The Engineering Society
For Advancing Mobility
Land Sea Air and Space®
INTERNATIONAL
400 Commonwealth Drive, Warrendale, PA 15096-0001

AEROSPACE STANDARD

AS7109/3

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Submitted for recognition as an American National Standard

NATIONAL AEROSPACE AND DEFENSE CONTRACTORS ACCREDITATION PROGRAM REQUIREMENTS FOR CEMENTATION

1. SCOPE

This Aerospace Standard (AS) is to be used as a supplement to SAE AS7109. In addition to the requirements contained in AS7109, the requirements contained herein shall apply to suppliers seeking NADCAP Coatings accreditation who are engaged in cementation.

1.1 Class Qualification shall include one of the following:

1.1.1 Class A Pack Process

a. Above Pack
b. In Pack

1.1.2 Class B Slurry Process

2. REFERENCES

2.1 SAE Publications

Available from SAE, 400 Commonwealth Drive, Warrendale, PA 15086-0001.

AS7109 National Aerospace and Defense Contractors Accreditation Program (NADCAP) - Requirements for Coatings

AS7109/5 National Aerospace and Defense Contractors Accreditation Program (NADCAP) - Requirements for Coating Evaluation Laboratory Practice

AS7109/6 National Aerospace and Defense Contractors Accreditation Program (NADCAP) - Requirements for Plating of Coated Parts

AS7109/7 National Aerospace and Defense Contractors Accreditation Program (NADCAP) - Requirements for Heat Treating for Suppliers of Coatings

2.2 PRI Publications

Available from Performance Review Institute, 163 Thornhill Road, Warrendale, PA 15086 - 7527.

AC7109	NADCAP - Audit Criteria for Coatings
AC7109/5	NADCAP - Audit Criteria for Coating Evaluation Laboratory Practices
AC7109/6	NADCAP - Audit Criteria for Plating of Coated Parts
AC7109/7	NADCAP - Audit Criteria for Heat Treating for Suppliers of Coatings

3. TECHNICAL EXPERIENCE

3.1 Technical/engineering personnel shall be available to support production processes.

3.2 There shall be roles and responsibilities that define how technical/engineering personnel support the business mission.

3.3 The supplier shall have provisions for back-up technical personnel.

3.4 If the supplier has an in-house coating evaluation laboratory the requirements of AC7109/5 shall apply.

3.5 There shall be training for operation personnel (e.g. masking, grit blasting, packing, furnace operation, etc.).

4. PROCESS PLANNING

4.1 Pre-production coating trials shall be conducted to insure the coating will meet material/process specifications as applicable.

4.2 The supplier shall have approved technical plans for hardware as required by the customer.

5. MANUFACTURING

5.1 The supplier shall have detailed work instructions describing each step in the coating of parts.

a. Preparation of coating materials before coating parts
b. Methods of cleaning and preparing parts before coating
c. Masking techniques
d. Packing, technique/arrangement

5.1 Continued

e. Furnace load/arrangement
f. Thermocouple placement for temperature control
g. Provisions for partial loads in the furnace
h. Furnace cycle process parameters and their limits
i. Details of post coating thermal treatments
j. Methods for removing nonconforming coatings
k. Methods for reprocessing

6. MATERIAL CONTROL

6.1 The supplier shall have a material control system consisting of the following components:

a. Listing of approved material sources as required
b. Specification for procurement of coating material
c. Certification for each lot coating material supplied
d. Procedure for testing each material as required
e. Test data indicating producibility being conducted on every lot of material
f. Lots of material pending approval being physically segregated from production materials
g. Production materials properly stored and identified
h. Material storage in an appropriately controlled environment
i. Controls for rejuvenated material

7. CLEANING

7.1 The supplier shall have controls for maintaining concentrations and temperatures for cleaning solutions as required.

7.2 There shall be provisions to avoid part contamination after coating.

8. MASKING

8.1 Parts shall be suitably masked to protect surfaces not to be coated.

8.2 The work instructions shall specify the method and type of masking material to be utilized.

8.3 Criteria for acceptable masking shall be specified.

8.4 If hard mask tooling is utilized, it shall be controlled and properly maintained.

9. GRIT BLASTING

9.1 The supplier shall maintain and control grit blasting material.

9.2 Filters shall be installed in the compressed air lines to extract oil particulate matter and water.

9.3 If grit blasting if performed, it shall be done according to an approved procedure.

9.4 The procedure shall define the following:

a. Grit size
b. Grit type
c. Operating pressure
d. Operating distance/angle
e. Motion to achieve coverage (i.e., rotation/traverse)
f. Inspection for coverage, roughness, excessive surface removal

10. PACKING/FURNACE LOADING

10.1 Coating Materials

10.1.1 The supplier shall have procedures for the following:

a. Building the pack mix
b. Preparing the activator
c. Blending the activator/pack mix
d. Post coat handling of the pack

10.1.2 The work instructions shall specify the amount of activated pack mix to be used in the coating box (i.e., the ratio of coating material to part surface area).

10.2 Packing Parts

10.2.1 The supplier shall have a procedure for conditioning of coating pans prior to use.

10.2.2 Specific coating pans shall be identified in the work instructions.

10.2.3 The work instructions shall specify the number and orientation of parts and quality samples in the coating pan.

10.2.4 The work instructions shall specify the number and positioning of load thermocouples in the pack.