Paper No. 14

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte HADI K. MAHABADI, ENNO E. AGUR.
THOMAS E. ENRIGHT, JOHN A. CREATURA, MARY L. OTT,
K. DEREK HENDERSON and PAUL J. GERROIR

Appeal No. 2000-0822
Application 09/037,555

ON BRIEF

Before WARREN, OWENS and LIEBERMAN, *Administrative Patent Judges*.

WARREN, *Administrative Patent Judge*.

Decision on Appeal

This is an appeal under 35 U.S.C. § 134 from the decision of the examiner finally rejecting claims 1 through 11, 13 through 21 and 39 through 57. Subsequent to the final rejection, appellants cancelled claims 41, 46 and 52, and amended all the other claims. The examiner withdrew the grounds of rejection of claims 6, 7, 10, 11, 20, 21, 48 and 56, objecting to the same as not being in condition for allowance.

Accordingly, claims 1 through 5, 8, 9, 13 through 19. 39, 40, 42 through 45, 47, 49 through 51, 53 through 55 and 57 remain for consideration on appeal. Claim 12, also of record, was objected to as not being in condition for allowance in the final rejection. Claims 22 through 38 are also of record and have been withdrawn from consideration by the examiner under 37

CFR § 1.142(b). Claims 1, 2, 5 and 53 are illustrative of the claims on appeal:

1. Carrier consisting essentially of a core and thereover a coating, wherein substantially all of the pores of the core are filled with polymer.

2. Carrier comprised of a porous core, wherein a number of the pores thereof contain a (1) polymer or mixture of polymers and said core is coated with a (2) polymer or mixture of polymers, wherein said polymer (1) and/or said polymer (2) contain conductive components.

5. Carrier comprising a porous core, wherein a number of the pores thereof contain a crosslinked polymer and said core is coated with a crosslinked polymer.

53. Carrier comprised of a porous core and wherein a number of the pores thereof contain a (1) polymer, or a mixture of polymers and which carrier contains a (2) coating thereover of a polymer, or a mixture of polymers, and wherein said carrier is prepared by an in situ process comprising mixing carrier core with a mixture of monomer and initiator, optional chain transfer agent, and optional crosslinking agent; polymerizing the monomer by heating thereby resulting in a polymer, or crosslinked polymer in the carrier pores and on the carrier surface; mixing the carrier core containing polymer and monomer mixture inside the pores and on the carrier surface with water; completing the polymerization and optionally crosslinking by heating thereby resulting in a polymer, or crosslinked polymer in the carrier pores and on the carrier surface; removing the water from the mixture; and optionally drying.

The appealed claims, as represented by claims 1, 2, 5 and 35, are drawn to a carrier having a porous core , wherein the core is coated with and the pores contain a polymer or mixture of polymers, which can have conductive components, and which can be prepared *in situ*. Appealed claims 49, 50 and 51, dependent on appealed claims 1, 5 and 2 respectively, all specify that the pores of the carrier core contain no solvent. According to appellants, the claimed carrier having a porous core is lighter, resulting in less impaction, and has improved mechanical properties when used in toner and developer compositions (specification, e.g., page 6).

The references relied on by the examiner are:

Mammino et al. (Mammino)	4,233,387	Nov. 11, 1980
Creatura et al. (Creatura)	4,937,166	Jun. 26, 1990
Shintani et al. (Shintani)	5,204,204	Apr. 20, 1993
Kawata et al. (Kawata)	5,670,287	Sep. 23, 1997
Yoshino et al. (Yoshino)	5,849,448	Dec. 15, 1998 (filed Mar. 17, 1997)

The examiner has advanced the following grounds of rejection on appeal:

claims 49 through 51 stand rejected under 35 U.S.C. § 112, first paragraph, as failing to comply with the written description requirement;

claim 53 stands rejected under 35 U.S.C. § 102(b) as anticipated by Mammino;

claims 1, 39, 40, 49, 53 and 54 stand rejected under 35 U.S.C. § 102(b) as anticipated by Kawata;

claims 1, 39, 40, 49, 53 and 54 stand rejected under 35 U.S.C. § 102(b) as anticipated by Shintani;

claims 1, 39, 40, 49, 53 and 54 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Kawata in view of Mammino and further in view of Creatura; and

claims 1 through 5, 8, 9, 13 through 19, 39, 40, 42 through 45, 47, 49 through 51, 53 through 55 and 57 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Shintani in view of Yoshino.

We decide this appeal based on appealed claim 1, 2, 5, 49, 50, 51 and 53, which respectively represent each of the seven groups of claims presented for consideration by appellants (brief, page 4). 37 CFR § 1.192(c)(7) (1999).

We affirm the grounds of rejection under 35 U.S.C. §§ 102 (b) and 103(a) based on Kawata, and reverse all other grounds of rejection.

Rather than reiterate the respective positions advanced by the examiner and appellants, we refer to the examiner's answer and to appellants' brief and reply brief for a complete exposition thereof.

Opinion

Each of claims 49 through 51, rejected under § 112, first paragraph, written description requirement, modifies the product claim on which it depends by requiring that "said pores [of the carrier core] are free of solvent" or that "said pores [of the carrier core] contain no solvent," either statement specifying the absence of solvent. The examiner contends that "[a]lthough the specification does describe an in-situ polymerization of monomer, the specification does not disclose the pores as being in the condition now recited" in these claims (answer, page 4). The examiner points to the process in the specification, alleging that "[i]t would appear that some of the water [used in the process] would be present in the matrix of the partially polymerized monomer" and that "[w]ater is a well known solvent," stating that in any event, "the fact that a component (i.e., solvent) is not disclosed in an example or the specification is not the same as describing the exclusion [of] this component," citing *Ex parte Grasselli*, 231 USPQ 393 (Bd. App. 1983), *aff'd mem.*, 738 F.2d 453 (Fed. Cir 1984) (answer, pages 10-11).

Appellants submit that "no solvent is used in the formation of the carrier" because "water

is not a solvent in the context of the specification examples" as it "does not dissolve the partially polymerized coating in the pores of and on the core particles at the time they are added to water" (brief, pages 5-6; reply brief, unnumbered page 2). Appellants state that "[i]n fact, the coating forms a hydrophobic barrier that keeps water from getting into the pores" with the result that "water is not trapped in the core particles by the process of the specification examples" (brief, page 6; reply brief, unnumbered page 2). Appellants further submit that "one of the advantages of the present invention" is "the fact that solvent is not needed in the process described in the specification," pointing out that "the specification indicates that one of the problems associated with solution coating processes is the need to handle excess quantities of solvent" (brief, page 6; reply brief, unnumbered page 2). We find that the specification, at page 4, line 20, in context, states that "solution coating techniques are undesirable," and attempts to provide sufficient coating materials "necessarily involves handling excessive quantities of solvents, and further usually these processes result in low yield products."

We find that the term solvent as used in appellants' specification and appealed claims would have its customary, dictionary definition of "[a] substance capable of dissolving another substance (solute) to form a uniformly dispersed mixture (solution) at the molecular or ionic level." *The Condensed Chemical Dictionary*, page 958 (10th ed., Gessner G. Hawley, ed., New York: Van Nostrand Reinhold Company. 1981).

It is well settled that the examiner has the burden of making out a *prima facie* case that the appealed claims do not comply with this section of the statute by setting forth evidence or reasons why, as a matter of fact, the written description in appellant's disclosure would not reasonably convey to persons skilled in this art that appellants were in possession of the invention defined by the claims, including all of the limitations thereof, at the time the application was filed. *See generally, In re Alton*, 76 F.3d 1168, 1175-76, 37 USPQ2d 1578, 1583-84 (Fed. Cir. 1996), citing *In re Wertheim*, 541 F.2d 257, 263-64, 191 USPQ 90, 97 (CCPA 1976). As stated by a predecessor Court to our reviewing Court in *Wertheim*:

> [t]he function of the description requirement is to ensure that the inventor had possession, as of the filing date of the application relied on, of the specific subject matter later claimed by him; how the specification accomplishes this is not material. . . . It is not necessary that the application describe the claim limitations exactly, . . .

> but only so clearly that persons of ordinary skill in the art will recognize from the disclosure that appellants invented processes including those limitations. [Citations omitted.]
>
> The primary consideration is *factual* and depends on the nature of the invention and the amount of knowledge imparted to those skilled in the art by the disclosure. . . .
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> . . . .
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> . . . If lack of literal support alone were enough to support a rejection under § 112, then the statement of *In re Lukach* [442 F.2d 967, 969, 169 USPQ 795, 796 (CCPA 1971)] . . . that "the invention claimed does not have to be described *in ipsis verbis* in order to satisfy the description requirement of § 112," is empty verbiage. The burden of showing that the claimed invention is not described in the specification rests on the PTO in the first instance, and it is up to the PTO to give reasons why a description not *in ipsis verbis* is insufficient. [541 F.2d at 262-65, 191 USPQ at 96-98.]

See also Vas-Cath, Inc. v. Mahurkar, 935 F.2d 1555, 1563-64, 19 USPQ2d 1111, 1116-17 (Fed. Cir. 1991).

Appellants, in framing the specification, are under no requirement to "utilize any particular form of disclosure to describe the subject matter claimed." *Alton*, 76 F.3d at 1172, 37 USPQ2d at 1581, and cases cited therein; *see also Lockwood v. American Airlines, Inc.*, 107 F.3d 1565, 1571-72, 41 USPQ2d 1961, 1966 (Fed. Cir. 1997) (the invention can be described "by such descriptive means as words, structures, figures, diagrams, formulas, etc., that fully set forth the claimed invention"); *In re Wilder*, 736 F.2d 1516, 1520, 222 USPQ 369, 372-73 (Fed. Cir. 1984) ("The objects of the Invention may, in some cases, provide support for claims sought through reissue. [Citation omitted.]"). "[T]he meaning of terms, phrases, or diagrams in a disclosure is to be explained or interpreted from the vantage point of one skilled in the art.". *Lockwood, supra*.

We agree with appellants that there is no mention of "solvent" in the written description provided in the specification, including the working examples. While the examiner contends that "water" is a solvent, he has not established that the same in fact acts as a solvent, as this term is used in the chemical arts, for the monomers and/or the polymers which are extant on the carrier at the time the water is added in the processes taught in the written description in the specification. Thus, on this record, we determine as a matter of fact that appellants were in possession of the invention defined by the negative limitation found in each of appealed claims

49 through 51, which limitation, therefore, did not introduce new concepts in violation of this section of the statute.

Accordingly, we reverse the rejection of appealed claims 49 through 51 under 35 U.S.C. § 112, first paragraph, written description requirement.

Turning now to the ground of rejection of appealed claim 53 under § 102(b) as anticipated by Mammino, it is well settled that in order to establish a *prima facie* case of anticipation of a product claimed in product-by-process format, the examiner must show that it reasonably appears that the prior art product made by a different process is identical to the claimed product. *See generally*, *In re Spada*, 911 F.2d 705, 708-09, 15 USPQ2d 1655, 1657-58 (Fed. Cir. 1990), and cases cited therein ("The Board held that the compositions claimed by Spada 'appear to be identical' to those described by Smith. While Spada criticizes the usage of the word 'appear', we think that it was reasonable for the PTO to infer that the polymerization by both Smith and Spada of identical monomers, employing the same or similar polymerization techniques, would produce polymers having the identical composition.").

The examiner cites col. 4, lines 15-18, of Mammino wherein it is disclosed that solution coating techniques generally are "undesirable" (answer, page 4). We find that Mammino further explains at col. 4, lines 18-23, that this "is so because most of the coating material is found to reside in the pores of the carrier particle . . . ." Thus, Mammino discloses a "powder coating technique" by which "the majority of the coating material particles are fused to the carrier surface," without any indication of the result thereof with respect to the pores of the carrier particle (col. 4, lines 40-51). The examiner points to Mammino Examples I, IV and V, explaining that "[i]t appears that at least a portion of the carrier pores would contain resin because the resin is either melted in which case it would flow or is dissolved in a solvent and spray dried in which it case it would flow and enter the carrier before the solvent evaporated" (*id.*, pages 4-5).

The examiner has not provided a scientific explanation or evidence establishing that the particular coating composition "dissolved in methyl ethyl ketone" and then "spray-dried onto the carrier cores to provide them with a coating" in Mammino Example I, and/or the particular coating compositions in powder form mixed with carrier cores in the absence of solvent and then

heated for twenty minutes in each of Mammino Examples IV and V, reasonably appear to result in a carrier product having pores that contain a polymer or mixture of polymers resulting from intra-pore polymerization of monomers in the manner specified in appealed claim 53 (answer, pages 4-5 and 12), particularly in light of appellants' countervailing arguments. Indeed, appellants point out that "due to the lower viscosity of monomer rather than polymer, the process results in carrier in which a larger amount of the polymer is in the pores," noting the disclosure at col. 4, lines 48-51, of Mammino that "the majority of the coating material particles are fused to the carrier surface" (brief, page 7; reply brief, unnumbered page 3). Thus, on this record, in view of appellants' arguments it does not reasonably appear to us that the product produced in the Mammino Examples is identical to the product defined by the process of appealed claim 53.

Accordingly, to the extent that a *prima facie* case of anticipation had been made out by the examiner over Mammino, the factual arguments by appellants in rebuttal shifted the burden back to the examiner to again establish the factual underpinning of a *prima facie* case under 102(b) on the record as a whole in order to maintain the ground of rejection. S*ee generally, Spada*, 911 F.2d at 707 n.3, 15 USPQ2d at 1657 n.3. Because the examiner has not again established that, *prima facie*, a product prepared in the Mammino Examples reasonably appears to be identical to a product falling within appealed claim 53 in light of appellants' arguments, we reverse the ground of rejection of appealed claim 53 under § 102(b) based on Mammino.

We now consider the ground of rejection of appealed claims 1, 49 and 53 under § 102(b) as anticipated by Kawata. The examiner points out that the processes of the reference Examples produce the product shown in Kawata FIG. **1**, wherein the "recessed portions **4**" are filled with "resin-coated layer **3**" (see col. 5, lines 11-20), from which it "appears that all pores (recessed portions) are filled with resin" (answer, pages 5-6). The examiner further contends that, in Kawata Example 9, the temperature employed would remove the solvent (answer, page 6; see also page 13).

We find that Kawata states that the disclosed process "enables the recessed portions of magnetic core particles to be reliably filled with the resin coating and portions other than the recessed portions to be reliably coated with resin" (col. 2, lines 30-33), and thus "the resin-coated layer has resistance against being peeled off owing to anchoring effect obtained by the resin-

coated layer that is buried in the recessed portions in the surface of the core" (col. 3, lines 1-4), with the result shown in FIG. **1**, pointed to by the examiner.

We further find that Kawata states with respect to the process, that

> the magnetic core particles are coated with a resin compositions which chiefly contains a thermosetting resin and a small amount of a low-melting thermoplastic resin or wax. At the time when the thermosetting resin cures, therefore, the low-melting thermoplastic resin or wax weakens the cohesive force of the thermosetting resin or improves fluidity thereof, enabling the recessed portions to be smoothly filled with the resin and the portions other than the recessed portions to be smoothly coated with the partial coating layer. [Col. 2, lines 58-67; see also col. 3, lines 50, to col. 4, line 7.]

Kawata further teaches that "a solution or dispersion of the resin composition . . . is applied to the magnetic core particles to form a coating layer of the resin composition on the surface of the magnetic core particles," which can be accomplished by a number of methods, and then heated (col. 8, lines 23-67). In Kawata Example 1, after the composition was coated, the "solvent was dried, and the mixture was heat-treated" (col. 9, lines 15-16).

We further find that while Kawata uses the term "recessed" to describe the area shown as "recessed portions **4**" in Kawata FIG. **1**, one of ordinary skill in this art would have recognized that a structure of this type can also be termed a "pore" as that term is customarily defined. *See, e.g.*, "**pore** . . . 2. A minute surface opening or passageway." *The American Heritage Dictionary, Second College Edition*, page 965 (Boston, Houghton Mifflin Company, 1982).

Accordingly, based on this substantial evidence, we agree with the examiner that, *prima facie*, it reasonably appears that that the carrier core product prepared by, *inter alia*, Kawata Example 1, is identical to the claimed product encompassed by each of appealed claims 1, 49 and 53, even though prepared by a different process. *See generally*, *Spada*, 911 F.2d at 708-09, 15 USPQ2d at 1657-58. Accordingly, the burden falls upon appellants to establish by effective argument or objective evidence that the claimed invention patentably distinguishes over Kawata. *See, e.g., Spada*, *supra*; *In re Best*, 562 F.2d 1252, 1255-56, 195 USPQ 430, 433-34 (CCPA 1977)("Where, as here, the claimed and prior art products are identical or substantially identical, or are produced by identical or substantially identical processes, the PTO can require an applicant to prove that the prior art products do not necessarily or inherently possess the characteristics of his claimed product. See *In re Ludtke*, [441 F.2d 660, 169 USPQ 563 (CCPA 1971)]. Whether

the rejection is based on 'inherency' under 35 USC 102, on 'prima facie obviousness' under 35 USC 103, jointly or alternatively, the burden of proof is the same, and its fairness is evidenced by the PTO's inability to manufacture products or to obtain and compare prior art products. [Footnote and citation omitted.]").

Accordingly, we again evaluate all of the evidence of anticipation found in Kawata with appellants' countervailing evidence of and argument for non-anticipation in the brief and reply brief with respect to appealed claims 1, 49 and 53. S*ee generally, Spada*, 911 F.2d at 707 n.3, 15 USPQ2d at 1657 n.3. We recognize that, as appellants point out (brief, page 10; reply brief, page unnumbered page 5), Kawata describes the openings in the surface of the carrier particle as a "recess" and not a "pore" as in the appealed claims. However, this fact alone does not patentably distinguish the claimed product over that of the reference because, as we found above, one of ordinary skill in this art would have recognized that the "recess" of Kawata can be termed a "pore" in keeping with the common, dictionary meaning of the term.[1] *See In re Skoner*, 517 F.2d 947, 950, 186 USPQ 80, 82 (CCPA 1975). ("Appellants have chosen to describe their invention in terms of certain physical characteristics . . . . Merely choosing to describe their invention in this manner does not render patentable their method which is clearly obvious in view of [the reference]. [Citation omitted.]").

We have carefully considered appellants' arguments that "[a]lthough Kawata recites that the recessed portions of the core are filled with resin, the solution coating technique of Kawata cannot be used to fill the pores of a carrier core . . . [because] a substantial portion of the pores is filled with solvent" (brief, pages 8-9), and that "it is Appellants' position that, despite the statement that the recessed portions are filled, upon review of the reference as a whole, it is clear that the recessed portions are not actually filled with the resin . . . [because] to coat the core particles, Kawata teaches applying a solution of the resin composition to the core particles" and since "a substantial portion of the coating solution comprises solvent instead of resin, a

[1] It is well settled that a reference stands for all of the specific teachings thereof as well as the inferences one of ordinary skill in this art would have reasonably been expected to draw therefrom, see *In re Fritch*, 972 F.2d 1260, 1264-65, 23 USPQ2d 1780, 1782-83 (Fed. Cir. 1992); *In re Preda*, 401 F.2d 825, 826, 159 USPQ 342, 344 (CCPA 1968), presuming skill on the part of this person. *In re Sovish*, 769 F.2d 738, 743, 226 USPQ 771, 774 (Fed. Cir. 1985).

substantial portion of the pores is filled with the solvent, not the resin" (reply brief, unnumbered page 4).

We find no evidence in Kawata or elsewhere in the record to support appellants' position. It is well settled that unsupported arguments of counsel are entitled to little weight with respect to establishing unexpected results or for other purposes. *See In re Payne*, 606 F.2d 303, 315, 203 USPQ 245, 256 (CCPA 1979); *In re Lindner*, 457 F.2d 506, 508, 173 USPQ 356, 358 (CCPA 1972). And to the extent that appellants are contending that the United States Patent to Kawata is inoperative, the evidence required for such purpose is indeed substantial as there is a strong presumption of validity respecting the disclosure of a United States Patent. *See, e.g., In re Lamberti*, 545 F.2d 747, 192 USPQ 278 (CCPA 1976); *In re Weber*, 405 F.2d 1403, 160 USPQ 549 (CCPA 1969).

Accordingly, based on our consideration of the totality of the record before us, we have weighed the evidence of anticipation found in Kawata with appellants' countervailing evidence of and argument for no anticipation in fact and find that the claimed invention encompassed by appealed claims 1, 39, 40, 49, 53 and 54 are anticipated as a matter of fact under 35 U.S.C. § 102(b).

With respect to the ground of rejection of appealed claims 1, 39, 40, 49, 53 and 54 under § 103(a) as being unpatentable over Kawata in view of Mammino and further in view of Creatura, our determination that the claimed process encompassed by appealed claim 1 is anticipated by Kawata is dispositive because it is well settled that "anticipation is the ultimate of obviousness." *See In re Baxter Travenol Labs.*, 952 F.2d 388, 392, 21 USPQ2d 1281, 1284-85 (Fed Cir. 1991), citing *In re Fracalossi*, 681 F.2d 792, 794, 215 USPQ 569, 571 (CCPA 1982). Indeed, in this instance, appellants present essentially the same arguments with respect to the ground of rejection under § 103(a) as for the ground of rejection under § 102(b).

Finally, we arrive at the grounds of rejection under § 102(b) and under § 103(a) based on Shintani. The dispositive issue with respect to both grounds of rejection is whether the terms "concaves" (e.g., col. 2, line 66) and "concavities" (e.g., col. 3, line 57) would have been recognized by one of ordinary skill in this art to have a structure that can also be termed a "pore" as that term is customarily defined, as we set forth above. *See* answer, pages 7 and 17-18; brief,

pages 14-16; reply brief, unnumbered page 6. We determine that the terms in issue are customarily defined as, e.g., "**concave** . . . Curved like the inner surface of a sphere;" and, "**concavity** . . . 2. A concave surface or structure." *The American Heritage Dictionary, Second College Edition*, page 304. In view of this evidence, we determine that one of ordinary skill in this art would not have reasonably considered the structure of the carrier used by Shintani to include a "pore" or "pores." We are not convinced otherwise on this record, by the examiner's contention that "[t]he carrier particles of the reference examples are Cu-Zn ferrites obtained from Powdertech" which "is the same type of carrier and supplier as used in the instant examples (see spec. p. 27 *et seq*.)" (answer, page 17). We find at page 27, lines 26-28, of the specification, the recitation that "a porous CuZn ferrite powder obtained from Powdertech Corp. and having a diameter of about 32 microns and a BET surface area of about 1,600 cm^2g," which carrier particle is consistent with that used in specification Examples II and III (pages 29 and 30). We find at col. 12, line 35-36, of Shintani, "[s]intered copper-zinc ferrite powder (F-300: mean particle size: 45 μm, bulk density: 2.50 g/cm^3; made by Powdertech Co., Ltd.)," which has the smallest particle size of the carrier particles carrying the same trade designation in the Shintani Examples. Thus, the examiner has not established that the particles that Shintani describes as having concavities would be those described as "porous" by appellants. We find no disclosure in Yoshino which have suggested to one of ordinary skill in the art that a porous carrier could be used in the process of Shintani.

Accordingly, we reverse the grounds of rejection of appealed claims 1, 39, 40, 49, 53 and 54 under 35 U.S.C. § 102(b) as anticipated by Shintani, and of claims 1 through 5, 8, 9, 13 through 19, 39, 40, 42 through 45, 47, 49 through 51, 53 through 55 and 57 under 35 U.S.C. § 103(a) as being unpatentable over Shintani in view of Yoshino.

In summary, we affirm the ground of rejection of appealed claims 1, 39, 40, 49, 53 and 54 under 35 U.S.C. § 102(b) as anticipated by Kawata, and of appealed claims 1, 39, 40, 49, 53 and 54 under § 103(a) as being unpatentable over Kawata in view of Mammino and further in view of Creatura, and reverse all other grounds of rejection.

The examiner's decision is affirmed-in-part.

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

AFFIRMED-IN-PART

CHARLES F. WARREN Administrative Patent Judge	)	
TERRY J. OWENS Administrative Patent Judge	)	BOARD OF PATENT APPEALS AND INTERFERENCES
PAUL LIEBERMAN Administrative Patent Judge	)	

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