Bombardier Aerospace (Toronto)

Material Specification

TITLE:	**LAMINATE, PLASTIC INTERIOR, DECORATIVE**
SPECIFICATION NUMBER:	**DHMS P1.28**
ISSUE:	**H**
AMENDMENT:	**2**
DATE:	**March 20, 2019**
PAGE:	**1 of 19**

Prepared by: Approved by:

SIGNED ORIGINAL ON FILE

Kai Lordly
Materials Technology

Hai Yen Tran
Materials Technology

LAMINATE, PLASTIC INTERIOR, DECORATIVE

REVISION RECORD

Issue	Page	Description and Reason for Change
F		This is a revised specification. Detailed changes will not be noted.
Amd. 1	15	Table 4 - Paragraphs renumbered.
G		This is complete revised issue. Detail changes have not been noted.
Amd. 1	18	QPL: supplier's address has been changed.
Amd. 2	2, 4 to 6, 14, 19	Type 13 and Type 14 have been added to the spec.
Amd. 3	2, 4 to 6, 14, 19	Type 15 has been added to the spec.
Amd. 4	14	Flammability and OSU tests added to acceptance testing.
H	All	This is a completely revised issue. Detail changes have not been noted.
Amd. 1	14	Removed 6.1.1 requirement for sample to be send to deHavilland prior to shipment
Amd. 2	3	Removed 2.4 Boeing Specification
	4	Revised Storage Life Temperature: Was: 24 ± 3°C (75 ± 5°F) Is: 4-27°C (40-80°F)
	5	Correction 3.13.1, Was: "4 inch lbs. per inch width". Is: "4 lbs. per inch width".
	13	Clarified Table 5, acceptance testing for Purchaser and User

1 SCOPE

This specification covers the requirements for a decorative, plastic laminate in film or sheet form, suitable for facing aircraft interior panels.

1.1 Classification

The plastic decorative laminate product shall be one of the following types and classes, as specified herein.

1.1.1 Types

Type 1	-	1 mil PVF + 2-3 mil vinyl colour + 2 mil PVF
Type 2	-	1 mil PVF + 3-4 mil clear vinyl + 3 mil PVC colour
Type 3	-	1 mil PVF + 6 mil vinyl colour
Type 4	-	1 mil PVF + 4 mil clear vinyl + 6 mil vinyl colour
Type 5	-	6 mil polyvinylidene fluoride (Kynar)
Type 6	-	1 mil PVF + 15 mil vinyl colour
Type 7	-	1 mil PVF + 8 mil vinyl colour
Type 8	-	1.5 mil PVF transparent + 6 mil decor embossing resin +1 mil PVF white
Type 9	-	1.5 mil PVF transparent + 6 to 8 mil vinyl decorative
Type 10	-	1.5 mil PVF transparent + silk screen print (optional) + LHR film + 1 mil white PVF (opaque)
Type 11	-	1.5 mil PVF transparent + silk screen print (optional) + LHR film + 1 mil white PVF (opaque), contains metallic pigments
Type 12	-	1.5 mil PVF transparent + silk screen print (optional) + LHR film + 4 mil white PVF (opaque), contains metallic pigments
Type 13		1 mil PVF transparent + (silk screen print (optional) + LHR film + 1 mil white PVF (opaque) + HA211
Type 14		1mil PVF transparent + (silk screen print (optional) +LHR film + 1 mil white PVF (opaque) + HA211
Type 15		1 mil PVF transparent

1.1.2 Classes

Class 1	-	No adhesive coating
Class 2	-	Heat activated adhesive coating
Class 2A	-	Heat activated adhesive coating (HA211)

2 APPLICABLE DOCUMENTS

The following documents form a part of this specification to the extent specified herein. In the event of conflicting requirements between this and the specifications listed below, the requirements of this specification shall govern. Where a specific issue of a document is not specified, the current issue shall be used.

2.1 U.S. Government Specifications

2.1.1 Federal Aviation Administration

FAR 25.853, App. F, Parts I(a)(1)(i), IV and V Amd. 25-83 - Flammability Requirements

2.1.2 Federal Standards

Federal Test Method Standard #191 - Textile Test Methods

2.2 American Society for Testing and Materials

ASTM D3167 - Peel or Stripping Strength of Adhesive Bonds

ASTM E162 - Surface Flammability of Materials Using a Radiant Heat Energy Source

ASTM E308 - Spectrophotometry and Description of Colour in CIE 1931 System

2.3 Bombardier Aerospace Toronto Specifications

DS82 - Materials, Interior, with Colour/Texture Identification

3 REQUIREMENTS

Prior to procurement, for applications requiring OSU heat release and NBS smoke density attributes, materials shall demonstrate compliance to FAR 25.853, App. F, Parts IV & V Amd.25-83. This compliance data shall be consistent with similar data from previously procured materials.

3.1 Preproduction Samples

For qualification purposes, the vendor shall submit five 6.5" x 10.5" samples, of the initial batch of material manufactured to this specification, for approval of design, colour and texture. One sample shall be designated as the Master Standard; the remaining four samples shall be used as Working Standards. A Bombardier Aerospace Toronto Standard Number will be assigned to these samples.

3.2 Construction

The plastic, decorative laminate product shall be constructed as noted in **Para.1.1.1** and **Para.1.1.2**.

3.3 Cleanability

The material shall be capable of being cleaned without any visual adverse effect, when tested in accordance with **Para.4.2**.

3.4 Colourfastness

Subsequent to testing in accordance with **Para.4.3.1** and **Para.4.3.2**, the specimen shall be compared with the approved colour control sample and shall be subject to Bombardier Aerospace Toronto site approval.

3.5 Weight

When tested in accordance with **Para.4.4**, the plastic laminate shall weigh no more than shown below. This weight includes the adhesive backing (for Class 2 and 2A).

Type 1 - 11 oz/sq.yd.
Type 2 - 13 oz/sq.yd.
Type 3 - 11 oz/sq.yd.
Type 4 - 14 oz/sq.yd.
Type 5 - 10 oz/sq.yd.
Type 6 - 22 oz/sq.yd.
Type 7 - 12 oz/sq.yd.
Type 8 - 12 oz/sq.yd.
Type 9 - 13 oz/sq.yd.
Type 10 - 13 oz/sq.yd.
Type 11 - 13 oz/sq.yd.
Type 12 - 15 oz/sq.yd.
Type 13 - 13 oz/sq.yd.
Type 14 - 13 oz/sq.yd
Type 15 - 13 oz/sq.yd

3.6 Delamination

When tested in accordance with **Para.4.5**, the material shall not delaminate.

3.7 Abrasion Resistance

When tested in accordance with **Para.4.6**, the plastic laminate's decorative surface shall not lose its basic pattern and appearance. Removal of the top one or one and a half mil layer of polyvinyl fluoride or polyvinylidene fluoride is acceptable.

3.8 Breaking Strength

When tested in accordance with **Para.4.7**, the material shall have a minimum breaking strength of 30 pounds per inch width in both the machine and transverse directions.

3.9 Tear Strength

When tested in accordance with **Para.4.8**, the material shall have a minimum tear strength of 0.30 pound in both the machine and transverse directions.

3.10 Dimensional Stability

When tested in accordance with **Para.4.10**, the dimensions shall not change in length and width more than 1.8 percent.

3.11 Thermoformability

When tested in accordance with **Para.4.11**, all types of the material, except Type 8, shall be capable of forming to a depth of two inches minimum. No splitting, loss of texture, loss of pattern, distortion or tearing of the material shall be allowed.

3.12 Storage Life

The adhesive backed decorative laminate shall meet the requirements of **Para.4.13** after being stored for 12 months at 4 - 27°C (40 - 80°F) and 30 - 70% relative humidity.

3.13 Adhesive

The adhesive to be coated by Class 2 and 2A decorative laminate shall be a heat activated type, chosen by the purchaser on the manufacturer's recommendation, that is compatible with Bostik 7132/Boscodour #1 or Boscodour #22 two part adhesive. Adhesive film thickness shall be the minimum thickness required to meet the bond strength noted in **Para.3.13.1**.

TABLE 1. Adhesive Weight

	Adhesive for Class 2		Adhesive for Class 2A
	HA722	**HA210**	**HA211**
Type	1 - 9	10 - 12	10 - 15
Adhesive Weight, oz/sq. yd.	2.5 ± 0.5 HA722 is obsolete and replaced by HA211 at Revision H	2.5 ± 0.5 HA210 is obsolete and replaced by HA211 at Revision H	2.6 ± 0.5

3.13.1 Adhesion to Cladded Aluminium Sheet (2024-T3, QQ-A-250/13, 0.063 inch thick)

When tested in accordance with **Para.4.9**, the materials shall have a minimum adhesion of 4 lbs. per inch width.

The back surface of plastic laminates without an adhesive coating shall be treated in such a manner that, when used with a subsequent adhesive system or prepreg resin system, a bond strength equal to that noted above.

3.14 Flammability (With Adhesive Back)

The materials construction defined in Figure 3 shall meet the requirements of FAR 25.853, App. F, Parts I(1)(i), I,V and V, Amd. 25-83.

3.14.1 **Heat Release Properties (Types 10 through 15)**

For heat release tests, a sample of decorative laminate shall be bonded per **Para.4.9.1.1** through **Para.4.9.1.3** to a 0.025" thick, 2024-T3 aluminum test panel. Specimens shall not exhibit heat release values greater than the values shown in **Table 2**.

TABLE 2.

	2 Minute Total	Peak Heat Release
Type 10 to 15, Class 2 & 2A	35 Kw-min/m^2	45 Kw/m^2

3.14.2 **Smoke Emission (Types 10 through 15)**

The decorative laminate when bonded to a 0.025" 2024-T3 aluminum test panel per **Para.4.9.1.1** through

Para.4.9.1.3 shall have smoke density values not greater than those shown in Table 3.

TABLE 3.

Types	Smoke Density
Type 10 to 15 Class 2 & 2A	100 Ds

3.15 Workmanship

The film materials shall be intimately laminated and processed in accordance with the best practice for the manufacture of a high quality, light weight, decorative laminate. The laminate, including the adhesive, where applicable, shall be uniform in quality, colour and condition. It shall be free from streaks, pinholes, lumps, unbonded areas, starved areas, release agents, or any other imperfections or foreign matter that would adversely affect its appearance or serviceability.

3.15.1 **Permissible defects are as follows:**

There may be a maximum of 3 specks with a maximum diameter or length of 1/32" (0.031") per 9 square feet. The specks must not increase in size when the decorative laminate is thermoformed or bonded.

Particles must not:

1. Appear as perforations
2. Disrupt the pattern of the laminate
3. Form a single conspicuous spot
4. Form a line.

3.16 Appearance

The material shall have design, colour and texture to match the approved sample when tested in accordance with Para.4.1.

The top, exposed surface in the aircraft shall be deglossed, unless otherwise specified.

Where the drawing or purchase order calls for a specific colour, the colour shall be cross-referenced by the colour dash number to the applicable DS82 code number and the DHMS P1.28 Type number as indicated in Table 4. The colour dash number is also cross-referenced with the manufacturer's product identification in the Qualified Products List.

TABLE 4.

Colour	DHMS P1.28 Type Number	DS82 Code Number (Ref. Only)
White/Brown	Type 3 Class 1	-01-910-004
Gold	Type 4 Class 1	-01-400-005
Blue	Type 4 Class 1	-01-600-006
Gold (Ransome)	Type 4 Class 1	-01-400-028
White	Type 6 Class 1	-01-900-048
White (Perforated)	Type 6 Class 1	-01-900-064
White	Type 6 Class 2	-01-900-065
White	Type 6 Class 1	-01-900-007
White	Type 7 Class 1	-01-900-003
White	Type 8 Class 1	-01-900-059
White/Brown	Type 8 Class 1	-01-910-060
White	Type 8 Class 2	-01-900-062
White/Brown	Type 8 Class 2	-01-910-063
Grey	Type 8 Class 2	-01-800-071
Grey/Beige	Type 8 Class 2	-01-891-070
Grey	Type 8 Class 2	-01-800-072
Beige	Type 8 Class 2	-01-910-073
White/Brown	Type 9 Class 2	-01-910-092
White	Type 9 Class 2	-01-900-093
White	Type 10 Class 2	-01-900-137
White/Brown	Type 10 Class 2	-01-910-136
Grey/Beige	Type 10 Class 2	-01-891-133
Grey/Beige	Type 10 Class 2	-01-800-135
Grey	Type 10 Class 2	-01-800-130
Grey	Type 10 Class 2A	-01-800-185
Silver Grey	Type 11 Class 2	-01-800-134
Beige/Grey	Type 11 Class 2A	-01-810-184
Silver Grey	Type 12 Class 2	-01-800-173

4 TEST METHODS

4.1 Appearance

Comparison shall be made by placing the new sample side by side with the control sample in a Macbeth Industrial Colour Matching Unit, or equivalent. The direction of illumination shall be normal to the surfaces being compared. Both "North Sky Daylight (7500K)" and "Horizon Sunlight (2300K)" shall be used to compare colours. An acceptable alternative is sample comparison using a spectrophotometer in accordance with ASTM D308.

4.2 Cleanability

Samples of the material shall be cleaned using a mild detergent, then rinsed with clean water. Maximum pH of cleaner used for test purposes shall be 10.

4.3 Colourfastness

4.3.1 Colourfastness to Light - The material shall be exposed to 50 Standard Fading Hours in a single arc Fadeometer unit, operating in accordance with Federal Test Method Standard #191, Method 5660. The sample shall be compared with the control sample using a Macbeth Industrial Colour Matching Unit, as per **Para.4.1**.

4.3.2 Colourfastness to Elevated Temperature - A sample of the material shall be exposed in a circulating air oven at 104 ± 6°C (220 ± 10°F) for ten minutes. After cooling, the sample shall be compared with a control sample, using a Macbeth Industrial Colour Matching Unit, as per **Para.4.1**.

4.4 Weight

The material shall be tested for weight in accordance with Federal Test Method Standard #191, Method 5041, using a sample not less than 4 square inches.

4.5 Delamination

The decorative surface of the material shall be cleaned with a clean wiper and mild detergent solution. Rinse with clean water. Allow material to dry completely. Using a sharp knife or scalpel, cut two "X's", two inches long and two inches apart on the decorative side of the material. The incision shall not cut through the lower layers. A piece of masking tape (3M 250 tape) shall be pressed firmly across the "X's". To ensure intimate contact with the material surface, rub the tape with a blunt, flat section of elastomeric material or a squeegee. The tape shall then be grasped by one end and removed with an abrupt motion, maintaining an angle of approximately 90° during the pull-off. The test area shall be examined for any delamination.

4.6 Abrasion Resistance

The material shall be tested as per Federal Test Method Standard #191, Method 5306, using CS-17 wheels and 1000 gram load for 1000 cycles.

4.7 Breaking Strength

The breaking strength shall be tested as per Federal Test Method Standard #191, Method 5102.

4.8 Tear Strength

The material shall be tested as per Federal Test Method Standard #191, Method 5132, or any other suitable method.

4.9 Adhesion to a Aluminum Sheet (2024-T3, 1.6 mm thick, aluminum)

A specimen shall be prepared, bonded, and peeled per ASTM D3167-97, with the exception of the number of specimens required and the specimen width. The aluminum plate shall be 12" x 12", from which five specimens, each 1.25 inches wide by 12" in length, shall be cut for making the test specimens. Alternatively, aluminum plate may be purchased as pre-cut specimen with a minimum of 10 inches x 1 inch. Specimens shall be prepared as per **Para.4.9.1**.

4.9.1 Preparation

Clean the surface of the aluminum panel to which the decorative film is to be bonded. Lightly scuff the surface with Scotch Brite 7558 abrasive pad or similar, abrading passes in each direction (length and width), then clean with dry cotton wiper moistened with MEK or any cleaner that will not leave a residue. Wipe dry with a clean, dry, cotton wiper before the solvent evaporates. Remove the surface dust with clean, oil free compressed air.

4.9.1.1 Bonding - A heat lamp vacuum applicator system or a vacuum bag oven system shall be used to bond the decorative laminate to the applicable test adhesive coated as follows.

4.9.1.2 Types 1 through 9 and 15 materials shall be bonded under a vacuum of 3 to 4 inches of mercury and at a glue line temperature of 80 ± 10°C (176 ± 18°F).

4.9.1.3 Types 10 through 14 materials shall be bonded under a vacuum of 12 to 18 inches of mercury and at a glue line temperature of 100 ± 5°C (212 ± 9°F).

Maintain vacuum for 3 to 4 minutes. Lower the temperature to 38°C (100°F) max. at which time vacuum pressure shall be released. Maximum relative humidity permitted during bonding is 60%.

4.9.1.4 Peel Test - After bonding, the specimens shall be conditioned for a minimum of 24 hours at 23 ± 3°C (72 ± 5°F) and then peel tested in accordance with ASTM D3167-97. A minimum of five 1.00" wide specimens shall be tested and results averaged. The peel strength results shall be reported in pounds per inch width.

4.10 Dimensional Stability

A 10 x 10 inch specimen shall be measured at three marked places across the length and width to ± 1/64". The specimen shall then be heated in an oven for 30 minutes at 90 ± 5°C (194 ± 9°F), cooled to room temperature,(23 ±2C) and then remeasured. The maximum percentage change in dimensions shall be calculated for both length and width directions and individually averaged.

4.11 Thermoformability

A piece of test material, 12 x 12 inches minimum, with a hole cut in the center, shall be used. The hole shall have a diameter of 2.0 ± 0.2 inches, with smooth, nick-free edges. The test material shall be mounted with staples, or any other suitable fastener, as shown in **Figure 2**, to a test tool constructed as in **Figure 1**. With a heat lamp vacuum applicator or an oven vacuum system, the material shall be heated to 100 ± 5°C (212 ± 9°F). While maintaining this temperature, vacuum shall be slowly applied until a pressure of 4 ± 1/4" of mercury is obtained. Upon removal from the tool, the depth of the formation shall be measured from the tip of the laminate tool surface to the deepest draw.

4.12 Workmanship

For inspection purposes, the decorative laminate shall be viewed from a distance of one yard with the material in the vertical position. Adequate illumination, which produces 25 to 35 foot-candles of light at the surface of the specimen, must be used.

Test equipment shall consist of a Spectra Lumicon Series II Incident Light Meter (manufactured by Photo Research Division of Kollmorgen Corporation, Burbank, California, U.S.A.) or equivalent.

4.13 Flammability

The specimen configuration shown in **Figure 3** shall be tested in accordance to FAR 25-853, App. F, Part I (a)1(i) Amd 25-83 (Note: For vertical flame testing, a two ply phenolic laminate may be used as the substrate in place of the aluminum plate specified in **Figure 3**).

4.13.1 **Heat Release**

The specimen configuration shown in **Figure 3** shall be tested in accordance to FAR 25.853, App. F, Part IV Amd 25-83.

4.13.2 **Smoke Emission**

The specimen configuration shown in **Figure 3** shall be tested in accordance with FAR 25.853(a), App. F, Part V Amd. 25-83.

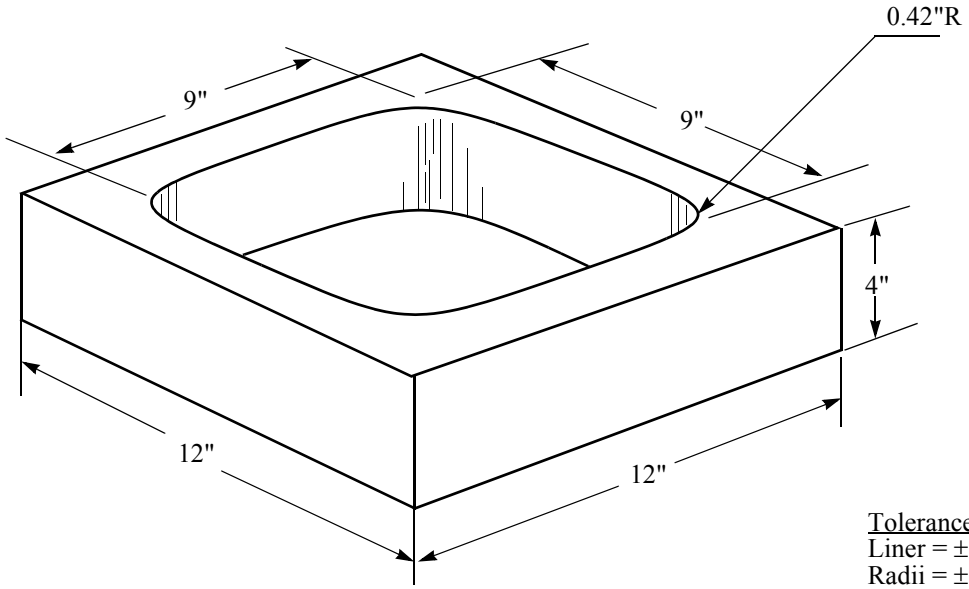

FIGURE 1. Thermoformability Test Tool

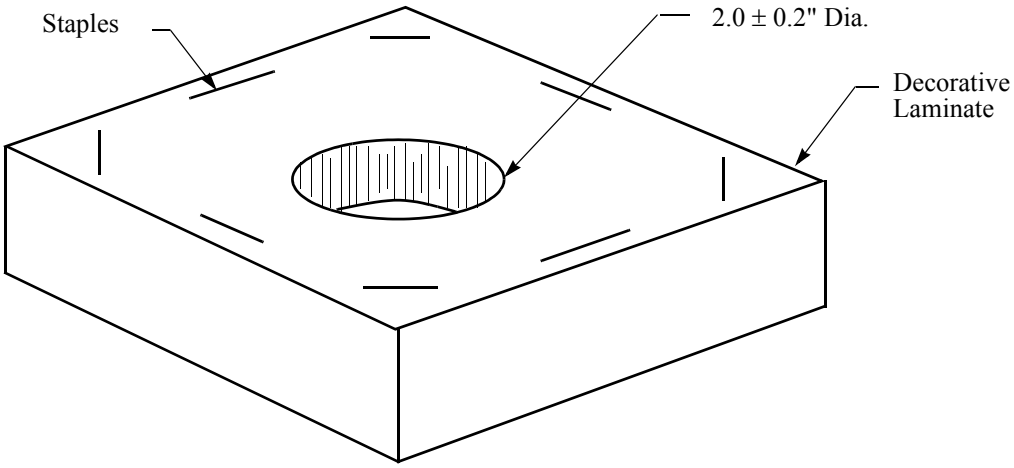

FIGURE 2. Thermoformability Test Set-Up

DHMS P1.28

Adhesive HA211

Aluminum, 0.025" thick, 2024-T3

Prepare panel and bond decorative laminate per **Para.3.9**.

FIGURE 3. Flammability, Heat Release and Smoke Emission Test Panel

5 QUALITY ASSURANCE

5.1 Qualification

5.1.1 A supplier is responsible for the performance of all qualification testing, as specified in **Table 5** of this specification. A three batch qualification is required.

5.1.2 A supplier desiring qualification shall submit one copy of a report showing actual qualification test data and a sufficient quantity of product for Bombardier Aerospace Toronto site evaluation tests.

5.1.3 Materials submitted for qualification must demonstrate compliance to FAR 25.853, App. F, Parts I, IV & V Amd.25-83. Materials to be tested by Bombardier Aerospace Toronto site must exhibit results consistent with those on the suppliers qualification test report of the same material type. The supplier flammability qualification tests and Bombardier Aerospace Toronto site tests shall be conducted at an FAA approved facility. Bombardier Aerospace Toronto site tests will be performed at the time of qualification and at any time thereafter, at the discretion of Bombardier Aerospace Toronto site. Qualified products will be listed in the Qualified Products List to this specification for each type which qualification is granted.

5.1.4 Preproduction samples, as noted in **Para.3.1**, from each new combination of materials (resulting in a new colour, pattern, texture, or other appearance factor), shall be submitted for Bombardier Engineering approval of construction, appearance, texture, and colourfastness to light, prior to furnishing production batches to this specification.

5.1.5 Upon review of supplier's data and Bombardier tests, the supplier will be advised either of product qualification or reasons for disqualification.

5.1.6 Products that are qualified will be listed in the Qualified Products List of this specification.

5.1.7 No changes in the method of manufacture and/or formulation shall be made without notification and prior written approval of Materials Technology and Quality Assurance Departments of Bombardier Aerospace Toronto site, re-qualification of the product may be requested by the purchaser if there are any changes in the method of manufacture and/or formulation.

5.2 Qualification by Similarity

Where a product has been qualified to another similar specification, the supplier may submit the qualification data applicable to this specification for consideration (not applicable for flammability testing). The similar specification may be a government, company, or other specification where the requirements are similar to this specification.

5.3 Acceptance Tests

5.3.1 Unless otherwise specified in the contract or purchase order, the supplier is responsible for all acceptance tests, as specified in **Table 5** of this specification.

5.3.2 The supplier, performing acceptance tests per **Para.5.3.1** shall furnish with each batch of product one copy of an Acceptance Test Report showing actual test data conformance to the acceptance tests specified in **Table 5**. The report shall include the supplier's batch identification.

5.3.3 Bombardier reserves the right to perform any or all of the tests set forth in this specification to ensure that the product continues to meet specification requirements. Any product not meeting the requirements of this specification will be returned to the supplier at the supplier's expense.

TABLE 5. Qualification and Batch Acceptance Tests

Properties	Paragraph	Qualification	Acceptance	
			Manufacturer & Supplier	Purchaser & User
Sampling	Para.3.1	x		
Construction	Para.3.2	x	x	
Cleanability	Para.3.3	x		
Colourfastness	Para.3.4	x		
Weight	Para.3.5	x		
Delamination	Para.3.6	x		
Abrasion Resistance	Para.3.7	x		
Breaking Strength	Para.3.8	x		
Tear Strength	Para.3.9	x		
Dimensional Stability	Para.3.10	x		
Thermoformability	Para.3.11	x		
Storage Life	Para 3.12	x		
Adhesion	Para 3.13	x	x	x
Flammability	Para.3.14	x	x	x
Heat Release*	Para.3.14.1	x	x	
Smoke Emission*	Para.3.14.2	x	x	
Workmanship	Para.3.15	x	x	
Appearance	Para.3.16	x	x	x

* Types 10 through 15 only

* Supplier to provide Heat release and Smoke Emission certification with each batch

5.4 Sampling

5.4.1 Sampling Schedule - Sampling shall be in accordance with Table 6.

TABLE 6. Sampling Schedule

Number of Rolls in Batch	Frequency of Inspection
1 - 20	1 roll
11 - 39	2 rolls
40 and more	3 rolls

5.4.2 Batch - A batch shall be all the product produced in a single production run from the same lot of raw materials under the same fixed conditions and submitted for inspection at one time. When more than one lot of any raw material is used in production of a batch of decorative laminate to this specification, acceptance test shall be conducted so as to cover all lots utilized.

6 ORDERING DATA

6.1 Prerequisite

Materials furnished under this specification for production use shall be qualified and listed on the Qualified Products List prior to issuing of a purchase order.

6.2 Procurement Documents

Procurement documents shall specify the following:
- Title, Number, Type, Class, Issue and Amendment Number of this Specification
- DS82 Number
- Manufacturer's Product Identification
- Width and Length of Roll, or Number of Sheets
- Total Quantity
- Acceptance Report

7 PREPARATION FOR DELIVERY

7.1 Identification

7.1.1 Each roll shall be identified with a label or marking, securely affixed to the package.

7.1.2 The label or removable tag shall use characters of a size such as to be clearly legible and which will not be obliterated by normal handling. Each label or tag shall show the following information:
- Laminate, Plastic, Interior Decorative
- DHMS P1.28, to Latest Issue and Amendment, Type and Class
- DS82 Number
- Manufacturer's Name and Product Identification
- Date of Manufacture
- Sheet or Roll Size
- Purchase Order Number
- Lot and Roll Number
- Quantity

7.2 Packaging

7.2.1 During transit and storage, Class 2 material shall be protected with a release liner of such construction that the adhesive is not affected.

7.2.2 The decorative film or sheet shall be packaged in such a manner as to ensure that the product will not be damaged or distorted during shipment and storage, and will be protected against damage from exposure to weather or any normal hazard.

7.3 Shipping Documentation

7.3.1 Each shipping container shall have the exterior legibly marked with the following information in such a manner that the markings shall not smear or be obliterated during normal handling or use:
- Laminate, Plastic, Interior Decorative
- DHMS P1.28 to latest Issue and Amendment, Type and Class
- DS82 Number
- Manufacturer's Name and Product Identification
- Date of Manufacture
- Sheet or Roll Size
- Purchase Order Number
- Lot and Roll Number
- Quantity

7.3.2 Containers shall be prepared for shipment in accordance with commercial practices to ensure carrier acceptance and safe transportation to the point of delivery.

7.3.3 Each shipment shall contain a copy of the Material Safety Data Sheet.

8 HEALTH AND SAFETY DATA

When supplying samples for qualification per **Para.5.1.2**, the supplier shall submit a Material Safety Data Sheet (MSDS) complying with the "Controlled Products Regulations" of the Hazardous Products Act (also known as W.H.M.I.S. Regulations). The document must state all hazardous ingredients, safe-handling procedures, first-aid measures, fire and explosion data, re-activity data, physical properties, preparation information and procedures for storage and disposal.

This MSDS must then be supplied with a completed DH 4339 form, "Application To Introduce A New Material", to the Material Safety Committee.

Upon receipt of DH 4340 form, "Recommendation", that approves the use of the material, it can then be included on the Qualified Products List.

NOTE: Any change in the formulation of the material requires a re-submission of the MSDS.

QUALIFIED PRODUCTS LIST

MANUFACTURER'S NAME AND ADDRESS	MANUFACTURER'S PRODUCT IDENTIFICATION NO.	MSDS #	QUALIFICATION SHEET NO.	DATE OF PRODUCT APPROVAL
Schneller Inc. 6019 Powdermill Road, Kent, OH 44240 USA Ph: (216) 673-1400	**Type 3 -** Class 1 & 2 Aerfilm 007/009/645 SP1079		PQS #1 PQS #2	May 28, 1976 May 28, 1976
	Type 4 - Class 1 Aerfilm 011/3241/2112/711/690/54" SP1080 Aerfilm 011/###/690 SP1081		PQS #3	May 28, 1976
	Type 6 - Class 1 & 2 Aerlam 020/3000/618HTE/27" x96"/PF 5.5" Aerlam 0155/000/670HTE/27"/ Special PF		PQS #4	Oct. 8, 1976
	Type 7 - Class 1 Aerfilm 009/3000/645		PQS #5	Nov. 30, 1976
	Type 8 - Class 1 Aerfilm TDT-1000/Large Dash Print (2946/2971)/670P/52" (-072)			
	Type 8 - Class 2 Aerfilm TDT-1000/Small Dash Print (2946/2971/670P/52"/ HA722 (-070)			

MANUFACTURER'S NAME AND ADDRESS	MANUFACTURER'S PRODUCT IDENTIFICATION NO.	MSDS #	QUALIFICATION SHEET NO.	DATE OF PRODUCT APPROVAL
	Type 8 - Class 2 Aerfilm TDT-1000/652/ 618HTE/52"/HA722 (-071) Aerfilm TDT-1000/BK4-3-310/ 670P/52"/HA722 (-073)			
	Type 9 - Class 2 Aerfilm 0095/Aersuede (000/ 2900)/670HTE/52"/HA722 (-092) Aerfilm 0095/000/670HTE/52"/ HA722 (-093) Aerfilm 0095/069/2953/ 670HTE/52"/HA722 (-097) Aerfilm 0095/2971/670HTE/ 54"/HA722 (-110)		PQS #8	Nov. 30, 1984
	Type 10 - Class 1 Aerfilm LHR/ 000/3974/ 625HTE (-130)			
	Type 10 - Class 2 Aerfilm LHR/ 000/2900/ 670HTE/54"/HA210		PQS #9	Dec. 9, 1987

MANUFACTURER'S NAME AND ADDRESS	MANUFACTURER'S PRODUCT IDENTIFICATION NO.	MSDS #	QUALIFICATION SHEET NO.	DATE OF PRODUCT APPROVAL
	Type 10 - Class 2A Aerfilm LHR/3935/625HTE/ 54"/HA211 (-185) Aerfilm LHR/ 2946/2971/ 670P/52"/HA211 Small Dash (-133) Aerfilm LHR/ 2946/2971/ 670P/52"/HA211 Large Dash (-135) Aerfilm LHR/ 000/2900/ 670HTE/52"/HA211 (-136) Aerfilm LHR/000/670HTE/54"/ HA211 (-137)		PQS #10	Feb. 9, 1989
	Type 11 - Class 2A Aerfilm LHR/652/618HTE/ HA211 (-134) Aerfilm LHR/663/618HTE		PQS #11	Apr. 12, 1988
	Aerfilm LHR/8222/685/3977/ 670P (-184)		PQS #12	Feb. 6, 1989
	Type 12 - Class 2 Aerfilm LHR/---/---/HA210		PQS #13	Apr. 12, 1988

MANUFACTURER'S NAME AND ADDRESS	MANUFACTURER'S PRODUCT IDENTIFICATION NO.	MSDS #	QUALIFICATION SHEET NO.	DATE OF PRODUCT APPROVAL
	Type 13 - Class 2A Aerfilm LHR/4900/670HTE/ HA211 P/N SO4900-008-H5	N/A	N/A	
	Type 14 - Class 2A Aerfilm LHR 4900/670P/ HA211 P/N SO4900-018-H5		PQS	
	Type 15 - Class 1 Aerfilm LHR/8935/855R P/N S2557		PQS	

Note: Heath Tecna Material Specification HMS 2050 - AE - 12518 - 040 is considered equivalent to this specification DHMS P1.28.

This note is restricted to Heath Tecna.