Enabling Sustainable NESHAP Compliance for Army Installations

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Outline

- What higher HQ is doing to enable NESHAP compliance
- What regulated sources need to do to take advantage
- What happens next
Sustainable Painting Operations for the Total Army (SPOTA) program to eliminate hazardous air pollutants (HAPs) in coatings

- Materials developed and tested on lab-scale 2003-2007
- Materials demonstrated in real environments 2008-2011
- Materials approved and implemented throughout
- Baseline HAP-containing materials phased out after implementation
Focusing on six major classes of materials used on all families of Army materiel:

- Paints, including the Chemical Agent Resistant Coating (CARC) system
- Solvents, thinners and cleaners
- Depainting materials (a.k.a., paint strippers)
- Rubber-to-metal bonding adhesives
- Other miscellaneous sealants and adhesives
- Coatings intended for use on munitions

Official endorsements from HQDA and numerous PEOs:

- Demonstrations at AMCOM, TACOM, CECOM, JMC, IMCOM sites
RDT&E Approach to Compliance: Select Products Already Implemented

- HAP-free, water-dispersible CARC topcoat, all types
  - MIL-DTL-64159 specification adopted 2002
  - Type III touch-up kits added 2007
- HAP-free, single component CARC topcoat, type II
  - MIL-DTL-53039 specification revised 2005
  - Type VIII touch-up kits added 2009
- HAP-free enamel for munitions, type II
  - MIL-DTL-11195 specification revised 2003
- HAP-free degreasing solvent
  - MIL-PRF-680 specification revised 2006
- Non-chromate epoxy primers, MIL-PRF-23377 class N and MIL-PRF-85582 class N
  - Developed by NAVAIR, approved by AMCOM 2008
- Non-chromate trivalent chromium pretreatment (TCP)
  - Developed by NAVAIR, approved by AMCOM 2009
RDT&E Approach to Compliance: Select Products to Look for Near-Term

- HAP-free CARC primers, all types
  - MIL-P-53030 and MIL-P-53022 to be revised
- CARC powder primers
  - New specification to be developed
- Cobalt-free CARC topcoats, all types
  - Green 383 pigment to be replaced by Green 808
  - All specs to be revised
- HAP-free cleaners for wipe, flush and immersion
  - Demonstrations underway, joint specification in development
- HAP-free immersion paint remover
  - One application already demonstrated, others to follow
- HAP-free thinners for paints and adhesives
  - To be incorporated into existing specifications and SOPs
- HAP-free anti-tamper sealant
  - Demonstrated in 2008, implementation to follow
RDT&E Approach to Compliance: Select Products to Look for Mid-Term

- HAP-free system to replace trichloroethylene vapor degreasers
  - Demonstrations underway for two applications
- CARC powder topcoats
  - New specification to be developed
- HAP-free, non-skid coatings
  - To replace MIL-PRF-24667 and similar products
- HAP-free, high temperature coatings
  - To replace MIL-P-14105 and similar products
- HAP-free, general purpose adhesives
  - To replace MMM-A-121 and similar products
- Non-chromate wash primer
  - To replace DOD-P-15328 and similar products
- HAP-free munitions coatings
  - Numerous different specifications and applications
Enabling DLSME NESHAP Compliance: Surface Coatings (1)

Anticipated DLSME NESHAP Limit
Numerical HAP content limit on 20 highest use coating specifications

**What we are doing**
- Demonstrating HAP-free coatings to meet the specifications
- Revising coating specifications to incorporate HAP limits
- Updating qualified product lists to disqualify high-HAP coatings
- Establishing new NSNs for HAP-free coatings, as appropriate
- Cancelling/reassigning existing NSNs for high-HAP coatings
- Changing TMs/DMWRs/TDPs to reference HAP-free coatings
  - Not a short process
Anticipated DLSME NESHAP Limit
Numerical HAP content limit on 20 highest use coating specifications

What you still need to do

- Follow all technical data – failure to do so could be a violation!
- Order coatings through GSA/DLA to ensure they are qualified
- If you buy these coatings directly from a supplier, either:
  - Require they comply with the MOST CURRENT version of the specification, or
  - Insert HAP limits directly into procurement language
- Keep copies of all technical data
  - TM/DMWRs/TDPs/SOPs
  - Specifications/Standards
  - MSDSs/Product Data Sheets
Enabling DLSME NESHAP Compliance: Substrate Cleaning and Paint Thinning (1)

**Anticipated DLSME NESHAP Limit**
HAP-free requirement unless otherwise authorized by technical instructions

**What we are doing**
- Demonstrating HAP-free solvents in a variety of applications
- Revising MIL-PRF-680 specification to be HAP-free
- Developing new Joint, HAP-free General Cleaning Specification
- Establishing new NSNs for HAP-free solvents, as appropriate
- Cancelling/reassigning existing NSNs for high-HAP solvents
- Revising coating specifications to call out thinning procedures
- Changing TMs/DMWRs/TDPs to reference HAP-free solvents
  - Not a short process
Enabling DLSME NESHAP Compliance: Substrate Cleaning and Paint Thinning (2)

**Anticipated DLSME NESHAP Limit**
HAP-free requirement unless otherwise authorized by technical instructions

**What you still need to do**

- Follow all technical data – failure to do so could be a violation!
- When not instructed which solvent to use, **ALWAYS** select HAP-free
  - Refer to new Joint spec
  - Good idea to tighten hazmat control/pharmacy procedures
- When buying solvents, either:
  - Require they be HAP-free, or
  - Ensure that they are called out by a technical instruction
- Keep copies of all technical data
  - TMs/DMWRs/TDPs/SOPs
  - Specifications/Standards
  - MSDSs/Product Data Sheets
Enabling DLSME NESHAP Compliance: Paint Equipment Cleanup (1)

**What we are doing**

- Demonstrating HAP-free solvents for cleanup of common paint equipment and coatings
  - Investigating dual use as both cleaner and thinner
- Developing new Joint, HAP-free General Cleaning Specification
- Establishing new NSNs for HAP-free solvents, as appropriate
- Cancelling/reassigning existing NSNs for high-HAP solvents

**Anticipated DLSME NESHAP Limit**
Choice of HAP-free solvents or work practice standards
Anticipated DLSME NESHAP Limit
Choice of HAP-free solvents or work practice standards

What you still need to do

- Follow all technical data – failure to do so could be a violation!
- Change SOPs to implement either:
  - HAP-free cleanup solvents,
  - Enclosed cleaning system,
  - Disassembled spray gun cleaning in closeable container,
  - Non-atomized discharge into closeable container, or
  - Atomized discharge into vapor capture device
- Keep copies of all technical data
  - TM/DMWR/TDP/SOP
  - Specifications/Standards
  - MSDS/Product Data Sheets
Enabling DLSME NESHAP Compliance: Methylene Chloride (MeCl) Depainting (1)

Anticipated DLSME NESHAP Limit
Work practices and 50% growth cap for large vats; usage cap outside of vats

What we are doing

- Demonstrating HAP-free chemical paint removers in large vats
- Demonstrating HAP-free chemical paint removers outside of vats
- Demonstrating a variety of mechanical depainting methods
- Revising depainting specifications to eliminate MeCl, as appropriate
- Establishing new NSNs for HAP-free removers, as appropriate
- Changing TMs/DMWRs/TDPs to implement demonstrated methods
  - Not a short process
Enabling DLSME NESHAP Compliance:
Methylene Chloride (MeCl) Depainting (2)

**What you still need to do**

- Follow all technical data – failure to do so could be a violation!
- Change SOPs to incorporate compliant work practice standards
  - May require vat modifications
- When expanding or adding production capability, design for HAP-free depainting methods
- When buying removers, either:
  - Require they be HAP-free, or
  - Buy less than the usage cap
- Keep copies of all technical data
  - TM/DMWR/TDP/SOPs
  - Specifications/Standards
  - MSDSs/Product Data Sheets

**Anticipated DLSME NESHAP Limit**
Work practices and 50% growth cap for large vats; usage cap outside of vats
Allocate funding to **eliminate pollution**, not to:
- Hunt for loopholes
- Justify inaction or non-compliance
- Comply with bare minimum regulatory requirements

Work **with** EPA, not against them
- Both sides benefit – DoD gets achievable standards while EPA gets greater emission reductions
Beyond DLSME: A Model for Sustainable NESHAP Compliance (2)

- Adopt an **evolutionary approach** to pollution reduction
- Establish cooperative agreements between agencies
- Align EPA regulatory timescale with DoD technology timescale
- EPA would set initial standards at levels DoD can achieve without having to install pollution control devices
- DoD would commit to improving the state of the technology to exceed initial standards on a continuous, spiraling basis
- Emissions levels would be reduced faster and greater than through a traditional NESHAP with 10-year review cycle
- Upshot: the Maximum Achievable Control Technology (MACT) floor would constantly be lowered until it approaches zero emissions
Promulgated 1995, effective 1998

DoD has already spent $ millions demonstrating compliance with standards that **DO NOT** eliminate pollution
- Ex. “Specialty coatings” with no requirements
- Ex. “Parts normally removed” with unlimited use of MeCl
- Ex. “Composite vapor pressure” limits on solvents
  - Most HAP solvents are low in vapor pressure !!!
  - Xylene, ethylbenzene, MIBK, toluene all < 45 mm Hg !!!
  - MEK > 45 mm Hg but no longer a HAP !!!

10-year review currently underway
- Aerospace NESHAP not expected to fulfill recent court rulings on Brick, Boiler and Plywood NESHAPs
- Too many instances of “no control” MACT floors
How will DoD allocate $ for more stringent Aerospace NESHAP?

- Fight for loopholes and exemptions?
- Install pollution control devices?
- Try to opt into the DLSME NESHAP?

Why not an evolutionary MACT approach???