Industry Day Webinar for Hexavalent Chromium and Cadmium Abatement in PEO GCS (US Army)

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16 JUNE 2022

Enabling Land Dominance for America's Warfighters

Problem Statement

The U.S. Army still uses EPA banned Hexavalent Chromium (CrVI) and Cadmium (Cd) plated fasteners on programs. These substances are carcinogens and a hazard to both the environments in which they are produced and disposed of and are a health hazard to humans.

The auto industry moved away from these platings in the 1990's to the current Zinc Nickel (ZnNi) replacement plating which has slightly better corrosion resistance that either CrVI or Cd and is the "gold standard" for automotive.

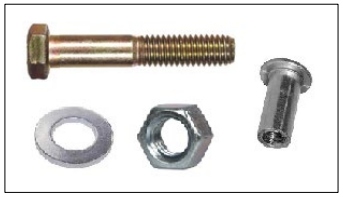
The US Army is in a situation where the newest procured vehicle systems launch with ZnNi fasteners, but in sustainment they cannot be procured.

- The PM is then forced to "walk back" to Trivalent Chromium fasteners and lose greater than 75% of their corrosion performance.
- This ultimately costs the U.S. Army more money to sustain across the platform lifecycle.

Components with Toxic Metal Plating

There may be thousands of parts on any single platform that use toxic metals for corrosion resistance, wear resistance, and part refurbishment.

Fasteners



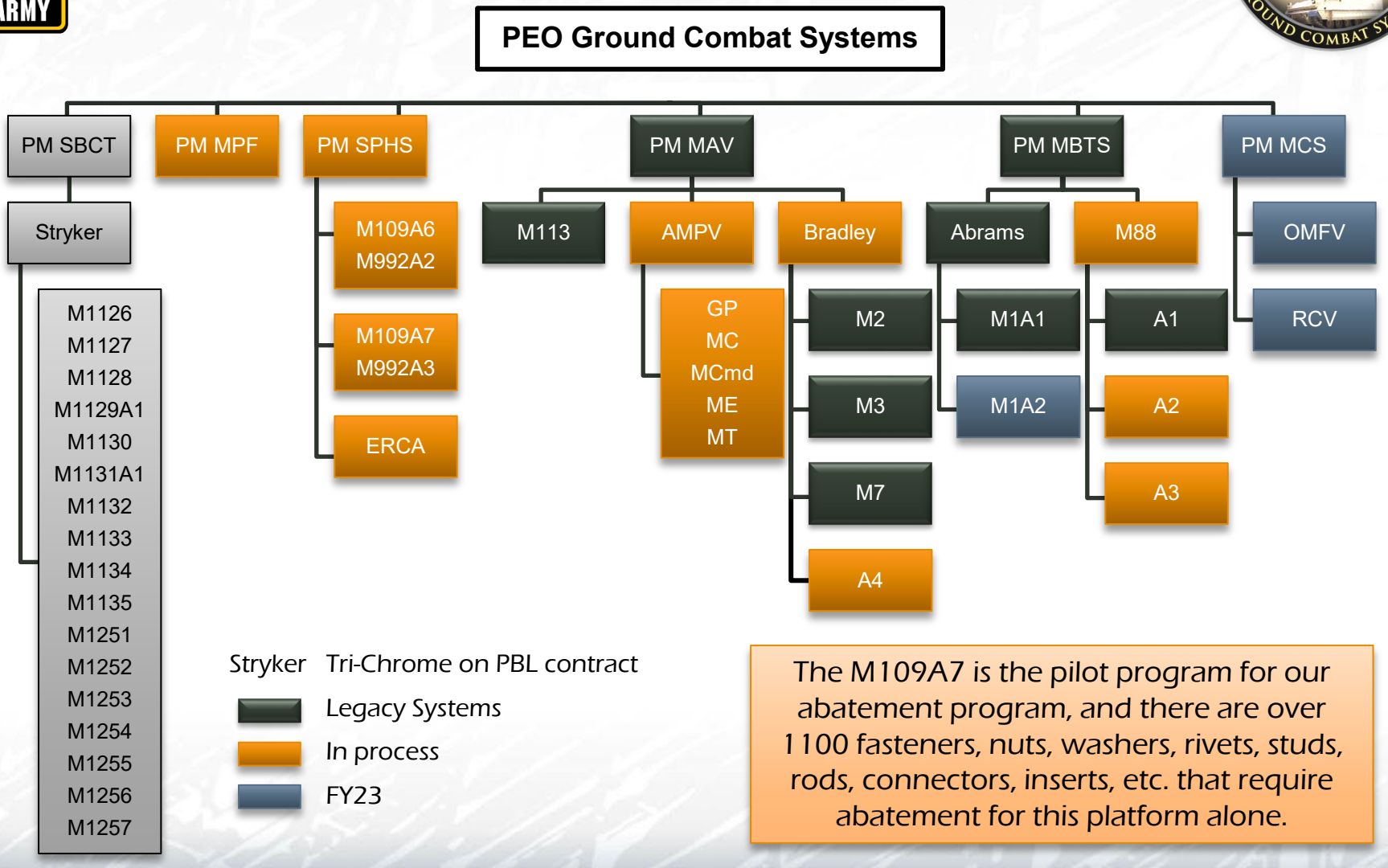
Other Parts

Connectors

Refurbished Parts

Gun Barrels

Overview of PEO GCS Abatement



The M109A7 is the pilot program for our abatement program, and there are over 1100 fasteners, nuts, washers, rivets, studs, rods, connectors, inserts, etc. that require abatement for this platform alone.

Transition to Zinc Nickel (ZnNi)

- Our project has been active since late 2019
- We published the new MIL-PRF-32647 specification for zinc-nickel plated fasteners
- Performed system-level validation of these fasteners to ensure "same-or-better" torque retention as existing hardware
- Currently developing a Master Fastener Database that will map all "dirty" hardware to the clean alternative
- We are in the process of updating over 100 specifications to allow for procurement of clean hardware
- The PM offices now need to generate the ECPs needed to convert their BOMs

The Program Executive Office Ground Combat Systems (PEO GCS) and the US Army are phasing out hardware containing cadmium and hexavalent chromium!

AAE Memo - Elimination of Hexavalent Chromium in Army Acquisition and Sustainment

Elimination Dates: The effort to eliminate Cr6+ from all new weapon systems, including commercial and non-developmental systems, and existing system modifications and/or upgrades shall be accomplished by the following dates:

a. Paint primers – 30 September 2023

b. Surface pretreatments (conversion coatings and wash primers) – 30 September 2024

c. Coatings, plating, and post treatments/sealers on ground system fasteners – 30 September 2024

d. Electrical connector mating surfaces – 30 September 2026

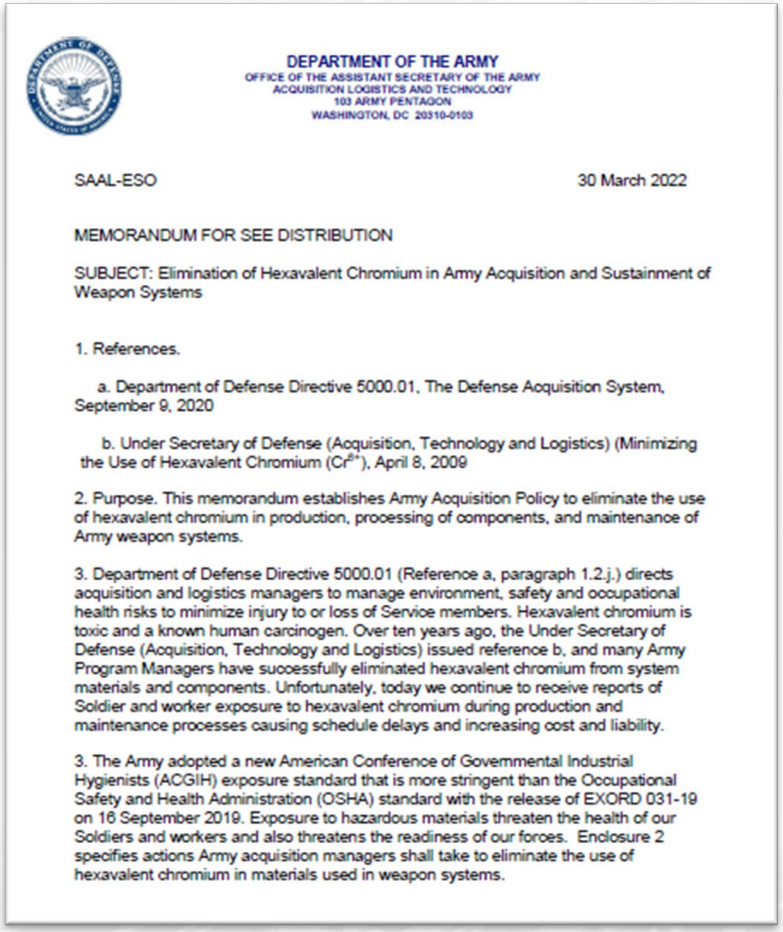
e. Adhesives, sealants, and other specialty coatings – 30 September 2028

f. All plating, anodizing, and post treatments/sealers not covered by 9.b. and 9.c. – 30 September 2030

g. Missile thermal batteries and ignitors – 30 September 2030

h. PEOs can request blanket waivers through the Environmental Support Office (SAAL-ZL-ESO), Office of the Assistant Secretary of the Army for Acquisition, Logistics, and Technology (ASA(ALT)) when qualified replacements cannot be obtained.

i. ASA(ALT) will periodically reevaluate elimination dates and reissue updated policy based on available technology.



DEPARTMENT OF THE ARMY
OFFICE OF THE ASSISTANT SECRETARY OF THE ARMY
ACQUISITION LOGISTICS AND TECHNOLOGY
103 ARMY PENTAGON
WASHINGTON, DC 20310-0103

SAAL-ESO 30 March 2022

MEMORANDUM FOR SEE DISTRIBUTION

SUBJECT: Elimination of Hexavalent Chromium in Army Acquisition and Sustainment of Weapon Systems

1. References.

a. Department of Defense Directive 5000.01, The Defense Acquisition System, September 9, 2020

b. Under Secretary of Defense (Acquisition, Technology and Logistics) (Minimizing the Use of Hexavalent Chromium (Cr^{6+}), April 8, 2009

2. Purpose. This memorandum establishes Army Acquisition Policy to eliminate the use of hexavalent chromium in production, processing of components, and maintenance of Army weapon systems.

3. Department of Defense Directive 5000.01 (Reference a, paragraph 1.2.j.) directs acquisition and logistics managers to manage environment, safety and occupational health risks to minimize injury to or loss of Service members. Hexavalent chromium is toxic and a known human carcinogen. Over ten years ago, the Under Secretary of Defense (Acquisition, Technology and Logistics) issued reference b, and many Army Program Managers have successfully eliminated hexavalent chromium from system materials and components. Unfortunately, today we continue to receive reports of Soldier and worker exposure to hexavalent chromium during production and maintenance processes causing schedule delays and increasing cost and liability.

3. The Army adopted a new American Conference of Governmental Industrial Hygienists (ACGIH) exposure standard that is more stringent than the Occupational Safety and Health Administration (OSHA) standard with the release of EXORD 031-19 on 16 September 2019. Exposure to hazardous materials threaten the health of our Soldiers and workers and also threatens the readiness of our forces. Enclosure 2 specifies actions Army acquisition managers shall take to eliminate the use of hexavalent chromium in materials used in weapon systems.

The Timer Has Been Started

- The AAE memo details the compliance requirements
- The methodology and capabilities have been developed and are being matured on current projects
- PMs need to allocate resources, budget for their abatement projects, and develop a schedule to meet memo requirements
- Industry will begin to see business opportunities starting in next few years

Questions?