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3M INNOVATIVE PROPERTIES COMPANY PO BOX 33427 ST. PAUL, MN 55133-3427			ROSWELL, JESSICA MARIE	
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UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE PATENT TRIAL AND APPEAL BOARD

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*Ex parte* SHENG YE, ROBIN E. WRIGHT,  
JONATHAN D. ZOOK, and SUSAN E. DEMOSS

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Appeal 2019-000642  
Application 14/775,018  
Technology Center 1700

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Before ROMULO H. DELMENDO, BEVERLY A. FRANKLIN, and  
MERRELL C. CASHION, JR., *Administrative Patent Judges*.

CASHION, *Administrative Patent Judge*.

DECISION ON APPEAL

STATEMENT OF THE CASE

Pursuant to 35 U.S.C. § 134(a), Appellant<sup>1</sup> appeals from the  
Examiner's final decision to reject claims 1–20. We have jurisdiction under  
35 U.S.C. § 6(b).<sup>2</sup>

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<sup>1</sup> We use the word “Appellant” to refer to “applicant” as defined in 37  
C.F.R. § 1.42. Appellant, 3M Innovative Properties Company, identifies the  
real parties in interest as 3M Company (formerly known as Minnesota  
Mining and Manufacturing Company) of St. Paul, Minnesota and its affiliate  
3M Innovative Properties Company of St. Paul, Minnesota. Appeal Br. 2.

<sup>2</sup> On August 1, 2019, PTAB staff notified Appellant that a Request for Oral  
Hearing filed December 5, 2018 was not filed within the time prescribed by  
37 C.F.R. § 41.47(b). *See* Notification of Non-Compliant Request for Oral

We AFFIRM.

The invention is generally directed to a radiation curable composition.

Spec. 1. Claim 1 illustrates the subject matter claimed and is reproduced below:

1. A composition which is radiation curable to a polythioether polymer, comprising:
  - a) at least one dithiol monomer;
  - b) at least one diene monomer;
  - c) at least one polyne monomer comprising at least two ethyne groups; and
  - d) at least one photoinitiator.

Independent claims 2 and 4 are directed to radiation curable compositions that differ from claim 1 in that claim 2 requires at least one diyne monomer while claim 4 requires at least one thiol terminated polythioether polymer and at least one diyne monomer but does not require at least one diene monomer.

Appellant requests review of the following rejections from the Examiner's Final Office Action:

- I. Claims 1–6, 8, and 10–20 rejected under pre-AIA 35 U.S.C. § 103(a) as unpatentable over Zook (US 2003/0008977 A1, published January 9, 2003) and Hoyle (US 2009/0253805 A1, published October 8, 2009).

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Hearing (Notification) 1–2. The Notification instructed Appellant to file a petition under 37 C.F.R. § 41.3 to suspend the timeliness requirement of 37 C.F.R. § 41.47(b) within two weeks of the mailing date of the Notification if Appellant still desired an oral hearing. *Id.* at 2. The record shows that no petition has been filed in accordance with the Notification. Therefore, we decide this appeal based on the briefs of record.

II. Claims 7 and 9 rejected under pre-AIA 35 U.S.C. § 103(a) as unpatentable over Zook, Hoyle, and McDaniel (US 2010/0210745 A1, published August 19, 2010).

III. Claims 4 and 5 provisionally rejected on the ground of nonstatutory double patenting as unpatentable over claim 7 of copending Application No. 14/389,905 and Hoyle.

For Rejection I, Appellant presents arguments for independent claim 1 and relies on the same line of argument in addressing the rejection of the remaining claims. Appeal Br. 6–9. Appellant presents separate arguments for the prior art rejection of claims 7 and 9 (Rejection II) and the provisional nonstatutory double patenting rejection of claims 4 and 5 (Rejection III). We select claim 1 as representative of the subject matter claimed. Claims 2–6, 8, and 10–20 stand or fall with claim 1. We address the additional arguments for Rejections II and III separately.

## OPINION

### *Rejection I (under 35 U.S.C. § 103(a))*

After review of the respective positions the Appellant provides in the Appeal and Reply Briefs and the Examiner provides in the Final Action and the Answer, we affirm the Examiner’s rejections of claims 1–6, 8, and 10–20 under 35 U.S.C. § 103(a) for the reasons the Examiner provides. We add the following for emphasis.

#### *Claim 1*

Claim 1 is directed to a radiation curable composition comprising at least one polyene monomer comprising at least two ethyne groups.

Zook is directed to sealant, coating and electrical potting formulations, or compositions. Zook ¶¶ 9, 12. The Examiner finds that

Zook teaches a radiation curable composition that differs from the subject matter of claim 1 in that Zook does not teach the composition further comprises a polyynes monomer. Final Act. 2–3; Zook ¶¶ 44, 138 (Example 1).

Hoyle is directed to gas barrier films including packaging of food and liquids, electronics, pharmaceuticals, and chemicals. Hoyle ¶ 2. The Examiner finds Hoyle teaches a photocurable thiol-ene composition, suitable for use as coating on electronics, comprising multifunctional thiol monomers, and multifunctional ene compounds, such as alkynes like octadiyne. Final Act. 3; Hoyle ¶¶ 5, 15, 23 (Table 2). Hoyle also suggests a mixture of alkenes and alkynes to make the desired composition. Ans. 11; Hoyle ¶ 6. The Examiner finds that Zook and Hoyle are analogous art because they are both concerned with the same field of endeavor, namely thiol-ene compositions suitable for use as coatings on electronics. Final Act. 3.

The Examiner determines that it would have been obvious to one skilled in the art to add the alkyne monomer (such as octadiyne) to Zook's composition to achieve a crosslinked network having good barrier (e.g., oxygen/gas) properties (i.e., low gas permeability), as suggested by Hoyle. Final Act. 3; Hoyle ¶ 6.

Appellant does not contest the Examiner's specific findings on Zook. Appeal Br. 6. Instead, Appellant argues Hoyle contains exactly one reference to a diyne in Table 2 but does not disclose a process for making the disclosed compound. *Id.* Appellant contends that all of Hoyle's disclosed syntheses concern polyenes and none concern polyynes. *Id.* Appellant further argues Hoyle does not name the compound represented by

the disclosed entry “1, 4-Butanedithiol + octadiyne” nor describes the structure or characteristics of such a product. *Id.* at 6–7. Thus, Appellant asserts that Hoyle does not enable reproduction of the synthesis of “1, 4-Butanedithiol + octadiyne.” *Id.* at 7.

The arguments do not persuade us of reversible error in the Examiner’s determination of obviousness for the reasons the Examiner presents in the record. Ans. 11.

Where a process for making the compound is not developed until after the date of invention, the mere naming of a compound in a reference, without more, cannot constitute a description of the compound. *In re Hoeksema*, 399 F.2d 269, 273–74 (CCPA 1968). Note, however, that a reference is presumed operable until applicant provides facts rebutting the presumption of operability. *In re Sasse*, 629 F.2d 675, 681 (CCPA 1980).

As the Examiner notes, Hoyle describes a process of making thiol-ene compositions that comprise using a mixture of enes including alkenes and alkynes. Ans. 11; Hoyle ¶¶ 6, 15. Hoyle also describes a general process for making the desired compounds. Ans. 11; Hoyle ¶¶ 16–23. Therefore, Hoyle provides one skilled in the art with adequate guidance to make thiol-ene compositions using alkynes. Appellant’s argument that all of Hoyle’s disclosed syntheses concern polyenes and none concern polyynes (Appeal Br. 6) appears to address Hoyle’s preferred embodiments. It is well settled that a reference may be relied upon for all that it discloses and not merely the preferred embodiments as suggested by Appellant. *See Merck & Co., Inc. v. Biocraft Labs., Inc.*, 874 F.2d 804, 807 (Fed. Cir. 1989) (“[A]ll disclosures of the prior art, including unpreferred embodiments, must be considered.” (quoting *In re Lamberti*, 545 F.2d 747, 750 (CCPA 1976))); *In*

*re Fracalossi*, 681 F.2d 792, 794 n.1 (CCPA 1982) (explaining that a prior art reference's disclosure is not limited to its examples). Appellant has not explained adequately how Hoyle's preferred embodiments limit the broader disclosure for making thiol-ene compositions.

In addition, Appellant directs us to no objective evidence showing that a process for making the composition was not known to rebut the presumption of operability. Appellant, at most, has provided mere attorney arguments and such arguments of counsel cannot take the place of evidence. *See In re De Blauwe*, 736 F.2d 699, 705 (Fed. Cir. 1984); *In re Payne*, 606 F.2d 303, 315 (CCPA 1979).

Appellant argues Zook, directed to curable seals, and Hoyle, directed to fully cured packaging films, are non-analogous art with unrelated and distinctly different requirements. Appeal Br. 7–8; Zook Abstr.; Hoyle ¶ 17. Thus, Appellant contends there is no motivation to combine Zook and Hoyle in the manner presented. Appeal Br. 8.

These arguments are also unpersuasive of reversible error in the Examiner's determination of obviousness for the reasons presented by the Examiner. Ans. 13.

Moreover, Zook discloses electrical potting formulations or compositions that can provide good pot life. Zook ¶ 9. One skilled in the art would infer from this disclosure that Zook's potting formulation protects the electrical components from exposure to the elements, including air and moisture. *See In re Fritch*, 972 F.2d 1260, 1264–65 (Fed. Cir. 1992) (holding that a reference stands for all of the specific teachings thereof as well as the inferences one of ordinary skill in the art would have reasonably been expected to draw therefrom). Given that the compositions of Zook and

Hoyle are similar (Ans. 11) and serve similar protection purposes (*see* Hoyle ¶¶ 4, 7 (discussing improvement of gas barrier properties to protect contents in a package)), Appellant has not adequately explained why the addition of alkynes to Zook's composition would make it unsuitable to continue providing the desired protection for electrical components.

Accordingly, we affirm the Examiner's prior art rejections of claims 1–6, 8, and 10–20 under 35 U.S.C. § 103(a) for the reasons the Examiner presents and we provide above.

*Rejection II (under 35 U.S.C. § 103(a))*

Claim 7 recites the use of at least one nanoparticulate filler in the claimed composition. Claim 9 specifically recites the use of nanoparticle calcium carbonate.

We refer to the Examiner's Final Action for a statement of the rejection of these claims. Final Act. 8. Briefly, the Examiner relies on McDaniel to teach the claims' nanoparticle calcium carbonate. Final Act. 8; McDaniel ¶¶ 1257, 1359.

Appellant's arguments do not contest the Examiner's findings for the rejection of these claims. Appeal Br. 9. Instead, Appellant asserts that Examples in the Specification demonstrate an unexpected advantage obtained with the addition of nanoparticulate filler and nanoparticle calcium carbonate in particular. Appeal Br. 9. According to Appellant, inventive Examples 2, 4, and 6, each comprising nanoparticle calcium carbonate, cures more readily than comparative Examples 1, 3, and 5 that lack the nanoparticle calcium carbonate. Appeal Br. 9–10; Spec. 4–5, 7 (Table 1). Appellant asserts that the Examiner points to no teaching in any of the cited references suggesting this beneficial result. Appeal Br. 10.

When evidence of secondary considerations is submitted, we begin anew and evaluate the rebuttal evidence along with the evidence upon which the conclusion of obviousness was based. *In re Rinehart*, 531 F.2d 1048, 1052 (CCPA 1976). The burden of establishing unexpected results rests on the Appellant. Appellant may meet this burden by establishing that the difference between the claimed invention and the closest prior art was an unexpected difference. *See In re Klosak*, 455 F.2d 1077, 1080 (CCPA 1972). The unexpected results must be established by factual evidence; attorney statements are insufficient to establish unexpected results. *See In re Geisler*, 116 F.3d 1465, 1470–71 (Fed. Cir. 1997). Further, a showing of unexpected results supported by factual evidence must be reasonably commensurate in scope with the degree of protection sought by the claims on appeal. *In re Grasselli*, 713 F.2d 731, 743 (Fed. Cir. 1983); *In re Clemens*, 622 F.2d 1029, 1035 (CCPA 1980).

First, it is not clear that Appellant has compared the claimed invention against the closest prior art (Zook). Further, Examples 2, 4, and 6 comprise respectively 1.888 g, 1.894 g, and 1.545 g of nanoparticle calcium carbonate. Spec. 4–5. However, the claims are silent as to the amount of nanoparticles used. At best, the Examples in the Specification exemplify a narrow range of amounts for the nanoparticles which is not commensurate in scope with the claims. Appellant has also not explained adequately why this narrow range is representative of the broad scope of the claims for this component.

Thus, on this record, Appellant has not adequately explained why the evidence relied upon would have been unexpected by one of ordinary skill in the art or is reasonably commensurate in the scope with the claims.

Accordingly, we affirm the Examiner's prior art rejection of claims 7 and 9 under 35 U.S.C. § 103(a) for the reasons the Examiner presents and we provide above.

*Rejection III (under the provisional ground of nonstatutory double patenting)*

We refer to the Examiner's Final Action for a complete statement of rejection for claims 4 and 5.

We have considered Appellant's arguments (Appeal Br. 10) for this rejection and are unpersuaded of reversible error in the Examiner's determination under this ground of rejection.

As the Examiner notes, Appellant's arguments do not address the rejection presented by the Examiner. Ans. 14–15.

Accordingly, we affirm the Examiner's provisional rejection of claims 4 and 5 on the ground of nonstatutory double patenting for the reasons the Examiner presents and we provide above.

## CONCLUSION

In summary:

<b>Claims Rejected</b>	<b>35 U.S.C. §</b>	<b>Reference(s)/Basis</b>	<b>Affirmed</b>	<b>Reversed</b>
1–6, 8, 10–20	103(a)	Zook, Hoyle	1–6, 8, 10–20	
7, 9	103(a)	Zook, Hoyle, McDaniel	7, 9	
4, 5	Nonstatutory double patenting	Application No. 14/389,905, Hoyle.	4, 5	
<b>Overall Outcome</b>			1–20	

Appeal 2019-000642  
Application 14/775,018

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a)(1) (2017).

AFFIRMED