

1 The opinion in support of the decision being entered today was *not* written for publication
2 and is *not* binding precedent of the Board
3

4 UNITED STATES PATENT AND TRADEMARK OFFICE
5

6
7 BEFORE THE BOARD OF PATENT APPEALS
8 AND INTERFERENCES
9

10
11 *Ex parte* DAVID A. RUSSO, RYAN R. DIRKX
12 and GLENN P. FLORCZAK
13

14
15 Appeal 2006-2684
16 Reissue Application 08/544,212
17 Patent 5,401,305
18 Technology Center 1700
19

20
21 Appeal 2006-2747
22 Reissue Application 09/287,664
23 Patent 5,401,305
24 Technology Center 1700
25

26
27 Oral Argument: None¹
28 Decided: February 8, 2007
29

30
31 *Before:* BRADLEY R. GARRIS, *Administrative Patent Judge,*
32 FRED E. McKELVEY, *Senior Administrative Patent Judge,* and
33 ALLEN R. MacDONALD, *Administrative Patent Judge.*
34

35 McKELVEY, *Senior Administrative Patent Judge.*
36
37

38 **DECISION ON APPEALS UNDER 35 U.S.C. § 134**

¹ Oral argument was requested in both appeals, but has been waived.

1 A second rejection is of claims 28-32 under 35 U.S.C. § 103(a) as
2 being unpatentable over the prior art.

3
4

Real party in interest

5 The real party in interest is Elf Atochem North America, Inc.

6
7

B. Finding of fact on recapture

8 The following findings are believed to be supported by a
9 preponderance of the evidence.

10
11

The invention

12 As the specification of the patent sought to be reissued explains,
13 the invention relates to compositions of matter for the chemical-vapor
14 deposition (CVD) of coatings at high rates on glass or glass articles to
15 provide, among other things, (1) controlled refractive index, (2) improved
16 emissivity characteristics, and (3) abrasion resistance. U.S. Patent
17 5,401,305, col. 1, lines 15-20. *See also* col. 4, lines 13-18.

18 Deposition rate is said to be important in the commercial world.

19 According to Appellants, there are many known compositions which
20 can be used in a deposition process, but all known processes are said to
21 suffer from one defect or another. Col. 1, line 21 through col. 2, line 64.

22 Further according to Appellants' review of the prior art, we are told
23 that it cannot be determined what precursor combinations, if any, can be
24 used for continuous deposition, under conditions and at a rate suitable for
25 mass production, of mixed metal oxide/silicon oxide films at adequate rates
26 from readily available and relatively inexpensive reagents. Col. 3, line 65
27 through col. 4, line 2.

1 Appellants discovered a mixture which they say has made CVD rates
2 possible at rates greater than about 350 Å/sec. Col. 4, lines 18-21.

3 The mixture comprises a precursor for a metal oxide, a precursor for
4 silicon dioxide and one or more additives. Col. 4, lines 21-39.

5 According to the specification, a variety of suitable precursors of
6 metal oxides, including volatile compounds of tin, germanium, titanium,
7 aluminum, zirconium, zinc, indium, cadmium, hafnium, tungsten,
8 vanadium, chromium, molybdenum, iridium, nickel and tantalum.
9 Col. 4, lines 46-53 and col. 5, lines 40-45.

10 Further according to the specification, suitable precursors for silicon
11 oxide include those described by the general formula $R_mO_nSi_p$, where m is
12 from 3 to 8, n is from 1 to 4, p is from 1 to 4 and R is hydrogen or certain
13 organic radicals. Col. 4, line 64 through col. 5, line 2.

14

15 Prosecution history of application leading to the patent

16 The prosecution history of the application leading up to the patent
17 sought to be reissued is relatively straightforward.

18 As filed, Appellants submitted the following original claim 1 (matter
19 in brackets added):

20 A gaseous composition at a temperature
21 below about 200°C at atmospheric pressure,
22 adapted to deposit at least a first layer of tin oxide
23 and silicon oxide onto glass at a rate of deposition
24 greater than about 350 Å/sec. at a temperature
25 below about 200°C, at atmospheric pressure,
26 wherein the composition comprises [1] a precursor
27 of tin oxide, [2] a precursor of silicon oxide, [3] an
28 accelerant selected from the group consisting of

1 organic phosphites, organic borates and water, and
2 mixtures thereof, and [4] a source of oxygen.

3

4 Original specification, page 16.

5 The Examiner entered a rejection of some of the original claims,
6 including original claim 1, as being unpatentable under the enablement
7 provision of the first paragraph of 35 U.S.C. § 112.

8 The Examiner held that the disclosure is enabling only for claims
9 limited to certain compositions, *i.e.*, those wherein the silicon oxide
10 precursor is limited to that recited in original claim 11. Examiner's Action
11 entered 20 September 1994, page 2.

12 Original claim 11 read as follows, bracketed matter added:

13 The composition of claim 1 wherein the
14 precursor of silicon oxide is $R_mO_nSi_p$, where m is
15 from 3 to 8, n is from 1 to 4, p is from 1 to 4 and R
16 is . . . hydrogen or . . . [certain organic radicals].

17

18 In a response received in the Office on 27 October 1994 (Paper 8 of
19 the patent file), Appellants, among other things, (1) cancelled original claim
20 11 and (2) amended original claim 1.

21 Claim 1, as amended, reads as follows, with bracketed matter added,
22 matter in strikeout deleted from original claim 1 and matter in italics added
23 to original claim 1:

24

25 A gaseous composition at a temperature
26 below about 200°C at atmospheric pressure,
27 adapted to deposit at least a first layer of tin oxide
28 and silicon oxide onto glass at a rate of deposition
29 greater than about 350 Å/sec. ~~at a temperature~~
30 ~~below about 200°C, at atmospheric pressure,~~
31 wherein the composition comprises [1] a precursor
 of tin oxide, [2] a precursor of silicon oxide *of the*

1 *formula $R_mO_nSi_p$, where m is from 3 to 8, n is from*
2 *1 to 4, p is from 1 to 4 and R is ... hydrogen or ...*
3 *[certain organic radicals], [3] an accelerant*
4 *selected from the group consisting of organic*
5 *phosphites, organic borates and water, and*
6 *mixtures thereof, and [4] a source of oxygen.*
7

8 What becomes manifest is that apart from cancelling a redundant
9 limitation, Appellants amended original claim 1 to incorporate therein the
10 limitations of original claim 11.

11 Appellants also presented amended claim 4, which reads:

12 The gaseous composition of claim 1 adapted
13 to continuously deposit at least a first layer of tin
14 oxide and silicon oxide onto a continuously
15 moving transparent flat glass substrate.
16

17 All 27 claims of the patent are drawn to gaseous compositions.
18 Col. 9, line 57 through Col. 12, line 41.

19 Presently pending in reissue application 08/544,212 (Appeal
20 2006-2684) are claims 28-29, 31-60 and 65-66.

21 Claims 28-29 and 31-32 are directed to gaseous compositions.

22 Claims 33-38, 50-52, and 56-60 are directed to films.

23 Claims 39-49 and 53-55 are directed to an article comprising a
24 substrate and a film.

25 Claims 65-66 are directed to an oxide composition product.

26 Presently pending in reissue application 09/287,664 (Appeal
27 2006-2747) are claims 28-32, all directed to a process for forming an oxide
28 composition.

1 The reader will appreciate that both applications on appeal contain
2 claims numbered 28, 29, 31 and 32.

3
4 Examiner's rejection

5 In both applications, the Examiner rejected all claims as being
6 unpatentable under 35 U.S.C. § 251 based on "improper recapture"
7 [Examiner's Answer, page 3 (Appeal 2006-2684); Examiner's Answer,
8 page 5 (Appeal 2006-2747)].

9 We address the claims on an individual basis.

10
11 **C. Analysis of recapture issues**

12
13 Claim 28 (Appeal 2006-2684)

14 Claim 28 (Appeal 2006-2684) reads as follows:

15 A gaseous composition comprising at least
16 one precursor of a metal oxide, an accelerant
17 selected from the group consisting of organic
18 phosphates, organic borates, and water, and a
19 precursor of silicon oxide having the formula
20 $R_mO_nSi_p$, where m is from 3 to 8, n is from 1 to 4,
21 p is from 1 to 4 and R is independently chosen
22 from hydrogen and . . . [certain organic radicals],
23 wherein said composition is gaseous at a
24 temperature below about 200°C at atmospheric
25 pressure and is adapted to deposit at least a first
26 layer of an oxide and silicon oxide onto a glass at a
27 rate of deposition greater than 350 Å/sec.

28
29 For some reason, claim 28 does not track the language of claim 1 of
30 the patent with a mere amendment of tin oxide to metal oxide. Rather, it is
31 re-written with limitations appearing in a different order.

1 As far as we can tell, claim 28 essentially differs from claim 1 of the
2 patent in that it calls for a “metal oxide” whereas claim 1 of the patent calls
3 for “tin oxide.”

4 The Examiner found that claim 28 is (1) broader than rejected
5 application original claim 1 (prior to amendment) because it calls for a metal
6 oxide instead of tin oxide and (2) narrower than rejected application original
7 claim 1 because it limits the silicon compounds to those of application
8 original claim 11.

9 The Examiner also found “[t]he limitation of a tin oxide precursor [in
10 original application claim 1] is germane to the rejection made.” Examiner’s
11 Answer, page 8 (Appeal 2006-2684).

12 Appellants maintained before the Examiner that recapture cannot be
13 based on a lack of enablement rejection, *i.e.*, recapture is limited to
14 rejections based on the prior art.

15 Appellants disagreed with the Examiner that the broadening of tin
16 oxide to metal oxide was germane to the lack of enablement rejection.

17 Citing *In re Wessler*, 367 F.2d 838, 151 USPQ 339 (CCPA 1966),
18 Appellants maintain that recapture cannot apply apart from a prior art
19 rejection. *Wessler* involved a rejection under 35 U.S.C. § 112, second
20 paragraph, involving indefiniteness. The CCPA held that an indefiniteness
21 rejection did not provide a basis for a recapture rejection. If a claim is
22 indefinite, it is difficult to see how one can determine what was surrendered.
23 On the other hand, when a rejection is based on lack of enablement
24 commensurate in scope with the breadth of a claim, it is usually apparent
25 what was surrendered.

1 In this case, the Examiner held that subject matter calling for a
2 precursor of silicon oxide beyond that appearing in application original
3 claim 11 would not have been enabled. Appellants amended original
4 application claim 1 to include the silicones of original application claim 11.
5 As in the case of a prior art rejection, it is possible under the facts of this
6 case to see precisely what was surrendered. Accordingly, we see no reason
7 why a recapture rejection cannot be based on a prosecution history where
8 amendments were made to overcome a rejection based on a lack of
9 enablement commensurate in scope with the breadth of a claim. The
10 principles which govern recapture based on amendments made as a result of
11 a prior art rejection apply equally to the rejection made by the Examiner
12 during original prosecution. The notice a member of the public would get
13 from studying the prosecution history of the original application is the same
14 one would normally get from reading a prosecution involving narrowing of
15 claims to avoid a prior art rejection. In this respect, we adopt as our holding
16 what appears to be dicta in *MBO Laboratories, Inc. v. Becton, Dickinson &*
17 *Company*, No. 2006-1062, slip. op. at 12-13 (Fed. Cir. Jan. 24, 2007):

18 The recapture rule is a limitation on the ability of
19 patentees to broaden their patents after issuance.
20 Section 251 is “remedial in nature, based on
21 fundamental principles of equity and fairness, and
22 should be construed liberally.” However, the
23 remedial function of the statute is limited.
24 Material which has been surrendered in order to
25 obtain issuance cannot be reclaimed via Section
26 251: . . . It is critical to avoid allowing surrendered
27 matter to creep back into the issued patent, since
28 competitors and the public are on notice of the
29 surrender and may have come to rely on the
30 consequent limitations on claim scope. . . . The

1 recapture rule thus serves the same policy as does
2 the doctrine of prosecution history estoppel: both
3 operate, albeit in different ways, to prevent a
4 patentee from encroaching back into territory that
5 had previously been committed to the public.
6 (citations omitted.)

7 As a matter of law, we conclude that a recapture rejection may be based on a
8 lack of enablement rejection made during prosecution of the application into
9 the patent sought to be reissued.

10 On the merits of the recapture rejection, it seems manifest that the
11 Examiner's concern in entering the lack of enablement rejection in the
12 original application was the breadth of the silicon compounds. There was no
13 "metal oxide" limitation since the metal was limited to "tin". Accordingly,
14 during the original prosecution no enablement issue arose with respect to
15 "metal" oxide. The error which occurred was Appellants' failure to claim
16 "metal oxide" in place of "tin oxide". We see no reason why Appellants
17 should not be able to do so. We agree with Appellants that the broadening
18 aspect of the claims in the reissue application was not germane to any lack
19 of enablement rejection made by the Examiner during the original
20 prosecution. Moreover, the public reading the prosecution history could not
21 reasonably have believed "metal oxide" had been surrendered because it was
22 never in issue.

23
24

Claims 29 and 31-32 (Appeal 2006-2684)

25 Claim 29 limits the "metal oxide" to a Markush group of metal oxides
26 and is narrower than claim 28. Claim 31 is similar in scope to claim 28.
27 Claim 32 is similar in scope to claim 29, it also limiting the metal oxide to a
28 Markush group of metal oxides.

1 gaseous mixture would also have silicon oxide. Moreover, during the
2 original prosecution, the Examiner determined that precursors of only
3 certain silicon oxide were enabled and Appellants did not argue otherwise in
4 amending original application claim 1 to incorporate the limitations of
5 original application claim 11.

6 Appellants maintain that claim 33 deals with a film which is made
7 from a gaseous composition and that none of the claims in the application
8 which matured into the patent sought to be reissued involved films. While
9 none of the claims in the original application were directed to films *per se*,
10 one cannot overlook claim 4 of the application (which matured into claim 4
11 of the patent) where Appellants claim a gaseous composition adapted to be
12 deposited onto a continuously moving transparent flat glass substrate. What
13 is deposited on the substrate is a film. We would also note that when
14 Appellants received a patent to the gaseous composition of claim 1 of the
15 patent, Appellants and their assignee acquired a right to exclude others from
16 using the gaseous composition of claim 1 of the patent. The principal, if not
17 the only, described use of the gaseous composition is to make films on
18 substrates.

19 We cannot imagine that a member of the public studying the
20 prosecution history of the original application, in the face of the Examiner's
21 lack of enablement rejection, would believe that Appellants could come back
22 to the Office to seek a film claim which does not include the silicon oxide
23 limitation of claim 1 of the patent.²

² At this point, we observe that a lack of enablement rejection of claim 33 is not included in the Examiner's Answer. Perhaps the Examiner felt the recapture rejection was sufficient to dispose of claim 33. In the event of

1 Claim 39 (Appeal 2006-2684)

2 Claim 39 is directed to an article and reads:

3 An article comprising a substrate and a film
4 of claim 33 deposited thereon.

5

6 The principal substrate would be glass. See col. 4, line 18.

7 We do not see any material difference between a film claim and an
8 article claim comprising a film and a substrate. The film is useful because it
9 is deposited on a substrate. Accordingly, in our view claim 39 stands or falls
10 with claim 33.

11 Claims 40-42 and 44-47 (Appeal 2006-2684)

12 Claims 40-42 and 44-47 are dependent claims which do not call for
13 the presence of silicon oxide.

14 These stand or fall with claim 33 and 39.

15

16 Claims 43 and 48-49 (Appeal 2006-2684)

17 Claims 43 and 48-49 are dependent claims which further require the
18 presence of “silicon oxide” and are not limited to the silicon oxides of
19 application original claim 11.

20 These claims stand or fall with claim 37.

21

22 Claims 50-52 (Appeal 2006-2684)

23 Claims 50-52 depend from claim 33 and are directed to films.

rejection. The fact is that Appellants are attempting to recapture “silicon oxide” given up during prosecution and that is so whether a lack of enablement rejection is or is not made. Moreover, the Examiner may have felt that a recapture rejection was sufficient to complete examination of the application on appeal without any need to reach other possible rejections.

1 They do not call for the presence of silicon oxide.

2 In our view, these claims stand or fall with claim 33.

3

4 Claims 53-55 (Appeal 2006-2684)

5 Claims 53-55 depend from claim 39 and are directed to an article
6 comprising a film on a substrate.

7 They do not call for the presence of silicon oxide.

8 In our view, these claims stand or fall with claim 39.

9

10 Claims 56-57 (Appeal 2006-2684)

11 Claims 56-57 are directed to films comprising silicon oxide, a metal
12 oxide and an oxide of an accelerant.

13 The silicon oxide is not limited to the silicon oxides of application
14 original claim 11.

15 In our view, claims 56-57 stand or fall with claim 37.

16

17 Claims 58-59 (Appeal 2006-2684)

18 Claim 58 calls for a film and reads as follows:

19 A film comprising the deposition product of
20 monobutyltin trichloride, tetraethyl orthosilicate,
21 and triethyl phosphite.

22

23 Claim 59 calls for a film and reads as follows:

24 A film comprising the deposition product of
25 monobutyltin trichloride, tetraethyl orthosilicate,
26 triethyl phosphite and triethyl borate.

27

28 Claim 58 is a film made from the gaseous composition of claim 27 of
29 the patent, which reads:

1 A product which is an oxide composition
2 produced by the process of oxidizing the
3 composition comprising the oxide precursor and
4 accelerant of any one of claims 1-29 and 31-32.

5
6 Claim 66 reads:

7 A product produced by the process of claim
8 65, wherein said oxidizing is effected in a
9 chemical vapor deposition process.

10
11 These claims depend from claims which are not subject to recapture.

12 Claims 1-27 are original patent claims. We have determined that
13 claims 28-29 and 31-32 are not subject to recapture. Accordingly, it
14 follows that claims 65-66 stand or fall with claims 28-29 and 31-32 and are
15 not subject to recapture.

16
17 Claims 28-29 and 31-32 (Appeal 2006-2474)

18 Claim 28 calls for a process for forming an oxide composition and
19 reads as follows:

20 A process for forming an oxide composition
21 comprising oxidizing a gaseous composition
22 comprising at least one precursor of a metal oxide
23 and an accelerant selected from the group
24 consisting of organic phosphites, organic borates,
25 and water so that when said precursor of a metal
26 oxide is a tin oxide precursor, and said accelerant
27 includes water, said composition also contains at
28 least one of said organic phosphites or organic
29 borates.

30
31 Claim 29 further limits the metal oxide to a Markush group of metal
32 oxides, including tin oxide.

33 Claim 31 is similar to claim 28.

1 Claim 32 is similar to claim 29

2 None of claims 28-29 and 31-32 call for a silicon oxide to be used in
3 the process.

4 In essence, the claims are directed to a method of using the gaseous
5 composition of claim 1 of the patents sans any silicon oxide and can be used
6 to make some of the films of claim 33 (Appeal 2006-2684).

7 In our view, these claims stand or fall with claim 33 (Appeal
8 2006-2684).

9

10 Claim 30 (Appeal 2006-2747)

11 Claim 30 reads as follows:

12 The process of claim 28 [Appeal 2006-2747]
13 further comprising a precursor for a silicon oxide.

14

15 Immediately apparent is the fact that the “a silicon oxide” is not
16 limited to the silicon oxide mentioned in application original claim 11.

17 In our view, claim 30 stands or falls with claim 37 (Appeal 2006-2684).

18

19 Summary of resolution of recapture rejections

20 The Examiner’s recapture rejection of claims 28-29, 31-32, 58-59, and
21 65-66 (Appeal 2006-2684) is reversed.

22 The Examiner’s recapture rejection of claims 33-57 and 60 (Appeal
23 2006-2684) is affirmed.

24 The Examiner’s recapture rejection of claims 28-32 (Appeal
25 2006-2747) is affirmed.

1 deposition] source solutions comprising metal oxide precursors and
2 accelerants." Examiner's Answer, page 3 (Appeal 2006-2747).

3 To confirm the correctness of the Examiner's observation, one need go
4 no further than the specification of the patent sought to be reissued where
5 one can find a discussion of the prior art.

6 Two prior art references discussed Appellants' specification are
7 (1) Gordon (U.S. Patent 4,206,252) and (2) Hochberg, *J. Electrochem. Soc.*
8 136(6) 1843 (1989). Gordon is mentioned at col. 2, lines 15-27 and
9 Hochberg is mentioned at col. 3, lines 55-64. Both are prior art vis-à-vis
10 Appellants under 35 U.S.C. § 102(b).

11
12

Examiner's rationale

13 The Examiner found, and Appellants do not seem to disagree, that the
14 subject matter described in Example 4 of Lagendijk differs from the claimed
15 subject matter in that it does not include a metal oxide. Examiner's Answer,
16 page 3 (Appeal 2006-2747).

17 The Examiner also found that Examples 4-14⁴ of Gordon '316
18 describe the use of a combination of a silicon oxide and a metal oxide,
19 including oxides of indium, aluminum and zinc to obtain certain properties
20 in films. Examiner's Answer, page 4.

21 The Examiner reasoned that it would have been obvious, in view of
22 Gordon '316 to use a metal oxide in combination with the silicon oxide in
23 the process of Lagendijk in order to obtain those same properties.

24

⁴ The Examiner's Answer refers to "claims 4-14." In context, it is clear that the Examiner meant to refer to Examples 4-14.

1 Appellants' position

2 Appellants maintain that there is no "motivation" to use a metal oxide
3 in combination with the silicon oxide of Lagendijk. Appeal Brief, page 6
4 (Appeal 2006-2747).

5 Appellants further maintain that Gordon '316 "teaches the
6 undesirability of water, cautioning against it in example 2, which ... [is said
7 to show that] water causes an undesirable reaction with an organoaluminum
8 compound, e.g., (aluminum-2,4-pentanedionate)." *Id.*

9 Appellants still further maintain that "[t]he adverse results with water
10 would suggest to a skilled artisan that disclosure of ancillary compounds in
11 CVD coating processes in this art would not carry the implication that they
12 would benefit any coating process, but rather, each candidate for evaluation
13 as an adjuvant would require separate testing before they [sic—one having
14 ordinary skill in the art] could draw any conclusion about its [i.e., the
15 candidate's] suitability in the process." *Id.* at pages 6-7. Arguably
16 consistent with Appellants' position is the following statement in the patent
17 (col. 3, line 65 through col. 4, line 2):

18 From a review of the prior art, it cannot be
19 determined what precursor combinations, if any,
20 can be used for continuous deposition, under
21 conditions and at a rate suitable for mass
22 production, of mixed metal oxides/silicon oxide
23 films at adequate rates from readily available and
24 relatively inexpensive reagents.

25
26 Appellants lastly maintain that they are using unobvious starting
27 materials in their claimed process and therefore the obviousness issue is

1 controlled by *In re Ochiai*, 71 F.3d 1565, 37 USPQ2d 1127 (Fed. Cir. 1995).
2 *Id.* at 7.

3
4

Examiner's observation on candidate testing

5 The Examiner had the following observation on Appellants'
6 "every candidate needs a test" argument [Examiner's Answer, page 5
7 (Appeal 2006-2747)]:

8 Applicants' argument that every candidate for
9 evaluation in the art would require separate testing
10 before drawing any conclusions is rebutted by the
11 broad scope of materials disclosed and claimed in
12 each of the prior art references of record. Further,
13 the argument suggests that the instant
14 specification, which does not include testing and
15 evaluation of each species implicitly or explicitly
16 claimed, is insufficient [under the enablement
17 requirement of first paragraph of 35 U.S.C. § 112]
18 to support claims having the breadth of scope of
19 instant claims 28-32.

20
21

We understand the Examiner to say that if the Examiner erred in
22 making a § 103 rejection, then the claims are not patentable under the
23 enablement requirement of the first paragraph of 35 U.S.C. § 112. In other
24 words, Appellants cannot have it both ways by presenting broad claims
25 while at the same time maintaining that one skilled in the art would not
26 expect, absent tests, the prior art to be effective.

27
28

Gordon '252

29 Gordon '252 is a patent cited in Appellants' specification and
30 manifestly is part of "the prior art . . . of record" mentioned by the Examiner.
31 Col. 2, lines 15-27.

1 Here is what Appellants say about Gordon '252:

2 In U.S. Pat. No. 4,206,252, Gordon
3 describes a process for depositing mixed oxide and
4 nitride coating layers of continuously varying
5 refractive index between a glass substrate and an
6 infra-red-reflecting coating, whereby the film
7 iridescence is eliminated. When silicon dioxide is
8 part of the mixed oxide film, the patent teaches
9 that volatile silicon compounds with Si—Si and
10 Si—H bonds are suitable precursors. Compounds
11 such as 1,1,2,2-tetramethyldisilane, 1,1,2-
12 trimethyldisilane, and 1,2-dimethyldisilane are
13 disclosed. All of the compounds containing Si—Si
14 and Si—H bonds to which reference is made are
15 expensive, and none are commercially available.
16

17 Reference to Gordon '252 confirms that Appellants are correct, at least
18 in part.

19 Plainly described in Gordon '252 is the use of a mixture of silicon and
20 tin precursors to make the film. See, e.g., Col. 6, line 64 through col. 7,
21 line 5.

22 While it is true that Gordon '252 describes the use of a mixture of a
23 mixed silicon oxide and silicon nitride (col. 6, line 12), Gordon '252 also
24 describes the use of other silicon and metal combinations, including
25 (1) silicon and tin (col. 6, line 11), (2) silicon and titanium (col. 6, line 13),
26 and (3) silicon and indium (col. 6, line 14).

27
28

Hochberg

29 Hochberg is a prior art document cited in Appellants' specification
30 (col. 3, lines 55-64).

31 Appellants say the following about Hochberg:

1 monobutyltin trichloride; col. 6, line 20), (2) TEOS, and (3) TEP, (which is
2 triethyl phosphite; col. 6, line 21). *See* Examples 1 and 2. Also described is
3 the use of (1) MBTC, (2) TEOS, and (3) water. *See* Example 3.

4 Based on our reading of the underlying specification and giving the
5 claim its broadest reasonable interpretation consistent with the specification,
6 it is our view that the limitation in question is a "proviso" limitation
7 restricting the process only when (1) the precursor is a tin oxide precursor
8 and (2) the accelerant includes water.

9 Claim 28 does not require the presence of water when the precursor is
10 a tin oxide precursor. The proviso comes into play only when water is used
11 in combination with a precursor of tin oxide. A similar analysis applies with
12 equal force with respect to claim 31.

13 Only claim 30 requires the presence of a silicon oxide. If claim 30 is
14 unpatentable on the merits, then so are claims 28-29 and 30-31.

15
16 Unpatentability of claims 28-32 (Appeal 2006-2747) on the merits

17 In our opinion, claims 28-32 are unpatentable on the merits.

18
19 Scope and content of the prior art

20 Appellants cannot deny that the prior art describes compositions
21 which can be made using a precursor of silicon oxide. *See* (1) Lagendijk
22 and (2) Gordon '316 (Table D, compounds 1-3).

23 Appellants cannot deny that the prior art describes compositions
24 which can be made using a precursor of tin oxide. *See* Gordon '316 [Table
25 D, compound 13 (tetramethyl tin)].

1 Based on a review of Gordon '252 cited in Appellants' specification,
2 Appellants cannot deny that the prior art also describes compositions which
3 can be made using a mixture of (1) a precursor of silicon oxide and (2) a
4 precursor of a metal oxide, including tin oxide, titanium oxide and indium
5 oxide (Table A, col. 6, lines 8-15).

6 Lastly, based on their description of Hochberg in their specification,
7 Appellants cannot deny that trimethyl phosphite (TMP) is known in the art
8 for enhanced deposition of silicon oxide films.

9

10

Differences

11

12

13

14

The difference between Gordon '252 and the subject matter of claim
30 is that Gordon '252 does not describe the use of trimethyl phosphite as an
enhancer to the deposition of a mixture of both a silicon oxide and a tin
oxide precursor.

15

16

17

The difference between Hochberg and the subject matter of claim 30
is that Hochberg does not describe the use of a tin oxide precursor along
with a precursor of silicon oxide.

18

19

Level of skill in the art

20

21

In this case, the prior art provides the evidence of the level of skill in
the art in this particular case.

22

23

24

25

Those skilled in the art use known techniques to accomplish known
objectives. What we learn from Hochberg is that a person having ordinary
skill in the art would understand that TEP can be used to enhance deposition
rates of films made from silicon oxide. Accordingly, the level of skill is

1 such that if enhanced deposition rates for making silicon oxide films is the
2 objective, then one skilled in the art would use TEP.

3
4

Discussion

5 The obviousness analysis turns on whether one having ordinary skill
6 in the art would use TEP in a process for making a composition for the CVD
7 of a mixed tin oxide/silicon oxide film. We think one skilled in the art
8 would have done so.

9 When making a composition for use in the CVD process which
10 contains precursor of silicon oxide, one is explicitly taught by the prior art of
11 the advantage of also using TEP. One skilled in the art is also taught to use
12 a mixture of precursors of tin oxide and silicon oxide. On this record, we do
13 not see why one skilled in the art would not also use TEP when attempting
14 to make a composition with a mixture of a tin oxide precursor and a silicon
15 oxide precursor. There is no credible reason not to expect that the
16 advantages of enhanced deposition to be obtained by using TEP in a silicon
17 oxide precursor composition would not apply to using TEP in a mixed tin
18 oxide/silicon oxide precursor mixture if for no other reason than the mixture
19 also has a silicon oxide precursor.

20 Appellants' "no motivation" argument misses the mark. *First*, we
21 will note that the word "motivation" does not appear in 35 U.S.C. § 103.
22 *Second*, to the extent that by "motivation" Appellants would require the
23 Examiner to come up with an explicit teaching in the prior art of motivation,
24 that requirement is foreclosed by binding precedent of our appellate
25 reviewing court. *See, e.g., In re Rosselet*, 347 F.2d 847, 851, 146 USPQ
26 183, 186 (CCPA 1965); for more recent discussion *see also, e.g., Alza Corp.*

1 *v. Mylan Laboratories, Inc.*, 464 F.3d 1286, 80 USPQ2d 1001 (Fed. Cir.
2 2006); *DyStar Textilfarben GmbH & Co. Deutschland KG v. C.H. Patrick*
3 *Co.*, 464 F.3d 1356, 1360-61, 80 USPQ2d 1641, 1645 (Fed. Cir. 2006).

4 What seems apparent on this record is that if one skilled in the art
5 knows that TEP can be used to make compositions containing silicon, then
6 one skilled in the art would have a reasonable expectation that TEP could be
7 used in similar compositions containing both silicon and tin. A reasonable
8 expectation of success is all that is required. *In re O'Farrell*, 853 F.2d 894,
9 904, 7 USPQ2d 1673, 1681 (Fed. Cir. 1988); *In re Longi*, 759 F.2d 887, 897,
10 225 USPQ 645, 651-52 (Fed. Cir. 1985).

11 Appellants' "no motivation" argument is seemingly bottomed on a
12 reasonable expectation that the combination would not be successful. Apart
13 from attorney argument, which of course is not evidence, the only
14 "evidence" in this record to support the attorney argument is Appellants'
15 admission at col. 3, line 65 through col. 4, line 2 of Appellants' patent.
16 However, that admission on its face is narrowly drawn to rates suitable for
17 "mass production" from "readily available and relatively inexpensive
18 reagents." The claims before us are not limited to any particular use (rates
19 suitable for mass production) or to particular reagents (inexpensive
20 reagents). Moreover, we are not aware of any requirement of law that
21 obviousness be evaluated on the sole basis of whether an invention can be
22 used in commercial practice. The useful arts can be promoted by inventions
23 which never become commercial.

24 Appellants also claim there is a lack of "motivation" because Gordon
25 '316 says in Example 2 that water is to be avoided, at least when aluminum-
26 2,4,-pentanedionate is used as a metal oxide precursor. The obviousness

1 analysis which we find sufficient involves precursors of silicon and tin oxide
2 and TEP. It is on the basis of the obviousness of the use of this particular
3 mixture that the Examiner is believed to have bottomed the rejection. Since
4 Appellants' claims include a method for making a composition from a
5 silicon oxide precursor, a tin oxide precursor and TEP (without the use of
6 water), the claims are broad enough to read on subject matter which is
7 obvious and therefore are not patentable. *In re Muchmore*, 433 F.2d 824,
8 167 USPQ 681 (CCPA 1970).

9 Appellants also argue that they are using "unobvious" starting
10 materials and therefore the *Ochiai* rationale applies. We are at a loss to
11 understand Appellants' argument because all the ingredients used in
12 Appellants' process were known in the art long before Appellants made their
13 invention.

14 To complete our analysis, it seems to us that the Examiner has a point
15 when responding to Appellants' lack of predictability argument. If, as
16 Appellants seem to argue, there is no reasonable expectation of success,
17 where is the disclosure in Applicants' specification to support the breadth of
18 the claims before us? *First*, apart from claim 30, the claims do not require
19 the presence of a precursor of silicon oxide. The entire tenor of the
20 specification would seem to require the presence of a precursor. *Second*, if
21 the invention involves unpredictable subject matter, then how is the enabling
22 disclosure in the specification commensurate in scope with the breath of the
23 unpredictable subject matter being claimed? Appellants did not respond in
24 their reply to the Examiner's point and have not reconciled how the prior art

1 is not enabling while at the same time their specification is enabling.⁵ It
2 follows that if a rejection under § 103(a) is not viable, the claims are
3 unpatentable under the enablement requirement of the first paragraph of
4 § 112.

5

6 **F. Other issues**

7 Appellants request that the rejections be reversed and that the reissue
8 application be remanded to the Examiner "for issuance of a Notice of
9 Allowance." Our function as a Board is to review rejections. In those cases
10 where we reverse a rejection, the application is necessarily remanded to the
11 Examiner for action consistent with our reversal. 37 C.F.R. § 41.54 (2006).
12 *Cf. In re Fisher*, 448 F.2d 1406, 171 USPQ 292 (CCPA 1971) (every
13 reversal is a patent case is in effect a remand). We do not order the
14 Examiner to issue notices of allowance.

15 Appellants also request, in the event of an affirmance, that they be
16 allowed to dedicate the invention to the public on two conditions: (1) an
17 interference be declared between Appellants and three patents owned by
18 another entity and (2) Appellants prevail in the interference(s). As an *ex*
19 *parte* appeals panel we have no occasion to address Appellants' request as it
20 is not relevant to the appeal under § 134. Whether there is interfering
21 subject matter is a matter the Examiner can consider when *ex parte*

⁵ In the event of further prosecution, we would suggest that claims 28-29 and 31-32 do not comply with the written description requirement of the first paragraph of 35 U.S.C. § 112. Use of a precursor of silicon oxide would appear to be a material element of Appellants' invention. No composition for making a film appears to be described which would not include silicon oxide.

1 prosecution is resumed following this appeal. If the Examiner is of the
2 opinion that there is interfering subject matter, the Examiner is free to
3 recommend to the Trial Division that an interference be declared.

4 We also note that Appellants have filed a response to the Interlocutory
5 Order entered 14 December 2006. In that response, Appellants request that
6 certain claims be cancelled and that amendments be entered. The response
7 did not squarely answer the information sought by the Interlocutory Order.
8 We express no views on the appropriateness of any amendment. Whether an
9 amendment can be made at this stage of prosecution in the two reissue
10 applications, and, if so, whether these particular amendments should be
11 entered, is a matter we leave to the sole discretion of the Examiner in the
12 first instance.

13
14 **G. Judgment**

15 Appeal 2006-2684

16 The Examiner's rejection of claims 28-29, 31-32, 58-59, and 65-66
17 based on recapture is reversed.

18 The Examiner's rejection of claims 33-57 and 60 based on recapture
19 is affirmed.

20 **Affirmed-in-Part and Reversed-in-Part**

21
22 Appeal 2006-2747

23 The Examiner's rejection of claims 28-32 based on recapture is
24 affirmed.

25 The Examiner's rejection of claims 28-32 based on unpatentability
26 under 35 U.S.C. § 103(a) is affirmed.

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Affirmed

_____)
BRADLEY R. GARRIS)
Administrative Patent Judge)
) BOARD OF
) PATENT
_____) APPEALS
FRED E. McKELVEY)
Senior Administrative Patent Judge) AND
) INTERFERENCES
)
_____)
ALLEN R. MacDONALD)
Administrative Patent Judge)

mtv

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