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IN THE UNITED STATES DISTRICT COURT
FOR THE NORTHERN DISTRICT OF CALIFORNIA

TESSENDERLO KERLEY, INC.,

No. C 11-04100 WHA

Plaintiff,

v.

**TENTATIVE CLAIM
CONSTRUCTION ORDER**

OR-CAL, INC.,

Defendant.

INTRODUCTION

The parties may critique this *tentative* claim construction order at the August 8 hearing. In this patent infringement action involving horticulture technology, the parties seek construction of three terms found in two asserted patents.

STATEMENT

Plaintiff Tessenderlo Kerley, Inc. and defendant Or-Cal, Inc. are competing manufacturers of sun protectants for crops. TKI asserts infringement of United States Patents 6,110,867 and 6,464,995, both of which claim methods for utilizing finely divided particulate materials to enhance horticulture.

The '867 patent — filed in 1997, issued in August 2000, and reissued after reexamination in 2006 — disclosed examples of using calcined kaolin, a particulate material, to increase carbon dioxide assimilation in a few different plant species. Claim 1 is a representative claim (col. 9; reexamination certificate col. 1):

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A method for enhancing the photosynthesis of horticultural crop by increasing carbon dioxide assimilation of said horticultural crop which comprises

applying to the surface of said horticultural crop an effective amount of one or more highly reflective particulate materials, said particulate materials

being finely divided, and

wherein the particles as applied allow for the exchange of gases on the surface of said crop and

the finely divided particulate materials have a median individual particle size below about 3 microns.

The limitation of “increasing carbon dioxide assimilation” was added during reexamination to overcome a prior-art reference, *Moreshet et al.*, “Effect of Increasing Foliage Reflectance on Yield, Growth, and Physiological Behavior of a Dryland Cotton Crop,” 19 CROP SCIENCE 863 (1979).

The '995 patent, a related patent arising out of the same parent application as the '867 patent, also claimed the use of particulate materials to enhance horticultural effects via a similar mechanism. Claim 23 is a representative claim (col. 12):

A method for enhancing the horticultural effect of horticultural substrates selected from the group consisting of fruits, vegetables, trees, flowers, grasses, roots, and landscape and ornamental plants which comprises

applying a slurry comprising water, a surfactant, and

one or more particulate materials, selected from the group consisting of calcium carbonate, hydrous kaolin, calcined kaolin and mixtures thereof,

to the surface of said substrate to form a membrane comprised of one or more particulate layers and the surfactant,

said layers comprising one or more particulate materials,

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said particulate materials being finely divided, and

wherein said membrane allows for the exchange of gases on the surface of said substrate.

TKI alleges that Or-Cal infringed by manufacturing sun protectant products with calcium carbonate particles.

ANALYSIS

Courts must determine the meaning of disputed claim terms from the perspective of a person of ordinary skill in the pertinent art at the time the patent was filed. *Chamberlain Group, Inc. v. Lear Corp.*, 516 F.3d 1331, 1335 (Fed. Cir. 2008). While claim terms are generally given their ordinary and customary meaning, the patent’s specification is always highly relevant to the claim construction analysis. *Phillips v. AWH Corp.*, 415 F.3d 1303, 1312–15 (Fed. Cir. 2005). Finally, courts also should consider the patent’s prosecution history, which “can often inform the meaning of the claim language by demonstrating how the inventor understood the invention and whether the inventor limited the invention in the course of prosecution, making the claim scope narrower than it would otherwise be.” *Phillips*, 415 F.3d at 1317 (internal quotations omitted). Where the patentee has unequivocally disavowed a certain meaning to obtain his patent, the doctrine of prosecution disclaimer attaches and narrows the ordinary meaning of the claim congruent with the scope of the surrender. *Omega Engineering, Inc. v. Raytek Corp.*, 334 F.3d 1314, 1324 (Fed. Cir. 2003).

These components of the intrinsic record are the primary resources in properly construing claim terms. Although courts have discretion to consider extrinsic evidence, including dictionaries, scientific treatises, and testimony from experts and inventors, such evidence is “less significant than the intrinsic record in determining the legally operative meaning of claim language.” *Phillips*, 415 F.3d at 1317.

1. THE ’867 PATENT: “EFFECTIVE AMOUNT.”

The term, “effective amount,” is found in independent claims 1 and 38 of the ’867 patent. The parties dispute whether the term should be construed broadly to mean any desired amount (Or-Cal’s position) or more narrowly to mean the amount sufficient to improve photosynthesis

1 by increasing carbon dioxide uptake (TKI's position). Neither party has explained *why* their
2 proposed construction would be relevant to issues of invalidity or infringement, and this Court
3 fails to see why this dispute matters. Nonetheless, the Court will construe the disputed term, as
4 requested.

5 The '867 patent specification, at two different points, defines "effective amount" as the
6 amount sufficient to enhance photosynthesis (col. 4):

7 The surface of said horticultural crop is treated with
8 an amount of one or more highly reflective
9 particulate materials that is effective in enhancing
10 photosynthesis of the horticultural crop.

11 * * *

12 The the [sic] particle treatment may be applied as
13 one or more layers of finely divided particulate
14 material. The amount of material applied is within
15 the skill of one of ordinary skill in the art. The
16 amount will be sufficient [sic] to improve
17 photosynthesis of the crop to which these particles
18 are applied.

19 The prosecution history also supports defining "effective amount" narrowly to mean the amount
20 sufficient to enhance photosynthesis. During reexamination, the PTO examiner's "Statement of
21 Reasons for Patentability" stated that "the only proper interpretation of 'an effective amount' is
22 an amount that is effective to enhance photosynthesis of horticultural crops by increasing carbon
23 dioxide assimilation of said crops" (Dkt. No. 108-6 at 7).

24 Or-Cal actually *agrees* that the "effective amount" is the amount that produces the
25 desired result of enhancing photosynthesis by increasing carbon dioxide assimilation (Or-Cal Br.
26 14–15). Or-Cal's only argument in opposition of TKI's proposed construction is that it would be
27 redundant because the limitation of "enhancing photosynthesis by increasing carbon dioxide
28 assimilation" is specified elsewhere in the claim. Or-Cal's redundancy argument is not enough
to reject TKI's proposed construction, which is *admittedly accurate*. A purpose of claim
construction is to remove ambiguity. Here, construing the term "effective amount" to mean Or-
Cal's broader "desired result" would add ambiguity as to the patentee's intended, narrower
meaning, which was "the amount sufficient to enhance photosynthesis by increasing carbon
dioxide uptake." Whether this is enabled by the disclosure is a matter for another day.

1 Accordingly, the term “effective amount” shall be construed to mean “an amount that is
2 sufficient to enhance photosynthesis of horticultural crops by increasing carbon dioxide
3 assimilation of said crops.”

4 **2. THE ’867 PATENT: “PARTICLES AS APPLIED ALLOW FOR
5 THE EXCHANGE OF GASES ON THE SURFACE OF SAID CROP.”**

6 This term, “particles as applied allow for the exchange of gases on the surface of said
7 crop,” is found in independent claims 1 and 38 of the ’867 patent. TKI proposes the following
8 construction: “there is gas exchange on a treated surface which includes stomata and the
9 particles do not materially affect gas exchange such that stomatal conductance is not materially
10 reduced.” Or-Cal proposes the following construction: “the particles are applied in a manner
11 that allows for transpiration without hindering passage of water vapor, oxygen and CO2.” The
12 proposed constructions differ in three aspects: (1) the parties dispute whether the claimed
13 particles have *no* affect on gas exchange versus, less restrictively, do not *materially reduce* gas
14 exchange, (2) the parties dispute whether the claimed particles reduce stomatal conductance, and
15 (3) the parties dispute whether the claimed particles must be applied to a surface with stomata.
16 These disputes are arguably relevant to invalidity contentions.

17 **A. Materially Reduce Gas Exchange.**

18 The “allow for the exchange of gases” term means that the claimed particle treatment
19 does not materially reduce gas exchange on the crop. In the patent specification’s “Detailed
20 Description of the Invention” section, the patentee expressly stated that application of the
21 particles does not materially reduce gas exchange:

22 [T]his invention relates to horticultural crops
23 wherein the surface of said crop is treated with one
24 or more particulate materials. This treatment
25 *should not materially affect the exchange of gases*
26 on the surface of said crop. The gases which pass
27 through the particle treatment are those which are
28 typically exchanged through the surface skin of
 living plants. Such gases typically include water
 vapor, carbon dioxide, oxygen, nitrogen and volatile
 organics.

27 (col. 4) (emphasis added). Moreover, the prosecution history also supports this interpretation.
28 During reexamination, the patentee argued that his invention was distinguishable over the prior

1 art Moreshet reference because his claimed invention “allow[ed] for the exchange of gases from
2 the plant surface” whereas the particles in Moreshet reduced carbon dioxide uptake, reduced
3 transpiration of water vapor, and reduced stomatal conductance (Dkt. No. 108-5). Logically, the
4 particles used in Moreshet still *allowed* for some gas exchange because the plants would have
5 died otherwise. Therefore, the patentee’s argument on reexamination, which the PTO examiner
6 ultimately accepted, was that the particles in Moreshet materially reduced gas exchange (but still
7 allowed some gas exchange) while the claimed ’867 invention did not materially reduce gas
8 exchange (Dkt. No. 108-6).

9 In its opposing brief, Or-Cal argues that adding the “materially reduce” qualifier would
10 inject ambiguity into the claim because the patent does not define or describe what reduction is
11 or is not material. While this may be true, it is nonetheless possible that one of ordinary skill in
12 the art would have already understood what a material effect on gas exchange meant. For
13 example, a skilled artisan may have understood that a ten percent decrease in carbon dioxide
14 exchange rate would have adversely affected horticultural effects (such as “improved color,
15 smoother fruit surface, increased soluble solids, e.g., sugars, acidity, etc., reduced bark and fruit
16 cracking, reduced plant temperature and reduced russetting) but that a one percent decrease
17 would not have. This is an issue of patent validity that should be argued in the context of
18 enablement, indefiniteness, and written description; but this issue does not change the patentee’s
19 express, unambiguous definition of the term. Because the patent’s definition is unambiguous,
20 this is not a situation where a claim should be construed to sustain their validity. *See Phillips v.*
21 *AWH Corp.*, 415 F.3d 1303, 1327–28 (Fed. Cir. 2005) (en banc).

22 **B. Interference with Stomatal Function.**

23 The “allow for the exchange of gases” term also means that stomatal conductance is not
24 materially reduced. This is strongly supported by the prosecution history. During
25 reexamination, in order to distinguish the prior art Moreshet reference, the patentee expressly
26 argued that the ’867 invention did “not interfere with stomatal function” and contrasted this
27 characteristic with the Moreshet reference, where the particles “interfere[d] with stomatal
28 function resulting in reduced CO₂ uptake” (Dkt. No. 108-5). The PTO examiner also noted this

1 distinction in an interview summary: “[the patentee] showed evidence of an experiment in
2 which Moreshet’s 25% kaolin reduced CO₂ uptake and interfered with stomatal functions,
3 whereas 6% kaolin did not interfere with stomatal function” (Dkt. No. 108-7). In his “Statement
4 of Reasons for Patentability,” the PTO examiner again noted that the invention’s effect on
5 stomatal function was a distinguishing aspect: “[T]he experimental result reported by [the
6 patentee] demonstrated that the 25% kaolin as applied [sic] to the apple leaves interfered with
7 stomatal function resulting in reduced carbon dioxide uptake” (Dkt. No. 108-6 at 7). Thus, the
8 intrinsic record is clear that “allow for exchange of gases” means that the claimed particles did
9 not materially reduce stomatal conductance.¹

10 C. Application to a Surface with Stomatas.

11 “[T]he surface of said crop” term must mean at least one surface with stomatas. As an
12 initial matter, it is undisputed that gas exchange in crops occurred on a surface with stomatas
13 (Or-Cal Br. 3; *see also* col. 7). The ’867 patent claims a method wherein the particles are
14 “apply[ed] to *the surface* of said horticultural crop” and “wherein the particles as applied allow
15 for the exchange of gases on *the surface* of said crop” (col. 9). The use of a definitive article,
16 ‘the,’ in the same claim sentence strongly suggests that the particles are applied to *the* surface
17 where gas exchange occurs. Therefore, the particles are necessarily applied to a surface with
18 stomatas.

19 The prosecution history also supports this interpretation. As discussed, during
20 reexamination, the patentee expressly differentiated his invention from the prior art Moreshet
21 reference by arguing that his method of applying particles “allow[ed] for the exchange of gases
22 *from the plant surface*” whereas the particle coating in Moreshet reduced water transpiration,
23 reduced carbon dioxide, and reduced stomatal conductance (Dkt. No. 108-5). The patentee
24 presented experimental results showing that in Moreshet, where 25% kaolin was applied to all
25 surfaces of apple leaves by applying the spray “over the top of the canopy from a standard,
26 tractor-mounted boom sprayer at a rate of approximately 400 liters/ha,” there was reduced gas

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28 ¹ The patentee used the terms “stomatal conductance” and “stomatal function” interchangeably (*see*
Dkt. No. 108-5 at 5, 7).

1 exchange by the stomatas (Dkt. Nos. 108-7, 78-1). For Moreshet’s 25% kaolin treatment to
2 reduce gas exchange, including carbon dioxide uptake, the kaolin *must have* been applied to a
3 surface with stomata; otherwise, the kaolin would not have interfered with gas exchange. With
4 these experimental results, the patentee argued, and the PTO examiner agreed, that the ’867
5 invention was an improvement over Moreshet because 6% kaolin had improved gas exchange
6 compared to 25% kaolin when applied to all surfaces of leaves, including a surface with stomata.

7 Or-Cal’s strongest counterargument is from the ’867 patent’s specification, where there is
8 language that the claimed particles do not have to be applied to the *under surface* of a crop
9 (col. 4)(emphasis added):

10 The surface of said horticultural crop is treated with
11 an amount of one or more highly reflective
12 particulate materials that is effective in enhancing
13 photosynthesis of the horticultural crop. The
14 treatment coverage of said crop is within the skill of
15 the ordinary artisan [sic]. Less than full crop
16 coverage is within the scope of this invention and
17 can be highly effective, for example, *neither the
18 under surface of the crop (that which is not exposed
19 directly to the source of light) need be treated by
20 the method of this invention nor must the upper
21 surface of the crop be completely covered; although
22 full substrate coverage can provide additional
23 benefits such as effective disease control, smoother
24 fruit surface, reduced bark and fruit cracking, and
25 reduced russeting.*

18 However, Or-Cal’s argument — that the above-quoted passage means that the claimed particles
19 need not be applied to a surface with stomata — is unpersuasive. True, it is undisputed that the
20 under surface of some crops (such as apples and peaches) have more stomata than the upper
21 surface. But importantly, Or-Cal’s own expert admits that even these crop can have *some*
22 stomata on the upper surface (Jubert Decl. ¶¶ 20–21). Moreover, Or-Cal’s expert also admits
23 that some plants, such as bean plants (which is arguably encompassed by the patent), have
24 similar amounts of stomata on both surfaces (Jubert Decl. ¶ 20). Therefore, simply because the
25 specification states that the claimed particles do not need to be applied to the under surface, it
26 does not necessarily follow that the particles do not need to be applied to a surface with stomata.

27 Accordingly, the term “the particles as applied allow for the exchange of gases on the
28 surface of said crop” shall be construed as “there is gas exchange on a treated surface with

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stomata and the particles do not materially reduce gas exchange such that stomatal conductance is not materially reduced.”


3. THE '995 PATENT: “SAID MEMBRANE ALLOWS FOR THE EXCHANGE OF GASES ON THE SURFACE OF SAID SUBSTRATE.”

Both parties agree that construction of the '995 patent term, “said membrane allows for the exchange of gases on the surface of said substrate,” should mimic the already-construed '867 term, “particles as applied allow for the exchange of gases on the surface of said crop.” Therefore, the '995 patent term shall also be construed to mean “there is gas exchange on a treated surface with stomata and the particles do not materially reduce gas exchange such that stomatal conductance is not materially reduced.”

CONCLUSION

The parties may critique the above tentative claim constructions at the August 8 hearing. This will be an opportunity for the parties to focus solely on their most cogent critique, not to rehash every point made in the briefs.

Dated: July 26, 2012.



WILLIAM ALSUP
UNITED STATES DISTRICT JUDGE