

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte PAUL MARTIN GALLAGHER,
TOM RAINER, AARON J. BALCZEWSKI
AND DANIEL A. CARGNEL

Appeal 2008-0833
Application 11/145,773
Technology Center 1700

Decided: April 29, 2008

Before EDWARD C. KIMLIN, CHARLES F. WARREN, and
CATHERINE Q. TIMM, *Administrative Patent Judges*.

KIMLIN, *Administrative Patent Judge*.

DECISION ON REQUEST FOR REHEARING

Appellants request rehearing of our decision of January 31, 2008, wherein we sustained the Examiner's rejection of all the appealed claims under 35 U.S.C. § 103(a) over the combined teachings of Kimura and Higley.

Appellants maintain that their briefing "refuted any alleged teaching by Kimura of sodium bisulfite acting directly upon membrane contaminants, such as metal salt" (Request 2, second para.). However, as stated in our opinion, Kimura expressly teaches that sodium bisulfite must be added to the treatment/cleaning solution "when the microorganisms (including sulfur bacteria, etc.) having adhered onto the membranes increase **or when metal salts also having adhered thereon too increase**" (sentence bridging cols. 8-9, emphasis added). Also, as set forth in the Examiner's Answer, which we incorporated into our Decision, Higley teaches treatment solutions comprising the presently claimed two sulfites for treatment reverse osmosis membranes contaminated with brownish deposits containing iron or other metals (*see Ans.* 6, second para.). Accordingly, based on the collective teachings of Kimura and Higley, we remain convinced that it would have been obvious for one of ordinary skill in the art to clean a microfiltration or ultrafiltration membrane with a composition comprising at least two sulfites. While we agree with Appellants that "the proper question is whether or not one skilled in the art would have modified the Kimura cleaning solution to include an additional sulfite as claimed" (Request 2, third para.), we adhere to our opinion that the affirmative answer to the question reached by the Examiner is the proper legal conclusion.

Furthermore, contrary to Appellants' argument, it is of no moment whether sodium bisulfite acts as a reducing agent in the Kimura solution, as asserted by Appellants, or also to remove metal contaminants. This is so because the appealed claims do not attribute any particular function to the two sulfites in the cleaning composition. All that is required by the appealed claims is that a method of cleaning the membranes, with no limitation on

what the broad term "cleaning" entails, comprises the step of using a composition comprising at least two sulfites. Kimura's treatment of membranes with a solution comprising sodium bisulfite to prevent degradation of the membranes by chlorine oxides and the like and removing metal salts adhered to the membranes qualifies as a method of cleaning the membranes, as broadly claimed.

Appellants also submit that "[s]ince Kimura promotes cleaning membranes via a lowered pH condition rather than with the disclosed sulfite reducing agent, no proper motivation has been identified to modify the composition of Kimura with an additional sulfite for improved membrane cleaning as presently claimed" (Request 2, last para.). Appellants' argument apparently assumes that using two sulfites in Kimura's solution requires a greater total amount of sulfite. However, it would have been obvious for one of ordinary skill in the art to replace a portion of the sodium bisulfite in Kimura's solution with another sulfite while maintaining the total amount of sulfites.

Appellants also contend that "Higley's unequivocal promotion of oxalic acid, through direct comparison with sulfite blend solutions, has been overlooked by the Board" (Request 3, second para.). However, it is evident from our discussion at page 4 of our Decision that we have not overlooked Appellants' argument on this point. Higley clearly establishes that it was known in the art to use a solution comprising a combination of sulfites for treating membranes even though the exemplified cleaning solution comprising oxalic acid was faster in removing the deposits. Manifestly, Higley's teaching of an advantage for using a cleaning solution comprising oxalic acid compared to a cleaning solution comprising two sulfites does not

undermine the obviousness of using the slower-acting solution of sulfites. Appellants have not demonstrated any unexpected result with respect to achieving a faster cleaning rate when using a solution comprising two sulfites. Certainly, it is not unobvious for one of ordinary skill in the art to employ a non-preferred embodiment of the prior art and attain nothing other than the expected, inferior result.

As for a disadvantage of using oxalic acid in the cleaning solution, Higley teaches that the capacity of oxalic acid for re-swelling the compacted membrane is doubtful and, therefore, subsequent treatment with hot water to re-swell the membranes is necessary (col. 3, ll. 68-71 and col. 5, ll. 65- et seq.). While it may be true, as argued by Appellants, that "[u]pon reading Higley, one of ordinary skill in the art would have been persuaded that oxalic acid is superior to the sulfite mixture for cleaning any reverse osmosis membrane with which the acid does not react" (Request 4, second para.), Appellants have not established otherwise on this record, i.e., Appellants have not demonstrated that cleaning methods within the broad scope of the appealed claims are unexpectedly superior to methods using oxalic acid.

In conclusion, based on the foregoing, Appellants' Request is granted to the extent we have reconsidered our decision, but is denied with respect to making any change therein.

DENIED

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