Metal Furniture Surface Coating MACT

40 CFR 63, SUBPART RRRR

U.S. EPA and Stakeholders Meeting

RTP, NC

April 12, 2001

Purpose

- Present anticipated project schedule
- Discuss changes since last stakeholder meeting
- Present overview of anticipated standards and likely compliance options
- Listen to comments from stakeholders

Anticipated Project Schedule

- April 2001 - Submit rule to OMB
- August 2001 - Rule proposed
- May 2002 - Final rule promulgated

Accomplishments Since Last Meeting

- Environmental and cost impacts
- Background Information Document
- MACT floor analysis
- Draft preamble and rule

MACT Floor Summary

Facility ID	Total HAP Emissions (Kg)	Total Coating Solids Volume (L)	Normalized Facility Emissions (Kg HAP/L Coating Solids)
MFA-08-CP	755	27739	0.027
MFE-06D	2037	34403	0.059
MFF-03-C	6154	65338	0.094
MFE-06-K	6300	63862	0.099
MFD-01	1481	12564	0.118
MFA-07-J	39476	305693	0.129
MFA-08-CX	89857	459148	0.145
MFE-04	1771	12025	0.147
MFF-04	40690	258522	0.157
MFF-01	5481	33014	0.166
MFE-06-I	4910	27669	0.177
MFA-08-CF	12827	57009	0.225
MFA-08-TX	8463	29420	0.288
MFE-06-J	16476	41041	0.401
MFF-03-A	52448	127866	0.410
MFB-02	3857	8750	0.441
MFB-03	22880	45717	0.500
MFE-03-A	22362	40732	0.549
MFE-06-F	11202	17656	0.634
MFE-06-G	41046	61360	0.669
MFE-03-B	21061	24766	0.850
MFA-07-HAZ	182651	142751	1.280
MFE-06B	19021	10944	1.738

MACT Floor Values

- Existing Sources
  - 0.088 kg HAP/liter coating solids
  - Average of best performing six facilities
- New Sources
  - 0.027 kg HAP/liter coating solids
  - Best performing facility

Basic Compliance Calculations

(refer to following table)

- HAP emissions from each material
  - Multiply usage (in liters) by the density (in kg/liter) to obtain mass of material used. Then multiply by the HAP content (as a decimal) to obtain mass of HAP in the material. For Material #1, the emissions of 2-butoxyethanol is (51,200 L) x (1.11 kg/L) x (12/100) = 6,820 kg.

- Coating solids volume
  - Multiply coating usage (in liters) by the coating solids content in percent by volume (as a decimal). For Material #1, the coating solids volume is (51,200 L) x (32/100) = 16,383 L.

Basic Compliance Calculations

(continued)

- Total HAP emissions
  - Add the HAP emissions for each material. In the example table, total HAP emissions are the sum of Column E, which is 17,346 kg.

- Total coating solids volume
  - Add the coating solids volume from each coating material. In the example table, total coating solids volume is the sum of Column G, which is 25,513 L.

- Emission rate
  - The facility emission rate is the total HAP emissions divided by the total coating solids volume. In the example table, the emission rate is (17,346 kg HAP)/(25,513 L coating solids) = 0.68 kg HAP/L coating solids.

Example Table for Basic Compliance Calculations

XYZ Company									
Facility ID	**Material ID**	**Usage (L) (A)**	**Material Density (Kg/L) (B)**	**HAP Component (C)**	**HAP Content (Mass %) (D)**	**HAP Emissions (Kg) (E) (see note a)**	**Coating Solids Content (Vol %) (F)**	**Coating Solids Volume (L) (G) (see note b)**	
MFX-01	1	51,200.00	1.11	2-Butoxyethanol	12.00	6819.84	32.00	16384.00	
		51,200.00	1.11	Formaldehyde	0.10	56.83	---	---	
	2	19,235.00	1.03	2-Butoxyethanol	6.00	1188.72	28.20	5424.27	
		19,235.00	1.03	Formaldehyde	0.02	4.16	---	---	
		19,235.00	1.03	Ethylbenzene	0.02	4.16	---	---	
	3	2,341.00	0.99	2-Butoxyethanol	5.00	115.88	21.30	498.63	
	4	9,658.00	0.96	Xylene	27.00	2503.35	33.20	3206.46	
		9,658.00	0.96	Naphtha (see note c)	0.05	4.64	---	---	
	5	7,642.00	0.87	2-Butoxyethanol	100.00	6648.54	0.00	0.00	
						Total HAP Emissions (Kg) (H) (see note d)		**Total Coating Solids Volume (L) (I) (see note e)**	**Normalized Facility Emissions (Kg HAP/L Coating Solids) (J) (see note f)**
						17346.13		25513.36	0.68

(a) HAP Emissions (E) = (A)*(B)*((D)/100)
(b) Coating Solids Volume (G) = (A)*(F/100)
(c) Solvent blend for Naphtha was assigned 1% HAP by mass. HAP content values were taken from information provided by the Chemical Manufacturer's Association Solvent Council, and were used only when the solvent blend HAP content was reported to be zero.
(d) Total HAP Emissions (H) = Sum of Column (E)
(e) Total Coating Solids Volume (I) = Sum of Column (G)
(f) Normalized Facility Emissions (J) = (H)/(I)

Example Compliance Calculation Equations

(from proposed large appliances rule - 65 FR 81134)

- Total mass of HAP emissions
  - $H_e = A + B + C - R_w$
    - A, B, C = Total mass of HAP from coatings, thinners, and cleaners, kg
    - R_w = Total mass of HAP sent to hazardous waste TSDF, kg
  - A, B, or C = sum[(Vol) x (D) x (W)]
    - Vol = Total volume used, liters
    - D = Density, kg/liter
    - W = HAP mass fraction
- Total volume of coating solids used
  - V_{st} = sum[(Vol) x (V_s)]
    - Vol = Total volume used, liters
    - V_s = Volume fraction of coating solids

Example Compliance Calculation Equations (continued)

- HAP emission rate
  - $H_{avg} = (H_e) / (V_{st})$
    - H_e = Total mass of HAP emissions
    - V_{st} = Total volume coating solids

Likely Compliance Options and Recordkeeping

- *Option 1: All compliant coatings and all thinners and cleaners contain no HAP*
  - Recordkeeping: Formulation and test data and all calculations to show HAP content, coating solids content, and mass HAP/volume coating solids

- *Option 2: Emission rate without add-on control*
  - Recordkeeping: Same as Option 1, plus calculations for total mass HAP, total volume coating solids, and emission rate.

Likely Compliance Options and Recordkeeping (cont.)

- *Option 3: Emission rate with add-on control*
  - Recordkeeping: Same as Option 2, plus calculations for HAP emissions after control and HAP emission rate

Metal Furniture SIC/NAICS Codes

SIC Codes and Corresponding NAICS Codes

Category	1987 SIC Code	Equivalent 1997 NAICS Code	Equivalent 1997 NAICS Category
Metal Household Furniture	2514	337124	Metal Household Furniture Manufacturing
Office Furniture, Except Wood	2522	337214	Nonwood Office Furniture Manufacturing
Public Building and Related Furniture	2531	337127[a]	Institutional Furniture Manufacturing
Office and Store Fixtures, Partitions, Shelving, and Lockers, Except Wood	2542	337215	Showcase, Partition, Shelving, and Locker Manufacturing
Furniture and Fixtures, Not Elsewhere Classified	2599	(b)	Institutional Furniture Manufacturing
Hardware, Not Elsewhere Classified	3429	332510[c]	Hardware Manufacturing
Metal Stampings, Not Elsewhere Classified (Except Kitchen Utensils, Pots and Pans for Cooking and Coins)	3469	332116[d]	Metal Stamping
Wire Springs	3495	332612[e]	Wire Spring Manufacturing
Fabricated Metal Products, Not Elsewhere Classified	3499		Showcase, Partition, Shelving, and Locker Manufacturing

Metal Furniture SIC/NAICS Codes

SIC Codes and Corresponding NAICS Codes

Category	1987 SIC Code	Equivalent 1997 NAICS Code	Equivalent 1997 NAICS Category
Residential Electric Lighting Fixtures	3645	335121	Residential Electric Lighting Fixture Manufacturing
Commercial, Industrial, and Institutional Electric Lighting Fixtures	3646	335122	Commercial, Industrial, and Institutional Electric Lighting Fixture Manufacturing
Laboratory Apparatus and Furniture	3821	339111	Laboratory Apparatus and Furniture Manufacturing
Dental Equipment and Supplies	3843	339114	Dental Equipment and Supplies Manufacturing
Manufacturing Industries, Not Elsewhere Classified	3999		Institutional Furniture Manufacturing
Reupholstery and Furniture Repair	7641		Reupholstery and Furniture Repair

[a] Includes 3371271, 3371274.
[b] Includes 3391137 and 3371277/A.
[c] Only includes 3325101.
[d] Only includes 3321165.
[e] Only includes 3326124.

Draft Affected Source Rule Language

- Affected source
  - A facility that applies coatings to metal furniture and is a major source, is located at a major source, or is part of a major source of emissions of hazardous air pollutants
- Metal furniture
  - Furniture or components of furniture constructed either entirely or partially from metal. Metal furniture includes, but is not limited to, components of the following types of products as well as the products themselves: household, office, institutional, laboratory, hospital, public building, restaurant, barber and beauty shop, and dental furniture; office and store fixtures; partitions; shelving; lockers; lamps and lighting fixtures; and wastebaskets.

Draft Affected Source Rule Language (continued)

- What is not covered by the metal furniture rule?
  - Surface coating conducted at a source that uses only coatings, thinners, and cleaning materials that contain no organic HAP.
  - Surface coating subject to any other national emission standards for hazardous air pollutants.
  - Surface coating that occurs at research or laboratory facilities or that is part of janitorial operations.

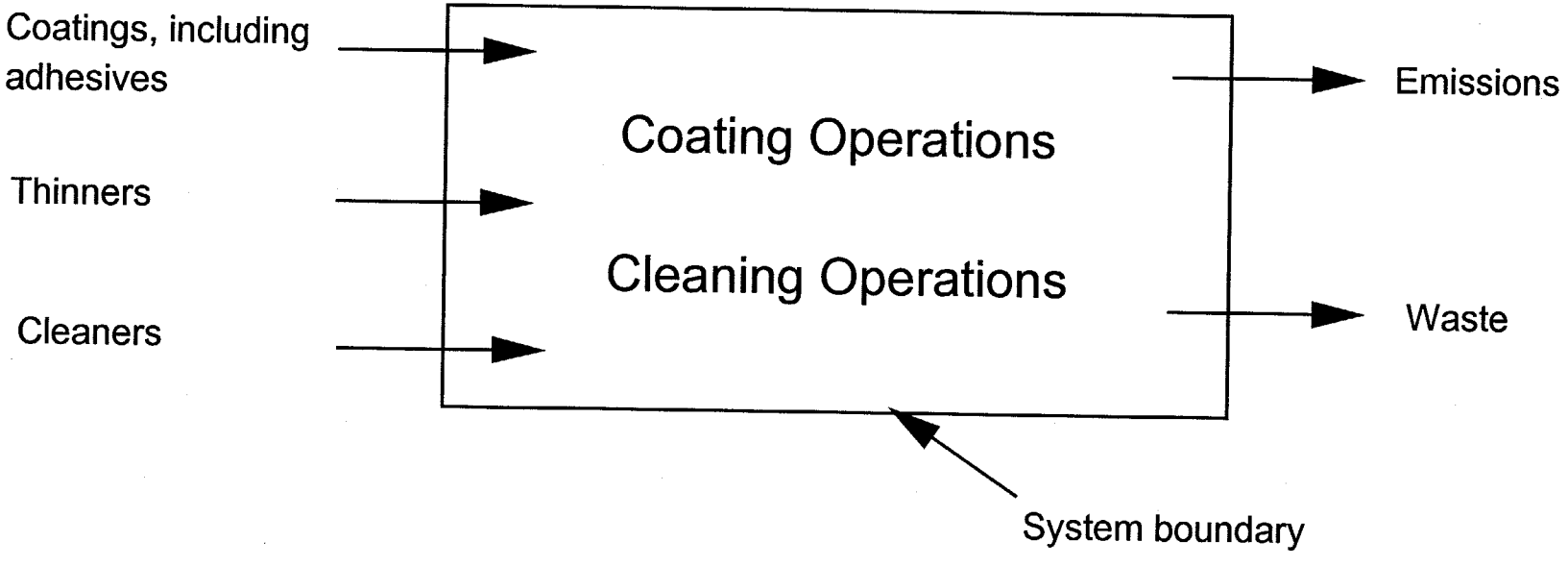
Draft Affected Source Rule Language (continued)

- What is not covered by the metal furniture rule (cont.)?
  - The surface coating of small items such as metal knobs, hinges, or screws that have a wider use beyond metal furniture, if the surface coating occurs at a source that does not apply coatings to other metal furniture items.
  - The surface coating of metal furniture conducted for the purpose of repairing or maintaining metal furniture used by a facility and not for commerce (unless these coating operations make the facility a major source).

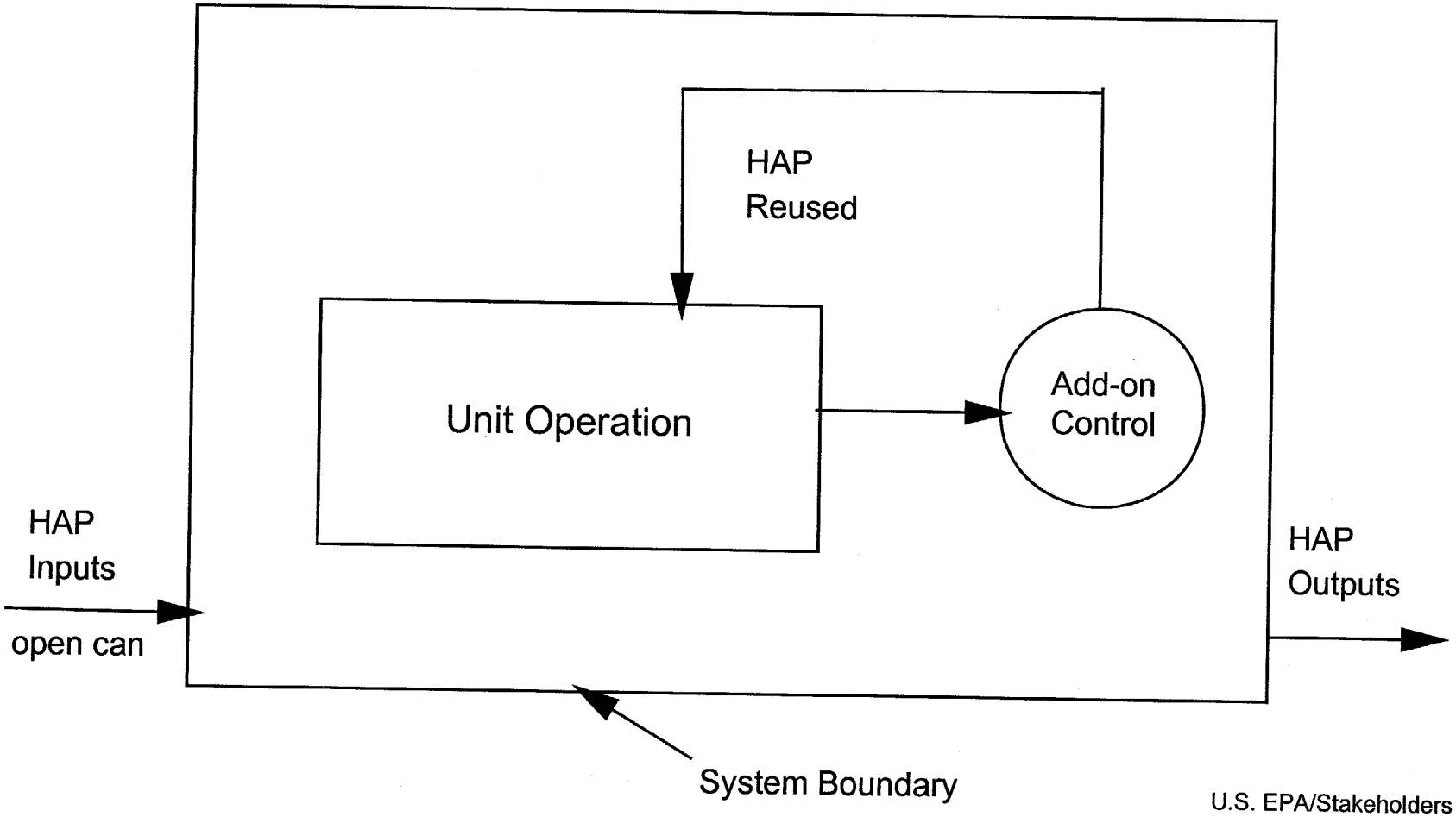
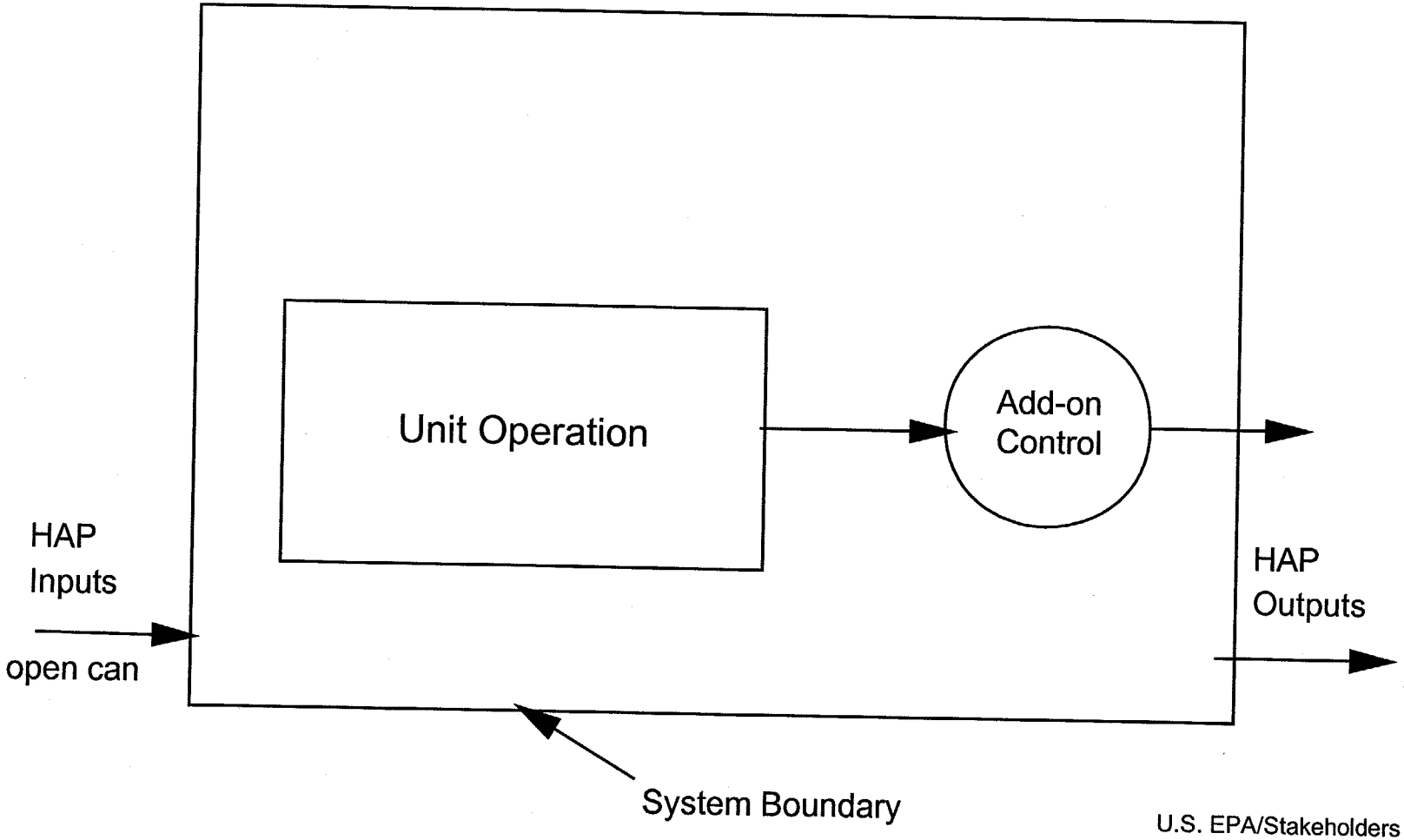
Draft Affected Source Rule Language (continued)

- What is not covered by the metal furniture rule (cont.)?
  - Coating application with hand-held nonrefillable aerosol containers, touchup markers, or marking pens is not a coating operation for the purposes of this rule.

Diagram of Affected Source



Affected Source with Reuse/Recycle of HAP-containing Materials



Affected Source with Add-on Control