

Appendix A:

Boeing St. Louis Consumable Material Specification (Section 3.1.4)
Boeing Shared Services Group – Puget Sound, Composite Materials
Boeing quote for numerous facilities, references Qualified Products List

- 3.1.2 Fabrication of an inclusion test panel may be performed at Boeing-St. Louis, a prepreg supplier, or the manufacturer of the consumable material. If performed outside of Boeing-St. Louis, copies of the actual test panel cure cycle and post cure (if applicable), a schematic of the location of the inclusions, and the type of inclusion(s) shall accompany the panel submitted to Boeing-St. Louis for NDT evaluation.
- 3.1.3 Inclusion test panels shall be fabricated per the appropriate Boeing-St. Louis process specification cure cycle.
- 3.1.4 The inclusion material shall be the exact material intended for use throughout manufacturing production. Boeing-St. Louis Material and Process shall be notified if any changes are made to the inclusion material after initial test and evaluation. If deemed necessary, the change to the inclusion material shall require re-evaluation for NDT detectability.
- 3.1.5 The inclusion material shall be handled in such a manner to avoid contamination of the inclusion surfaces and out edges. The inclusion material shall not be allowed at any time, prior to collection within the test panel, to come in contact with any surface that may transfer contaminants. Inclusion materials shall be handled with clean, white 100% cotton gloves (to avoid contamination due to oil from fingertips, etc.). Inclusion materials shall be cut to size using clean knife or scissor blades. The inclusion shape shall not be outlined on the material with any marking device (pen, pencil, etc.) to aid in cutting the inclusion to size; markings may contaminate the inclusion edges.

3.2 TEST PROCEDURE NO. 2

- 3.2.1 Those performing Test Procedure No. 2 shall be qualified chemists who have a good working knowledge of infrared spectroscopy and know how to properly prepare and analyze specimens using a Fourier Transform Infrared Spectrometer.

- 3.2.2 The dry transfer contamination test shall be performed in duplicate, using two different samples of the consumable material.

4. **MATERIALS** - It is recommended to obtain and use materials listed below from the vendor listed, unless the product name/vendor is given as an example, (e.g., Xxx...). In those cases, a specific product name/vendor is only provided as a reference; equivalent products may be used.

- 4.1 **Hydrocarbon Reference** - Double distilled hydrocarbon oil (e.g., Cat. No. 98-198-032, Leybold Vacuum Products, San Jose, CA)

- 4.2 **Silicone Reference** - Dimethylpolyoxane (e.g., DC200 or DC310, Dow Corning Corp., Midland, MI)

NOTE: A methyl-phenyl polysiloxane standard may also be needed (e.g., RAM 225 Mold Release, Ram Chemical Co., Los Angeles, CA, or DC704 Vacuum Grease, Dow Corning Corp., Midland, MI)

- 4.3 Potassium Bromide (KBr), Infrared Grade, cat No. 0011-184, International Crystal Labs, Garfield, NJ

- 4.4 Nitrogen, 99.998% minimum derived from liquid nitrogen boil-off, total hydrocarbon content less than 0.5 ppm

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BOEING
ST. LOUIS

CAGE CODE 78301

Commodity/Service: Composite Materials (Release Films)

Boeing Shared Services Group - Puget Sound**SUPPLEMENTAL TERMS & CONDITIONS****NO CHANGES TO QPL WITHOUT PERMISSION FROM BOEING**

No change in formulation or processing will be made to any material listed on the Qualified Products List (QPL) without written permission of The Boeing Company. Each product lot of material shall be tested in accordance with, and meet or exceed, the contamination requirements of BMS 15-5, AMS 3819 and or as applicable AMS 3804. A copy of the lot test results and a Certificate of Compliance shall accompany each shipment or be forwarded to the Buyer prior to each shipment if requested.

MANUFACTURERS STANDARD WARRANTY

Manufacturers standard warranty shall apply.

PREMIUM TRANSPORTATION CHARGES

Seller agrees premium transportation charges will be passed on to Buyer only if previously authorized by Buyer. A copy of the applicable freight bill must accompany Seller's invoice whenever premium transportation has been authorized and the freight bill is \$500 or more. The net additional freight charge (that which exceeds normal freight charge) should be entered as a separate line item on the applicable invoice. Boeing will pay only the net additional freight charge.

BACKORDERED QUANTITIES ON PACKING SLIP INVOICE (PSI) ORDERS

(For use on PSI Purchase Contracts when backordered quantities are expected.)

Supplier shall indicate on PSI the expected completion date of any backordered quantities.

AUTHORIZATION FOR DIRECT DELIVERIES IN PUGET SOUND

Seller will deliver directly to any Boeing location in the Puget Sound area as specified by the Buyer's authorized representative placing the requirement.

MINIMUM ORDER AND/OR QUANTITIES

Unless otherwise stated in the Purchase Contract, no minimum order and/or quantities shall apply.

INSPECTION

The manufacturer shall inspect at his plant to ensure conformation to Buyer purchase specifications. Buyer representatives may attend tests (at Buyer's option). A copy of actual inspection results will be provided to the Buyer upon product shipment. Buyer may require an advanced copy of your test/acceptance procedures. Final acceptance shall be contingent upon: a) inspection and testing for compliance to Buyer purchase specifications, and b) receipt of all documentation specified by Buyer.

BILLING

For any resultant Purchase Contract/Agreement, all billing shall be at the price in effect at the time of order placement, not at the time of shipment/performance.

PARTICIPATION

Seller agrees that during the term of this Agreement (including any option period), any other Boeing Component, division, affiliate or Boeing majority-owned or controlled entity not specifically identified

3.3 Qualified Source Approval

3.3.1 Qualification of the material and addition to the Qualified Products List shall be granted after it has been demonstrated that the manufacturer's samples meet all the qualification requirements of this specification, when tested as described herein, and production shop requirements relative to application, handleability, etc.

3.3.1.1 Products shall be approved only for the formulation on which the qualification tests were made. Any changes to the formulation shall cause the material to be designated as a new product which shall not be considered approved to the requirements of this specification.

R 3.4 Shelf Life

RIMS 1010 liquid parting agents shall be stored in sealed containers, except during application to the tool surfaces. Moisture absorption adversely affects the performance of these materials. Since liquid parting agents absorb moisture, it is recommended these materials be used within three months of opening the original container. Discard any material that does not appear clear or has precipitates.

3.4.1 Type I, Class 1 and Class 2 liquid parting agents have a maximum shelf life of 12 months from date of manufacture at indoor ambient conditions, away from direct sunlight.

3.4.2 Type II liquid parting agents have a maximum shelf life of 6 months from date of manufacture at indoor ambient conditions, away from direct sunlight.

3.5 General

3.5.1 All coatings shall demonstrate non-transferring release capabilities with structural adhesives and composite prepreg materials.

3.5.2 All coatings must demonstrate non-adverse affects on normal materials which have a high probability of coming in contact with the tool face. Typically these materials will include, but may not be limited to, epoxy adhesive and matrix resins, vacuum bag sealing tapes, double-back pressure sensitive tape, peel piles, breather fabrics and bagging films.

3.5.3 Materials qualified to this specification will typically have demonstrated a capability of being applied to the tool face a minimum of ten times prior to a requirement arising to strip the tool back to the original surface before application of additional release material.

3.5.4 Apply release agents to tool surfaces per RPS 17.99.

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R 3.8 Thickness
 The minimum average thickness for each material is specified in Table 1.

3.9 Air Flow (Air Permeability) Test - Materials shall maintain a positive air flow of 10ft³ minimum when tested for the required pressure for that particular grade.

Test	Type 1	Type 2		Type 3	Type 4
	Grades A & B	Grade A	Grade B	Grade A	Grade A
Weight Loss (%)	1.0	2.0	2.0	2.0	1.9
Thickness (inches)	0.055	0.100	0.200	0.020	0.135
pH	7.0 ± 1.0	7.0 ± 1.0	7.0 ± 1.0	7.0 ± 1.0	7.0 ± 1.0
Air Flow	10ft ³ /hr minimum positive air flow when tested at 100 psi (A) or 200 psi (B) at 350°F	10ft ³ /hr minimum positive air flow when tested at 100 psi	10ft ³ /hr minimum positive air flow when tested at 200 psi	10ft ³ /hr minimum positive air flow when tested at 100 psi	10ft ³ /hr minimum positive air flow when tested at 100 psi

Table 1: Material Requirements

4.0 QUALITY ASSURANCE

4.1 Qualification

4.1.1 Suppliers seeking qualification to this specification shall forward all requests to the Material Department at Rohr-Riverside. Suppliers shall furnish Rohr with all test data required by this specification, including individual test values and the identify of the testing facility.

R 4.1.2 Qualification shall be based upon the manufacture of material which complies to the requirements of Section 3.0 of this specification. The number of batches to be tested shall be determined by Materials and Processing Engineering.

4.1.3 After the test data is approved, the supplier will send a sample of the material for evaluation at Rohr.

4.1.4 The supplier shall be notified of qualification status after reviewing the submitted data and the completion of any tests deemed necessary by Rohr. If approved, the supplier will be added to the Qualified Products List.

R 4.1.5 No change in product formulation, raw materials, methods of manufacture or testing location shall be made without notification and prior approval of Rohr Materials and Process Engineering. Requalification of the revised supplier designation may be requested.

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