

UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES

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

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

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Decided: January 31, 2008

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

KIMLIN, *Administrative Patent Judge*.

DECISION ON APPEAL

This is an appeal from the final rejection of claims 32, and 38-44.

Claim 32 is illustrative:

32. A method of cleaning a microfiltration or ultrafiltration membrane, comprising the step of:

cleaning the microfiltration or ultrafiltration membrane using a composition comprising at least two sulfites.

The Examiner relies upon the following references as evidence of obviousness:

Higley	3,700,591	Oct. 24, 1972
Kimura	6,468,430 B1	Oct. 22, 2002

Appellants' claimed invention is directed to a method of cleaning a microfiltration or ultrafiltration membrane by using a composition comprising at least two sulfites.

Appealed claims 32 and 38-44 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Kimura in view of Higley.

Appellants do not set forth an argument that is reasonably specific to any particular claim on appeal. Accordingly, all the appealed claims stand or fall together with claim 32.

We have thoroughly reviewed each of the arguments advanced by Appellants. However, we find ourselves in complete agreement with the Examiner's reasoned analysis and application of the prior art, as well as his cogent and thorough disposition of the arguments raised by Appellants. Accordingly, we will adopt the Examiner's reasoning as our own in sustaining the rejection of record, and we add the following four emphases only.

The Examiner has made an accurate factual determination that Kimura discloses cleaning and disinfecting membranes with a solution comprising sodium bisulfite (col. 8, ll. 61 et seq.). Kimura does not teach cleaning the membrane with two sulfites. However, we fully concur with the Examiner that Higley evidences that it was known in the art to clean

membranes with a solution comprising two sulfites, namely, the sodium bisulfite exemplified by Kimura, and sodium hydrosulfite (*see Example 1 of Higley*). Consequently, based on the collective teachings of Kimura and Higley, we are convinced that it would have been obvious for one of ordinary skill in the art to utilize a solution comprising at least two sulfites for cleaning a microfiltration or ultrafiltration membrane, as presently claimed. *In re Keller*, 642 F.2d 413, 425 (CCPA 1981).

Appellants maintain that "Kimura teaches that rather than acting on the membrane contaminant, the sodium bisulfite is a reducing agent for excess microbicide" (Br. 4, last para.). However, Kimura expressly teaches that sodium bisulfite is used in the treatment solution when metal salts adhere to the membrane (*see col. 9, ll. 1-3*). Moreover, even if, for the sake of argument, Kimura taught the use of sodium bisulfite strictly as a reducing agent for excess microbicide, the cleaning solution for the membrane would still comprise sodium bisulfite.

Appellants also point out that "Kimura states that the disclosed membrane disinfection methods are superior to conventional methods using a high concentration of sodium bisulfite which are not satisfactory for completely disinfecting microorganisms" (Br. 5, second para.). However, Kimura's use of lower concentrations of sodium bisulfite does not negate the fact that the cleaning solutions of Kimura comprise sodium bisulfite and, significantly, claim 1 on appeal recites no concentration for the sulfites. Claim 1, therefore, encompasses the smaller concentrations taught by Kimura.

Appellants also submit that "[i]n Examples 1 and 3, Higley discloses use of a mixture of approximately 60% sodium bisulfite and 40% sodium

hydrosulfite in comparative solutions to demonstrate the alleged superior performance of oxalic acid solutions for cleaning membranes" (Br., sentence bridging 5-6). However, Higley discloses that the solution comprising both sulfites results in the removal action being somewhat slower but complete within 24 hours. As pointed out by the Examiner, "Higley also mentions disadvantages of using oxalic acid, especially the requirement to also contact the treated membranes with hot water to reswell the membranes to restore salt rejection and flux properties, with flux remaining below optimum values even with oxalic acid and hot water addition to the membranes" (Ans. 9, first para.). In any event, Higley provides a clear teaching that it was known in the art to clean membranes by employing a solution comprising two sulfites.

Appellants also contend that "Higley only cleans reverse osmosis membranes in these examples" (Br. 6, first para.). However, Kimura's Example 2 also uses a reverse osmosis membrane. Also, Appellants have not refuted the Examiner's finding that Kimura "establishes that disclosed methods of cleaning and maintaining reverse osmosis membranes can also be applied to ultrafiltration and microfiltration membranes (col. 3, ll. 16-27, also col. 9, ll. 8-14)" (Ans. 9, last sentence).

As a final point, we note that Appellants base no argument upon objective evidence of nonobviousness, such as unexpected results, which would serve to rebut the inference of obviousness established by the applied prior art.

In conclusion, based on the foregoing and the reasons well stated by the Examiner, the Examiner's decision rejecting the appealed claims is affirmed.

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No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a)(1)(iv)(effective Sept. 13, 2004).

AFFIRMED

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