

A Claimed Parameter Range That Overlaps with Ranges in the Prior Art Creates a Burden-Shifting and Rebuttable Presumption of Obviousness

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By: Rachel J. Elsby, Rubén H. Muñoz

The challenged claims of the '921 Patent are directed to methods of oxidizing 5-hydroxymethylfurfural (HMF) or an HMF derivative under specified reaction conditions to form 2,5-furan dicarboxylic acid (FDCA). The asserted claims provide specific ranges for certain reaction conditions such as temperature (e.g., 140° C to 200° C) and pressure (e.g., 1 to 10 bar). DuPont petitioned for IPR of the '921 Patent, presenting three prior art references that each disclosed oxidizing HMF or an HMF derivative to produce FDCA – albeit under somewhat different reaction conditions. Importantly, however, the prior art references presented by DuPont disclosed ranges for the same reaction conditions that overlapped with the reaction condition ranges claimed in the '921 Patent.

DuPont contended that presenting references which disclosed the overlapping ranges for reaction conditions created a rebuttable presumption of obviousness – shifting the burden to establish nonobviousness to the patent owner. The PTAB rejected DuPont's argument and held that Federal Circuit precedent foreclosed such a burden-shifting framework in an IPR context.

The Federal Circuit reversed, observing the long-standing principle that “where the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation.” Thus, a *prima facie* case of obviousness exists where the ranges of a claimed composition or reaction condition overlap with the ranges disclosed in the prior art. The Federal Circuit explained, however, that there are several ways in which a patentee can rebut such a presumption.

First, modified process parameters may be patentable if they produce new and unexpected results. Second, a patentee may rebut the presumption of obviousness by showing that the prior art teaches away from the claimed range. Third, modified process parameters may be patentable if the parameter was not recognized in the prior art as “result-effective.” Finally, the Federal Circuit recognized that disclosures in the prior art of very broad ranges may not invite routine optimization. According to the court, “[t]he point of our overlapping range cases is that, in the absence of evidence indicating that there is something special or critical about the claimed range, an overlap suffices to show that the claimed range was disclosed in—and therefore obvious in light of—the prior art.”

The Federal Circuit then held that DuPont satisfied its burden when it demonstrated the prior art as a whole disclosed conditions overlapping with those claimed in the '921 patent. Specifically, the court found that the PTAB erred in its analysis of whether temperature and pressure are “result-effective” variables, finding that there does not appear to be a legitimate dispute that temperature and pressure were understood to affect the claimed oxidation reaction. As a result, scientists would be motivated to adjust the ranges in the prior art to values within the ranges disclosed in the claims of the '921 patent. Thus, the burden of production shifted to Synvina to come forward with evidence of nonobviousness, but Synvina failed to provide sufficient evidence showing that its specifically claimed ranges produced an unexpected result or that the art taught away from the claimed ranges.

Regarding standing, Synvina argued that DuPont lacked standing to appeal the PTAB's decision to the Federal Circuit – an Article III court – because no action for infringement had been brought against DuPont. According to Synvina, as a result, DuPont could only posit speculative future harm. The Federal Circuit rejected Synvina's argument. The court noted that DuPont and Synvina are “avowed” competitors, and that DuPont recently opened a factory capable of performing the claimed methods of oxidizing HMF or an HMF derivative to produce FDCA under the specified reaction conditions. According to the Federal Circuit, “[a]s in the declaratory judgment context, a petitioner who appeals from an IPR decision need not face a specific threat of infringement litigation by the patentee to establish jurisdiction.” Thus, DuPont could and did establish standing to appeal the IPR decision, even in the absence of any then-pending infringement litigation.

Practice Tip: Although the Federal Circuit has stated that “a patentee technically has no ‘burden’ to do anything to defend the validity of its patent other than hold the patent challenger to its own burden,” the reality is that in cases involving overlapping ranges, a

patentee may not be able to successfully defend its patent without producing strong evidence of nonobviousness, such as unexpected results.

E.I. DuPont De Nemours & Company v. Synvina, 2017-1977 (Fed. Cir. Sept. 17, 2018).

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