Grandeco

Tielt, 13/11/2019

The undersigned Patrick Molemans, in his capacity of Chief Executive Officer

of Grandeco Wallfashion Group NV

Declares:

- Main activity of Grandeco Wallfashion Group, is the production of Decorative wallcovering.
- According to the Federal Specification CCC-W-408D, Grandeco produces the product type named "Medium Duty Wallcovering".
- The company Texdecor is a customer of Grandeco Wallfashion Group
- The underneath mentioned collections are produced at Grandeco, conform the medium duty wallcovering on behalf of and exclusively for Texdecor:
    - Fresco
    - Dédale
- The wallcovering identified as product type "medium duty wallcoverings" as declared on report number 19-09185 dd August 19, 2019 by CTC testing company, is classified as **Type II**

Signature

Patrick Molemans

CEO - Chief Executive Officer

Patrick Molemans*
CEO – Chief Executive Officer
President of the executive committee
Member of the board of directors

*acting as managing director/permanent representative
of VISION@WORK BVBA

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Evaluation of Vinyl–Coated Wallcovering
Federal Specification CCC–W–408D

Grandeco Medium Duty Wallcovering

Report Number 19–09185

Test Number 5450–3264–0919R
August 19, 2019

Grandeco Wallfashion Group Belgium nv
Tielt, Belgium

Commercial Testing Company

(Authorized Signature)

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INTRODUCTION

This report is a presentation of results on a non–woven backed, FR–treated vinyl wallcovering conducted for Grandeco Wallfashion Group Belgium nv of Tielt, Belgium. The material was tested to determine compliance with Federal Specification CCC–W–408D, *Wall Covering, Vinyl–Coated*, dated January 14, 1994. Section 1.2 of CCC–W–408D which classifies a material **Type I** – Light Duty, **Type II** – Medium Duty, or **Type III** – Heavy Duty.

SAMPLING

The sampling was done by the client. One roll of wallcovering was submitted for testing and was identified as **Grandeco Medium Duty Wallcovering**.

TEST PROCEDURES

The procedures used to conduct these tests are described in CCC–W–408D. The purpose of these tests is to determine compliance with Section 3.4 Physical Properties, Table I. The physical properties are briefly outlined as:

Requirements	Type I	Type II	Type III
Colorfastness to Light[1]	200	200	200
Washability[2]	100	100	100
Scrubbability[3]	200	300	500
Abrasion Resistance[4]	200	300	1,000
Breaking Strength[5], Machine Direction	≥ 40 lb	≥ 50 lb	≥ 100 lb
Breaking Strength[5], Cross Machine	≥ 30 lb	≥ 55 lb	≥ 95 lb
Crocking, Dry[6]	Good	Good	Good
Stain Resistance Reagents[7]	1–9	1–12	1–12
Tear Resistance[8], Machine Direction	12	25	50
Tear Resistance[8], Cross Machine	12	25	50
Blocking Resistance[9]	≤ 2	≤ 2	≤ 2
Coating Adhesion[10], lbs/inch	≥ 2 lb/in	≥ 3 lb/in	≥ 3 lb/in
Cold Crack Resistance[11]	No Change	No Change	No Change
Heat Ageing Resistance[12]	Pass	Pass	Pass
Flame Spread[13], maximum	≤ 25	≤ 25	≤ 25
Smoke Development[13], maximum	≤ 50	≤ 50	≤ 50
Shrinkage[14], Machine Direction	≤ 2%	≤ 2%	≤ 2%
Shrinkage[14], Cross Machine	≤ 1%	≤ 1%	≤ 1.5%

1. *Colorfastness to Light* — The specimen shall show no appreciable change after carbon arc exposure to the specified Standard Fading Hours (SFH) when tested in accordance with Federal Test Method Standard 191A, Method 5660.

2. *Washability* — The material is exposed to the required number of cycles in a Gardner Washability Machine Model M–105 equipped with a WG–2000C detergent soaked sponge under a load of 1 pound. Prior to testing, the material has 1 tablespoon of detergent placed beneath the sponge. When the required cycles are finished, the specimen is rinsed with tap water and air dried at 70°F. When viewed from a distance of 4 feet in a Macbeth Spectralight viewing booth, there is no appreciable discoloration, change in gloss, blistering, softening, swelling or loss of adhesion.

3. *Scrubbability* — The material is exposed to the required number of cycles in a Gardner Washability Machine M–105 equipped with a WG2000NMA detergent soaked brush under a load of 1 pound. One tablespoon of detergent is added beneath the brush prior to testing. After the required number of cycles, the specimen is rinsed with tap water and air dried. When viewed from a distance of 4 feet in a Macbeth Spectralight viewing booth, there is no appreciable damage to the printed or base surface.

4. *Abrasion Resistance* — The number of required cycles (double rubs) is done using a Wyzenbeck Precision Wear Tester equipped with 220 grit silicon carbide abrasive sheet. The tester is operated with a tension of 6 pounds force and the pressure set at 2 pounds force. The wallcovering shall have no visual evidence of fiber show–through or damage to the supporting substrate.

5. *Breaking Strength* — The test was conducted in accordance with ASTM Test Method D 751, Section 11, Breaking Strength, using Procedure A – Grab Test Method. The test was conducted using an Instron CRE type tensile tester operating at an extension rate of 12 inches per minute.

6. *Crocking* — Resistance to dry crocking was determined in accordance with Federal Test Method Standard 191, Method 5651, using the crockmeter method. Crocking refers to the transfer of matter from the wallcovering to the standard white cotton crockmeter cloth.

7. *Stain Resistance* — Approximately 1 ml of each reagent is placed on the surface of the wallcovering, covered with a watch glass, and allowed to stand for 24 hours. The covers are removed from the reagents and the exposed areas cleaned using warm distilled water. After drying, the sample shall show no evidence of appreciable change. The staining reagents are: (1) 75°F distilled water; (2) 120°F distilled water; (3) 50% ethyl alcohol; (4) vinegar; (5) 1% NaOH solution; (6) 5% HCl; (7) standard soap solution; (8) detergent solution; (9) orange juice; (10) butter; (11) catsup; and, (12) tea.

8. *Tear Resistance* — The test is conducted in accordance with ASTM Test Method D 751, Method A, using an Elmendorf tear tester. The result is reported as the scale reading.

9. *Blocking Resistance* — The test is conducted in accordance with Federal Test Method Standard 191, Method 5872, *Temperature, High; Effect on Cloth Blocking*. Specimens are folded face to face, placed between glass plates, and the assembly placed in a circulating air oven for 30 minutes at 180°F. After 30 minutes, the specimens are removed, allowed to cool for 5 minutes, and examined for evidence of adhering or peeling of the coating. Resistance to blocking is evaluated by the following scale: 1 = No Blocking (surfaces are free); 2 = No Blocking (adhered slightly); 3 = Slight Blocking (must be lightly peeled to separate); and 4 = Blocking (surfaces separate with difficulty).

10. *Coating Adhesion* — The test was conducted in accordance with ASTM Test Method D 751, Section 50, *Adhesion of Coating to Fabric*. The test was conducted using an Instron CRE type tensile tester operated at an extension rate of 12 inches per minute.

11. *Cold Crack Resistance* — Specimens are placed in a cold chamber for 30 minutes at 20 ± 4°F. Immediately after removal from the chamber, the specimen is bent 180° around a 1/2–inch diameter mandrel. The sample shall not crack during folding around the mandrel.

12. *Heat Ageing Resistance* — The test sample shall not become stiff, brittle, soft, tacky, discolored, or show loss of grain after 168 hours in a circulating air oven maintained at 158°F.

13. *Flame Spread and Smoke Development* — The Flame Spread and Smoke Development are determined in accordance with ASTM Test Method E84–18b, *Surface Burning Characteristics of Building Materials*. The test sample was prepared in accordance with ASTM E2404-15a, *Standard Practice for Specimen Preparation and Mounting of Textile, Paper or Vinyl Wall or Ceiling Coverings to Assess Surface Burning Characteristics*, Section 8.3, Wall or Ceiling Coverings Intended to be Applied over Gypsum Board.

14. *Shrinkage* — Specimens are die cut from the test sample and conditioned for 24 hours at 70°F and 65% relative humidity. The initial dimensions are determined and recorded at three locations along the length and width of the specimen. After soaking for 30 minutes in distilled water and subsequent drying 30 minutes at 200°F, specimens are conditioned for 24 hours 70°F and 65% relative humidity and the final dimensional measurements determined. The shrinkage is calculated as $\% \text{ Shrinkage} = 100 \times (A - B)/A$ where A is the initial measurement and B is the final measurement.

TEST DATA AND TEST RESULT

The purpose of this evaluation was to determine compliance with requirements for a Type II Medium Duty wallcovering as defined by Federal Specification CCC–W–408D. The test results are presented in tabular form on the following page.

Grandeco Wallfashion Group Belgium nv
Tielt, Belgium

Grandeco Medium Duty Wallcovering

Characteristic	Type II Requirement	Test Data	Test Result
Colorfastness to Light	200	Good to Excellent	Pass
Washability	100	100 cycles	Pass
Scrubbability	300	300 cycles	Pass
Abrasion Resistance	300	300 cycles	Pass
Breaking Strength, Machine Direction	≥ 50 lb	81 lb	Pass
Breaking Strength, Cross Machine	≥ 55 lb	89 lb	Pass
Crocking, Dry	Good	Excellent	Pass
Stain Resistance Reagents	1–12	(See Note 1)	Pass
Tear Resistance, Machine Direction	25	29.6	Pass
Tear Resistance, Cross Machine	25	37.0	Pass
Blocking Resistance	≤ 2	1	Pass
Coating Adhesion, lbs/inch	≥ 3 lb/in	(See Note 2)	Pass
Cold Crack Resistance	No Change	No Change	Pass
Heat Ageing Resistance	Pass	Pass	Pass
Flame Spread, maximum	≤ 25	10	Pass
Smoke Development, maximum	≤ 50	15	Pass
Shrinkage, Machine Direction	≤ 2%	0.272%	Pass
Shrinkage, Cross Machine	≤ 1%	0.529%	Pass

Note 1 — Stain Resistance

Reagent	Rating
(1) 75°F distilled water	5
(2) 120°F distilled water	5
(3) 50% ethyl alcohol	5
(4) vinegar	5
(5) 1% NaOH solution	5
(6) 5% HCl	5

Reagent	Rating
(7) standard soap solution	5
(8) detergent solution	5
(9) orange juice	5
(10) butter	5
(11) catsup	5
(12) tea	4.5

The rating system is based on the AATCC *Nomenclature for Subjective Rating Processes* in which a rating of 5 = negligible or no staining, 4 = slight staining, 3 = noticeable staining, 2 = considerable staining, and 1 = severe staining. A rating of less than 4 is considered "appreciable" in relation to severity of change.

Note 2 — Coating Adhesion

The test for coating adhesion is not applicable to wallcovering from which a coating cannot be separated (Reference: CCC–W–408D, Table III).

CONCLUSION

Based on the results of this evaluation, the wallcovering identified as **Grandeco Medium Duty Wallcovering** is classifiable as Type II.