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ClearValue v. Pearl River: Ranges within ranges – when are they patentably distinct?

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The February 17 decision in *ClearValue Inc. v. Pearl River Polymers Inc.*, ___ F.3d ___ (Fed. Cir. 2012), is the latest effort of the U.S. Court of Appeals for the Federal Circuit to show how to determine when a narrow range claimed in a patent is anticipated and thereby rendered invalid because of a broader range that has been disclosed in the prior art. The patent in dispute, owned by ClearValue, claims a process for clarifying water where the water to be treated has alkalinity of not more than 50 ppm. The case is equally applicable to patents claiming other kinds of composition and processing ranges for chemical or biological inventions.

There was only one claim at issue on appeal to the Federal Circuit in *ClearValue*. It reads as follows:

. A process for clarification of water of raw **alkalinity less than or equal to 50 ppm** by chemical treatment, said process comprising:

adding to the water and, prior to or after adding to the water, blending at least one aluminum polymer with a high molecular weight quaternized ammonium polymer in an amount sufficient to form a flocculated suspension in the water and to remove turbidity from the water, said high molecular weight quaternized ammonium polymer comprising at least an effective amount of high molecular weight di-allyl di-methyl ammonium chloride (DADMAC) having a molecular weight of at least approximately 1,000,000 to approximately 3,000,000 and said aluminum polymer including at least an effective amount of poly-aluminum hydroxychloride [ACH] of a basicity equal to or greater than 50%. (Emphasis added.)

The prior art showed a similar process but with a different alkalinity range. U.S. Patent 4,800,039 issued to Hassick taught that a combination of high molecular weight DADMAC polymer with ACH “synergistically reduces turbidity in aqueous solutions, particularly low-turbidity... low alkalinity systems (i.e., **150 ppm or less**)” (emphasis added). ClearValue’s expert observed at trial that Hassick taught that the process described in Hassick’s patent “does not work well.” The expert saw this as a teaching away from the use of ClearValue’s claimed invention, and he therefore testified that one of ordinary skill in the art would not have found use of the claimed invention obvious to clarify water using ACH with high molecular weight DADMAC. At the District Court level, the jury found the expert’s testimony to be sufficient to show that ClearValue’s patent was both novel and unobvious over Hassick. The District Court denied Pearl River’s challenge to the jury verdict.

The issue before the Federal Circuit on appeal was thus whether Hassick’s teaching of a range of up to 150 ppm alkalinity anticipated ClearValue’s claimed range of up to 50 ppm. On this point the appellate court reversed the lower court and ruled in favor of Pearl River that ClearValue’s patent claim was invalid. First of all, it criticized the District Court’s reliance on “teaching away” evidence to show a lack of anticipation under Section 102 of the Patent Act. Teaching away can support a finding of nonobviousness under Section 103 of the act, reasoned the court, but cannot support a finding of lack of anticipation under Section 102. The Federal Circuit concluded that the expert’s testimony was irrelevant to anticipation, and that the jury’s verdict was not supported by substantial evidence.

The Federal Circuit went on to distinguish the situation in *ClearValue* from an earlier case that resulted in a finding in favor of the patent owner. ClearValue had argued that its patent should be found valid just as a patent claiming a range had been found valid in *Atofina v. Great Lakes Chem. Corp.*, 441 F.3d 991 (Fed.Cir. 2006). In that case the Federal Circuit said:

It is well established that the disclosure of a genus in the prior art is not necessarily a disclosure of every species that is a member of that genus. See, e.g., *In re Baird*, 16 F.3d 380, 382 (Fed.Cir.1994). There may be many species encompassed within a genus that are not disclosed by a mere disclosure of the genus. On the other hand, a very small genus can be a disclosure of each species within the

genus. In re Petering, 49 C.C.P.A. 993, 301 F.2d 676, 682 (1962); see also Bristol-Myers Squibb Co. v. Ben Venue Labs., Inc., 246 F.3d 1368, 1380 (Fed.Cir.2001) (“[T]he disclosure of a small genus may anticipate the species of that genus even if the species are not themselves recited.”).

Atofina at 999.

The patent in *Atofina* claimed a method of synthesizing difluoromethane at a temperature between 330 to 450°C. The patent stated that “only a narrow temperature range” allows the process to operate as claimed, and “problems occur” when operating the reaction outside the narrow range. The Federal Circuit observed in *ClearValue* that the patent in suit in *Atofina* taught that the claimed reaction “must be carried out at a temperature of between 330°C and 450°C,” and more preferably at a temperature in the 350 to 400°C range. Further, during prosecution, *Atofina* described its temperature range as “critical.” The prior art in *Atofina* instead disclosed a broad temperature range of 100 to 500°C, and the Federal Circuit found that the broad range did not anticipate *Atofina*’s narrow range.

The Federal Circuit in *ClearValue* drew a bright line between *Atofina* and the facts surrounding *ClearValue*’s patent. Because of the teachings of *Atofina*’s patent and statements made during prosecution, the Federal Circuit concluded that one of ordinary skill would have expected *Atofina*’s process to operate differently outside the claimed temperature range, and that therefore “no reasonable fact finder could conclude that the prior art describes the claimed range with sufficient specificity to anticipate this limitation of the claim.” In contrast, the Federal Circuit observed that *ClearValue* had not argued that the 50 ppm limitation was “critical” or that the claimed method works differently at different points within the prior art range of 150 ppm or less. Accordingly, notwithstanding *Atofina*, the Federal Circuit found that *Hassick* “supports the fact that the disclosure of 150 ppm or less does teach one of skill in the art how to make and use the process at 50 ppm, and *Hassick* thus teaches and enables each and every element of *ClearValue*’s claim 1.”

The *ClearValue* decision is helpful in further illustrating the Federal Circuit’s treatment of broad and narrow ranges in the context of Section 102. The case also highlights the importance of carefully assessing range criticalities, and of being prepared to argue the importance of range endpoints if and when necessary to distinguish over the prior art. When drafting a patent application, it is worth considering whether to include a discussion of range criticalities in case it later becomes necessary to draw on such discussion in distinguishing over the prior art.