

MEMORANDUM FOR RECORD

SUBJECT: High-Strength Steel Cadmium Alternatives Meeting, 6 August 2003

1. The High-Strength Steel Cadmium Alternatives Meeting was held in San Diego, CA on 06 August 2003. A list of attendees is attached. The intent of this meeting was to finalize the HSS Joint Test Protocol and discuss the alternatives.
2. Tim Sumpter presented the highlights from the previous meeting at Hill AFB, UT.
 - Reviewed Screening Test Data
 - Reviewed NDCEE Alloy Plating to Replace Cadmium on HSS Applications
 - Reviewed Draft HSS Test Protocol
 - All action items resolved
3. Tim then led a discussion on the finalized JTP. HeHe presented the background of the JTP development including the March 2003 meeting at Hill AFB, as well as the technical input to the final document. All technical comments and recommended resolutions were finalized and documented in the Final JTP dated 31 July 2003.
4. Additional comments:
 - Mike Kane started a discussion concerning environmental cracking and the Army's use of C-ring testing for hydrogen embrittlement testing. Resolution was to include in JTP as an Army extended test.
 - Discussion evolved concerning the type of corrosion testing to conduct. It was agreed by the group to combine the ASTM B117 and GM9540 corrosion tests for validation of the alternatives.
 - Craig Edwards discussed max temperature reached during breaking. Axles can reach 400°F and could be an issue with certain alternatives.
 - General discussion revolved around the time between stripping and start of testing. The group agreed to use 6hours ± 15 minutes.
 - The group discussed dwell time for the galvanic corrosion testing. The JTP is for screening test and could lead to longer testing on select alternatives at a later date.
 - Navy will provide SO₂ unscribed and scribed corrosion tests as part of their extended test requirements.
 - Craig Edwards stated he has issues with any process containing Zn. Any process should not have a Ni strike. He also stated controls are extremely important.
 - Craig Matzdorf pointed out that the fatigue portion of the JTP still represents the majority of the cost. Craig Edwards suggested to eliminate one alloy. The group decided to only test 300M for fatigue testing.
 - Craig Edwards agreed to supply 4340 & 300M coupons and Craig Matzdorf agreed to supply 4130 coupons
6. Alternatives:

- The group down selected the following processes for testing: LHE Cd (baseline), IVD Al (control), Zinc-Nickel (Acid), Sputter Aluminum, Alumiplate, Aluminum Manganese (NAVAIR), and Tin-Zinc (Dipsol Gumm)
- Craig Matzdorf stated the Navy was testing Sermetel 249/273 as a repair process

7. Craig Matzdorf briefed the test plan he has been working on. (See attached slides)

8. Action items:

Action Item	Description	POC	Status
HSS-CAD-08-001	Identify the extended tests to be included in testing.	CAD Team	CLOSED - Completed during meeting. The Army C-ring test will be included in the testing, as well as the SO2 corrosion test (this testing will be funded by the Navy)
HSS-CAD-08-002	Obtain cost estimate for fatigue coupons	Joe Kolek/AFRL	CLOSED - AFRL could not provide the coupons any cheaper and does not have the capability of performing the tests. Hill AFB or Boeing will provide the specimens and Boeing will perform the fatigue testing.
HSS-CAD-08-003	Determine who applies coating	CTC	On-going – to be completed by 12/15/03
HSS-CAD-08-004	Send out request to each DOD and commercial facility to confirm commitment and cost estimate for coating and/or testing activities	CTC	On-going – to be completed by 12/15/03
HSS-CAD-08-005	Request JG-PP endorsement from programs	All services	On-going – coordinate with Craig Matzdorf

Attachments:

1. Alternatives briefing
2. Test plan briefing
3. Attendee list