Chemical Manufacturing Area Sources
Fact Sheet – January 2013

On October 29, 2009 the EPA issued the final rule imposing Area Source Generally Available Control Technology (GACT) standards for the control of hazardous air pollutants (HAPs) at chemical manufacturing facilities that are minor HAP sources. Substantive technical amendments were published on December 21, 2012. This Fact Sheet describes the applicability, promulgated standards and amendments and possible consequences of this rule.

The final National Emissions Standards for Hazardous Air Pollutants (NESHAP) for Chemical Manufacturing Area Sources – herein denoted as the CMAS Rule (40 Part 63 Subpart VVVVVV) was published in the Federal Register on October 29, 2009. This rule has the potential to affect 450 facilities with more than 150 “small entities” by EPA’s estimate!

NOTE: This Fact Sheet is designed to cover some of the rule elements and is not comprehensive or to be used as a substitute for reading the rule.

APPLICABILITY
Chemical manufacturing operations involve the production of materials described by NAICS code 325 with certain exceptions as noted in the rule. If you have chemical manufacturing operations located at an Area (minor HAP) Source you must first evaluate if you use, produce or generate one of the 15 HAPs listed in the rule; which are:

- 1,3-butadiene
- 1,3-dichloropropene
- Acetaldehyde
- Chloroform
- Ethylene dichloride
- Hexachlorobenzene
- Methylene chloride
- Quinoline
- Arsenic compounds
- Chromium compounds
- Lead compounds
- Manganese compounds
- Nickel compounds
- Hydrazine

You may rely on Material Safety Data Sheets (MSDS) to determine the HAP content of feedstocks. The threshold for applicability of listed HAP in feedstocks and generated or produced is 0.1% for carcinogens and 1% for non-carcinogens (on a mass basis of the individual Table 1 HAP). Note that all Table 1 compounds are carcinogens except for manganese, quinoline and trivalent chromium therefore the 1% threshold only applies for these three (3) compounds. For CMPU that generate a Table 1 HAP as a byproduct, the CMPU is subject to the thresholds that apply as feedstocks.

If you have an existing source on October 29, 2009, then you must comply with the requirements for existing sources by March 21, 2013. If you start up a new (commenced construction or reconstruction of the affected source on or after October 6, 2008) source on or before October 29, 2009, you must comply with the rule no later than October 29, 2009. If you start up a new affected source after October 29, 2009, you must achieve compliance upon start up.

STANDARDS
The rule specifies a combination of management (herein “work”) practice and control technology standards for process vents, storage tanks, transfer operations, equipment leaks,
cooling tower systems and wastewater. These requirements are highlighted below. One of the key issues to understand is that while there are only 15 chemicals (and compounds) listed in the final rule to determine applicability, once the rule is applicable you must control all HAP not just those specifically listed. For example, if organic Table 1 HAP requires control, all organic HAP, not just those listed here must be controlled. Likewise for metal HAP except that a CMPU using only Table 1 metal HAP is not subject to wastewater and heat exchange system requirements. Only processes with organic HAP are subject to wastewater and heat exchange system requirements. A summary of the final standards is as follows:

<table>
<thead>
<tr>
<th>Emission Point</th>
<th>Subcategory</th>
<th>Existing Source GACT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Process vessels and transfer operations</td>
<td>All except for transfer operating of reactive or resinous materials</td>
<td>Submerged loading and other management practices.</td>
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<tr>
<td>Continuous process vents…</td>
<td>TRE ≤1.0</td>
<td>Use control device that reduces organic HAP by ≥95 percent. Recovery device to maintain TRE &gt;1.0 (monitoring required if &gt;1.0 but ≤4.0). Halogen reduction device required if halogenated vent.</td>
</tr>
<tr>
<td>Batch process vents…………</td>
<td>Organic HAP emissions from all batch process vents in a CPMU ≥10,000 lb/yr.</td>
<td>Use control device that reduces organic HAP by ≥85 percent. [90% at new sources.] Halogen reduction device required if halogenated vent.</td>
</tr>
<tr>
<td>Metal HAP process vents…</td>
<td>Metal HAP emission ≥400 lb/yr.</td>
<td>Use control device that reduces metal HAP emissions by ≥95 percent. [Also use a bag leak detection system at new sources.]</td>
</tr>
<tr>
<td>Storage tanks…………</td>
<td>Capacity &gt;40,000 gal with MTVP ≥0.75 psi and &lt;11.1 psi</td>
<td>Control per various options listed in table 5 of the regulation:</td>
</tr>
<tr>
<td>Note: MTVP – maximum true vapor pressure of organic HAP.</td>
<td>Capacity ≥20,000 gal and &lt;40,000 gal with MTVP ≥4 psi and &lt;11.1 psi</td>
<td>• control ≥95%;</td>
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<tr>
<td></td>
<td>Capacity ≥20,000 gal with MTVP ≥11.1 psi</td>
<td>• vent to flare;</td>
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<td>• vapor balancing;</td>
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<td></td>
<td>• route emissions to a fuel gas system or a process;</td>
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<td>• floating roof but only if MTVP &lt;11.1 psi.</td>
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<tr>
<td>Cooling water systems……</td>
<td>Cooling water rate &lt;8,000 gal/min.</td>
<td>Management practices for organic HAP.</td>
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<td>Quarterly monitoring for leaks of organic HAP.</td>
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<tr>
<td>Equipment leaks…………</td>
<td>All</td>
<td>Quarterly inspections for leaks and repair of equipment found to be leaking.</td>
</tr>
<tr>
<td>Wastewater systems……</td>
<td>Wastewater streams with PSHAP concentration &lt;10,000 ppmw and ≥10,000 ppmw.</td>
<td>Treatment (on-site or off-site).</td>
</tr>
<tr>
<td></td>
<td>Wastewater streams with two (2) phases and PSHAP concentration ≥10,000 ppmw.</td>
<td>Use separation device to separate organic and water layers, and treat the water layer.</td>
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</tbody>
</table>
PROCESS VENTS

The final rule imposes work practice standards that require that process equipment be covered when in use and closure mechanisms on openings and access points must be kept closed except when operator access is necessary. There are inspection, monitoring and repair elements in the rule that are similar to the typical leak detection and repair (LDAR) requirements of many MACT standards.

EPA is using the concept of a Chemical Manufacturing Process Unit (CMPU) similar to that used in the MON rule. If the uncontrolled organic HAP emissions from all batch process vents in a CMPU is greater than or equal to 10,000 pounds per year (lb/yr), you must control the sum of all batch process vents by at least 85% (or 20 ppmv at the outlet), send at least 85% of the emissions to a flare, or meet the alternative control standard which requires continuous emission monitoring (CEM). For new sources the required reduction is greater than or equal to 90%. The use of a halogen reduction device is required if halogenated vent.

For continuous process vents, if the total resource effectiveness (TRE) value is calculated to be less than or equal to 1.0 for each vent, then you must reduce emission of organic HAP by 95% or greater. A recovery device may be used to maintain TRE >1.0, but monitoring of the device is required if >1.0 but ≤4.0. The use of a halogen reduction device is required if halogenated vent.

If the total uncontrolled metal HAP emissions from each CMPU are greater than 400 lb/yr, you must reduce uncontrolled emissions by 95% or greater. Does not apply to metal HAP process vents from CMPU containing only metal HAP that are in a liquid solution or other form that will not result in particulate emissions of metal HAP.

If you use a combustion device to comply with the process vent limitations, you must reduce hydrogen halide and halogen HAP emissions by greater than or equal to 95% or to 0.45 kilograms per hour (kg/hr) or to a concentration equal to or less than 20 ppmv.

STORAGE TANKS

There are several control options for tanks storing organic HAP with capacities equal to or exceeding 20,000 gallons, and the maximum true potential pressure of organic HAP is exceed the applicability thresholds. Control options in the final rule include: (1) use of an internal or external floating roof; (2) venting through a closed vent system to a control device that reduces organic HAP emissions by at least 95 percent; (3) vapor balancing to the tank truck or railcar from which the tank is filled; (4) routing to a flare; or (5) routing to a fuel gas system or process. Storage tanks, surge control vessels, and bottoms receivers with capacity of 20,000 gallons or greater with vapor pressure of total organic HAP of 11.1 psi or greater may not use a floating roof as a compliance option. Storage tanks, surge control vessels, or bottoms receivers with a vent stream that contains halogenated compounds and that is controlled by combustion may also meet the same requirements as for halogenated process vents.

TRANSFER OPERATIONS

EPA is requiring a work practice standard that requires that transfer operations must be conducted when in organic HAP service in a manner that minimizes emissions and stipulates certain housekeeping practices that must be adhered to.
COOLING WATER SYSTEMS

For cooling water systems with a water rate of less than 8,000 gpm that serves heat exchangers with process fluids containing listed HAP, there are provisions for you to institute a monitoring and inspection plan to identify a leak of specifically listed organic HAP from your process into the cooling water and to address any leaks you discover.

For cooling water systems with water rates greater than 8,000 gpm, there are prescribed monitoring and repair provisions.

WASTEWATER

The rule requires that you identify and characterize all wastewater streams and document the manner of on-site or off-site treatment. If the partially soluble HAP (PSHAP) concentration in a given stream is greater than or equal to 10,000 ppmw, and has two phases then you must decant organics and properly manage the disposition of each phase. The rule has a PSHAP list of 60 chemicals.

EQUIPMENT LEAKS (aka: LDAR)

Compliance must be demonstrated by quarterly leak inspections using visual, audible, or olfactory methods. You must repair leaks within 15 days.

INITIAL COMPLIANCE DEMONSTRATIONS

Initial compliance demonstrations must be completed within 60 days of the compliance date. Monitoring and recordkeeping requirements are stipulated in large part by referencing other MACT standards and can be quite confusing. Pursuant to the requirements of the general provisions in Subpart A, in addition to performance (design evaluation or stack testing) demonstrations, the responsible official must make very specific compliance certifications as enumerated in the rule.

MONITORING & RECORDKEEPING

Records of compliance must be maintained, per 40 CFR 63.11501(c) of CMAS. These records include records of applicability parameters and calculations, inspections, monitoring, startups, shutdowns, and malfunctions, monitoring instrument calibrations, etc. Records are used to provide documentation for Compliance Reports and must be kept for five (5) years.

Control device monitoring requirements are required and vary greatly, depending upon the following:

- The type of control device (condenser, scrubber, thermal incinerator, etc.),
- The type(s) of vent(s) controlled (process vents, storage tanks, etc.), and
- The quantity of uncontrolled HAPs annually inlet to the control device.

The majority of the CMAS control device monitoring requirements is found in 40 CFR Subpart SS in 40 CFR 63.982 through 63.996 as referenced from CMAS. All monitoring requirements have associated recordkeeping.
REPORTING

CMAS specifies reporting and notification requirements in 40 CFR 63.11501 including Initial Notification, Notification of Performance Test, Notification of Compliance Status (NOCS) Report, and Semi-annual Compliance Reports.

Section 40 CFR 63.11501(a) references the General Provisions of 40 CFR part 63 Subpart A, which includes 63.9(b)(2) pertaining to initial notifications. For existing sources the Initial Notification is due within 120 calendar days after the effective date of CMAS (so by February 26, 2010).

If required, a notification of intent to conduct a performance test must be submitted no less than 60 calendar days prior to the test, per 63.7(b), as referenced by 40 CFR 63.11501(a) of CMAS. The reports must include including the information required by Subpart SS in 40 CFR 63.999, depending of the device to be tested.

An NOCS report, as required by 40 CFR 63.9(h) and 63.11501(b), must be submitted no later than 60 days after the compliance date. The information required in the NOCS is detailed in 63.11501(b).

There are specific reporting requirements stipulated to be made semiannually including the delay of leak repair, deviations and process changes affecting previous compliance determinations. Per 40 CFR 63.11501(d), affected sources are required to submit compliance reports semi-annually. Reports are required only for semiannual periods during which you experienced any of the following events.

1. Deviations.
2. Delay of repair for a large heat exchange system.
3. Delay of equipment leak repair.
5. Data for the alternative standard.
6. Overlapping rule requirements.
7. Reactive and resinous materials.
8. Malfunctions.

IMPORTANT CONSIDERATIONS

EPA has attempted to adopt a streamlined approach, however, there are a few of the areas that should be of concern to industry:

- The rule subjects control on all HAPs regardless of the significance of the emissions. While EPA has set some deminimus levels for the listed HAP, once subject to the rule, all HAPs must be considered regardless of their concentrations within the process or their contribution to emissions.
- The CMPU is defined by a facility’s production of materials described by NAICS code 325. A facility producing such a material (or family of materials) may use more than one train or series of equipment to make it. All equipment (i.e., unit operation) used to produce a specific product (as well as all the vents and activities associated
with making this product) are considered to be part of a single CMPU for purposes of this rule. All of the reactors; other process equipment (e.g., for separation, drying, etc.); connecting piping and related pumps, valves, etc.; storage tanks; transfer operation; surge control vessels; bottoms receivers; and other activities (e.g., routine cleaning) are part of a single CMPU.

- The monitoring, recordkeeping & reporting requirements are not transparent as they refer to numerous other standards. This has proved to be especially difficult in other standards like the MON rule.

- EPA broadly defines “In organic HAP service” as: that a process vessel or piece of equipment either contains or contacts a feedstock, byproduct, or product that contains an organic HAP, excluding any organic HAP used in manual cleaning activities. A process vessel is no longer in organic HAP service after the vessel has been emptied to the extent practicable (i.e., a vessel with liquid left on process vessel walls or as bottom clingage, but not in pools, due to floor irregularity, is considered completely empty) and any cleaning has been completed.

- Facilities which installed control devices to become area sources will be required to submit a complete Title V permit application by December 21, 2013 or take federally enforceable operating limitations prior to that date to insure that the facility does not rely on a control device to achieve area source status.

REQUIRED ACTIONS

We urge you to immediately assess the rule’s impact on your operation. Remember, the existing source compliance date is March 21, 2013! Some actions to consider include:

- Establish the NAICS code for your chemical manufacturing operations. This may not be the code that you operate under as your primary business, but what the individual operation might best be characterized by.

- Determine the CPMU boundaries based on the family of materials concept to establish the concentration of HAPs (listed in Table 1 of the rule) in your process.

- Evaluate all your process vents and the reliability of your uncontrolled emissions estimates.

- Review all storage tanks and potential compliance requirements.

- Assess your plant’s ability to comply with work practice standards.

- Review the availability of wastewater characterization data.

- Determine if you need to apply for a Title V permit application by December 21, 2013.

Please feel free to contact us for a confidential assessment of the potential impacts on your operations and to develop a compliance strategy.

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