

Process Specification for the Chemical Conversion Coating of Aluminum Alloys

Engineering Directorate

Structural Engineering Division

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Process Specification for the Chemical Conversion Coating of Aluminum Alloys

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12/10/07
 Date

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12/31/07
 Date

| REVISIONS | | |
|-----------|---|----------|
| VERSION | CHANGES | DATE |
| -- | Original version | 5/15/96 |
| A | Reviewed and update for accuracy; Author changed | 7/21/99 |
| B | Limited the brush application for conversion coating in section 9.0 | 8/25/05 |
| C | Reviewed and updated for accuracy. Deleted an obsolete "Prepared by:" signature block and updated the MIL specification number. | 12/31/07 |

Verify that this is the correct version before use.

1.0 PURPOSE

This process specification establishes technical requirements for the application of chemical conversion coatings on aluminum and aluminum alloys.

2.0 SCOPE

This process specification covers the requirements for two classes of chemical conversion coatings formed by the reaction of chemical conversion materials and the surfaces of aluminum and aluminum alloys. Conversion coatings covered by this specification are intended to provide increased corrosion resistance and/or a surface having better paint adhesion than uncoated aluminum. They are not intended to be used for decorative applications.

3.0 USAGE

This process specification shall be called out on the engineering drawing by using a drawing note that identifies the process specification and class and the conversion coating to be used. For example:

| |
|---|
| <p>ALODINE CONVERSION COAT (CLASS 1A) PER PRC-5005</p> |
|---|

The two classes of chemical conversion coating are:

- | | |
|----------|--|
| Class 1A | For maximum protection against corrosion, for surfaces to be painted or left unpainted |
| Class 3 | For protection against corrosion where lower electrical resistance is required |

3.1 WORK INSTRUCTIONS

Work instructions shall be generated for implementing this process specification. The work instructions shall contain sufficient detail to ensure that the manufacturing process produces consistent, repeatable products that comply with this specification.

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4.0 DEFINITIONS

None.

5.0 SAFETY PRECAUTIONS AND WARNING NOTES

As specified in MIL-DTL-5541F.

6.0 REFERENCES

The following references were used to develop this process specification:

SOP-001.2 Preparation and Revision of Process Specifications

JSC 8500C Engineering Drawing System Requirements

The following documents are called out as an extension of the requirements given in this specification:

MIL-DTL-5541F Detail Specification, Chemical Conversion Coatings
on Aluminum and Aluminum Alloys

7.0 MATERIALS REQUIREMENTS

As specified in MIL-DTL-5541F.

8.0 PERSONNEL TRAINING AND CERTIFICATION

All chemical conversion coating of aluminum alloys shall be conducted by trained personnel.

9.0 PROCEDURE

All chemical conversion coating of aluminum alloys shall be conducted in accordance with MIL-DTL-5541F, except that immersion coatings shall be used for new part manufacture exclusively. Brushed-on conversion coatings are only acceptable for applications specifically stated on the drawing and for minor touch-up repairs documented and resolved on a discrepancy report (DR).

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