

# BOMBARDIER

Toronto (de Havilland)

**PROPRIETARY INFORMATION**

# PPS 25.01

**PRODUCTION PROCESS STANDARD**

## INDEX OF ADHESIVES

- Issue 30 - This standard supersedes PPS 25.01, Issue 29.
- Vertical lines in the left hand margin indicate changes over the previous issue.
  - Direct PPS related questions to [PPS.Group@aero.bombardier.com](mailto:PPS.Group@aero.bombardier.com) or (416) 375-7641.
  - This PPS is effective as of the distribution date.

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Quality

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## 1 SCOPE

- 1.1 This Production Process Standard (PPS) lists the adhesives approved for general adhesive bonding of aircraft parts at Bombardier Toronto (de Havilland), as well as material combinations and applicable adhesives to be employed for bonding.
  - 1.1.1 This PPS complements the engineering drawings that specify its use as an authorized instruction. The procedure specified in this PPS shall be followed to ensure compliance with all applicable specifications. In general, if this PPS conflicts with the engineering drawing, follow the engineering drawing. The requirements specified in this PPS are necessary to fulfil the engineering design and reliability objectives.
  - 1.1.2 Refer to [PPS 13.26](#) for the subcontractor provisions applicable to this PPS.
  - 1.1.3 Procedure or requirements specified in a Bombardier BAPS, MPS, LES or P. Spec. **do not** supersede the procedure or requirements specified in this PPS. Similarly, the procedure and requirements specified in this PPS are not applicable when use of a BAPS, MPS, LES or P. Spec. is specified.
- 1.2 If the engineering drawing states “Bond to PPS 25.01” or the adhesive referenced on the drawing has been deleted from the Bombardier Toronto (de Havilland) approved adhesive list (see [Table I](#)), use [Table II](#) to determine the correct adhesive to be used for bonding a particular material combination.

## 2 HAZARDOUS MATERIALS

- 2.1 Before receipt at Bombardier Toronto (de Havilland), all materials shall be approved and assigned Material Safety Data Sheet (MSDS) numbers by the Bombardier Toronto (de Havilland) Environment, Health and Safety Department. Refer to the manufacturer's MSDS for specific safety data on any of the materials specified in this PPS. If the MSDS is not available, contact the Bombardier Toronto (de Havilland) Environment, Health and Safety Department.

## 3 REFERENCES

- 3.1 [PPS 13.26](#) - General Subcontractor Provisions.
- 3.2 PPS references as specified in [Table I](#) and [Table II](#).

## 4 MATERIALS AND EQUIPMENT

### 4.1 Materials

- 4.1.1 [Table I](#) lists the adhesive materials which have been approved for general purpose adhesive bonding at Bombardier Toronto (de Havilland). For special purpose adhesives for high strength metal to metal bonding, bonding de-icer boots, etc., refer to the PPS's specified on the engineering drawing.

## 4.2 Equipment

4.2.1 Refer to the specific adhesive PPS for the equipment required when bonding.

## 5 PROCEDURE

5.1 When using this PPS, the Methods Analyst or Shop Foreman is authorized to select the adhesive from [Table II](#) for the particular material combination specified on the engineering drawing. It is the responsibility of the Methods Analyst or Shop Foreman to record the adhesive type and PPS number against the bonding operation instruction on the Product Specification, Process Sheet or Assembly Manual.

5.2 Apply and cure the adhesive according to the procedure and requirements specified in the appropriate PPS.

**TABLE I - ADHESIVE STATUS**

ADHESIVE	STATUS	PPS
Acrylic plastic cement	Active	<a href="#">25.54</a>
Airform fabricating cement	<i>Cancelled</i>	<a href="#">25.07</a>
AQB-001 Aquabind water-based	Active	<a href="#">25.33</a>
Bostik 1142	Active	<a href="#">25.12</a>
Bostik 1050	<i>Cancelled</i>	<a href="#">25.13</a>
Bostik 7132/Boscodur #22	Active	<a href="#">25.31</a>
Bostik 7132/Boscodur #24T	Active	<a href="#">25.31</a>
DHMS A6.01 polyurethane	<i>Cancelled</i> - Replaced by DSC 479-1	<a href="#">25.22</a>
DHMS A6.05 polyurethane, solvent-free	<i>Cancelled</i> - Replaced by DSC 479-1	<a href="#">25.21</a>
DHMS A6.09 epoxy	Active	<a href="#">25.30</a>
DHMS A6.10 Type I	Active	<a href="#">25.57</a>
DHMS A6.10 Type II	Active	<a href="#">25.08</a>
DHMS A6.11 Type I Class 1	Active	<a href="#">25.23</a>
DHMS A6.11 Type I Class 2	Active	<a href="#">25.63</a>
DHMS A6.11 Type II Class 1	Active	<a href="#">25.55</a>
DHMS A6.12 Type I	Active	<a href="#">25.52</a>
DHMS A6.13	Active	<a href="#">25.14</a>
DHMS A6.15 Fluorosilicone adhesive/sealant	Active	<a href="#">25.25</a>
DHMS P1.15 epoxy	<i>Cancelled</i>	<a href="#">25.28</a>
Dow Corning S-2200	<i>Cancelled</i>	<a href="#">25.15</a>
DSC 91 adhesive tape	Active	<a href="#">25.64</a>
DSC 91 adhesive transfer tape	Active	<a href="#">25.64</a>

**TABLE I - ADHESIVE STATUS**

ADHESIVE	STATUS	PPS
DSC 215-1 Fluorosilicone adhesive/sealant	<i>Cancelled</i> - Replaced by DHMS A6.15	<a href="#">25.25</a>
DSC 233 RTV Silicone adhesive/sealant	Active	<a href="#">25.50</a>
DSC 464 fire retardant fastening tape	Active	<a href="#">25.64</a>
DSC 479-1 one part urethane	Active	<a href="#">25.65</a>
DSC 548-1 two part epoxy	Active	<a href="#">25.67</a>
DSC 565-1, Loctite Superbonder 409 Cyanoacrylate	Active	<a href="#">25.56</a>
EC 524	<i>Cancelled</i>	<a href="#">25.17</a>
EC 770	<i>Cancelled</i>	<a href="#">25.03</a>
EC 826	<i>Cancelled</i>	<a href="#">25.04</a>
EC 833	<i>Cancelled</i>	<a href="#">25.05</a>
EC 847	<i>Cancelled</i>	<a href="#">25.02</a>
EC 870	<i>Cancelled</i>	<a href="#">25.06</a>
EC 1022	<i>Cancelled</i> - Replaced by DHMS A6.10 Type I	<a href="#">25.10</a>
EC-1099	Renamed DHMS A6.10 Type II	<a href="#">25.08</a>
EC-1236	<i>Cancelled</i> - Replaced by EC-1099	<a href="#">25.08</a>
EC-1300	Renamed DHMS A6.11 Type I Class 1	<a href="#">25.23</a>
EC-1300L	Renamed DHMS A6.11 Type I Class 2	<a href="#">25.63</a>
EC 1357	<i>Cancelled</i> - Replaced by DHMS A6.11 Type II Class 1	<a href="#">25.09</a>
EC-1357N	Renamed DHMS A6.11 Type II Class 1	<a href="#">25.55</a>
EC 1578	<i>Cancelled</i>	<a href="#">25.29</a>
EC-2216 B/A grey	Renamed DHMS A6.12 Type I	<a href="#">25.52</a>
EC-2262	Active	<a href="#">25.53</a>
EC 2296	<i>Cancelled</i>	<a href="#">25.51</a>
Epoxy resin	<i>Cancelled</i>	<a href="#">25.11</a>
Fast-Weld #10 epoxy	Active	<a href="#">25.62</a>
General Electric PSA 529/SRC-18 silicone	Renamed DHMS A6.13	<a href="#">25.14</a>
Hysol #4326	Active	<a href="#">25.16</a>
Loctite Superbonder 430 cyanoacrylate	Active	<a href="#">25.56</a>
Parabond M-277 pressure sensitive	<i>Cancelled</i>	<a href="#">25.32</a>
Pliobond 20	<i>Cancelled</i>	<a href="#">25.20</a>
RTV 88	<i>Cancelled</i>	<a href="#">25.27</a>
Scotch-Weld DP802 B/A	Active	<a href="#">25.70</a>
Scotch-Weld 3532 B/A	Active	<a href="#">25.69</a>
Scotch-Weld 3549 B/A	Active	<a href="#">25.69</a>

**TABLE I - ADHESIVE STATUS**

ADHESIVE	STATUS	PPS
Silastic RTV 731	<i>Cancelled</i>	<a href="#">25.18</a>
Silastic 140	<i>Cancelled</i>	<a href="#">25.19</a>
Chemgrip Bonding Kit	<i>Cancelled</i> - Replaced by DHMS A6.09	<a href="#">25.24</a>
URAC 185	<i>Cancelled</i>	<a href="#">25.26</a>
Uralane 5754 urethane	<i>Cancelled</i> - Replaced by DSC 479-1	<a href="#">25.61</a>

**TABLE II - ADHESIVE SELECTION**

MATERIAL #1	MATERIAL #2	ADHESIVE	PPS
Acrylic plastic - plexiglas, MIL-P-5425	Neoprene rubber, MIL-R-6130, Type II Grade A, medium or MIL-R-6855 Class 2	DHMS A6.11 Type I Class 1	<a href="#">25.23</a>
	Silicone rubber, AMS 3345 or AMS 3346	DHMS A6.13	<a href="#">25.14</a>
	Acrylic plastic - plexiglas, MIL-P-5425	Acrylic plastic cement	<a href="#">25.54</a>
Acrylic polyvinyl chloride (PVC), DHMS P1.09	Felt, CF206A	DHMS A6.11 Type II Class 1	<a href="#">25.55</a>
	Neoprene coated nylon, DHMS F5.07		
	Metal (unstressed)		
	Wood		
	Metal (stressed)	DSC 479-1	<a href="#">25.65</a>
	Neoprene rubber, MIL-R-6130, Type II Grade A, medium or MIL-R-6855 Class 2	DHMS A6.11 Type I Class 1	<a href="#">25.23</a>
	Silicone rubber, AMS 3345 or AMS 3346	DHMS A6.13	<a href="#">25.14</a>
	Velcro tape	DHMS A6.10 Type II	<a href="#">25.08</a>
	Vinyl, DSC 85 - decorative	EC-2262	<a href="#">25.53</a>
	Acrylic polyvinyl chloride (PVC), DHMS P1.09		
Arborite - see Phenolic laminates			
Asbestos	Metal	DHMS A6.11 Type II Class 1	<a href="#">25.55</a>
Balsa Wood (end grain) DHMS CS 8.01	Metal	DSC 479-1	<a href="#">25.65</a>
	Phenolic laminates (Arborite, Formica, Durolam)		
	Fibreglass	Refer to <a href="#">PPS 10.29</a>	
Carpet backing	Velcro tape	DHMS A6.10 Type II	<a href="#">25.08</a>
Cork (all types)	Metal		
Decorative film veneers P1.28	Kevlar, DHMS P1.24	DHMS A6.10 Type I	<a href="#">25.57</a>
	Fibreglass		
	Metal		
	Wood		

TABLE II - ADHESIVE SELECTION

MATERIAL #1	MATERIAL #2	ADHESIVE	PPS
Fabric backing	Foam, DSC 52	DHMS A6.11 Type II Class 1	25.55
	Metal		
	Wood		
	Fabric backing		
	Vinyl, DSC 85 - decorative	EC-2262	25.53
Fabrilité	Metal	EC-2262	25.53
	Wood		
	Fabrilité facing		
Felt, CF206A	Fibreglass	DHMS A6.11 Type II Class 1	25.55
	Acrylic polyvinyl chloride (PVC), DHMS P1.09		
	Kevlar, DHMS P1.24		
	Metal		
	Wood		
Fibreglass laminate (unstressed)	Metal	DHMS A6.11 Type I Class 1	25.23
	Neoprene rubber, MIL-R-6130, Type II Grade A, medium or MIL-R-6855 Class 2		
	Wood		
	Fibreglass laminate (unstressed)		
	Metal labels	DHMS A6.15	25.25
	Polycarbonate, DHMS P1.01	DSC 479-1	25.65
Fibreglass laminate (stressed)	Metal	DHMS A6.12 Type I	25.52
	Wood		
	Fibreglass laminate (stressed)		
Fibreglass insulation	Metal	DHMS A6.10 Type II	25.08
Fibrethin - see neoprene coated nylon, DHMS F5.07			
Fluorosilicone rubber, MIL-R-25988	Metal	DHMS A6.15	25.25
Foam, DSC 52	Fabric backing	DHMS A6.11 Type II Class 1	25.55
	Wood		
	Foam, DSC 52		
	Polycarbonate, DHMS P1.01 (stressed)	DSC 479-1	25.65
	Polycarbonate, DHMS P1.01 (unstressed)	DHMS A6.11 Type I Class 2	25.63
Formica - see Phenolic laminate			

**TABLE II - ADHESIVE SELECTION**

MATERIAL #1	MATERIAL #2	ADHESIVE	PPS
Kevlar, DHMS P1.24	Velcro tape	DHMS A6.10 Type II	25.08
	Decorative film veneers, P1.28	DHMS A6.10 Type I	25.57
	Felt, CF206A	DHMS A6.11 Type II Class 1	25.55
	Silicone rubber, AMS 3345 or AMS 3346	DHMS A6.13	25.14
Kydex - see Acrylic polyvinyl chloride DHMS P1.09			
Metal	Balsa Wood (end grain), DHMS CS8.01	DSC 479-1	25.65
	Cork (all types)	DHMS A6.10 Type II	25.08
	Fibreglass insulation		
	Velcro tape		
	Vinyl facings	EC-2262	25.53
	Silicone facings	DHMS A6.13	25.14
	Silicone rubber, AMS 3345 or AMS 3346		
	Fibreglass laminates (stressed)	DHMS A6.12 Type I	25.52
	Metal (low stress, high temperature and fluid resistance)	DHMS A6.15	25.25
	Metal labels		
	Fluorosilicone rubber, MIL-R-25988		
Metal (stressed)	Acrylic polyvinyl chloride (PVC), DHMS P1.09	DSC 479-1	25.65
Metal	Acrylic polyvinyl chloride (PVC), DHMS P1.09	DHMS A6.11 Type II Class 1	25.55
	Asbestos (plain or rubberized)		
	Fabric backing		
	Felt, CF206A		
	Neoprene facings		
	Nylon facings		
	Foam, DSC 52		
	Metal (low stress)		
	Phenolic, MIL-P-15035 FBE FBM		
	Phenolic laminates		
	Plywood		
	Wood		
	Polycarbonate, DHMS P1.01 (stressed)	DSC 479-1	25.65
	Fibreglass laminates (unstressed)	DHMS A6.11 Type I Class 1	25.23
	Neoprene coated nylon, DHMS F5.07		
	Neoprene rubber, MIL-R-6130, Type II Grade A, medium or MIL-R-6855 Class 2		
	Weatherbar - polyolefin coated nylon fabric		



TABLE II - ADHESIVE SELECTION

MATERIAL #1	MATERIAL #2	ADHESIVE	PPS
Metal labels (where resistance to diester oil and JP fuel is required)	Fibreglass	DHMS A6.15	25.25
	Metal		
	Polycarbonate, DHMS P1.01		
Metal labels (where resistance to phosphate ester oil is required)	Fibreglass laminates (unstressed)	DSC 233	25.50
	Metal		
	Polycarbonate, DHMS P1.01		
Neoprene rubber, MIL-R-6130, Type II Grade A, medium or MIL-R-6855 Class 2	Acrylic plastic- plexiglas, MIL-P-5425	DHMS A6.11 Type I Class 1	25.23
	Acrylic polyvinyl chloride (PVC), DHMS P1.09		
	Fibreglass laminates (unstressed)		
	Metal		
	Wood		
Neoprene coated nylon, DHMS F5.07	Acrylic polyvinyl chloride (PVC), DHMS P1.09	DHMS A6.11 Type II Class 1	25.55
	Metal		
	Neoprene coated nylon, DHMS F5.07		
Phenolic laminate, MIL-P-79	Metal	DHMS A6.11 Type II Class 1	25.55
	Wood		
	Phenolic, MIL-P-79		
	Balsa Wood, DHMS CS8.01	DSC 479-1	25.65
Plywood	Metal	DHMS A6.11 Type II Class 1	25.55
Polycarbonate, DHMS P1.01 (unstressed)	Velcro tape	DSC 91 adhesive transfer tape	25.64
	Fibreglass laminate (unstressed)	DHMS A6.11 Type I Class 2	25.63
	Metal		
	Foam, DSC 52		
	Polycarbonate, DHMS P1.01 (unstressed)		
Polycarbonate, DHMS P1.01 (stressed)	Fibreglass laminate (unstressed)	DSC 479-1	25.65
	Metal		
	Foam, DSC 52		
	Polycarbonate, DHMS P1.01 (stressed)		
	Velcro tape	DSC 91 adhesive transfer tape	25.64
Rulon "A" - see Teflon, ceramic-filled			
Silicone rubber, AMS 3345 or AMS 3346	Acrylic polyvinyl chloride (PVC), DHMS P1.09	DHMS A6.13	25.14
	Fibreglass		
	Kevlar, DHMS P1.24		
	Metal		
	Acrylic plastic - plexiglas, MIL-P-5425		
	Polycarbonate, DHMS P1.01	DSC 233	25.50

**TABLE II - ADHESIVE SELECTION**

MATERIAL #1	MATERIAL #2	ADHESIVE	PPS
Teflon, ceramic-filled (Rulon "A")	Metal	DHMS A6.12 Type I	25.52
Teflon, treated	Aluminum	DHMS A6.09 epoxy	25.30
	Steel		
	Teflon, ceramic-filled (Rulon "A")		
	Teflon, treated		
Velcro tape	Polycarbonate, DHMS P1.01	DSC 91 adhesive transfer tape	25.64
	Vinyl, DSC 85 - decorative	EC-2262	25.53
	Acrylic polyvinyl chloride (PVC), DHMS P1.09	DHMS A6.10 Type II	25.08
	Carpet backing		
	Kevlar, DHMS P1.24		
	Metal		
	Vinyl, DSC 85 - non-decorative		
	Wood		
Vinyl, DSC 85 - decorative	Acrylic polyvinyl chloride (PVC), DHMS P1.09	EC-2262	25.53
	Fabric backing		
	Metal		
	Velcro tape		
	Vinyl, DSC 85 - decorative		
Vinyl, DSC 85 - non-decorative	Velcro tape	DHMS A6.10 Type II	25.08
Weatherbar - polyolefin coated nylon fabric	Metal	DHMS A6.11 Type I Class 1	25.23
	Weatherbar - polyolefin coated nylon fabric		
Wood	Acrylic polyvinyl chloride (PVC), DHMS P1.09	DHMS A6.11 Type II Class 1	25.55
	Fabric backing		
	Felt, CF206A		
	Fibreglass laminate (unstressed)		
	Foam, DSC 52		
	Metal		
	Phenolic laminates, MIL-P-79		
	Wood (unstressed)		
	Neoprene rubber, MIL-R-6130, Type II Grade A, medium or MIL-R-6855 Class 2	DHMS A6.11 Type I Class 1	25.23
	Fibreglass laminate (stressed)	DHMS A6.12 Type I	25.52
	Fabrilite facing	EC-2262	25.53
	Decorative film veneers, P1.28	DHMS A6.10 Type I	25.57
	Velcro tape	DHMS A6.10 Type II	25.08

## **6 REQUIREMENTS**

- 6.1 Apply and cure the adhesive according to the procedure and requirements specified in the PPS listed in [Table I](#) or [Table II](#).
- 6.2 Ensure that the adhesive type and PPS number have been recorded against the bonding operation instruction on the manufacturing documentation (e.g., Product Specification, Process Sheet or Assembly Manual).

## **7 SAFETY PRECAUTIONS**

- 7.1 *Refer to the specified adhesive PPS for the safety precautions for that adhesive.*

## **8 PERSONNEL REQUIREMENTS**

- 8.1 Unless otherwise specified in the applicable PPS, personnel responsible for general bonding shall have a basic understanding of the procedure and requirements as specified herein and shall have exhibited their familiarity to their supervisor.