

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

BILLERUD AKTIEBOLAG (PUBL),

Petitioner,

v.

WESTROCK MWV, LLC,

Patent Owner

Case No. IPR2023-01206

U.S. Patent No. 11,293,142 B2

THIRD SUPPLEMENTAL DECLARATION OF CHARLES P. KLASS

TABLE OF CONTENTS

I. Introduction	3
II. Regarding <i>Papermaking</i>	3
III. Regarding <i>Gratton</i>	6
V. Conclusion	12
APPENDIX 1	13

I. Introduction

1. I, Charles P. Klass, declare as follows:
2. I have prepared this report as an expert witness retained by WestRock MWV, LLC. (“Patent Owner”). I understand Billerud Aktiebolag (Publ) (“Petitioner”) has filed a Reply to Patent Owner’s Response and an Opposition to Patent Owner’s Contingent Motion to Amend. Appendix 1 includes the list of materials I considered in preparing this Declaration. This is the fourth declaration I have prepared for these proceedings, and I stand by all statements made in my first three declarations, although I understand my third declaration was withdrawn on procedural grounds.
3. I make this Declaration based upon my own personal knowledge and experience and, if called upon to testify, would testify competently to the matters contained herein.

II. Regarding *Papermaking*

4. Petitioner introduced Exhibit 1013 during my deposition, an exhibit which appears to have been generated specifically for that deposition. Exhibit 1013 includes a chart of three calipers derived from three basis weights using a bulk value $1.8 \text{ cm}^3/\text{g}$, and three calipers derived from the same three basis weights using a bulk value of $1.9 \text{ cm}^3/\text{g}$.

5. Exhibit 1013 also includes an annotated version of Fig. 8 from the '142 Patent. The annotations include some handwriting and a straight line manually drawn to run through the three points from the chart for the bulk value of $1.8 \text{ cm}^3/\text{g}$, with a second straight line drawn to run through the three points from the chart for the bulk value of 1.9 cm^3 . Paper 25, p. 9.
6. Importantly, I did not testify that *Papermaking* discloses any specific paperboards that lie under the Y_2 curve. Ex. 1012, 151:18-23. In my deposition, I confirmed that up to a point of 24 caliper (along the horizontal axis, which is as far as the Y_2 curve is plotted in Fig. 8) the two annotated lines are below the Y_2 curve. Ex. 1012, 151:18-23. However, beyond 24 caliper points, at about 30 caliper points, the Y_2 curve intersects the two annotated lines, which pass above the Y_2 curve for increasing values of caliper beyond that point. The graph below shows the Y_2 curve, as well as the two straight lines from Petitioner's tabulations in Exhibit 1013, i.e., one line each for bulks 1.8 and $1.9 \text{ cm}^3/\text{g}$. The blue dashed line below denotes an area where the lines for bulks 1.8 and $1.9 \text{ cm}^3/\text{g}$ lie above the Y_2 curve.

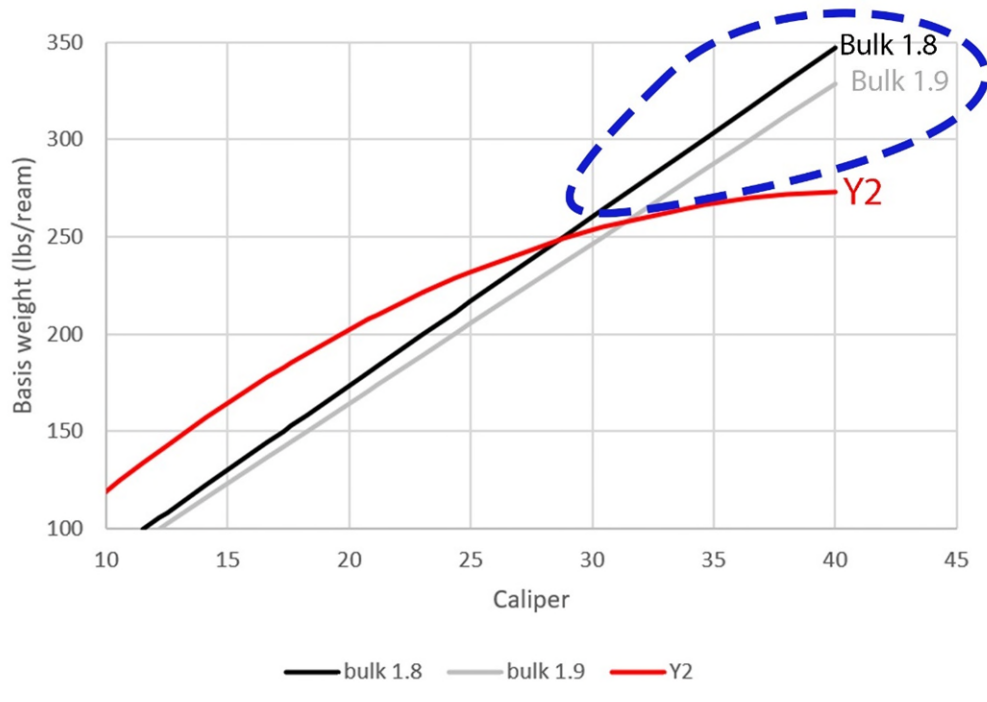


Figure 1: Basis Weight vs. Caliper

7. *Papermaking* provides bulk values of 1.8 and 1.9 for FBB in Fig. 62 on Page 80. Ex. 1005, p. 80. I note that the vertical ordinate values in Figure 62 of *Papermaking* are PPS smoothness values. *Id.* FBB is the only one of the three cartonboards depicted in Fig. 62 that extends into bulks as high as 1.8-1.9 cm³/g. *Id.* Caliper, basis weight, and bulk are related as:

$$\text{Bulk} = \text{Caliper} / \text{Basis weight}.$$

8. Notably, *Papermaking* does not provide calipers or basis weights of specific FBB examples at bulks of 1.8-1.9 cm³/g. The table in Exhibit 1013 does not disclose any points cited from *Papermaking*, but instead the points in Exhibit 1013 lie on lines derived from bulk values 1.8-1.9 cm³/g shown in

Figure 62 of *Papermaking*. Without the caliper values, no particular basis weights can be calculated from the bulks of 1.8-1.9 cm³/g. Conversely, without the basis weights, no particular calipers can be calculated from the bulks of 1.8-1.9 cm³/g. *Id.* In short, the teachings of *Papermaking* lack specificity as to any specific points (representing specific paperboards) that fall under the Y₂ curve.

9. The values of 1.8 and 1.9 cm³/g are shown as extreme values for bulk in Figure 62 of *Papermaking*. Ex. 1005, p. 80. Generally the higher the caliper, the higher the bulk, so it stands to reason that the caliper would also be extreme, i.e., there is a high likelihood that any specific examples of FBB produced at the time of publication of *Papermaking* having the extreme bulk values of 1.8 and 1.9 cm³/g were also extreme in terms of caliper, i.e., such examples would tend to have calipers that lie towards the right hand end of the graph above, i.e., such examples are likely to fall in the area above the Y₂ curve circled in the blue dashed line.

III. Regarding *Gratton*

10. Petitioner introduced Exhibit 1014 during my deposition, which they also apparently generated specifically for the deposition, in an attempt to show that *Gratton* provides examples of paperboard that lie below the Y₂ curve of Claim 1. Ex. 1012, 140:9-22. During my deposition, it was not clear where

the basis weight numbers “361” and “377” in Exhibit 1014 came from. Ex. 1012, 141:3-142:7. I was only recently made aware by the footnote on Page 12 of Petitioner’s Reply that the basis weights (g/m²) in Exhibit 1014 were taken from the Experimental Section (page 86) of *Gratton*. Specifically, Petitioner is referring to the numbers “361” and “377”, each of which is repeated in Exhibit 1014, once for the Y₂ curve of Claim 1, and once for the Y₃ curve of Claim 22. However, according to *Gratton*, the “361” and “377” are for paperboard samples that were prior to calendering. Ex. 1006, p. 86. The “361” and “377” are therefore irrelevant to Claim 1, as I further explain below.

11. Petitioner has taken the numbers “361” and “377” out of proper context. These numbers are taken from the first paragraph of the section in *Gratton* entitled “Experimental.” *Id.* The cited paragraph describes the sized and unsized food-board samples *before* temperature gradient calendering. The numbers “361” and “377” are basis weights of samples *prior* to temperature gradient calendering.
12. Later in the Experimental section of *Gratton*, there is a paragraph describing measurements taken after the samples were calendered by temperature gradient calendering, “Basis weight, thickness, and 75° Hunter gloss were measured immediately after calendering.” *Id.* According to *Gratton*, the

bulk and surface properties after temperature gradient calendering are listed in Gratton, Table II. *Id.*

13. Table II in *Gratton* gives a basis weight of 376 g/m² for the sample at 1.81 cm³/g, not 361 g/m² as Petitioner stated in Exhibit 1014. Ex. 1006, p. 84. Similarly, Table II in *Gratton* gives a basis weight of 359 g/m² for the sample at 1.80 cm³/g, not 377 g/m² as Petitioner stated in Exhibit 1014. Both of these errors tend to make the basis weights in *Gratton* look lower relative to the Y₂ curve than they really are. Since Petitioner used the wrong numbers in Exhibit 1014 and in their Reply, Petitioner has failed to prove *Gratton* discloses examples of paperboard structure that fall below the Y₂ curve of the '142 Patent.
14. Instead of using the incorrect bulk values from *Gratton*, I provide below a table that takes information from the correct portion of *Gratton*, namely from Table II, which lists the full experimental results. Ex. 1006, p. 84. My version below adds columns for caliper (a unit conversion of Gratton's Thickness column), the Y₂ curve values for the calipers, the Y₃ values for the calipers, basis weight converted from metric to lbs/3000 ft², and columns indicating respectively whether a given sample is above or below the Y₂ and Y₃ curves in terms of caliper and basis weight.

	basis weight	Thickness							Parker Print- Surf, microns
bulk cc/g	g/m ²	microns	Caliper	Y2	Y3	Basis Weighth lbs/3000 sq. feet	Below Y2?	Below Y3?	
1.9	362	686	27.00787	241.7	236.5	222.4270353	YES	YES	7.94
1.86	363	675	26.5748	239.8	234.5	223.0414747	YES	YES	7.79
1.76	358	632	24.88189	231.5	226.4	219.969278	YES	YES	7.28
1.62	360	583	22.95276	220.9	216.1	221.1981567	no	no	6.54
1.53	362	553	21.77165	213.9	209.2	222.4270353	no	no	5.95
1.45	360	522	20.55118	206.1	201.6	221.1981567	no	no	5.31
1.8	359	646	25.43307	234.3	229.1	220.5837174	YES	YES	7
1.7	359	612	24.09449	227.3	222.3	220.5837174	YES	YES	5.8
1.6	364	581	22.87402	220.5	215.6	223.655914	no	no	5
1.51	359	543	21.37795	211.4	206.8	220.5837174	no	no	4.46
1.44	362	523	20.59055	206.3	201.8	222.4270353	no	no	4.17
1.91	375	716	28.18898	246.8	241.4	230.4147465	YES	YES	8.32
1.85	378	698	27.48031	243.8	238.5	232.2580645	YES	YES	8.1
1.72	378	652	25.66929	235.4	230.3	232.2580645	YES	no	7.66
1.61	381	613	24.13386	227.5	222.5	234.1013825	no	no	7.03
1.51	377	569	22.40157	217.7	212.9	231.6436252	no	no	6.32
1.4	375	527	20.74803	207.4	202.8	230.4147465	no	no	5.6
1.81	376	682	26.85039	241	235.8	231.0291859	YES	YES	7.45
1.7	377	641	25.23622	233.3	228.2	231.6436252	YES	no	6.19
1.6	377	602	23.70079	225.1	220.2	231.6436252	no	no	5.29
1.49	377	561	22.08661	215.8	211.1	231.6436252	no	no	4.6
1.42	374	532	20.94488	208.6	204.1	229.8003072	no	no	4.24

Table 1: Basis Weight, Thickness, and Caliper

15. I kept the same order as in *Gratton's* Table II and corrected for the typographical error on thickness where “mm” meant microns. Ex. 1006, p.84. As can be seen above, a few of the samples, highlighted in yellow, do indeed fall below the Y₂ curve, but only if one completely ignores the smoothness recited for the paperboard structure in Claim 1. Specifically, the samples with bulk values (cm³/g) of 1.9, 1.86, 1.76, 1.8, 1.7 (both instances), 1.91, 1.85, 1.72, and 1.81 have basis weights and calipers that can be plotted

below the Y_2 curve, although they are all totally irrelevant because they all fail to meet the smoothness recited in Claim 1. It is not enough to find examples with only one or two of the three recited paperboard structure properties recited in Claim 1.

16. When Petitioner attempted to point out examples below the Y_2 curve in *Gratton*, they effectively ignored the smoothness of the paperboard structure recited in Claim 1. The lowest Parker Print Surf (PPS 10S) smoothness listed in Table II of *Gratton* is 4.17 microns, for the sample with a bulk of 1.44 cm³/g. Ex. 1006, p. 84. There is not a single smoothness in any of the samples in *Gratton*, Table II that is at or below Parker Print Surf (PPS 10S) of 4 microns, let alone the 3 microns recited in Claim 1. Therefore, *Gratton*, like *Papermaking* and the rest of the cited art, does not disclose any proper examples of a paperboard structure below the Y_2 curve in Claim 1 because in order to even be relevant, the example would have to have a Parker Print Surf (PPS 10S) smoothness being at most 3 microns.
17. Moreover, the relatively poor smoothness attained in *Gratton* cuts against one of ordinary skill in the art being motivated to combine of *Gratton* and *Fugitt*. I also observe from my chart above that the samples in *Gratton* with the greatest bulk also tend to be the samples with the worst smoothness. This would tend to be a disincentive for those of ordinary skill in this art

from relying on the higher bulks in *Gratton* to achieve the smoothness, caliper, and basis weight in Example 3 of *Fugitt*.

18. Petitioner stated that the PPS values in *Gratton* related to uncoated board, whereas the PPS value in Example 3 in *Fugitt* is for double coated board. Paper 25, p. 17. Petitioner has not proven what the smoothness would be if the samples in *Gratton* had been double coated. Note that coating the samples in *Gratton* would alter not just smoothness, but also caliper and basis weight. *Gratton* does not disclose anything to change my conclusion that Example 3 in *Fugitt* is the only example in the cited art of a paperboard structure purporting to be below the Y_2 curve recited in Claim 1, with the smoothness recited in Claim 1.

V. Conclusion

19. I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true, and further that these statements are made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of U.S. Patent No. 11,293,142.

Dated: December 18, 2024

A handwritten signature in black ink that reads "Charles P. Klass". The signature is written in a cursive style with a horizontal line underneath the name.

Charles P. Klass

APPENDIX 1
MATERIALS CONSIDERED IN DECLARATION

Exhibit No.	Short Name	Description
Paper 1	Petition	Petition as filed, IPR2023-01206, Paper 1
1001	The '142 Patent	US Patent No. 11,293,142
1002	'142 Patent File History	The relevant file history for US Patent No. 11,293,142
1003	Zotterman Declaration	Declaration of Carl Zotterman
1004	<i>Fugitt</i>	Fugitt et al., U.S. Pat. Appl. Pub. No. 2009/0236062
1005	<i>Papermaking</i>	Excerpts from Rautiainen, P. (2009). <i>Papermaking Science and Technology Book 10: Papermaking Part 3, Finishing</i> (2nd ed., pp. 35-42, 79-99). Paper Engineers' Association.
1006	<i>Gratton</i>	Gratton, et al., <i>Temperature-gradient calendering of foodboard</i> , TAPPI Journal, January 1988
2005	Zotterman Transcript	Transcript of Deposition of Carl Zotterman
2006	Equation Y ₃ '	Note page containing Equation Y ₃ ', Exhibit 7 to Deposition of Carl Zotterman

Exhibit No.	Short Name	Description
2007	Zakaib	Zakaib et al., Quality Improvements to Publication and Board Grades by Hot Calendering with Induction Heating, Presented at the 1997 TAPPI Newsprint Forum, Birmingham, AL, March 1997
Paper 24	Opposition to MTA	Opposition to Patent Owner's Contingent Motion to Amend
Paper 25	Petitioner's Reply	Reply to Patent Owner's Response
Paper 28	Preliminary Guidance	Preliminary Guidance on Patent Owner's Motion to Amend
1012	Klass Deposition	Deposition of Charles P. Klass
1013	Basis Weigh Chart	Basis Weight Chart produced by Petitioner

Exhibit No.	Short Name	Description
1014	Gratton Table	Gratton Table produced by Petitioner
1016	Declaration of Anders Wirén	Petitioner's Declaration of Anders Wirén Pursuant to 37 C.F.R. §42.64(b)(2)