

Important Notice: A hard copy of this document may not be the document currently in effect. The current version is always the version on the Lockheed Martin network.

**HAZARDOUS MATERIALS ELIMINATION LIST
Issue 35, December 2007**

For concentrations less than 1 % (Wt.), the banned and restricted material requirements do not apply, except for carcinogens (e.g., asbestos, arsenic, beryllium, cadmium, & benzene) and persistent bio-accumulative toxic (PBT) chemicals (e.g., PCBs, mercury, and lead & lead compounds). These carcinogens and PBT chemicals have footnotes listing the lower concentration where banned and restricted material requirements apply.

Table 1: Banned Materials

BANNED		
CAS Number	Chemical Name	Notes
107-13-1	Acrylonitrile	1
53-96-3	2-Acetylaminofluorene	1
92-67-1	4-Aminodiphenyl	1
7440-38-2	Arsenic	1
1332-21-4 12172-73-5 77536-66-4 12172-67-7 77536-67-5 132207-33-1 132207-32-0 12001-29-5 12001-28-4 77536-68-6	Asbestos including: <ul style="list-style-type: none"> • Amosite • Actinolite • Actinolite • Anthophyllite • Asbestos • Chrysotile Asbestos • Chrysotile • Crocidolite • Tremolite 	1
92-87-5	Benzidine	1
91-94-1	<ul style="list-style-type: none"> • 3,3' Dichlorobenzidine 	1
612-83-9	<ul style="list-style-type: none"> • 3,3' Dichlorobenzidine dihydrochloride 	1
542-88-1	Bis(chloromethyl)ether	1
106-99-0	1,3 Butadiene	1
107-30-2	Chloromethyl Methyl Ether	1
106-93-4	Ethylene Dibromide	1
75-21-8	Ethylene Oxide	1
151-56-4	Ethyleneimine	1
1464-53-5	1,2:3,4 Diepoxybutane	1
60-11-7	4-Dimethylaminoazobenzene	1
96-12-8	1,2-Dibromo-3-Chloropropane	1
7440-38-2	Inorganic Arsenic Compounds	1
13463-40-6	Iron Pentacarbonyl	

**Hazardous Materials Elimination List
Reproduction and Distribution is Permitted by all Viewers.
ESH is Everyone's Responsibility!**

Important Notice: A hard copy of this document may not be the document currently in effect. The current version is always the version on the Lockheed Martin network.

BANNED		
CAS Number	Chemical Name	Notes
101-77-9	4,4'-Methylenedianiline (MDA)	1
101-14-4	4,4'-Methylene-bis-(o-Chloroaniline) (MOCA)	1
134-32-7	alpha-Naphthylamine	1
91-59-8	beta-Naphthylamine	1
13463-39-3	Nickel Carbonyl	1
92-93-3	4-nitrobiphenyl	1
62-75-9	N-Nitrosodimethylamine	1
87-86-5	Pentachlorophenol	1
88-89-1	Picric Acid	2
1336-36-3	Polychlorinated biphenyls (PCB)'s	1,3
57-57-8	beta-Propiolactone	1
56-23-5	Tetrachloromethane	1
71-55-6	1,1,1-Trichloroethane (1,1,1-TCA)	
79-01-6	Trichloroethylene (TCE)	1
93-76-5	2,4,5-Trichlorophenoxyacetic acid (2,4,5-T)	

Notes for Table 1: Banned Materials:

1. Ban applicable for concentration $\geq 0.1\%$ (Wt) because this material is a carcinogen, except for lead acid batteries.
2. The laboratory exemption in AC-580 does not apply for picric acid.
3. Ban applicable for any known concentration of PCBs.

Important Notice: A hard copy of this document may not be the document currently in effect. The current version is always the version on the Lockheed Martin network.

Table 2: Restricted Materials

CAS Number	Chemical Name	Notes
7664-41-7	Anhydrous Ammonia	
13768-00-8 17068-78-9 14567-73-8	Asbestos – Non-Asbestiform Chemicals <ul style="list-style-type: none"> • Actinolite • Anthophyllite • Tremolite 	8
71-43-2	Benzene	8
7440-41-7	Beryllium & Be Compounds	1
319-84-6	Alpha-BHC	8
319-85-7	Beta-BHC	8
319-86-8	Delta-BHC	
58-89-9	Gamma-BHC	8
7440-43-9	Cadmium & Cd Compounds	8
7782-50-5	Chlorine Gas	
106-47-8	p-Chloroaniline	
108-90-7	Chlorobenzene	
510-15-6	Chlorobenzilate	
75-00-3	Chloroethane	
67-66-3	Chloroform	7
74-87-3	Chloromethane	
7440-47-3	Chromium & Cr Compounds	8,9
	Class I Ozone Depleting Compounds (ODCs): <ul style="list-style-type: none"> • Consists of fully halogenated chlorofluorocarbons (CFCs), halons, and methyl chloroform. • Note that 1,1,1-Trichloroethane is on the banned list. 	
	Class II Ozone Depleting Compounds (ODCs): <ul style="list-style-type: none"> • Consists of all hydrochlorofluorocarbons (HCFCs). • Restricted from delivery in a product or use in maintenance of a product. • Exceptions: R-123 is not restricted. R-22 is restricted per the approval database. 	
7440-61-1	Depleted Uranium	
95-50-1	1,2-Dichlorobenzene	
106-46-7	1,4-Dichlorobenzene	8
75-34-3	1,1-Dichloroethane	8
107-06-2	1,2-Dichloroethane	8

Hazardous Materials Elimination List
Reproduction and Distribution is Permitted by all Viewers.
ESH is Everyone's Responsibility!

Important Notice: A hard copy of this document may not be the document currently in effect. The current version is always the version on the Lockheed Martin network.

Restricted Materials		
CAS Number	Chemical Name	Notes
75-35-4	1,1-Dichloroethene	
156-59-2	Cis-1,2-Dichloroethylene	
156-60-5	Trans-1,2-Dichloroethylene	
10061-02-6	Trans-1,3-Dichloropropene	
111-96-6	Diethylene glycol dimethyl ether	
111-90-0	Diethylene glycol monoethyl ether	
68479-98-1	Diethyltoluenediamine (DETDA)	
127-19-5	Dimethylacetamide	
68-12-2	Dimethylformamide	
123-91-1	1,4 Dioxane (P-Dioxane)	
115-29-7	Endosulfan	
110-80-5	2-Ethoxy Ethanol and Acetate	
111-15-9		
110-71-4	Ethylene glycol dimethyl ether	
50-00-0	Formaldehyde	8
76-44-8	Heptachlor	8
1024-57-3	Heptachlor Epoxide	8
110-54-3	n-Hexane	
302-01-2	Hydrazine	8
7664-39-3	70% Hydrofluoric Acid	
57-12-5	Inorganic Cyanide	11
7439-92-1	Lead Compounds (solder OK)	4
7439-93-2	Lithium	5
109-86-4	2-Methoxy Ethanol and Acetate	
110-49-6		
1589-47-5	2-Methoxy-1-propanol	
78-93-3	Methyl ethyl ketone (MEK)	3
7439-97-6	Mercury (attrition) & Hg Compounds	6,10
67-56-1	Methanol	3
75-09-2	Methylene chloride	7,8
108-10-1	Methyl isobutyl ketone (MIBK)	3
19900-65-3	4,4'-Methylene-bis-(o-Ethylaniline)	
13680-35-8	4,4'-Methylene-bis-(2,6 diethylaniline)	
7440-02-0	Nickel and Nickel Compounds	8
7697-37-2	Nitric acid	

Hazardous Materials Elimination List
Reproduction and Distribution is Permitted by all Viewers.
ESH is Everyone's Responsibility!

Important Notice: A hard copy of this document may not be the document currently in effect. The current version is always the version on the Lockheed Martin network.

Restricted Materials		
CAS Number	Chemical Name	Notes
7790-98-9 10034-81-8 7778-74-7 7790-98-9 7601-89-0 7791-03-9 1497-73-0	Perchlorates (USA) <ul style="list-style-type: none"> • Magnesium Perchlorate • Potassium Perchlorate • Ammonium Perchlorate • Sodium Perchlorate • Lithium Perchlorate Perchlorates (Other Countries)	
108-95-2	Phenol	
7446-09-5	Sulfur Dioxide Gas	
127-18-4	Tetrachloroethylene, a.k.a. Perchloroethylene	8
40088-47-9	Tetrabromodiphenyl ether (TBDPE)	
584-84-9 91-08-7 26471-62-5	Toluene Diisocyanate (TDI)	8
108-88-3	Toluene	3
112-49-2	Triethylene glycol dimethyl ether	
1330-20-7 95-47-6 108-38-3 106-42-3	Xylenes including: <ul style="list-style-type: none"> • o-Xylene • m-Xylene • p-Xylene 	3
75-01-4	Vinyl chloride	8

Notes for Table 2: Restricted Materials:

1. Items that contain < or = to 2.0% (wt) beryllium concentration, are not wear items, and are not subjected to any processes that may, under any circumstances produce particulates or fumes during manufacture, assembly, use, or maintenance are exempt from HMMP approval. (An aircraft electronic component is an example of an item that is generally exempt from HMMP approval.) Wear items (such as, but not limited to, bearings, bushings, and rub strips) or materials that are subject to processes that will produce particulates or fumes shall be submitted for HMMP approval when concentrations are 0.1% (wt) or greater.
2. Deleted 30 October 2003
3. For use in formulated products only, new neat solvent uses will need significant justification. HMMP approval is required for new families of coatings (or coatings meeting new specifications) containing restricted solvents. A new color from an existing (i.e. currently in use at the pertinent facility) coating family or specification, or a new vendor product for an existing coating family or specification, does not

Hazardous Materials Elimination List
Reproduction and Distribution is Permitted by all Viewers.
ESH is Everyone's Responsibility!

Copyright 2009 Lockheed Martin Corporation

Important Notice: A hard copy of this document may not be the document currently in effect. The current version is always the version on the Lockheed Martin network.

- require HMMP approval unless there is a significant increase in total restricted solvent content or any additional restricted materials. The appropriate LM Aero authority will provide this judgment during ESH review of the new MSDS.
4. HMMP approval is required for any known concentration.
 5. Except in alloy form with <2.5% Lithium.
 6. Devices containing mercury shall be eliminated through attrition. Thermometers, thermostats, switches, and manometers containing mercury are highly discouraged for use. Requests for devices containing mercury must be approved by HMMP on a case by case basis. Devices containing mercury to be installed on aircraft are exempt from the case by case approval; however, new applications using mercury are governed by Engineering procedure requirements. Fluorescent and Metal Halide bulbs containing trace amounts of mercury exempt from requirements. For additional information, contact ESH.
 7. Neat solvent uses prohibited except for lab use.
 8. This chemical is a carcinogen. Restricted material requirements (e.g., HMMP approval) apply to all materials (except alloys) that contain this chemical at a concentration that is $\geq 0.1\%$ (Wt). Constituents found in fuels (e.g., benzene,) are exempt.
 9. Excludes Chromium Plated Articles.
 10. Restricted material requirements (e.g., HMMP approval) apply to materials that contain this chemical at a concentration that is $\geq 1\%$ (Wt.) or $\geq 0.1\%$ (Wt.) for carcinogens.
 11. Potassium ferricyanide does not have to be submitted to the HMMP **unless** it is heated, if hot acid is added, or if it is exposed to strong ultraviolet light.