DCMA NSEO MANUFACTURING PROCESS SURVEILLANCE (MPS) CHECKLIST #08

PAINTING AND SURFACE PREPARATION

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| **SUPPLIER & CAGE:**  |  |
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| **LOCATION:** |  |
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| **Program Type:**

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| --- | --- | --- | --- | --- | --- |
|  | Level I/SUSBAFE (LI/SS) |  | Navy Propulsion Program (NPP) |  | Deep Submergence Systems/Scope of Certification Program (DSS-SOC) |
|  | Nuclear Plant Material (NPM) |  | Naval Nuclear Propulsion Program (NNPP) |  | Aircraft Launch & Recovery Equipment (ALRE) |
|  | Fly By Wire Ships Control Systems (FBWSCS) |  | Ships Critical Safety Items (SCSIs) |  | Other: |

**Contractual Requirement(s) for this process:**

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**Supplier Procedure Number(s), Title(s) & Revision Level(s)/Date(s):**

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| Surveillance Performed By:  |  |
|  |  |
| Date(s) of Surveillance: |  |
| Contract Number(s): |  |
|  |  |
| Part Number(s)/Serial number(s)/NSN: |  |
|  |  |
| Part Nomenclature(s): |  |
|  |  |
| Supplier Personnel Contacted and Titles: |  |
|  |  |
| Drawing Number & Revision: |  |

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**Process Concerns and Guidance:**

* Paint coatings are primarily applied for corrosion protection. Failure of the coating will lead to corrosion of the part, assembly, or system. This may affect operational effectiveness and readiness.
* Surfaces must be clean and properly prepared for adequate coating adhesion and coverage. Improper cleaning and surface preparation techniques can result in poorly adherent coatings of inadequate or non-uniform thickness.
* Thick coating passes tend to be less adherent than thinner passes
* The shelf-life of some paint and surface prep products can be limited; the use of out-dated products will likely cause premature failure
* Coating material containers not labeled with expiration dates
* Time of component mixing not recorded to track induction time and pot life
* Viscosity cups not calibrated
* Oven control (Uniformity and System Accuracy Checks) not performed as required
* Thickness testing equipment verification not performed as required
* Processing equipment maintenance inadequate
* Surfaces to be coated are touched with bare hands (oil from the hands will interfere with proper coating)
* Pitting and undesirable marks where rack hooks contact the parts
* Failure to provide uniform coating thickness and/or complete coverage
* Adhesion testing not performed in accordance with specification requirements

***NOTE: The coating manufacturer’s Technical Data Sheets are required to establish proper coating material preparation, application, and storage parameters. These parameters are requirements since they were used in product qualification.***

**QARs should use the “BASIS OF DETERMINATION” column to document the objective quality evidence and/or clarify the rationale used to support their decision. (e.g. direct observation, documents verified etc.)**

S = Satisfactory U = Unsatisfactory

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| **SURVEILLANCE QUESTIONS** | **S** | **U** | **BASIS OF DETERMINATION** |
| 1. Are the personnel performing the preparation, painting, and inspection functions of the appropriate skill/experience level and/or properly trained/certified to produce conforming product? ***What are the requirements?***
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| 1. If the Painting Facility is a sub-contractor, has the Supplier flowed down all of the necessary information for the painter to perform in accordance with contractual requirements?
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| 1. Is the coating material, proposed to be used by the Painting Facility, on the specification’s Qualified Products List? (The QPL per specification can be found in the Qualified Products Database (QPD) on the Assist website)
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| 1. Does the supplier have procedures for cleaning, surface preparation, and painting that meet applicable contract/drawing/specification requirements, are readily available to shop personnel, and cover all applicable processes performed?
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| 1. Does the process meet the requirements of the paint manufacturer’s Technical Data/Application Sheet instructions?
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| 1. Are the gauges, tools and instruments being used within acceptable ranges and have current calibration records? Record instruments reviewed.
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| 1. Are the shelf lives of painting/coating materials monitored and validated before use?
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| 1. Is the area where the process is performed enclosed or isolated, and clean and free from dirt and debris? Is painting performed in an environmentally controlled area when required by specification?
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| 1. Does the spray booth have adequate exhaust with filters that are relatively clean to allow for positive air flow and overspray removal?
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| 1. Is spray equipment clean and well maintained?
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| 1. Is the air supply for the spray gun checked for moisture, oil and hydrocarbons?
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| 1. Is the viscosity cup clean and calibrated?
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| 1. Are parts visually examined prior to painting for material defects, damage, corrosion, sand, dust, grease, etc.?
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| 1. Are surfaces of parts not requiring paint adequately masked prior to painting?
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| 1. Are pieces adequately cleaned and pretreated prior to the painting process? Describe.
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| 1. Is cleanliness maintained after cleaning and prior to painting? Are parts only handled with lint-free gloved hands?
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| 1. If test specimens are required, are they processed utilizing the same processing steps and materials as the parts?
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| 1. Is there a certified bake oven available? If so, does it meet the following requirements:
	1. Temperature uniformity surveys (TUS) performed quarterly on processing ovens. (frequency may be reduced to twice/year after four consecutive successful surveys)
	2. Accuracy meets required tolerances in temperature ranges used. (What are the maximum and minimum ranges required for the facility?)
	3. System accuracy tests (SAT) performed twice/month on temperature control and recording systems (frequency may be reduced to monthly if a preventative maintenance program is in effect)
	4. The oven chart recorder has a maximum resolution of 250F per inch of chart paper and a maximum chart recording increment of 10F.
	5. The chart recorder (circular and strip) speed verified annually, and it is accurate to within +/- 3 minutes per hour

**Note: Ovens must meet the temperature uniformity requirements of AMS 2750D for Furnace Class 5 (± 25⁰F), Instrumentation Type D, unless more stringent requirements are specified.** |  |  |  |
| 1. Is batch process data documented (paint lot numbers, intermediate Dry Film Thicknesses, bake charts, etc.) and traceable to finished parts?
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| 1. Are painted surfaces inspected per applicable procedure/specification (e.g. visual inspection for grit, streaks, sags, color verification, thickness, and adhesion)?
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| 1. Do inspection records clearly identify the results of the inspections and tests performed and include traceability back to the procedure, lot/heat numbers, instruments used, personnel who performed each inspection, and the finished product inspected? Are these records completed properly, and are they adequate to meet procedural requirements? Are they maintained to confirm that all required inspection processes were performed?
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| Other observations: |  |  |  |
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| **Overall MPS Results:** | **SATISFACTORY** |  | **UNSATISFACTORY** |  |

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| **Corrective Action Generated?** | **No** |  |  | **Yes** |  |  | **CAR#** |  |

**FOLLOW-UP ACTION REQUIRED?**

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**SUMMARY/NOTES/COMMENTS/CONCERNS**:

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