

de Havilland
Material Specification

| | |
|----------------------------------|--|
| TITLE: | REMOVER, AIRCRAFT PAINT SYSTEMS |
| SPECIFICATION NUMBER: | DHMS S 5.03 |
| ISSUE: | D |
| AMENDMENT: | 1 |
| DATE: | December 18, 2018 |
| PAGE: | 1 of 8 |

Information in this document is **proprietary** to de Havilland . This document must not be reproduced or distributed in the whole or in part to a third party without prior express permission in writing from de Havilland .

Prepared by:

Approved by:

SIGNED ORIGINAL ON FILE

Shiraz Haniff

Materials Technology

Kenneth Quon

Materials Technology

BOMBARDIER

| | | |
|--------------|--|--------------------------------|
| de Havilland | Material Specification | DHMS: S 5.03 |
| | | ISSUE: D |
| | | AMD.: 1 |
| | REMOVER, AIRCRAFT PAINT SYSTEMS | DATE: December 18, 2018 |
| | | PAGE: i of i |

REVISION RECORD

| Issue | Page | Description and Reason for Change |
|--------|----------|--|
| B | i | Added revision record page |
| C | QPL | This is a complete revised issue. Detail changes have not been noted. Added new Grade 2 product from Deane & Company |
| Amd. 1 | QPL | Added CEE-BEE E-3000 |
| D | 2 QPL | This is a complete revised issue. Removed Grade 1 methylene Chloride based due to banned substance Name and address changed for TURCO products Was: TURCO 6930 Now: BONDERITE S ST 6930 AERO Removed all Grade 1 products: Turco 5351, Cee-Bee R256A, Ardrex 2526, TPT-13 due to REACH, EPA regulation. |
| Amd. 1 | QPL | Clarified the Manufacturer of CEE-BEE products is McGEAN-ROHCO Inc. DEANE & COMPANY is the distributor |

| | | |
|---------------------|-------------------------------|---------------------------|
| de Havilland | Material Specification | DHMS: S 5.03 |
| | | ISSUE: D |
| | | AMD.: -- |
| | | DATE: July 7, 2017 |
| | | PAGE: 2 of 8 |

1 SCOPE

This specification covers the requirements for a thixotropic, water rinsable, paint remover for use on aircraft metallic surfaces.

2 CLASSIFICATION

The paint remover shall be one of the following Grades:

I

Grade 2 - Non-methylene chloride based

3 APPLICABLE DOCUMENTS

The following documents form a part of this specification to the extent defined 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 stated, the current issue shall be used.

3.1 Government Specifications

| | |
|------------|--|
| MIL-C-5541 | Chemical Conversion Coatings on Aluminum and Aluminum Alloys |
| MIL-A-8625 | Anodic Coatings, for Aluminum and Aluminum Alloys |
| QQ-A-250/5 | Aluminum Alloy, Alclad 2024, Plate and Sheet |
| QQ-P-416 | Plating, Cadmium (Electrodeposited). |

3.2 de Havilland Materials Specifications

| | |
|------------|--------------------------------|
| DHMS C4.01 | Primer, Fluid Resistant, Epoxy |
| DHMS C4.04 | Enamel, Polyurethane |

4 REQUIREMENTS**4.1 Appearance**

The paint remover shall be free from skins and lumps and shall be readily mixed to a homogeneous condition.

4.2 Viscosity

The viscosity of the Grade 1 paint remover shall be 10-30 poises when tested by a Brookfield viscometer using a No. 3 spindle.

| | | |
|--|-------------------------------|---------------------------|
| de Havilland | Material Specification | DHMS: S 5.03 |
| | | ISSUE: D |
| | | AMD.: -- |
| | | DATE: July 7, 2017 |
| | | PAGE: 3 of 8 |
| REMOVER, AIRCRAFT PAINT SYSTEMS | | |

4.3 Rinsability

When water is applied, the paint remover shall rinse clean, without visible residue, from a metal substrate.

4.4 Stripping Ability

Grade 1

When the paint remover is applied to test panels A, B, C and D prepared per para 4.0 and allowed to remain for 15 minutes, it shall strip 90-100% of the paint films, including primers. A bristle brush or wooden paddle may be used to assist in removal of residual films.

Grade 2

When the paint remover is applied to test panels A, B, C and D prepared per para. 4.0 and allowed to remain for 90 minutes, it shall strip 90-100% of the paint films, including primers. A bristle brush or wooden paddle may be used to assist in removal of residual films.

4.5 pH

The pH of Grade 1 paint remover shall not be less than 6.5

4.6 Corrosion by Paint Remover

Specimens of Alclad 2024 aluminum (conforming to QQ-250/5) and cadmium plated steel (plated in accordance with QQ-P-416C, Class 2, Type 1) shall not discolour nor show evidence of pitting or corrosion when immersed in undiluted paint remover and in a 50% solution of paint remover and distilled water for 4 hours at approximately 23°C.

4.7 Corrosion by Residual Solids

Specimens of Alclad 2024 aluminum (conforming to QQ-A-250/5) and cadmium plated steel (plated in accordance with QQ-P-416C, Class 2, Type 1) shall not discolour nor show evidence of pitting or corrosion when dipped in both undiluted paint remover and a 50% solution of paint remover and distilled water, removed and allowed to remain in contact with the residual solids for 48 hours at approximately 23°C.

4.8 Shop Evaluation

The paint remover shall perform satisfactorily on shop evaluation tests in de Havilland Paint Shop. These tests shall be in accordance with normal production procedure on aircraft parts selected at random for paint stripping.

5 TEST PANELS

Test panels shall be Alclad 2024 aluminum alloy conforming to QQ-A-250/5, minimum size 10 square inches. Type A and B panels shall be given a chemical conversion coating conforming to MIL-C-5541C, Class 1A. Type C and D panels shall be anodized in accordance with MIL-A-8625C, Type 1, Class 1. All panels shall be primed with an epoxy primer conforming to DHMS C4.01, Type 2. Type B and D panels shall be painted with polyurethane enamel conforming to DHMS C4.04, Type 4. All panels shall be allowed to cure for at least 7 days before testing.

BOMBARDIER

| | | |
|--------------|--|---|
| de Havilland | Material Specification | DHMS: S 5.03 ISSUE: D |
| | REMOVER, AIRCRAFT PAINT SYSTEMS | AMD.: -- DATE: July 7, 2017 PAGE: 4 of 8 |

6 QUALITY ASSURANCE PROVISION

6.1 Qualification Tests

- 6.1.1 A supplier is responsible for the performance of all qualification testing, as specified in **Table I**. Three batches qualification is required.
- 6.1.2 A supplier desiring qualification shall submit one copy of a report showing actual qualification test data and a sufficient quantity of product for de Havilland evaluation tests.
- 6.1.3 Upon review of supplier's data and de Havilland tests, the supplier will be advised either of product qualification or reasons for failure.
- 6.1.4 Products that are qualified will be listed in the Qualified Products List of this specification.
- 6.1.5 No changes in the method of manufacture and/or formulation shall be made without notification and prior written approval of Materials Technology Department.
- 6.1.6 Requalification of the product may be requested by the purchaser if there are any changes in the method of manufacture and/or formulation.

| | | |
|--------------|-------------------------------|---------------------------|
| de Havilland | Material Specification | DHMS: S 5.03 |
| | | ISSUE: D |
| | | AMD.: -- |
| | | DATE: July 7, 2017 |
| | | PAGE: 5 of 8 |

REMOVER, AIRCRAFT PAINT SYSTEMS**TABLE I. Qualification and Acceptance Tests**

| Test | Paragraph | Qualification | Acceptance |
|------------------------------|-----------|---------------|------------|
| Appearance | 3.1 | x | x |
| Viscosity (Grade 1 only) | 3.2 | x | |
| Rinsability | 3.3 | x | |
| Stripping Ability | 3.4 | x | |
| pH (Grade 1 only) | 3.5 | x | |
| Corrosion by Paint Remover | 3.6 | x | |
| Corrosion by Residual Solids | 3.7 | x | |
| Shop Evaluation | 3.8 | x | |

6.2 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. The similar specification may be a government, company, or other specification where the requirements are similar to this specification.

6.3 Acceptance Tests

- 6.3.1 Unless otherwise specified in the contract or purchase order, the supplier is responsible for all Batch Acceptance Tests, as specified in Table I of this specification.
- 6.3.2 The supplier, performing acceptance tests shall furnish with each batch of product one copy an Acceptance Test Report showing actual test data conformance to the acceptance tests specified in **Table I**. The report shall include the supplier's batch identification.
- 6.3.3 De Havilland 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.

6.4 Definitions

Batch is defined as the end product of all raw materials mixed and/or manufactured at the same time and place. The weight or volume may vary, depending upon the capacity of the manufacturer's facilities.

| | | |
|---------------------|-------------------------------|---------------------------|
| de Havilland | Material Specification | DHMS: S 5.03 |
| | | ISSUE: D |
| | | AMD.: -- |
| | | DATE: July 7, 2017 |
| | | PAGE: 6 of 8 |

7 ORDERING DATA**7.1 Prerequisite**

Products furnished under this specification shall be qualified and listed on the Qualified Products List prior to issuance of a Purchase Order.

7.2 Procurement Documents

Procurement documents shall specify the following:

- (a) Title, Number, Issue and Amendment Number of this Specification
- (b) Type and Size of Containers
- (c) Total Quantity.

8 PREPARATION FOR DELIVERY**8.1 Preservation and Packing**

The paint remover shall be packed in such a manner as to assure that, during shipment and storage, the product will be protected against damage from exposure to hazards which would affect adversely the property conformance to Section 3 of this specification.

8.2 Packaging

The paint remover shall be supplied in unit of 5 gallons or 45 gallons approximately.

8.3 Marking

Each container shall be legibly marked with the following information:

- Paint Remover (conforms to DHMS S5.03)
- Manufacturer's Name and Product Identification (Trade Name or Code Number)
- Date of Manufacture
- Net Quantity

8.4 Shipping Documents

The shipping document shall show:

- de Havilland Purchase Order Number
- Specification Number
- Date of Manufacture

| | | |
|--|-------------------------------|---------------------------|
| de Havilland | Material Specification | DHMS: S 5.03 |
| | | ISSUE: D |
| REMOVER, AIRCRAFT PAINT SYSTEMS | | AMD.: -- |
| | | DATE: July 7, 2017 |
| | | PAGE: 7 of 8 |

- Number of Containers
- Total Quantity

- 8.4.1 Containers shall be prepared for shipment in accordance with commercial practice to assure carrier acceptance and safe transportation to the point of delivery.
- 8.4.2 Each shipment shall contain a copy of the Material Safety Data Sheet.

9 HEALTH AND SAFETY DATA

When supplying samples for qualification per Para.6.1.2, 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 "Application To Introduce A New Material" form to the Material Safety Committee.

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

NOTE: Any changes in the formulation of the material require a re-submission of the Material Safety Data Sheet.

BOMBARDIER

| | | |
|--------------|-------------------------------|--------------------------------|
| de Havilland | Material Specification | DHMS: S 5.03 |
| | | ISSUE: D |
| | | AMD.: 1 |
| | | DATE: December 18, 2018 |
| | | PAGE: 8 of 8 |

QUALIFIED PRODUCTS LIST

| MANUFACTURER'S NAME AND ADDRESS | MANUFACTURER'S PRODUCT IDENTIFICATION NO. | DE HAVILLAND QUALIFICATION SHEET NO. | DATE OF PRODUCT APPROVAL |
|---|--|--|--------------------------------|
| | | | |
| | | | |
| | | | |
| GRADE 2 BRENTAC PACIFIC INC. 10747 Patterson PL Santa Fe Springs, CA USA | BONDERITE S-ST 6930 AERO dH MSDS #3683 | PQS 10 | July 23/04 |
| GRADE 2 Napier Environmental Technologies 720 Eaton Way, Delta British Columbia V3M 6J9 | SV-35 PMA dH MSDS #3684 | PQS 11 | July 23/04 |
| GRADE 2 Manufacturer: McGEAN-ROHCO Inc. 2910 Harvard Ave. Cleveland OH 44105 | CEE-BEE Paint Stripper E-1004J dH MSDS #3766 | PQS 12 | May 2007 |
| Distributor DEANE & COMPANY 190 ONEIDA Pointe Claire, QC H9R 1AS | CEE-BEE E-3000* * Peroxide Activator for stripping Polyurethane. top coats | PQS 13 | Sept/18/14 |