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The Dow Chemical Company/Cantor Colburn LLP 20 Church Street 22nd Floor Hartford, CT 06103-3207			SHAH, SAMIR	
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BEFORE THE PATENT TRIAL AND APPEAL BOARD

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*Ex parte* YUSHAN HU, RAJEN M. PATEL, GARY R. MARCHAND,  
and SHARON L. BAKER

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Appeal 2018-007615  
Application 14/183,949  
Technology Center 1700

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Before LINDA M. GAUDETTE, KAREN M. HASTINGS, and  
MICHAEL P. COLAIANNI, *Administrative Patent Judges*.

COLAIANNI, *Administrative Patent Judge*.

DECISION ON APPEAL

Pursuant to 35 U.S.C. § 134(a), Appellant<sup>1</sup> appeals from the Examiner's decision to reject claims 1–15. Claims 16 and 17 are withdrawn from consideration by the Examiner. We have jurisdiction under 35 U.S.C. § 6(b). Appellant presented oral arguments in the appeal on October 1, 2019.

We AFFIRM.

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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 identifies the real party in interest as Dow Global Technologies LLC. App. Br. 2.

Appellant's invention is directed to multilayered polyolefin films (Spec. ¶ 1).

Claim 1 is representative of the subject matter on appeal:

1. A multilayer film comprising:
  - two outer layers; where each outer layer comprises polyethylene;
  - two tie layers; where each tie layer comprises 50 weight percent to 100 weight percent of crystalline block copolymer composite; where each tie layer has a first face and a second face that are opposed to each other, and where the first face of each tie layer contacts at least one outer layer; and
  - a core layer, where the core layer comprises a polypropylene; where the second face of each tie layer contacts the core layer, and where the core layer has a thicknesses that is greater than 50% of the total thickness of the multilayer film.

Appellant appeals the following rejection:

Claims 1–15 are rejected under 35 U.S.C. § 103 as unpatentable over Saavedra (US 2006/0057410A1, published March 16, 2006) in view of Liang (US 2013/0177720 A1, published July 11, 2013; WO 2012/044732 A1, published April 5, 2012) and Koizuka (JP 2000/94604, published April 4, 2000).

Appellant argues the claims as a group (App. Br. 3 to 9). We select claim 1 as representative of the group.

#### FINDINGS OF FACT & ANALYSIS

The Examiner's findings and conclusions regarding Saavedra, Liang and Koizuka are located on pages 2 to 4 of the Final Action. Appellant does not specifically contest the Examiner's combination of Koizuka's teachings with Saavedra's other than to argue that Koizuka does not cure the alleged

deficiency of Liang (App. Br. 5). Therefore, our decision focuses on the combination of Saavedra and Liang.

Appellant argues that there is insufficient reason to modify Saavedra's tie layers with Liang's innermost sealant layer (App. Br. 5–6). Appellant contends that Liang teaches that the polymeric composition for an innermost sealant layer is an external layer, not a tie layer between two layers in a multilayer structure (App. Br. 6). Appellant argues that the Examiner has not properly explained why one of ordinary skill in the art would have used the sealant layer including the crystalline block composite of Liang in the tie layer of Saavedra (App. Br. 6). Appellant contends that the Examiner provides no evidence from Appellant's Specification that a crystalline block composite that has a low heat seal initiation temperature and strong and a high hot tack strength that would be pertinent to a tie layer used for layer-to-layer adhesion in a film (App. Br. 7). Appellant contends that the hot tack strength property in Liang relates to the strength of the heat seal formed between two sheets immediately after the seal has been made and before it cools to room temperature (App. Br. 7). Appellant argues that the Examiner has not provided any reasoning to support using Liang's polymeric composition as a tie layer between layers in a multi-layer film<sup>2</sup> (App. Br. 6).

Contrary to Appellant's arguments, the Examiner finds that Saavedra is directed to a multilayer film and Saavedra does not require any particular

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<sup>2</sup> Appellant argues for the first time that combining Liang's polymer composition as a tie layer in Saavedra's film would render Saavedra inoperative (Reply Br. 5). Because there is no reason why this argument could not have been presented earlier in prosecution, we will not consider this untimely argument. 37 CFR § 41.41(b)(2).

type of polymer be used for the different layers (Ans. 6). The Examiner finds that Liang discloses broadly forming a film, not only a sealant layer (Ans. 6). The Examiner further finds that Saavedra and Liang are directed to films having good optical properties including good clarity and low haze (Ans. 6–7). In other words, the Examiner finds that Saavedra and Liang are directed to films that require similar clarity properties. Based on these findings, the Examiner determines that a person of ordinary skill in the art would have combined Liang’s composition with any layer, including the tie layer, in Saavedra’s multilayer film because Liang’s composition exhibits low heat seal initiation temperature and high hot tack strength (Ans. 6).

We agree with the Examiner’s analysis. Liang discloses broadly forming a film from the polymer composition that includes three components: a propylene-based polymer (component A), an ethylene/ $\alpha$ -olefin polymer (component B), a block composite (component C) (¶¶ 5 to 12, 128). Liang teaches using plastic films to form bags and pouches with sealing of plastic films together to form the package (¶¶ 1–2). Liang teaches that the film is improved for heat sealing and has strong and high hot tack strength and a low heat seal initiation temperature (¶¶ 5, 31). Liang discloses a single embodiment where the Component C is present in the polymer composition from 1 to 30 wt.% (¶ 131). However, Liang’s disclosure does not appear to be limited to that single embodiment. Liang’s claim 1, for example, does not provide any limit on the amount of block composite in the polymeric composition.

Although Appellant contends that there is no reason to optimize the amount of the block composite in Liang’s composition to arrive at the claimed amount of block copolymer (i.e., 50% to 100%), Liang’s teachings,

as noted above, are broader than argued by Appellant. Appellant relies on the single embodiment where Liang uses from 1 to 30 wt.% of the block composite (App. Br. 7). Appellant contends that the Examiner has not shown that Liang recognized the amount of the block composite (Component C) is a result effective variable (App. Br. 8–9). Appellant cites Liang’s Table 6 as showing that changing the amount of the block composite has inconsistent effects on properties of the film including the hot tack strength and hot tack initiation temperature (App. Br. 9). Citing *In re Antonie*, 559 F.2d 618 (CCPA 1977), Appellant argues that the Examiner has not shown that block composite amount is a result-effective variable that is subject to routine optimization (App. Br. 8, 9).

The facts of *Antonie*, however, are different than those present in this appeal. In *Antonie* the invention is directed to a wastewater treatment device where the critical feature claimed is the ratio of the tank volume to the contactor area being 0.12 gal/sq. ft. *Antonie* at 618–619. The prior art applied generally teaches the claimed subject matter in *Antonie* but is silent about the tank volume. *Id.* at 619. The Examiner in *Antonie* determines that the prior art disclosure would have rendered obvious the use of a claimed ratio as a matter of routine optimization. *Id.* The court disagrees with the Examiner because the art does not recognize the ratio as a result-effective variable (i.e., it is silent about the relationship between the volume of the tank and the contactor area). *Antonie* at 620.

In contrast, Liang indicates that the amount of the block composite (Component C) is an important variable in forming the polymeric composition. Unlike prior art in *Antonie*, Liang is not silent about the variable the Examiner finds to be result-effective (i.e., the amount of

component C). Rather, Liang indicates that it is one of the three components that may be varied in formulating a polymeric composition that has high tack strength and low heat seal initiation temperatures (¶¶ 43 to 49, 71). In our view, the Examiner has established that Liang recognizes the amount of the block composite (component C) is a result-effective variable in achieving a polymeric composition having high tack strength and low heat seal initiation temperature.

As noted above in the decision, we find that Liang includes a broader teaching as to the amounts of the components and is not limited to the single embodiment where the block composite is present in an amount from 1 to 30 wt.%. Liang teaches that the amount of component B can be at least 50 wt.% based upon the sum of components A and B (¶ 50). Therefore, when component A is 1 wt% of the composition and component B is 50 wt.% of the composition, then the component C (i.e., the block composite) would be 49 wt.% of the composition. Component C being present in an amount of 49 wt.% is very close to the claimed amount 50 to 100%, such that one of ordinary skill in the art would have understood that they would have similar properties. *Titanium Metals Corp. of America v. Banner*, 778 F.2d 775, 783 (Fed. Cir. 1985). As the Examiner finds, Appellant does not offer any evidence of criticality in the claimed 50% to 100% amount of the crystalline block copolymer (Ans. 4). Rather, Appellant's Specification discloses that the amounts of crystalline block copolymer can be used in amounts of up to 100% (Spec. ¶ 60). The Specification discloses preferences for the crystalline block copolymer amounts from 10 to 90%, 20 to 80%, or specifically 30 to 70% (Spec. ¶ 60). This disclosure appears to undercut the

criticality of having the crystalline block copolymer in an amount of 50% to 100%.

Contrary to Appellant's arguments, we find that the Examiner's reasons for the modification based on achieving a good hot tack strength and low heat seal initiation temperature are reasonable. Saavedra's tie layer binds two layers together and so the properties of Liang's polymer material related to binding layers appear to be reasonably related to such a layer. Appellant's arguments regarding the positioning of Liang's polymer as the innermost layer as opposed to being between two layers is not dispositive. The Examiner finds and we agree for the reasons noted throughout the decision that Liang's disclosure is not limited to using the film as solely a sealant layer.

On this record, we affirm the Examiner's § 103 rejection over Saavedra, Liang and Koizuka.

### CONCLUSION

In summary:

<b>Claims Rejected</b>	<b>35 U.S.C. §</b>	<b>Prior Art</b>	<b>Affirmed</b>	<b>Reversed</b>
1-15	103	Saavedra in view of Liang and Koizuka	1-15	

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)(iv).

**AFFIRMED**