

NAS411-1 Hazardous Material Implementation & Alternatives

ISSTS

27 August 2015

Linda M. S. Thomas

linda.m.thomas@boeing.com

The statements contained herein are based on good faith assumptions and provided for general information purposes only. These statements do not constitute an offer, promise, warranty or guarantee of performance. Actual results may vary depending on certain events or conditions. This document should not be used or relied upon for any purpose other than that intended by Boeing.

BOEING is a trademark of Boeing Management Company.
Copyright © 2015 Boeing. All rights reserved.

Overview

Boeing Defense, Space & Security | Engineering, Mission Assurance & Product Support

- **DoD and industry collaboratively revised the Hazardous Material Management Program (HMMP) Standard (“NAS411”) and created NAS411-1 Hazardous Material Target List (HMTL)**
 - Consistent with MIL-STD-882E, but available for commercial contracts
 - NAS411 (Rev3) and NAS411-1 published 30 Sept 2013
- **NAS411-1 provides a standard HMTL for the DoD to use as guidance for new programs**
 - Contains prohibited, restricted, and tracked HAZMAT
 - Expected to be tailored to meet program needs

Definitions

- **Prohibited HAZMAT** - material that cannot be included or used in Products and Services unless prior customer approval is obtained for each specific application or process. (HAZMATs in this category have been determined to pose potentially unacceptable ESOH, cost, schedule, or performance risks and typically have technically and economically feasible alternatives.)
- **Restricted HAZMAT** - material that the contractor is required to target for elimination or minimization.
- **Quantify** – obtaining an **estimate** of the amount of HAZMAT, based upon **readily available data and/or engineering judgment**. The quantity can be in various terms that can be **used to assess relative risk**, such as weight percent, pieces of hardware or measure of weight.
- **Tracked HAZMAT** - material that does not require specific contractor action other than tracking and reporting to the customer

NAS411-1 HAZMAT

Boeing Defense, Space & Security | Engineering, Mission Assurance & Product Support

- **Prohibited HAZMAT are**
 - Asbestos
 - Class I ODS
 - **Hexavalent Chromium**
 - Mercury and Mercury Compounds
 - Polychlorinated Biphenyls (PCBs)

- **Restricted HAZMAT includes**
 - Beryllium and beryllium compounds
 - Cadmium and cadmium compounds
 - Nickel compounds
 - Lead and lead compounds

NAS 411-1 Harmonization

Boeing Defense, Space & Security | Engineering, Mission Assurance & Product Support

- Harmonize externally with International Aerospace Environmental Group (IAEG*)
- Aerospace-Defence Declarable Substance List (AD-DSL)
- Harmonize internally
 - Logistics Product Data
 - Hazard Tracking System
 - NAS 411 (Hazardous Materials Management System)
 - MIL STD 882

IAEG
INTERNATIONAL AEROSPACE
ENVIRONMENTAL GROUP

Home About Us Membership Resources Members Only

AEROSPACE AND DEFENCE DECLARABLE SUBSTANCE LIST (AD-DSL)

IAEG Aerospace and Defence Declarable Substances List (AD-DSL)

The aerospace industry is under increasing scrutiny through regulations like REACH. The AD-DSL will make it easier to work with regulatory agencies on harmful substances and chemicals used in manufacturing.

The AD-DSL provides an initial, common list of chemicals/substances used within the aerospace and defense supply chain. It was developed through the collaborative efforts of 36 aerospace and defense companies, including suppliers and original equipment manufacturers (OEMs).

The list is the product of thoughtful, methodical research, including a pilot program with 30 suppliers, which took place over several years and garnered industry-wide buy-in.

It includes chemical substances incorporated into aerospace and defense products, or critical in either the manufacture or maintenance of these products.

The list will be updated periodically, and employed as part of an aerospace industry standard currently in development.

AD-DSL - PDF Format
AD-DSL - Excel Format
AD-DSL - Terms and Conditions
AD-DSL - Press Release

NATIONAL AEROSPACE STANDARD

HAZARDOUS MATERIALS MANAGEMENT PROGRAM
STANDARD PRACTICE

REVISION	DESCRIPTION	DATE	CLASSIFICATION
1	HAZARDOUS MATERIALS MANAGEMENT PROGRAM		NAS411 (MIL-STD-882)

AIA
AEROSPACE INDUSTRIES ASSOCIATION

DEPARTMENT OF DEFENSE
STANDARD PRACTICE

SYSTEM SAFETY

REVISION	DESCRIPTION	DATE	CLASSIFICATION
1	SYSTEM SAFETY		MIL-STD-882

DEPARTMENT OF DEFENSE
UNITED STATES OF AMERICA

*<http://www.iaeg.com/workgroups/wg1/addsl/>

Hazard Analysis Guidance

Boeing Defense, Space & Security | Engineering, Mission Assurance & Product Support

- **Develops a hazard analysis guidance consistent with MS 882 methodology (Task Section 200 - Analysis)**
- **Considers chemical hazards for environmental, and occupational safety**

Exceptions

- When prohibited or restricted HAZMAT needs to be **used to support program objectives**, then consider incorporating appropriate exceptions in the contract.
- Examples:
 - Except **hexavalent chromium** required for use per a customer requirement (e.g., coatings required per program Finish Specification) or not subject to 48 CFR 223.73 DFARS (e.g., conversion coating, chromic acid anodize, and adhesive bonding primer) shall be categorized as **restricted** material
 - Except **lead** in electrical and electronic applications, sealed maintenance-free batteries, lead ballast for vessel stability, and industry standard metal alloys with lead $\leq 4\%$ shall be **tracked** material.
 - Except **beryllium** in electrical/electronic components or mirrors shall be categorized as **tracked** materials.
 - Except **nickel compounds** in batteries, electronic/electrical applications, plating, catalysts, coatings, dyes and seals shall be categorized as **tracked** material.

NAS411 WG Next Steps

Boeing Defense, Space & Security | Engineering, Mission Assurance & Product Support

- Continue industry and DoD collaboration to improve NAS 411 and NAS 411-1 through the AIA
- NAS411 and NAS411-1 will be periodically reviewed and updated as needed
- NAS 411-1 Revision expected by 1st Quarter 2016
 - Contains a separate “Tracked HAZMAT” list
 - Contains chemical names and CAS numbers for NAS411-1 compounds
- Continue facilitating identification, communication, and implementation of alternatives early in the design – collaborate with DoD and industry SMEs

Questions???

