-18.

In addition, crediting PO's arguments regarding LithoRec being non-enabling would result in an absurdity, i.e., LithoRec being considered non-enabling while other art from the same research endeavors cited in IPRs would be considered enabling. *See* EX1013 and EX1020 in this proceeding and EX1004 in IPR2024-00948. PO never asserts that these other references are non-enabling. Nor can it, since they contain no more detail than LithoRec or the '097 Patent itself.

Thus, regardless of who has the burden, LithoRec plainly is enabling in the context of the grounds presented.

III. PO's Arguments Relating to the Terms "Inactivate" and "Inactivating" Conflict with the Explicit Definitions Provided in the '097 Patent.

PO wrongly asserts that LithoRec does not teach "inactivating the comminuted material" for claim 1 and "an inactivation device comprising a drying device configured to inactivate the comminuted material" for claim 12. PO advances a new implicit construction for "inactivating" and "inactivated" when it asserts that "Petitioner's argument is contrary to the teachings of the '097 patent that inactivation is the end result of drying, not just a result of a portion of the solvent being dried." In particular, the issue of whether the terms "inactivating" and "inactivated" require more than "a portion of the solvent being dried" was never raised during prosecution, nor is such a condition discussed within the specification or the claims. In fact, the specification teaches otherwise.

"[T]he specification is always highly relevant to the claim construction analysis. Usually it is dispositive; it is the single best guide to the meaning of a disputed term." *See Vitronics Corp.v. Conceptronic, Inc.*, 90 F. 3d 1576, 1682 (Fed Cir. 1996). "[O]ur cases recognize that the specification may reveal a special definition given to a claim term by the patentee that differs from the meaning it

would otherwise possess. In such cases, the inventor's lexicography governs. See *Phillips v. AWH Corp.*, 415 F. 3d, 1305, 1316 (Fed Circ. 2005).

The '097 Patent explicitly discloses "Within the scope of the present description, the term drying should be understood particularly to mean the removal of **at least one** solvent in the conducting salt. In particular, the drying is executed such that dimethyl carbonate **and/or** ethyl methyl carbonate is removed" (emphasis added). See EX1001, 2:23-27. The '097 Patent further discloses "The drying of the comminuted material results in inactivated comminuted material 42." See EX1001, 8:54-55. Based on the explicit disclosure in the specification, it is clear that the comminuted material is considered to be inactivated when at least one solvent in the conducting salt is removed (i.e., the comminuted material is considered dried). Thus, if there is more than one solvent, only one solvent needs to be removed for the comminuted material to be considered dried. There is no requirement for "more than a portion of the solvent" being removed as asserted by the PO. Such a requirement would indeed be contrary to the lexicographic definition provided in the specification.

Furthermore, the '097 Patent provides several explicit examples of conditions in which the drying process is considered to be complete (and inactivated)—and at least a portion of the solvent remains. For example, "The comminuted material is preferably dried until an electrolyte content in the

comminuted material is so low that an electrochemical reaction is impossible. In other words, the electrolyte content is lower than a threshold value.” *See* EX1001, 4:5-8. Thus, PO’s new construction of “inactivating” and “inactivated” contradicts the explicit disclosure and examples in the specification.

Moreover, even with the PO’s new construction of “inactivating” and “inactivated,” LithoRec still teaches “inactivating the comminuted material” (claim 1) and “an inactivation device comprising a drying device configured to inactivate the comminuted material” (claim 12). In particular, LithoRec discloses “The electrolytes need to be evaporated for the subsequent dry treatment processes, which are primarily aimed at extracting the active mass. On the one hand, this step eliminates the potential hazard of flammable solvents and, on the other hand, converts the active mass into the dry powder form required for dry processing.” EX1016, 226.

For the foregoing reasons, URT requests that the Board institute IPR of the challenged claims, and cancel them.

Respectfully Submitted,

Dated: September 19, 2024

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CERTIFICATION OF SERVICE

The undersigned certifies that, pursuant to 37 C.F.R. §§ 42.6(e) and 42.105, a copy of this Reply to Patent Owner's Preliminary Response and supporting materials was served on the Patent Owner, via email, at the following addresses:

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