



# 6V NESHAP for Area Sources: Chemical Manufacturing

## Rule overview

In October 2009, the Environmental Protection Agency (EPA) finalized a rule in the Code of Federal Regulations (40 CFR Part 63 Subpart VVVVVV) titled National Emission Standards for Hazardous Air Pollutants (NESHAP) for Chemical Manufacturing Area Sources. This guidance document is a summary designed to assist Kansas facilities in complying with this regulation; for full requirements, you will need to read the regulation.

## Does the rule apply to you?

You're subject to the 6V rule if—

- your facility is an area source of hazardous air pollutants (HAPS), and
- your facility includes one or more chemical manufacturing process units (CMPU), and
- at least one of your CMPUs uses, produces, or generates any 6V *Table 1* HAP at greater than 0.1% for carcinogens or 1% for non-carcinogens.

### Exemptions to the rule:

- Facilities subject to the 7C, 5I, 6D, 6L, 6M, 6N, or 6P area source rule
- Facilities manufacturing radioactive elements or isotopes, radium chloride, radium luminous compounds, strontium, or uranium; photographic film, paper, and plate where the material is coated with or contains chemicals.
- Facilities performing fabricating, compounding, extruding, and drawing operations (if no HAP is used or if the purpose of the operation is not to remove residual HAPs).
- Facilities manufacturing chemicals classified in the following NAICS codes:
  - 325222, non-cellulosic fiber
  - 325314, fertilizer mixing
  - 325413, in vitro pharmaceutical
  - 325998, chemical preparations
- Research and development facilities.
- Quality assurance/quality control laboratories.

- Ancillary activities (boilers, incinerators, and process heaters not used to comply with emission standards); chillers, refrigeration systems, and other equipment and activities not directly involved in the processing of raw materials or manufacturing of a product or intermediates used in production.
- Metal HAPs in structures or existing as articles

**Table 1: HAPs used to determine 6V applicability**

Chemical name	CAS No.
1,3-butadiene ( <i>organic compound</i> )	106990
1,3-dichloropropene ( <i>organic compound</i> )	542756
Acetaldehyde ( <i>organic compound</i> )	75070
Chloroform ( <i>organic compound</i> )	67663
Ethylene dichloride ( <i>organic compound</i> )	107062
Hexachlorobenzene ( <i>organic compound</i> )	118741
Methylene chloride ( <i>organic compound</i> )	75092
Quinoline ( <i>organic compound</i> ) *	91225
Arsenic compounds ( <i>metal compound</i> )	
Cadmium compounds ( <i>metal compound</i> )	
Chromium compounds ( <i>metal compound</i> ) *	
Lead compounds ( <i>metal compound</i> )	
Manganese compounds ( <i>metal compound</i> ) *	
Nickel compounds ( <i>metal compound</i> )	
Hydrazine ( <i>other compound</i> )	302012

\* *non-carcinogen*

### Are you a “new” or “existing” source?

“Source” is the facility-wide collection of CMPUs and associated heat exchange and wastewater systems.

If you began construction or reconstruction before October 6, 2008, your facility is considered an “existing” source. Otherwise, your facility is considered “new.”

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### When do I need to be in compliance?

**Existing sources:** March 21, 2013

**New sources:** October 29, 2009 or upon startup

*NOTE: An initial notification form and notification of compliance status form must be submitted before then.*

### Requirements: management practices

- Each process vessel must be covered at all times, except to add materials, inspection, sampling, and cleaning.
- When transferring liquids containing *Table 1* organic HAPs to tank truck or railcars, you must do one of the following:
  - Use submerged loading or bottom loading
  - Route emissions to a process or fuel gas system
  - Vapor balance back to the storage tank from which you are loading
  - Vent through a closed-vent system to a control device
- Implement a leak detection and repair program with quarterly inspections of process vessels, equipment, and small heat exchange systems (cooling water flow rate <8,000 gal/min).

### Requirements: process vents

#### Batch process vents (BPVs)

- Determine the sum of actual organic HAP emissions from all of your batch process vents (or estimate emissions for each CMPU based on a worst-case scenario). As an alternative to determining HAP emissions, you can demonstrate the amount of organic HAP used in the process is less than 10,000 lb/yr.
- If emissions are ≤10,000 pounds per year, keep a record of the number of batches of each process operated per month. Re-evaluate total emissions prior to making any process changes that might affect emission calculations.
- If emissions are ≥10,000 lbs/year, you must reduce total uncontrolled organic HAP emissions by at least 85% for existing sources and at least 90% for new sources.

#### Continuous process vents (CPVs)

- If your CPV has a total resource-effectiveness (TRE) index value ≤ 1.0, you must reduce uncontrolled organic HAP emissions by at least 95% from each CPV during normal operation and by at least 85% during periods of startup and shutdown.
- If current TRE index value is >1.0, recalculate TRE before making any process or operational change that affects the calculation.

#### Combined stream vents

If you combine organic HAP emissions from batch process vents and continuous process vents, comply with the more stringent standard for the combined stream, or comply with each separately as previously stated.

#### Halogenated stream vents

If your halogenated vent stream is controlled using a combustion device, use a halogen reduction device to reduce emissions of hydrogen halide and halogen HAPs *after the combustion device* by ≥95%, to ≤0.45 kg/hr, or to concentration ≤20 ppmv; otherwise, reduce emissions *before the combustion device* to ≤0.45 kg/hr or to concentration ≤20 ppmv.

#### Metal HAP process vents

- If uncontrolled metal HAP emissions are ≤400 lb/yr, keep records of either the number of batches operated per month (batch vents) or the process operating hours (continuous vents). Re-evaluate total emissions before making any process or operational change that affects emissions of metal HAP.
- If uncontrolled metal HAP emissions are ≥400 lb/yr, reduce emissions by ≥95%, and—
  - existing sources and new sources using a control device other than a baghouse, prepare and follow a monitoring plan and conduct a performance test or an engineering assessment.
  - new sources using a baghouse as a control device, install, operate, and maintain a bag leak detection system.

### Requirements: storage tanks

- Add no materials to storage tank during maintenance
- Limit periods of routine maintenance to no more than 240 hours/year
- Keep records of when maintenance periods begin and end; and the type of maintenance performed
- Comply with requirements of [Table 5 of the 6V regulation](http://www.ecfr.gov/cgi-bin/text-idx?c=ecfr&SID=a6b8e45dedc12d71eac2f00eacaa0b08&rgn=div9&iew=text&node=40:15.0.1.1.35.295.11.85&idno=40) ([www.ecfr.gov/cgi-bin/text-idx?c=ecfr&SID=a6b8e45dedc12d71eac2f00eacaa0b08&rgn=div9&iew=text&node=40:15.0.1.1.35.295.11.85&idno=40](http://www.ecfr.gov/cgi-bin/text-idx?c=ecfr&SID=a6b8e45dedc12d71eac2f00eacaa0b08&rgn=div9&iew=text&node=40:15.0.1.1.35.295.11.85&idno=40))

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### Requirements: wastewater systems

- Determine the total concentration of partially soluble HAPs in each wastewater stream.
- If your wastewater stream contains partially soluble HAPs at concentrations <10,000 ppmw, you must discharge to on- or off-site wastewater or hazardous waste treatment (and maintain appropriate records).
- If your wastewater stream contains partially soluble HAPs at concentrations ≥10,000 ppmw, you must separate the water phase from organic phase and recycle the organic phase to a process, use as fuel, or dispose as hazardous waste; otherwise, you must hard pipe the entire wastewater stream to on- or off-site treatment as hazardous waste (and maintain appropriate records).

### Requirements: heat exchange systems

- If cooling water flow rate is ≥8,000 gal/min, conduct quarterly monitoring for the presence of HAPs in the cooling water; when leaks are found, they must be repaired.
- For equipment that meets Current Good Manufacturing Practice (CGMP) requirements of 21 CFR part 211, you may use the physical integrity of the reactor as the surrogate indicator of heat exchanger system leaks.

### Notification, reporting, and recordkeeping

#### You must submit two notifications:

- Initial notification of applicability
  - due within 120 days of startup (or Feb. 26, 2010).
- Notification of compliance status
  - Facilities not required to conduct performance test (or conducting design evaluation): due May 20, 2013
  - Facilities conducting performance test (must be completed by Sep. 17, 2013): due 60 days after test is conducted

**Example forms are available online at:**

[www.sbeap.org/aqrules/page/7c-rule](http://www.sbeap.org/aqrules/page/7c-rule)

#### Recordkeeping

- Semiannual compliance reports must be completed and submitted (when applicable) by January 30, 2013 and every six months thereafter. Semiannual reports must only be submitted when one of the following occurs:
  - Deviation from any requirement in the rule
  - Delay of repair of large cooling tower systems
  - Equipment leak or a leak in process equipment, storage tank, surge control vessel or bottoms receiver, or small cooling tower system is not repaired within specified time periods
  - Process change that affects compliance determination
- Maintain files of all information required by this subpart for at least five years following the date of each occurrence.

**Table 2: Overview of recordkeeping and reporting requirements**

	Recordkeeping requirements				Reporting requirements		
	Initial compliance demonstration	Inspections and repairs	Control device monitoring data	Small vents	Compliance certification	Test reports	Semiannual reports
Batch process vents	Organic HAP emissions per process	Yes	Yes, if applicable	Annual emissions (number of batches)	Yes	Testing or engineering assessment	Deviations or process change
Continuous process vents	TRE determination	Yes	Yes, if applicable	Monitoring data for recovery device	Yes	Testing or engineering assessment	Deviations or process change
Metal HAP vents	Metal HAP emissions	Yes	Yes, if applicable	Annual emissions	Yes	Testing or engineering assessment	Deviations or process change
Cooling towers	Monitoring plan	Yes	Cooling water monitoring		Yes	No	Deviations, delay of repairs, or process change
Equipment inspections	No	Yes	No		Yes	No	Deviations, delay of repairs, or process change
Storage tanks	Tank size and vapor pressure	Yes	Yes, if applicable		Yes	No	Deviations or process change
Wastewater	Table 7 HAP concentration		No		Yes	No	Deviations or process change

# Air quality rules

## Overview of compliance requirements

### Initial compliance requirements:

- Complete the following no later than the compliance date:
  - Determine mass threshold for BPV and metal HAP vents, TRE for CPV, MTVP and capacity of storage tanks (or SCV or BR), flow rates for heat exchange systems, and characterize wastewater streams.
  - Install control equipment, as required.
  - Assess your ability to comply with management practices.
- Comply with all management practices, emissions limits, monitoring (including storage tank inspections) and recordkeeping beginning on the compliance date.
- Complete your performance test, flare compliance assessment, or design evaluation within 180 days of the compliance date.

### Ongoing compliance requirements:

- Conduct quarterly inspection for leaks.
- Monitor control device operating parameters and determine daily averages.
- Inspect closed vent systems (CVS) for leaks.
- Monitor lines that bypass control devices for flow.
- Inspect storage tanks with floating roof as specified in 40 CFR 63.1063(c) and (d).
- Comply with all management practices, emissions limits, monitoring, recordkeeping, and reporting.

## Acronyms

BR = bottoms receiver  
CFR = code of federal regulations  
CGMP = current good manufacturing practice  
CMPU = chemical manufacturing process unit  
CPV = continuous process vent  
HAP = hazardous air pollutant  
MSDS = material safety data sheet  
MTVP = maximum true vapor pressure  
NESHAP = national emission standard for hazardous air pollutants  
ppmv = parts per million (by volume)  
ppmw = parts per million (by weight)  
SCV = surge control vessel  
TRE = total resource effectiveness

## Frequently asked questions

- Q:** On my MSDS, the concentration of a HAP is listed as a range. What number should I use?
- A:** You must use the upper bound of the range (worst case scenario), unless your material supplier can provide you (in writing) a more accurate value.
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- Q:** What does a CMPU include?
- A:** A CMPU includes all process vessels, equipment, and activities necessary to operate a chemical manufacturing process that produces a material or a family of materials described by North American Industry Classification System (NAICS) code 325. A CMPU consists of one or more unit operations and any associated recovery devices. A CMPU also includes each storage tank, transfer operation, surge control vessel, and bottoms receiver associated with the production of such NAICS code 325 materials.
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- Q:** What are articles?
- A:** An article is a manufactured item which is formed to a specific shape or design during manufacture; which has end use functions dependent in whole or in part upon its shape or design during end use; and which does not release a toxic chemical under normal conditions of processing or use of that item at the facility or establishments.

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