

The opinion in support of the decision being entered today was *not* written for publication and is *not* binding precedent of the Board.

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte MARIO LUIS COSTA, GERALD COWLEY, and CHUNMIN PU

Appeal 2007-0173
Application 10/438,024
Technology Center 1700

Decided: December 13, 2006

Before KIMLIN, GARRIS, and KRATZ, *Administrative Patent Judges*.

KIMLIN, *Administrative Patent Judge*.

DECISION ON APPEAL

This is an appeal from the final rejection of claims 1-4 and 7-9. Claim 1 is illustrative:

1. A method of producing an alkali metal chlorite having an improved purity compared to that expected based on the composition of chlorine dioxide generator off-gas, which comprises:

effecting generation of chlorine dioxide by reducing chlorate ions with methanol to chlorine dioxide in an aqueous acid reaction medium in a first reaction zone,

reacting said chlorine dioxide with an aqueous solution of alkali metal hydroxide and hydrogen peroxide in a second reaction zone while a subatmospheric pressure is applied to said second reaction zone,

said subatmospheric pressure being provided by a liquid eductor to which said aqueous solution of alkali metal hydroxide and hydrogen peroxide is fed to a liquid inlet while said chlorine dioxide is fed to a gaseous inlet, whereby said liquid eductor constitutes said second reaction zone, and

recovering an aqueous solution of alkali metal chlorite having an improved purity from said second reaction zone.

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

Fuller	US 3,816,077	Jun. 11, 1974
Mason	US 5,639,559 A	Jun. 17, 1997
Dick	US 6,251,357 B1	Jun. 26, 2001

Appellants' claimed invention is directed to a method of making an alkaline metal chlorite comprising generating chlorine dioxide by reducing chlorate ions with methanol in a first reaction zone, and then reacting the produced chlorine dioxide with an aqueous solution of alkali metal hydroxide and hydrogen peroxide in a second reaction zone under a subatmospheric pressure. A liquid eductor provides the subatmospheric pressure and constitutes the second reaction zone. According to Appellants, "[t]he present invention is directed towards the manufacture of high purity alkaline metal chlorite, preferably sodium chlorite, using a simple, less capital intensive process than described in the prior art, without any necessity for purification of the final product" (Br. 4 ¶ 2).

Appealed claims 1-4 and 7-9 stand rejected under 35 U.S.C. § 103 as being unpatentable over Dick in view of Fuller and/or Mason.

Appellants provide separate substantive arguments only for claims 4 and 7. Accordingly, claims 1-3, 8 and 9 stand or fall together.

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 for emphasis only.

Appellants do not dispute the Examiner's factual determination that Dick, like Appellants, discloses a method of producing an alkaline metal chlorite having improved purity by generating chlorine dioxide in a first reaction zone wherein chlorate ions are reduced with methanol, and then reacting the produced chlorine dioxide with an aqueous solution of an alkali metal hydroxide and hydrogen peroxide in a second reaction zone under subatmospheric pressure. As appreciated by the Examiner and stressed by Appellants, Dick prefers the use of a packed tower reactor under vacuum for the second reaction zone, rather than the claimed liquid eductor. However, the Examiner has presented substantial objective evidence in the disclosures of Fuller and Mason that one of ordinary skill in the art would have found it obvious to replace the packed tower reactor of Dick with a liquid eductor with the requisite reasonable expectation of success. Appellants acknowledge that Fuller demonstrates that a liquid eductor was a known device for pulling a vacuum, and that Mason evidences that it was known in the art to employ a liquid eductor as a reaction zone for making an alkaline metal chlorite by reacting chlorine dioxide and an aqueous base. Accordingly, since Dick is not restricted to using a packed tower reactor for

the second reaction zone, but teaches that “[a]ny suitable reactor design can be used in the chlorite formation step” (Dick, col. 6, ll. 13-14), we are in full agreement with the Examiner that it would have been obvious for one of ordinary skill in the art to utilize the claimed liquid eductor for the second reaction zone in Dick’s process of producing an alkaline metal chlorite of high purity.

It is noteworthy, as pointed out by the Examiner, that Appellants’ Specification discloses that “[t]he use of a liquid eductor may represent a major improvement over alternative gas-liquid contact equipment in terms of the cost and simplicity due to its double function as a vacuum source and a reactor, and in terms of effectiveness as a result of its particularly short gas-liquid contact time” (Spec. 7, para. [0032]). This advantage of the liquid eductor is taught by Mason at col. 3, ll. 55-65. The Specification, however, does not disclose that use of the liquid eductor provides for a higher purity of the alkaline metal chlorite product. Indeed, as noted by the Examiner, the Example of Dick produces a higher purity product with respect to amount of sodium carbonate than that disclosed in Appellants’ Example at page 11 of the Specification, last paragraph.

Regarding separately argued claims 4 and 7, we concur with the reasoning set forth at pages 10-11 of the Examiner’s Answer.

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 prima facie case of obviousness established by the Examiner.

Appeal 2007-0173
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In conclusion, based on the foregoing and the reasons well stated by the Examiner, the Examiner's decision rejecting the appealed claims is affirmed.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a)(I)(iv)(2005).

AFFIRMED

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