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# **Corrosion Protection Through SAE Specifications**

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**USAF Corrosion TIM  
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# *Corrosion Protection Through SAE Specifications*

- **SAE specifications provide procurement requirements and processing parameters for a variety of aircraft materials/parts through the work of SAE Committees**
  - *G-8 Aerospace Organic Coatings Committee*
  - *G-9 Aerospace Sealants Committee*
  - *J Aircraft Maintenance Chemicals and Materials Committee*
  - *CE Aerospace Elastomers Committee*
  - *M Aerospace Greases Committee*
  - *P Aerospace Polymeric Materials Committee*
  - *G-3 Aerospace Couplings, Fittings, Hose and Tubing Assemblies Committees*
  - *Various Metals Committee*



# *Corrosion Protection Through SAE Specifications*

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- **SAE Committees develop and manage the material or part specifications**
  - *Specification sponsors prepare drafts, often with the aid of working groups*
  - *Drafts go through committee ballot reviews*
  - *Committee voting members consist of users, suppliers, and general interest parties*
  - *Ballot comments (technical and editorial) are discussed and resolved*
  - *Usually multiple ballots are needed to reach final consensus*
  - *Specifications are reviewed at a minimum of every five years for needed updates*

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- **Qualified Product Lists (QPL) for these specifications, when applicable, are managed by the Performance Review Institute (PRI)**
  - *Qualified Products Groups (QPG) are made up of product user members from each applicable committee*
  - *QPGs review test data submitted by suppliers with the authority to approve or disapprove*
  - *Test data is generated at independent laboratories or supplier laboratories as dictated by the material/part specification*
  - *QPLs located at:*  
<https://www.eauditnet.com/eauditnet/eau/user/login.htm>

# *Corrosion Protection Through SAE Specifications*

- I will focus today on coating specifications that assist in corrosion protection through the G-8 Aerospace Organic Coatings Committee.
- Why are coatings important in corrosion protection?



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# *Corrosion Protection Through SAE Specifications*

- **G-8 develops and manages coating and coating application specifications**
  - ***AMS-C-27725 Corrosion Preventive Coating for Fuel Tanks***
  - ***AMS3143 Epoxy Powder Coating Materials***
    - AS8485 Electrostatic Spray Application of Epoxy Powder Coatings
  - ***AMS3144 Anodic Electrodeposition Primer (E-Coat)***
    - AS8491 Application of Anodic Electrodeposition Primer
  - ***AMS3175 Chromate Free Surface Pretreatment for Painting***
  - ***AMS7202 Temporary Protective Coating/Remover***
  - ***AMS3095 Paint System for Airline Exterior Coating***
  - ***AMS-STD-32239 Advanced Performance Coating System for Exterior Aerospace Applications***
  - ***AMS-C-83231 Polyurethane Rain Erosion Resistant Coating***

# *Corrosion Protection Through SAE Specifications*

- **G-8 also develops and manages specifications related to coatings and coating application**
  - *AMS3167 Wipe Solvents for Cleaning Prior to Painting/Sealing*
  - *AS7489 Aerospace Coatings Applicator Certification*
  - *AMS3721 Pressure Sensitive Tape for Coating Adhesion Testing*
  - *AMS-T-21595 Pressure Sensitive Masking Tape for Aircraft Painting Applications*
  - *AMS-T-23397 Pressure Sensitive Tape for Masking During Paint Stripping Operations*
  - *AMS-T-22085 Pressure Sensitive Tape for Preservation and Sealing*
  - *AS7378 Test Method for Condition in Container of Liquid Organic Coating Components*
  - *AMS-STD-595 Colors Used in Government Procurement*

# *Corrosion Protection Through SAE Specifications*

- **Examples of Material Properties in G-8 Specs**

- ***AMS-C-27725 (Fuel Tank Coating)***

- Adhesion, Low Temp Flexibility, Resistance to Simulated Microbial By-Products, Resistance to Iron Chloride, Resistance to Salt Water and Fuel, Resistance to DiEGME

- ***AMS3143 (Powder Coating)***

- Adhesion, Flexibility, Corrosion Resistance, Solvent Resistance, Fluid Resistance, Fuel Resistance, Water Resistance, High Temperature Resistance

- ***AMS3144 (E-Coat)***

- Adhesion, Flexibility, Compatibility to Topcoats, Corrosion Resistance (Salt Spray and Filiform), Solvent Resistance, Fluid Resistance, Humidity Resistance, Rain Erosion Resistance

- ***AMS3175 (Chromate Free Pretreatment)***

- Adhesion of Primer to Pretreatment, Flexibility, Corrosion Resistance (Salt Spray and Filiform)

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- **Examples of Material Properties in G-8 Specs (continued)**
  - ***AMS7202 (Temporary Protective Coating and Remover)***
    - Adhesion, Flexibility, Corrosion Resistance, Weather Resistance, Cyclic Temperature Resistance, Water Resistance, Abrasion Resistance
  - ***AMS3095 (Commercial Airline Paint System)***
    - Adhesion of System Components, Flexibility, Corrosion Resistance (Salt Spray and Filiform), Water Resistance, Fluid Resistance, Weather Resistance, Heat Stability
  - ***AMS-STD-32239 (Advanced Coating System)***
    - Adhesion, Flexibility, Low Temp Flexibility, Outdoor Corrosion Resistance, Fluid Resistance, Weathering Resistance, Humidity Resistance, Heat Resistance
  - ***AMS-C-83231 (Polyurethane Rain Erosion Resistant Coating)***
    - Peel Strength, Flexibility, Rain Erosion Resistance, Weather Resistance, Water Resistance, Fuel Resistance, Electrical Properties (Transmission and Surface Resistivity)

# *Corrosion Protection Through SAE Specifications*

- **G-8 Activities of Interest**

- ***AMS-C-27725***

- Revision E published in July 2025. Two nonchrome fuel tank coating are qualified to help with users' hexavalent chromium mitigation efforts.

- ***AMS3143***

- Revision D published in May 2025. AFRL working group assisted with the revision to update requirements and test methods. UDRI now working to qualify powder coatings to the specification. AS8485 published in January 2025 as a process specification for powder coatings.

- ***AMS3144***

- Revision B published in June 2025. AS8491 published in July 2025 as a process specification for E-Coat application.

# *Corrosion Protection Through SAE Specifications*

- **G-8 Activities of Interest (continued)**

- ***AMS7202***

- Temporary protective coating and remover specification published at the request of the C-5 program; a coating and remover have been qualified; C-5 working to implement

- ***AMS-STD-32239***

- Specification transferred from MIL-PRF-32239C in 2025, basically word-for-word on requirements; Air Force users have submitted draft with requested changes; working to transfer MIL-spec QPL to PRI QPL-AMS-STD-32239

- ***AMS-STD-595***

- SAE requested by GSA to take over color specification and color media several years ago; new revision being worked with new colors, including a bright white with minimal/no tinting in formulation

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- **G-8 Activities of Interest (continued)**

- **AS7489**

- Aerospace Coatings Applicator Certification (ACAS) program managed by PRI Qualification; two Certifying Agencies approved with Training Providers; working to implement in Air Force/DoD
      - *2025 – Students successfully completing AS7489-based training through approved providers can earn AMT credits for doing so, as accredited by FAA*
      - *2026 - USCG Contract award to train service members in basic Aerospace Coatings application in accordance with AS7489*

- **AMS3721**

- Coating adhesion test tape specification developed at request of Air Force; new 3M 250 now qualified; AMS3721 can be referenced in test methods for adhesion testing

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- **G-8 Activities of Interest (continued)**

- **AMS-T-21595**

- Masking tape for aircraft painting specification revised by working group that included Air Force personnel to update requirements and include a QPL
  - *Referenced in several DoD technical orders*
  - *Supplier working to qualify multiple tapes*

- **AMS3095**

- Commercial paint system specification has almost 50 qualified paint systems from six different suppliers; endorsed by Boeing and Airbus for airliner OML maintenance around the world

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- **G-8 has two face-to-face meetings per year**
  - *Upcoming meeting in New Orleans, Louisiana*
  - *Meeting will be held on May 5, 2026*
  - *G-9 Sealant Committee will be held at the same location May 6-7, 2026*
  - *J Aircraft Maintenance Chemicals and Materials Committee will also meet on May 7, 2026 in New Orleans*
- **Interested parties are encouraged to attend a meeting and consider becoming a part of the committee membership**
  - *Specification work is fun and challenging!*

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Questions?

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