

The opinion in support of the decision being entered today was not written for publication in a law journal and is not binding precedent of the Board.

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte WILLIAM S. BRENNAN

Appeal No. 2005-0277
Application No. 09/883,883

ON BRIEF

Before KIMLIN, WARREN and TIMM, Administrative Patent Judges.

KIMLIN, Administrative Patent Judge.

DECISION ON APPEAL

This is an appeal from the final rejection of claims 1-15. Claims 16-36 were withdrawn from consideration. Claims 1 and 10 are illustrative:

1. A process for use in fabricating an integrated circuit, comprising:

performing an operation on a wafer using a fabrication tool;

generating desorbed volatiles from the wafer after performing the operation;

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sampling the desorbed volatiles;

generating raw spectral data from the sampled desorbed
volatiles, the raw spectral data indicating the content
of the desorbed volatiles;

performing a spectroscopic analysis of the raw spectral
data; and

modifying an operational parameter of the fabrication tool
responsive to the result of the results of the
spectroscopic analysis.

10. A process for use in fabricating an integrated circuit,
comprising:

receiving raw spectral data representative of the content of
a plurality of volatiles desorbed from a wafer;

processing the raw spectral data to determine the presence
of a residual material on the wafer; and

controlling a process flow operation to reduce the amount of
the residual material on the wafer responsive to the
results of processing the raw spectral data.

In the rejection of the appealed claims, the examiner relies
upon the following references:

Lee et al. (Lee)	5,865,900	Feb. 2, 1999
Egermeier et al. (Egermeier) (U.S. Patent Application Publication)	US 2002/0006677 A1	Jan. 17, 2002

Appellant's claimed invention is directed to a process that
finds utility in the fabrication of an integrated circuit. The
process entails generating volatiles from a wafer that has
undergone an operation using a fabrication tool, performing a

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spectroscopic analysis of data generated from a sampling of the volatiles, and either modifying an operational parameter of the fabrication tool in response to the spectroscopic analysis (claim 10), or controlling a process flow operation to reduce the amount of residual material on the wafer in response to the analysis (claim 10).

Appealed claims 1, 2 and 5-15 stand rejected under 35 U.S.C. § 102(e) as being anticipated by Egermeier. Claims 3 and 4 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Egermeier in view of Lee.

Appellant submits at page 4 of the principal brief that "[c]laims 1-9 rise and fall together and claims 10-15 rise and fall together, but claims 1-9 rise and fall separately from claims 10-15." Accordingly, claims 2-9 stand or fall together with claim 1 and claims 11-15 stand or fall together with claim 10.

We have thoroughly reviewed the respective positions advanced by appellant and the examiner. In so doing, we are in agreement with appellant that the examiner's § 102 rejection of claims 1, 2 and 5-9, as well as the § 103 rejection of claims 3

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and 4, are not well-founded. However, we concur with the examiner that the subject matter of claims 10-15 is described by Egermeier within the meaning of § 102.

We consider first the examiner's § 102 rejection of claims 1, 2 and 5-9 over Egermeier. In essence, we are in complete agreement with appellant that the reference fails to describe the claimed step of "modifying an operational parameter of the fabrication tool responsive to the result of the results of the spectroscopic analysis." We simply find no merit in the examiner's rationale that the claimed step "is equivalent to FIG. 1 and the computer system and residual gas analyzer in the Egermeier disclosure" (page 7 of Answer, second paragraph). Although Egermeier performs the claimed spectroscopic analysis of the volatiles generated from the wafer, the reference does not use this analysis to modify any operational parameter of the fabrication tool. Rather, as urged by appellant, Egermeier expressly teaches that, based on the results of the analysis, the wafer is either passed onto a subsequent operation or rejected and returned for further cleaning. See Egermeier at page 3, paragraph [0025], and page 4, paragraph [0036]. Furthermore, even if, as stated by the examiner, the Egermeier disclosure is

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"equivalent" to the claimed step, and we find no basis for such a conclusion, an equivalence of a prior art step is not a description of a claimed step within the meaning of § 102.

The examiner's citation of Lee in support of a § 103 rejection of claims 3 and 4 does not remedy the deficiency in Egermeier discussed above.

The examiner's § 102 rejection of claims 10-15 is another matter. Unlike claim 1 on appeal, claim 10 does not require the modification of an operational parameter in response to the spectroscopic analysis. Rather, claim 10 simply requires "controlling a process flow operation to reduce the amount of the residual material on the wafer responsive to the results of processing the raw spectral data." In our view, the examiner has properly concluded that Egermeier's return of the wafer to the prior processing operation for removing residual layers meets the claim requirement of controlling a process flow operation to reduce the amount of residual material on the wafer. Appellant submits that Egermeier "teaches no such 'controlling,' but is instead directed to rejecting defective wafers, as is established above" (page 6 of principal brief, second paragraph). However, we are satisfied that Egermeier's rejection of defective wafers

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and returning them to the prior process operation for removing residual layers, in response to the analysis of volatiles, meets the claim requirement of "controlling a process flow operation."

One final point remains. Upon return of this application to the examiner, the examiner should consider the propriety of a rejection of claims 1-9 under 35 U.S.C. § 103. In particular, the examiner should consider the obviousness of controlling and modifying an operational parameter of the fabrication process, such as temperature or concentration of cleaning medium, in response to an analysis that current parameters result in an ineffective cleaning of the wafer. For instance, it would seem that modifying the time to a longer period would improve the cleaning operation.

In conclusion, based on the foregoing, the examiner's § 102 rejection of claims 1, 2 and 5-9 is reversed, as is the examiner's § 103 rejection of claims 3 and 4. The examiner's § 102 rejection of claims 10-15 is affirmed. Accordingly, the examiner's decision rejecting the appealed claims is affirmed-in-part.

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No time period for taking any subsequent action in connection with this appeal may be extended under 37 CFR § 1.136(a)(1)(iv) (effective Sep. 13, 2004; 69 Fed. Reg. 49960 (Aug. 12, 2004); 1286 Off. Gaz. Pat. Office 21 (Sep. 7, 2004)).

AFFIRMED-IN-PART

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Administrative Patent Judge)	
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CHARLES F. WARREN)	BOARD OF PATENT
Administrative Patent Judge)	APPEALS AND
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