

UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES

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*Ex parte* EMMANOUIL SPYROU,  
HOLGER LOESCH, and  
ANDREAS WENNING

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Appeal 2008-5263  
Application 10/836,407  
Technology Center 1700

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Decided: January 8, 2009

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Before BRADLEY R. GARRIS, ADRIENE LEPIANE HANLON, and  
CHARLES F. WARREN, *Administrative Patent Judges*.

GARRIS, *Administrative Patent Judge*.

DECISION ON APPEAL

Appellants appeal under 35 U.S.C. § 134 from the Examiner's decision rejecting claims 1-15 and 18-37. We have jurisdiction under 35 U.S.C. § 6.

We REVERSE the Examiner's decision.

*STATEMENT OF THE CASE*

Appellants claim a polyurethane powder coating composition (claim 1) as well as a process for preparing such a composition (claim 14) wherein the composition comprises a uretdione powder coating hardener, a polymer containing a hydroxyl group, and a catalyst defined by a certain formula which has particular anions including a carboxylate anion.

Representative independent claim 1, as presented in the claims Appendix of Appellants' corrected Appeal Brief (Br. filed Dec. 14, 2007), reads as follows:

1. A highly reactive polyurethane powder coating composition, comprising:
  - A) at least one uretdione powder coating hardener, based on aliphatic, (cyclo)aliphatic or cycloaliphatic polyisocyanates and compounds containing hydroxyl groups, said hardener having a melting point of 40 to 130°C, a free NCO content of less than 5% by weight and a uretdione content of 6-18% by weight,
  - B) at least one polymer containing a hydroxyl group with a melting point of 40 to 130°C and an OH value between 20 and 200 mg KOH/g,
  - C) 0.001-3% by weight, based on a total weight of components A) and B), of at least one catalyst having the formula  $[NR^1R^2R^3R^4]^+ [R^5COO]^-$ ,

wherein  $R^1 - R^4$  simultaneously or independent of each other are alkyl, aryl, aralkyl, heteroaryl, alkoxyalkyl radicals, optionally linear or branched, unbridged or bridged with other  $R^1 - R^4$  radicals, with the formation of cycles, bicycles or tricycles and wherein the bridging atoms, in addition to carbon, are optionally heteroatoms, with 1-18 carbon atoms and wherein every  $R^1 - R^4$  radicals also has at least one group selected from the group consisting of alcohol, amino, ester, keto, thio, urethane, urea, allophanate groups, double bonds, triple bonds, and halogen atoms, and

R<sup>5</sup> is an alkyl, aryl, aralkyl, heteroalkyl, alkoxyalkyl radical, linear or branches with 1-18 carbon atoms and optionally having one or more alcohol, amino, ester keto, thio, urethane, urea, allophanate groups, double bonds, triple bonds or halogen atoms;

wherein components A) and B) are in a such ratio so that there is 0.3 to 1 uretdione group of component A) for each hydroxyl group of component B).

The sole rejection remaining in this appeal is set forth below.<sup>1</sup>

The Examiner rejects all appealed claims as being unpatentable under the judicially created doctrine of obviousness-type double patenting over claims 1-32 of Spyrou (US 6,914,115 B2 filed July 5, 2005) in view of Matsunaga (US 5,854,350 filed December 29, 1998). The Examiner finds that Spyrou claims a polyurethane powder coating composition of the type defined by claim 1 except that patentee's catalyst comprises hydroxide-based anions rather than Appellants' claimed carboxylate anions (Ans. 4-5). The Examiner also finds that Matsunaga teaches "a polyurethane coating composition comprising the reaction product of uretdione and polyester polyol in the presence of a quaternary ammonium salt catalyst, wherein the anion of the ammonium salt anion is hydroxide or carboxylate based, and the carboxylate being preferred" (Ans. 5). Based on these findings, the Examiner concludes that "[i]t would have been obvious to one of ordinary skill in the art at the time of invention to utilize a carboxylate based anions

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<sup>1</sup> The Examiner's Answer lists a provisional rejection based on obviousness-type double patenting over the claims of Application 11/115,163 (Ans. 4). The electronic file record for this '163 application shows that it is now abandoned. Accordingly, we dismiss the appeal as to the provisional obviousness-type double patenting rejection based on the claims of the '163 application.

[sic] in the quaternary ammonium salt catalyst of Spyrou . . . as taught by Matsunaga . . . based on the motivation that carboxylate based anions are preferred to hydroxide in analogous applications" (*id.*).

Appellants do not agree with the Examiner's position that the respective catalysts claimed by Spyrou and disclosed by Matsunaga function in "analogous applications" (Ans. 5). According to Appellants, "the catalyst [of Spyrou] is intended to cleave the uretdione groups, while . . . the catalyst [of Matsunaga] is intended to split off the blocking agents" (Br. 6). Additionally, Appellants argue that Spyrou's "composition is always essentially free of blocking agents, while [Matsunaga's] composition always contains blocking agents" (*id.*). The Appellants conclude that, "given this knowledge in the art, it would not have been obvious to equate [Spyrou's] catalysts intended for cleaving uretdione groups, with [Matsunaga's] catalysts intended for splitting off the blocking agents" (Br. 7).

#### *ISSUE*

Have Appellants established that the Examiner erred in concluding it would have been *prima facie* obvious for one with ordinary skill in this art to replace the hydroxide anion of Spyrou's claimed catalyst with the carboxylate anion of Matsunaga's disclosed catalyst based upon a reasonable expectation that the so-modified catalyst would successfully perform the Spyrou catalyst function of cleaving uretdione groups?

#### *FINDINGS OF FACT*

On this record, there is no dispute that the catalyst of Spyrou's claimed composition includes hydroxide rather than Appellants' claimed carboxylate

as an anion (Patent claim 1) and that patentee's claimed catalyst performs the function of cleaving uretdione groups (col. 2, ll. 31-37).

Additionally, there is no dispute that the anions of Matsunaga's catalyst include hydroxide as well as carboxylate groups or that these catalysts function to lower the disassociation temperature of blocked polyisocyanate compounds (Abstract, col. 1, ll. 11-20 and 39-61). Indeed, the Examiner expressly acknowledges that "Matsunaga et al. teach the presence of external blocking agents, and the relied upon catalyst composition facilitates the cleavage of said blocking agents" (Ans. 6).

#### *PRINCIPLES OF LAW*

To establish obviousness, there must be "an apparent reason to combine the known elements [of the prior art] in the fashion claimed by the patent [or application] at issue." *KSR Int'l Co. v. Teleflex Inc.*, 127 S. Ct. 1727, 1741 (2007).

Moreover, to establish obviousness, there must be a reasonable expectation that the modification in question would be successful. *Pfizer, Inc. v. Apotex, Inc.*, 480 F.3d 1348, 1364 (Fed. Cir. 2007) ("the expectation of success need only be reasonable, not absolute").

#### *ANALYSIS*

As indicated above, the hydroxide anion containing catalyst of Spyrou functions to cleave uretdione groups whereas the carboxylate ion containing catalyst of Matsunaga functions to lower disassociation temperature of a blocked polyisocyanate compound or, as phrased by the Examiner, "facilitates the cleavage of said blocking agents" (Ans. 6). Nevertheless, the Examiner maintains an obviousness conclusion on the grounds that, "[w]hile

the [E]xaminer's motivation used to combine references may not be the same as [A]pplicants, i.e., the cleavage of uretdione groups, it is important to note that the reason or motivation to modify the reference may often suggest what the inventor has done, but for a different purpose or to solve a different problem" (Ans. 7). In this latter regard, the Examiner "maintains that it would have been obvious to include the catalyst of Matsunaga . . . based on the motivation that it improves the properties of the resulting coating" (*id.*).

The Examiner's rationale is misplaced, for it begs the issue of whether Spyrou's claimed catalyst, when modified to contain a carboxylate rather than hydroxide anion, would reasonably be expected to cleave uretdione groups as required by patentee. Certainly, the Matsunaga patent provides no such expectation since, as admitted by the Examiner, the catalyst thereof performs a different function. Furthermore, the Examiner's emphasized fact that Matsunaga's catalyst improves coating properties simply is not germane to the pivotal issue of whether the catalyst resulting from the proposed modification would be reasonably expected to cleave uretdione groups as desired by Spyrou.

#### *CONCLUSION OF LAW*

The Appellants have established that the Examiner has erred in concluding it would have been *prima facie* obvious for an artisan to replace the hydroxide anion of Spyrou's claimed catalyst with the carboxylate anion of Matsunaga's catalyst based upon a reasonable expectation that Spyrou's so-modified catalyst would successfully perform the desired function of cleaving uretdione groups.

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*ORDER*

The decision of the Examiner is reversed.

REVERSED

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