

The opinion in support of the decision being entered today was not written for publication and is not binding precedent of the Board.

UNITED STATES PATENT AND TRADEMARK OFFICE

**BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES**

Ex parte FRED R. WOLF,
GORDON N. MCGREW, and
HENRY T. TYRPIN

Appeal No. 2006-2604
Application No. 10/253,066

ON BRIEF

Before GRIMES, LINCK, and LEOVITZ, Administrative Patent Judges.

GRIMES, Administrative Patent Judge.

DECISION ON APPEAL

This appeal involves claims to a method of making chewing gum containing an encapsulated cooling agent. The examiner has rejected the claims as obvious. We have jurisdiction under 35 U.S.C. § 134. We affirm.

Background

“[F]or a cool and refreshing taste, cooling flavors such as encapsulated menthol and/or mint flavors are added to chewing gum.” Specification, page 5. “However, the improved flavor impact of adding cooling flavors to the chewing gum is somewhat offset by the disadvantage of the bitter, harsh, burning sensations associated with high concentrations of such flavors.” Id.

“By adding a[n] acyclic carboxamide to a menthol or mint type flavored chewing gum, one can obtain a strong cooling and clean minty flavor, without the higher concentrations of menthol or mint flavors required in the prior art.” Id. “Several U.S. and foreign references disclose the acyclic carboxamides that are physiological cooling agents. . . . Some of these disclose the use of physiological cooling agents in chewing gum. These acyclic carboxamides (AC) include those disclosed in U.S. Patent Nos. 4,296,255; 4,230,688; and 4,153,679.” Id., page 6.

“Physical modifications of the physiological cooling agents by encapsulation with another substrate will modify their release in chewing gum by modifying the solubility or dissolution rate. Any standard technique which gives partial or full encapsulation of the combination of acyclic carboxamide can be used.” Id. “These techniques include . . . spray drying, spray chilling, fluid-bed coating, and coacervation. . . . Generally, a modified release of acyclic carboxamide is obtained in multistep processes like spray drying the acyclic carboxamide and then fluid-bed coating the resultant powder.” Id. “The acyclic carboxamide can be treated to modify its release by being entrapped in an extrusion process.” Id., page 10. “The encapsulation techniques here described are standard coating techniques.” Id., page 7.

Discussion

1. Claim construction

Claims 1, 2, 7-15, and 17-30 are pending and on appeal. Appellants have presented separate arguments with respect to claims 11 and 18. Appeal Brief, page 10. Therefore, those claims stand or fall by themselves; all other claims will stand or fall together with respect to each rejection. 37 CFR § 41.37(c)(1)(vii).

Claims 1, 2, 11, and 18 are representative and read as follows:

1. A method of producing a chewing gum product containing a physically-modified acyclic carboxamide in order to delay the release rate of the acyclic carboxamide from the chewing gum comprising the steps of:
 - a) mixing a quantity of an acyclic carboxamide with an encapsulating agent wherein the acyclic carboxamide is mixed with a polymer as the encapsulating agent and the resulting mixture is extruded into fibers in such a way as to encapsulate the acyclic carboxamide in order to decrease the rate of release of the acyclic carboxamide in the chewing gum;
 - b) adding a quantity of the mixture to a chewing gum formulation to provide an acyclic carboxamide level in the chewing gum formulation of from about 0.001% to about 2.0%.

2. A method of producing a chewing gum product containing a physically-modified acyclic carboxamide in order to delay the release rate of the acyclic carboxamide from the chewing gum comprising the steps of:
 - a) encapsulating an acyclic carboxamide with a first encapsulating agent to form a first encapsulated acyclic carboxamide;
 - b) encapsulating the first encapsulated acyclic carboxamide with a second encapsulating agent which is different from said first encapsulating agent to form a twice encapsulated acyclic carboxamide; and
 - c) adding a quantity of the twice encapsulated acyclic carboxamide to a chewing gum formulation to provide an acyclic carboxamide level in the chewing gum formulation of from about 0.001% to about 2.0%.

11. The method of claim 2 wherein a high-potency sweetener selected from the group consisting of aspartame, alitame, salts of acesulfame, cyclamate and its salts, saccharin and its salts, thaumatin, monellin, dihydrochalcones and combinations thereof is mixed in combination with the acyclic carboxamide and the first encapsulating agent.

18. The method of claim 1 wherein a high-potency sweetener selected from the group consisting of aspartame, alitame, salts of acesulfame, cyclamate and its salts, saccharin and its salts, thaumatin, monellin, dihydrochalcones and combinations thereof is mixed in combination with the acyclic carboxamide and polymer prior to said extrusion.

Claims 1 and 2 are both directed to methods of making chewing gum containing an acyclic carboxamide in sustained release form. In the method of claim 1, the acyclic carboxamide is mixed with a polymer and “the resulting mixture is extruded into fibers in

such a way as to encapsulate the acyclic carboxamide.” In claim 2, the acyclic carboxamide is sequentially encapsulated with two encapsulating agents, to form a twice-encapsulated acyclic carboxamide. In both methods, the encapsulated acyclic carboxamide is then mixed with a chewing gum formulation.

Claim 11 depends from claim 2 and adds the limitation that “a high potency sweetener . . . is mixed in combination with the acyclic carboxamide and the first encapsulating agent.” Claim 18 adds a similar limitation to the method of claim 1.

2. Claims 1, 7, 17, 18, 24, and 25

Claims 1, 7, 17, 18, 24, and 25 stand rejected under 35 U.S.C. § 103 as obvious in view of Luo,¹ Rowsell,² and Song.³ The examiner cites Luo for its disclosure of adding an encapsulated carboxamide to chewing gum, Rowsell for its disclosure of acyclic carboxamides as cooling agents used in chewing gum, and Song for its disclosure of encapsulating compounds by mixing them with a polymer and extruding the mixture into fibers. See the Examiner’s Answer, page 3. The examiner concludes that these disclosures would have made the method of claim 1 obvious to those of ordinary skill in the art.

We agree with the examiner that the cited references support a prima facie case of obviousness. Luo teaches cooling compositions, for use in chewing gum, that contain menthol and certain substituted carboxamides. Page 1, lines 25-29. Luo also teaches that the “carboxamide compounds may be added in several forms, such as in

¹ Luo, WO 96/17524, published June 13, 1996.

² Rowsell et al., U.S. Patent 4,153,679, issued May 8, 1979.

³ Song, U.S. Patent 4,978,537, issued December 18, 1990.

the form of an encapsulate,” and that “[e]ncapsulation may be employed when a delay in cooling perception is desired.” Page 8, lines 28-31.

Rowsell teaches a genus of “acyclic tertiary and secondary carboxamides” (abstract) that “hav[e] a physiological cooling effect on the skin and on the mucous membranes of the body, particularly the mucous membranes of the nose and bronchial tract.” Col. 1, lines 8-11. Rowsell teaches that the disclosed carboxamides can be used in chewing gum (col. 3, line 66) and that the amount used in edible compositions “will generally be in the range 0.1 to 2.5% by weight” (col. 6, lines 9-10).

Song teaches a method of encapsulating an agent for gradual release in chewing gum. Col. 1, lines 5-13. The method is said to be applicable to a variety of agents, including menthol. Col. 4, lines 13-32. The method comprises mixing the agent with a “wall material” and extruding the mixture into a fiber. Col. 1, lines 44-49. “The wall material can be any spinnable synthetic or natur[al] polymer such as polyethylene, polyvinylacetate, polyesters, [or] chitosan.” Col. 4, lines 37-40.

Based on these teachings, it would have been obvious to a person of ordinary skill in the art to encapsulate the acyclic carboxamide taught by Rowsell, using the method disclosed by Song, and to include the encapsulated carboxamide in a chewing gum formulation as taught by Luo. Motivation to do so is provided by Luo’s teaching that an encapsulated carboxamide provides a chewing gum with a delayed release cooling composition.

Appellants argue that the references do not provide adequate motivation to combine their teachings because “Luo does not teach anything with respect to acyclic carboxamides . . . [or] the extrusion method required by claim 1” (Appeal Brief, page 5);

Rowsell “is silent on treating the material to control its release rate from the gum” (id., page 6); and “Song is silent about acyclic carboxamides” (id.). Appellants conclude that “[t]here is nothing in Luo that would motivate the combination of Luo and Song. . . . Likewise, since Rowsell does not indicate any need or desire to modify the release rate of acyclic carboxamides, there is no motivation to combine Song and Rowsell. Claims 1, 7, 17, 18, 24 and 25 are thus patentable over Luo, Rowsell and Song.” Id., page 7.

This argument is not persuasive. Appellants’ argument improperly focuses on the teachings of each reference in isolation, or at best two at a time. Obviousness, however, depends on what the references as a whole would have suggested to a person of ordinary skill in the art. See, e.g., In re Young, 927 F.2d 588, 591, 18 USPQ2d 1089, 1091 (Fed. Cir. 1991) (“The test for obviousness is what the combined teachings of the references would have suggested to one of ordinary skill in the art.”).

Here, Luo teaches that encapsulated cooling agents, such as cyclic carboxamides, are desirable ingredients in chewing gum. Rowsell teaches that acyclic carboxamides are also cooling agents. Song teaches a method of encapsulating active agents, including menthol, for use in chewing gum. Therefore, when viewed together as they must be, the references would have suggested the method of claim 1 to those of ordinary skill in the art. The rejection of claim 1 is affirmed. Claims 7, 17, 24, and 25 fall with claim 1.

Claim 18 is directed to the method of claim 1 but also requires that a high potency sweetener be mixed with the acyclic carboxamide and polymer prior to

extrusion. We agree with the examiner that the cited references would have suggested this additional limitation.

The references show that including an encapsulated high potency sweetener in chewing gum was conventional in the art. For example, Luo teaches chewing gum compositions comprising high potency sweeteners. See page 20, line 15 to page 21, line 30. Luo also teaches providing sweeteners in encapsulated form. See page 23, lines 25-33. Song teaches that the fiber-extrusion method of making encapsulated agents is applicable to high intensity sweeteners, among other things. See col. 4, lines 21-22. Thus, it would have been obvious to a person of ordinary skill in the art to encapsulate both a high potency sweetener and an acyclic carboxamide, using Song's method, and to include the encapsulated composition in a chewing gum formulation.

Appellants argue that the references do not suggest encapsulating high potency sweeteners but, as noted above, Luo suggests encapsulating sweeteners and Song expressly suggests encapsulating high intensity sweeteners using the disclosed method. The rejection of claim 18 is affirmed.

3. Claims 2, 8-15, 19-23, and 26-30

Claims 2, 8-15, 19-23, and 26-30 stand rejected under 35 U.S.C. § 103 as obvious in view of Luo, Rowsell, and Yatka.⁴ Claim 2 is directed to a method of making chewing gum comprising encapsulating an acyclic carboxamide, encapsulating that product with a second, different encapsulating agent, and adding the twice-encapsulated acyclic carboxamide to a chewing gum formulation.

⁴ Yatka et al., WO 90/11020, published October 4, 1990.

The examiner cites Luo and Rowsell for the same disclosures discussed above. The examiner cites Yatka for its disclosure that “a multi-step encapsulating process is conventionally used to encapsulate active agents which are added to chewing gum.” Examiner’s Answer, pages 3-4. The examiner concludes that “it would have been obvious to use a two-step encapsulation process to encapsulate the carboxamide in Luo, as modified by Rowsell.” Id., page 3.

We agree with the examiner that the references support a prima facie case of obviousness. As discussed above, Luo discloses chewing gum containing encapsulated carboxamides as cooling agents and Rowsell teaches that acyclic carboxamides are cooling agents like those used in Luo.

Yatka teaches chewing gum containing encapsulated Alitame, a high intensity sweetener. Yatka teaches that “[a]ny standard technique which gives partial or full encapsulation of the Alitame sweetener can be used. These techniques include, but are not limited to, agglomeration, spray drying, fluid-bed coating and coacervation.” Paragraph bridging pages 6 and 7. Yatka also teaches that “[t]hese encapsulation techniques . . . can be used individually or in any combination in a single step process or multiple step process. Generally, improved stability of sweetener is obtained in multistep processes like spray drying the sweetener and then fluid-bed coating or agglomeration of the resultant powder.” Id. Yatka states that “[t]he encapsulation techniques here described are standard coating techniques.” Id., page 7.

Based on these teachings, it would have been obvious to a person of ordinary skill in the art to encapsulate the acyclic carboxamide taught by Rowsell with two different encapsulating agents by, for example, spray drying the acyclic carboxamide

with a first encapsulating agent and fluid bed coating the resulting product with a second encapsulating agent. The references would have suggested a two-step encapsulation process because Yotka teaches that it is a standard coating technique used for other chewing gum ingredients (e.g., Alitame).

It would also have been obvious to include the twice-encapsulated acyclic carboxamide in a chewing gum formulation as taught by Luo, because Luo teaches that an encapsulated carboxamide provides a chewing gum with a delayed release cooling composition. Thus, the method of claim 2 would have been obvious to a person of ordinary skill in the art.

Appellants argue that “Alitame is a high-intensity sweetener. Acrylic [sic, acyclic] carboxamides are physiological cooling agents. Since the two materials have completely different uses in chewing gum, it would not have been obvious to treat them the same way.” Appeal Brief, page 9.

This argument is not persuasive. Luo teaches that substituted carboxamides are cooling agents that can be encapsulated “using conventional procedures” and included in chewing gum. See page 8, lines 30-33. Yotka teaches that “standard coating techniques” include “multistep processes like spray drying . . . and then fluid-bed coating or agglomeration of the resultant powder.” Page 7, lines 3-7. Appellants have pointed to no evidence that those skilled in the art would have considered Yotka’s “standard coating techniques” to be inapplicable to cooling agents such as Rowsell’s acyclic carboxamides. Therefore, the evidence of record supports the examiner’s position. The rejection of claim 2 is affirmed. Claims 8-10, 12-15, 19-23, and 26-30 fall with claim 2.

Claim 11 is directed to the method of claim 2 but also requires that a high potency sweetener be mixed with the acyclic carboxamide prior to encapsulation. We agree with the examiner that the cited references would have suggested this additional limitation.

The references show that including an encapsulated high potency sweetener in chewing gum was conventional in the art. For example, Luo teaches chewing gum compositions comprising high potency sweeteners (page 20, line 15 to page 21, line 30) and teaches providing sweeteners in encapsulated form (page 23, lines 25-33). Yotka teaches chewing gum containing encapsulated Alitame. Yotka also teaches that “improved stability of sweetener [i.e., Alitame] is obtained in multistep processes.” Page 7, lines 2-3. Thus, it would have been obvious to a person of ordinary skill in the art to encapsulate both Alitame and an acyclic carboxamide, using a standard, multistep coating process in order to double-encapsulate both the Alitame and acyclic carboxamide, and to include the twice-encapsulated composition in a chewing gum formulation.

Appellants argue that “there is no suggestion [in Luo] that the high-potency sweetener should have its release rate modified. Thus there would be no reason to mix the high-potency sweetener in with an acyclic carboxamide before . . . encapsulating the acyclic carboxamide.” Appeal Brief, page 10.

As discussed above, the teachings of the references must be considered as a whole, not piecemeal. Yotka discusses at length the reason for encapsulating Alitame before including it in chewing gum. See page 6: Alitame has been found to degrade in sugarless gums that also contain sugar alcohols and Alitame releases very quickly

when the gum is chewed. “Physical modifications of the sweetener by encapsulation with another substrate may not only slow its release . . . but may also reduce or eliminate the degradation of Alitame.” Id. Thus, the references considered as a whole provide ample motivation to encapsulate a high potency sweetener, such as Alitame, together with an acyclic carboxamide. The rejection of claim 11 is affirmed.

Summary

The cited references, considered as a whole, would have suggested the methods defined by claims 1, 2, 11, and 18. We therefore affirm the rejection of these claims. The remaining claims on appeal fall with claims 1 and 2.

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

AFFIRMED

Eric Grimes)
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