

Work practice standards

Implementation plan for wood furniture manufacturing

If you are subject to the National Emission Standards for Hazardous Air Pollutant (NESHAP) for wood furniture finishing facilities per [40 CFR pt. 63, subp. JJ](#), you will need to prepare and maintain a “Work Practice Implementation Plan.” This fact sheet contains material to help you develop a plan that will meet the federal requirements.

When does the plan need to be developed?

You must develop the plan within 60 days of your compliance date, and it must be available for inspection upon request. If the Minnesota Pollution Control Agency (MPCA) deems the plan inadequate, you may be required to modify it. This will not require a permit revision.

What are the compliance dates?

Type of source	Actual emissions	Compliance date
Existing source – installed and operating prior to December 6, 1994	Less than 50 tons of HAP per year	December 7, 1998
	More than 50 tons of HAP per year	November 21, 1997
	Area sources that become major HAP sources	One year after becoming a major source
New source – installed and operational after December 6, 1994	Major source	Upon start up or December 7, 1995 whichever is later
	New non-major sources that become major sources	Immediately, once the operation becomes a major source

What does a work practice implementation plan contain?

The final work product should be titled the “Work Practice Implementation Plan.” Each of the numbered elements on the following pages must be addressed in the plan and maintained as a part of the plan.

Minimum requirements for each element are listed to help you begin writing a more detailed description. Some elements have additional subset elements that also must be included in your plan. We have also included some recordkeeping sample forms for you to use.

1. Operator training course

All new, existing and contract personnel who are involved in finishing, gluing, cleaning, and wash-off operations, use of manufacturing equipment, or implementation of the requirements of the NESHAP must receive training in the following areas:

1. Appropriate application techniques:
 - Hold the spray gun perpendicular to the surface of the part being sprayed to reduce the chance of uneven coverage
 - Slightly trigger the spray gun before and after each pass to minimize overspray
 - Overlap each stroke by 50% to ensure a uniform film thickness

- Maintain a consistent distance between the spray gun tip and the part. The distance will depend on the coating, operating pressures and spray equipment
 - Spray with a suitable speed. A speed that gives a full wet coat without sagging
2. Appropriate cleaning and wash off procedures:
 - For gun/line cleaning all solvents should be collected and stored in a closed container
 - For wash off operations the parts should be rotated and tilted to maximize the amount of solvent recovered from the part
 - Solvent from wash off operations should be stored in closed containers
 3. Appropriate equipment setup and adjustment:
 - Adjust the air and fluid pressures and gun tip size to minimize overspray
 - Adjust air flow in spray booth to minimize air turbulence
 4. Appropriate management of cleanup wastes:
 - Collecting and storing cleanup solvents in closed, sealed containers

Anyone hired after the compliance date that affects your facility must receive this training upon being hired. Anyone hired before the compliance date must be trained within six months of the compliance date. Please refer to the table on the previous page to determine what the compliance date for your facility is. Employees must also receive annual refresher training.

Training plan (subset of operator training course)

The “Work Practices Implementation Plan” must include a training plan that includes the following information:

- A list of all current personnel to be trained, by name and job description
- An outline of the subjects to be covered in the initial and refresher training for each position or group of personnel
- Lesson plans for courses to be given at the initial and refresher training
- A description of the methods to be used to demonstrate and document successful completion of both types of training

Attachments 1 and 2 are tables that will help you track the training information.

2. Leak inspection and maintenance plan

You will also need to prepare a written leak inspection and maintenance plan that includes:

- A visual inspection at least once a month for all equipment used to transfer or apply coatings, adhesives, or organic solvents
- An inspection schedule
- Methods for documenting the date and results of each inspection and any repairs that were made
- The time frame between identifying the leak and making the repair

The rule establishes minimum timelines for repairing leaks. The first attempt at repairing the leak must be made within five days of discovering the leak. Final repairs must be made within 15 days of discovering the leak. One exception is allowed: if the leaking equipment is to be replaced by a new purchase, the repairs must be completed within three months of the date of discovering the leak. The discovery dates, first attempt and final repair must be recorded as part of the inspection and maintenance plan.

Attachment 3 includes a table to help you track the leak inspection and maintenance information.

3. Cleaning and wash off solvent accounting system

An accounting system for cleaning and wash off solvent must also be prepared that includes a form to record the following information:

- The quantity and type of organic solvent used each month for wash off and cleaning operations
- The number of pieces washed off and the reason for the wash off
- The quantity of spent solvent generated from each wash off and cleaning operation each month, and whether it is recycled onsite or disposed of offsite

Attachment 4 includes a table to assist you in tracking the cleaning and wash off solvents.

4. Chemical composition of cleaning and wash off solvents

A chemical composition of cleaning and wash off solvent plan must be developed to ensure that none of the cleaning and wash off solvents contain any of the pollutants listed in Table 4 of the rule, in concentrations subject to material safety data sheets (MSDS) reporting as required by Occupational Safety and Health Administration (OSHA).

Attachment 5 contains Table 4 of the rule and a tracking form for this information.

5. Spray booth cleaning

A plan for cleaning spray booths must be developed to ensure that the company does not use compounds with more than 8% by weight volatile organic compound (VOC) for cleaning spray booth components other than conveyors, continuous coaters and their enclosures, or metal filters, unless the spray booth is being refurbished. For spray booths being refurbished, the plan must outline the procedure you will use to ensure that not more than 1.0 gallon of organic solvent, per booth, will be used to prepare the surface of the booth prior to applying the booth coating. (The standard defines refurbishment as replacement of the spray booth coating or other protective coating used to cover the booth).

Attachment 6 includes a form for tracking the spray booth cleaning information.

6. Storage requirements

A storage requirements plan needs to be developed outlining the procedures you will implement to ensure that finishing, gluing, cleaning and wash off materials will be stored in closed containers.

7. Application equipment requirements

A plan must be developed describing the measures you will take to comply with the NESHAP requirements regarding application equipment. The use of conventional air spray guns when applying finishing materials, must be limited to the following circumstances:

- The VOC content of finishing materials cannot exceed 1.0 lb VOC/lb solids
- Touchup and repair must occur under the following conditions:
 - After completion of the finishing operation or
 - If after the application of stain and before the application of any other type of finishing material, then the materials used for touchup and repair must be applied from a container that has a volume of no more than 2.0 gallons
- When spray is automated, that is, the spray gun is aimed and triggered automatically, not manually
- When emissions from the finishing application station are directed to a control device
- The conventional air gun is used to apply finishing materials and the cumulative total usage of that finishing material is no more than 5% of the total gallons of finishing material used during that semiannual period
- The conventional air gun is used to apply stain on a part for which it is technically or economically infeasible to use any other spray application technology

To demonstrate that the above conditions are technically or economically infeasible, you need support your claim with a videotape, technical report or other documentation. The following criteria, either independently or in combination, can support the claim of infeasibility:

- The production speed is too high or the part shape is too complex for one operator to coat the part, and the application station is not large enough to accommodate an additional operator, or
- The excessively large vertical spray area of the part makes it difficult to avoid sagging or runs in the stain

8. Line cleaning

A plan needs to be developed describing the steps you will take to ensure compliance with the line-cleaning requirements. This requirement states that each company shall pump or drain all organic solvent used for line cleaning into a normally closed container.

9. Gun cleaning

A plan must be developed describing the steps the company will take to ensure compliance with the requirements for gun cleaning. This requirement states that each company shall collect all organic solvent used to clean spray guns into a normally closed container.

10. Wash off operations

A plan needs to be developed describing the steps the company will take to ensure compliance with the requirements for wash off operations. This requirement states that each company shall control emissions from wash off operations by:

- Using normally closed tanks for wash off
- Minimizing dripping by tilting or rotating the part to drain as much solvent as possible

11. Formulation assessment plan for finishing operations

Each company must prepare and maintain a formulation assessment plan that:

- Identifies each volatile hazardous air pollutant (VHAP) that the company uses in finishing operations listed in [Table 5 of Subpart JJ](#) which includes VHAP chemical name, chemical abstract service number (CAS No.), and U.S. Environmental Protection Agency (EPA) de minimis quantity in tons per year.

VHAP chemical name	CAS No.	EPA de minimis (ton/yr)	VHAP chemical name	CAS No.	EPA de minimis (ton/yr)
Dimethyl formamide	68122	1.0	Styrene monomer	1000425	1.0
Formaldehyde	50000	0.2	Phenol	108952	0.1
Methylene Chloride	75092	4.0	Diethanolamine	11422	5.0
2-Nitropropane	79469	1.0	2-methoxyethanol	109864	10.0
Isophorone	78591	0.7	2-Ethoxyethyl acetate	111159	5.0

- Establishes a baseline level of usage by your facility, for each VHAP identified above. The baseline usage level shall be the highest annual usage from 1994, 1995, or 1996
 - For formaldehyde, the baseline level of usage shall be based on the amount of free formaldehyde present in the finishing material when it is applied.
 - For styrene, the baseline level of usage shall be an estimate of unreacted styrene, which shall be calculated by multiplying the amount of styrene monomer in the finishing material, when it is applied, by a factor of 0.16.

$$[(0.16)(\text{amount of styrene monomer})]$$

- Companies using a control device to reduce emissions may adjust their usage based on the overall control efficiency of the control system. The overall control efficiency should be determined during a performance test.
- Tracks the company's annual usage of each VHAP identified above that is present in amounts subject to MSDS reporting as required by OSHA
- If, after November 1998, the annual usage of the VHAP identified above exceeds its baseline level, then the company shall provide a written notification to the MPCA that describes the amount of the increase and explains the reasons for exceeding the baseline level. The following explanations would relieve the owner or operator from further action, unless the company is not in compliance with any state regulations or requirements for that VHAP:
 - The exceedance is no more than 15% above the baseline level
 - Usage of the VHAP is below the de minimis level for that VHAP (sources using a control device to reduce emissions may adjust their usage based on the overall control efficiency of the control system, which is determined using the procedures in §63.805(d) or (e))
 - The affected source is in compliance with any Minnesota air-toxic regulations or guidelines for the VHAP, or
 - The source of the pollutant is a finishing material with a VOC content of no more than 1.0 kg VOC/kg solids (1.0 lb VOC/lb solids), as applied
- If none of the above explanations are the reason for the increase, the owner or operator shall confer with the MPCA to discuss the reason for the increase and whether there are practical and reasonable technology-based solutions for reducing the usage. The evaluation of whether a technology is reasonable and practical shall be based on cost, quality, and marketability of the product, whether the technology is being used successfully by other wood furniture manufacturing operations, or other criteria mutually agreed upon by the permitting authority and owner or operator. If there are no practical and reasonable solutions, the facility need take no further action. If there are solutions, the owner or operator shall develop a plan to reduce usage of the pollutant to the extent feasible. The plan shall address the approach to be used to reduce emissions, a timetable for implementing the plan, and a schedule for submitting notification of progress.

Attachment 7 contains a table for tracking the information required.

Attachment 1

Training plan – personnel training summary (Example)

Employee name:
Job description title:
Date of employment:
Date of initial training:
Date of completion of initial training: <input type="checkbox"/> Initial training successfully completed <input type="checkbox"/> Initial training not successfully completed
Frequency of refresher training sessions:
Date of refresher training: <input type="checkbox"/> Successfully completed <input type="checkbox"/> Not successfully completed
Date of refresher training: <input type="checkbox"/> Successfully completed <input type="checkbox"/> Not successfully completed

Attachment 2

Training plan – job specific training layout (Example)

Job description title:	
Schedules timing of when individual is to receive initial training from the date of employment:	
Scheduled timing frequency of when individual is to receive refresher training:	
Description of position's responsibilities:	
Subject outline of items to be covered during the training:	
This subject is included in:	Subject outline item:
<input type="checkbox"/> Initial training <input type="checkbox"/> Refresher training	

Attachment 3

Leak inspection and maintenance log (Example)

Equipment inspected	Date of visual inspection	Repair(s) needed?	Date of initial repair/attempted repair	Date of final repair	Indicate a description of repair completed, or needed to be completed. For repairs not completed (eg. due to lack of parts or equipment), indicate the order date.
		<input type="checkbox"/> Yes <input type="checkbox"/> No			
		<input type="checkbox"/> Yes <input type="checkbox"/> No			
		<input type="checkbox"/> Yes <input type="checkbox"/> No			
		<input type="checkbox"/> Yes <input type="checkbox"/> No			
		<input type="checkbox"/> Yes <input type="checkbox"/> No			
		<input type="checkbox"/> Yes <input type="checkbox"/> No			
		<input type="checkbox"/> Yes <input type="checkbox"/> No			

Attachment 4

Organic solvent accounting table (Example)

Month/Year	Quantity of organic solvent used	Type of organic solvent use	Number of pieces washed	Reason for wash off	Quantity of spent solvent	Spent solvent
January/						<input type="checkbox"/> Recycled onsite <input type="checkbox"/> Disposed offsite
February/						<input type="checkbox"/> Recycled onsite <input type="checkbox"/> Disposed offsite
March/						<input type="checkbox"/> Recycled onsite <input type="checkbox"/> Disposed offsite
April/						<input type="checkbox"/> Recycled onsite <input type="checkbox"/> Disposed offsite
May/						<input type="checkbox"/> Recycled onsite <input type="checkbox"/> Disposed offsite
June/						<input type="checkbox"/> Recycled onsite <input type="checkbox"/> Disposed offsite
July/						<input type="checkbox"/> Recycled onsite <input type="checkbox"/> Disposed offsite
August/						<input type="checkbox"/> Recycled onsite <input type="checkbox"/> Disposed offsite
September/						<input type="checkbox"/> Recycled onsite <input type="checkbox"/> Disposed offsite
October/						<input type="checkbox"/> Recycled onsite <input type="checkbox"/> Disposed offsite
November/						<input type="checkbox"/> Recycled onsite <input type="checkbox"/> Disposed offsite
December/						<input type="checkbox"/> Recycled onsite <input type="checkbox"/> Disposed offsite

Attachment 5

Cleaning and wash off solvent approval table (Example)

Cleaning/Wash off solvent used	Name of person approving solvent for use:

Attachment 6

Spray booth cleaning checklist (Example)

Component cleaned	Cleaning compound	Percent by weight of VOC in cleaning compound ¹	Indicate whether this is a routine clean, or a refurbish ²
			<input type="checkbox"/> Routine clean <input type="checkbox"/> Refurbish
			<input type="checkbox"/> Routine clean <input type="checkbox"/> Refurbish
			<input type="checkbox"/> Routine clean <input type="checkbox"/> Refurbish
			<input type="checkbox"/> Routine clean <input type="checkbox"/> Refurbish
			<input type="checkbox"/> Routine clean <input type="checkbox"/> Refurbish
			<input type="checkbox"/> Routine clean <input type="checkbox"/> Refurbish
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			<input type="checkbox"/> Routine clean <input type="checkbox"/> Refurbish
			<input type="checkbox"/> Routine clean <input type="checkbox"/> Refurbish
			<input type="checkbox"/> Routine clean <input type="checkbox"/> Refurbish
			<input type="checkbox"/> Routine clean <input type="checkbox"/> Refurbish
			<input type="checkbox"/> Routine clean <input type="checkbox"/> Refurbish

¹Should not exceed 8.0% by weight, unless refurbishing.

²For a refurbish, include a description of a plan outlining the procedure to be followed to ensure that no more than 1.0 gallon of organic solvent, per booth will be used to prepare the surface of the booth prior to applying the booth coating.

Attachment 7

VHAP usage tracking table (Example)

VHAP used in finishing operations	Baseline level (year)	Baseline level exceeded?	Annual usage of VHAP subject to MSDS reporting
		<input type="checkbox"/> Yes <input type="checkbox"/> No	
		<input type="checkbox"/> Yes <input type="checkbox"/> No	
		<input type="checkbox"/> Yes <input type="checkbox"/> No	
		<input type="checkbox"/> Yes <input type="checkbox"/> No	
		<input type="checkbox"/> Yes <input type="checkbox"/> No	
		<input type="checkbox"/> Yes <input type="checkbox"/> No	
		<input type="checkbox"/> Yes <input type="checkbox"/> No	
		<input type="checkbox"/> Yes <input type="checkbox"/> No	
		<input type="checkbox"/> Yes <input type="checkbox"/> No	
		<input type="checkbox"/> Yes <input type="checkbox"/> No	
		<input type="checkbox"/> Yes <input type="checkbox"/> No	
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		<input type="checkbox"/> Yes <input type="checkbox"/> No	
		<input type="checkbox"/> Yes <input type="checkbox"/> No	
		<input type="checkbox"/> Yes <input type="checkbox"/> No	
		<input type="checkbox"/> Yes <input type="checkbox"/> No	
		<input type="checkbox"/> Yes <input type="checkbox"/> No	
		<input type="checkbox"/> Yes <input type="checkbox"/> No	