

# Overspray Conditions Generated by the Application of Spraylat Strippable Plastic Coatings

## ***Background:***

Aerospace Maintenance and Regeneration Center (AMARC) is the USAF storage area for “mothballed” aircraft, AKA “the boneyard.” Local government laws require any airborne particles from open air paint spraying cannot be detected beyond the sprayers property boundary. The AMARC frequently applies coatings and was experiencing pressure from local authorities to ensure their coating operations were within these limitations. Specifically, AMARC wanted to determine its compliance with local environmental air quality regulations specific to coating over-spray from aircraft and wooden equipment crate painting operations.

**Project Sponsor/Customer:** AMARC, Davis-Monthan AFB, AZ

**Period of Performance:** 1996

## ***Objective:***

The purpose of this CTIO Quick Response (QR) project was to provide aircraft depainting and painting support services to the AMARC at Davis Monthan AFB, AZ. Technical expertise was provided in the areas of environmental compliance and environmentally acceptable (EA) product substitutions.

The objective was to document the overspray conditions generated during the application of Spraylat Strippable Plastic Coatings onto aircraft. Specifically the sampling strategy implemented for the survey was to provide quantitative data to establish the distance from the coating operation over which the overspray could be dispersed. The presence of overspray was to be verified by the analysis of any aerosolized pigments from the spray application collected by a series of air sampling filters positioned at known distances from the coating operations.

CTIO staff members accomplished the following tasks:

- **Task 1. Field Survey of Over-spray Conditions Generated by the Application of Spraylat Strippable Plastic Coatings** – AMARC wanted to determine its compliance with local environmental air quality regulations specific to coating over-spray from aircraft and wooden equipment crate painting operations. CTIO personnel performed a site survey consisting of field observations of all coating operations; and collecting and analyzing air quality samples to determine over-spray of the two preservation coatings used at AMARC.
- **Task 2. Wipe Solvent Replacement** – The AMARC facility wanted to obtain recommendations for EA solvent alternatives to methyl ethyl ketone (MEK), toluene, and naphtha type solvents for use as hand wipe surface cleaners. This task was done as a coordinated work effort with the Hand Wipe Solvent Replacement Project (summary for this project is found under the Surface Preparation Section) and consisted of a review of results from prior wipe solvent studies done at SM-ALC, OC-ALC, and WR-ALC; an evaluation of AMARC hand wiping operational requirements; and evaluation of additional technical product information obtained from manufacturers and vendors.
- **Task 3. Removal of Chromates from Spraylat SC-1074B-1 Primer** – CTIO provided support for removal of chromates from Spraylat SC-1074B-1 primer by coordinating and monitoring Navy MIL-Spec qualification activities with the Navy, Spraylat, and AMARC.
- **Task 4. Alternative Coating Materials for Aircraft Ground Equipment (AGE)** – AMARC requested the assistance of the CTIO in obtaining specific alternative coatings materials for AGE.
- **Task 5. Site Visit** – A site visit was planned to observe implementation of Task 1-4 recommended products and processes, and to specifically observe the painting of aircraft with the new chromate-free strippable primer.

**Status:**

- **Task 1. Field Survey of Over-spray Conditions Generated by the Application of Spraylat Strippable Plastic Coatings.**

On March 22, 1996 CTIO staff members performed an air sampling survey . AMARC applies Spraylat to aircraft and equipment crates using spray guns.

For aircraft application over-spray from primer SC-1074B-1 and topcoat SC-1095 was restricted to 30 feet and 75 feet, respectively. For most meteorological and

operational conditions, all of the over-spray would be confined within the Reclamation Building. The “worst-case” scenario could have over-spray traveling up to 50 feet outside of the building. Based on these findings, no plausible circumstances were identified that could create over-spray from existing Spraylat coatings to cause nuisance impacts beyond AMARC property boundaries. This criteria was established by air pollution regulators for acceptable spray painting operations

To reduce over-spray conditions from painting equipment crates, CTIO recommended painting using power rollers instead of conventional spray guns. Another alternative would be to continue operations in an existing enclosure that is planned to be modified to meet local regulatory requirements.

The CTIO Report can be used as supporting regulatory compliance documentation for the recommendations

- ***Task 2. Wipe Solvent Replacement***

A letter report was submitted recommending the following solvents as potential MEK/toluene/naphtha replacements for surface cleaning: DS104, DS108, Super 140, SD 1291, Citra-Safe, and De-Solv-it E&E Cleaner 2.

- ***Task 3. Removal of Chromates from Spraylat SC-1074B-1 Primer***

Performance test requirements in the Navy MIL-Spec, MIL-C-6799J, specify the application of the strippable coating onto pre-painted aluminum and bare plastic panels and does not specify chromates. Spraylat has manufactured a reformulated primer under the same MIL-Spec by basically substituting talc for the chromates and has performed all required in-house testing on the coating. Coated test panels were staged at the Naval test facility and at Davis/Monthan in January 1996 for a full year of weathering in accordance with the Field Test requirements. Field Test panels were pulled in late January 1997 and according to Spraylat and AMARC facility test personnel, the primer appeared to meet all performance criteria. The reformulated primer underwent Navy qualification testing for MIL-C-6799J and for subsequent addition to the Qualified Product List (QPL). Spraylat provided the Navy with the reformulated primer samples along with some additional requirements as requested.

- **Task 4. Alternative Coating Material for AGE.**

A letter report was submitted to the facility containing alternative materials coatings information received from Watson Coatings, Inc.

- **Task 5. Recommendations Site Visit.**

This task was canceled because implementation of all of the CTIO recommendations for the reformulated strippable primer application and other processes and/or products had not occurred before the Fiscal Year project closure date.

**Final Report:** Title: "Field Survey of Overspray Conditions Generated by the Application of Spraylat Strippable Plastic Coatings"

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**Authors:** James Scott, Janet Ledbetter-Ferrill

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