

CHAPTER 1: Air Quality Regulations

Purpose and Applicability of Regulations

Did you know that some fruit and vegetable processing activities can release air pollution into the atmosphere? Activities such as the storage, material handling, heating and cooling of a fruit or vegetable product can produce dust and release other gaseous compounds such as sulfur dioxide, ammonia and volatile organic compounds.



Agencies and Their Laws and Rules

Controlling the levels of air pollution is an important part of protecting human health and the environment. Air pollution in Michigan is controlled through federal and state statutes and rules. The U.S. Environmental Protection Agency (EPA) is responsible for developing new regulations that implement the mandates of the federal Clean Air Act Amendments (CAAA) of 1990. Federal air quality regulations are published under Title 40, Parts 50 through 99 of the Code of Federal Regulations (40 CFR Parts 50-99).

Part 55 (Air Pollution Control) of the Natural Resources and Environmental Protection Act, Public Act 451 of 1994, as amended (Act 451) is the state law that regulates sources of air contaminants. The first administrative rules developed under Part 55 of Act 451, the Michigan Air Pollution Control Rules, became effective on August 15, 1967. The Air Quality Division (AQD) of the Michigan Department of Environmental Quality (DEQ) is responsible for developing and implementing state air quality requirements and enforcing compliance with both state and federal air quality requirements.

To address the concerns of small businesses impacted by state and federal air quality regulations, Congress mandated that every state develop a program consisting of three elements: a technical assistance program, an ombudsman, and an advisory panel. The Environmental Assistance Program (EAP) serves as the outreach arm of the DEQ, Air Quality Division. The EAP provides assistance to small businesses by developing publications that simplify the air quality regulations, offering workshops on a variety of air quality regulatory programs, and responding to your telephone calls. The EAP is located within the Environmental Science and Services Division of the DEQ. The Clean Air Ombudsman serves as an advocate for small businesses. The Clean Air Ombudsman is located within the Michigan Economic Development Corporation (MEDC). Seven members representing small businesses and the general public serve on the Clean Air Compliance Advisory Panel. The Panel observes and evaluates the effectiveness of the EAP and Clean Air Ombudsman.

TABLE 1.1 DEFINITIONS OF IMPORTANT AIR QUALITY TERMS

There are a few terms that appear often in the discussion of state and federal air quality regulations. To enhance your understanding of the regulations, definitions of some of the key terms are provided below.

Air Contaminant

In high school chemistry you learned that all matter is in either a solid, liquid, or gaseous state. The same applies to air contaminants. There are solid and liquid air contaminants that we call particulate, and there are many air contaminants in a gaseous state. Every air contaminant belongs somewhere on the pie chart in Figure 1.1. This pie chart represents the universe of air contaminants.

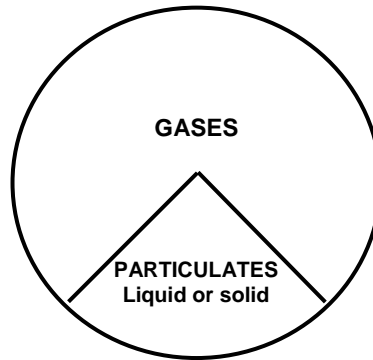


Figure 1.1 - "Universe of Air Contaminants"

State and federal air quality regulations, such as the New Source Performance Standards (NSPS) or the air quality Renewable Operating Permit (ROP) program, target specific defined groups, or what we refer to as families of air contaminants. There are many families, some big and some small.

The following table summarizes the families of air contaminants. Many air contaminants belong to more than one family. In fact, most of the hazardous air pollutants (HAPs) are also considered volatile organic compounds (VOCs). For example, xylene is a VOC, a HAP, and a regulated air pollutant. For additional information about air contaminants, including listings of air contaminants, see the EAP's fact sheet entitled, "What is an Air Contaminant/Pollutant?"

Families of Air Contaminants

Criteria SO₂, NO₂, CO, Lead, Ozone, Particulate Matter (PM). The EPA has set National Ambient Air Quality Standards for the criteria air pollutants to protect public health and the environment.

Class I and II Chlorofluorocarbons (CFCs) and Hydrochlorofluorocarbons (HCFCs)

TABLE 1.1 DEFINITIONS OF IMPORTANT AIR QUALITY TERMS (continued)

	<p>Ozone Precursors</p>	<p>VOCs and NO_x. Most sources do not emit ozone directly. However, they may emit VOCs and NO_x which, in the presence of sunlight, contribute to ozone formation.</p>
	<p>Hazardous Air Pollutants (HAPs)</p>	<p>187 compounds identified by the EPA. The Agency is regulating sources that are the primary emitters of these compounds through the promulgation of the National Emission Standards for Hazardous Air Pollutants (NESHAP). See Appendix 1-A for a listing of HAPs.</p>
	<p>Toxic Air Contaminants</p>	<p>According to Michigan rule 336.1120(f), any substance which is or may become harmful to public health or the environment can be regulated as a toxic air contaminant, except for 41 substances which have been excluded. See Appendix 1-B for a listing of the excluded compounds.</p>
	<p>New Source Performance Standards (NSPS)</p>	<p>The NSPS regulate the emission of the following air pollutants from various sources: criteria air pollutants plus dioxin/furan, fluorides, hydrogen chloride, hydrogen sulfide, sulfuric acid, total reduced sulfur, reduced sulfur compounds and more.</p>
	<p>National Emission Standards for Hazardous Air Pollutants (NESHAP)</p>	<p>The following air pollutants were regulated by the NESHAPs that were developed prior to the Clean Air Act Amendments of 1990: arsenic, asbestos, beryllium, benzene, mercury, radionuclides, and vinyl chloride.</p>
	<p>Section 112(r) Air Pollutants</p>	<p>Section 112(r) of the 1990 Clean Air Act Amendments requires risk management planning and accidental release prevention. A total of 77 toxic chemicals and 63 flammable chemicals are regulated under Section 112(r).</p>
	<p>Regulated Air Pollutants</p>	<p>All air pollutants regulated under the federal Clean Air Act: criteria air pollutants, ozone precursors, HAPs, NSPS, NESHAP, and Class I and II air pollutants.</p>

TABLE 1.1 DEFINITIONS OF IMPORTANT AIR QUALITY TERMS (continued)

<p>Emission Unit</p>	<p>Many manufacturing operations are made up of various individual process, control, and stacks. Take a cooking and drying operation for example. A process could include a boiler, a dryer and an exhaust stack. When it comes time to apply for a Permit to Install, does the applicant submit two permits, one for the boiler and one for the dryer, or one permit for the two pieces of process equipment? To answer this, the AQD has issued guidance on how to arrange processes into the proper emission unit groupings. The purpose of the emission unit concept is simply to provide some order and consistency on how various air quality regulations (i.e., the air quality permitting and pollutant reporting programs such as the Michigan Air Emissions Reporting System or MAERS) are administered.</p> <p>According to the guidance, AQD Operational Memorandum #6 (which can be found at the Air Quality Division's web site www.michigan.gov/deqair), state and federal rules are used to define the emission unit groupings. Many air rules are specific to a single process or collection of processes. Depending on the rules, the emission unit can be as simple as a vacuum dryer which contains one process, no control, and a stack. On the other hand, an emission unit can be as complex and large as a juice processing plant consisting of many processes (i.e., an anaerobic digester where methane gas emissions are routed to either a boiler for fuel or a biogas flare to be burned off to reduce emissions).</p> <p>The emission unit concept ensures that the grouping of process equipment remains consistent throughout all regulatory programs. Under the Permit to Install permitting program, special conditions are grouped by emission unit. Under the ROP permitting program, all applicable requirements that the source is subject to are grouped by emission unit. Under MAERS, the annual emissions of air contaminants are reported by emission unit. The emission unit is the common thread between the air regulatory programs.</p>
<p>Stationary Source</p>	<p>A stationary source or facility consists of all the buildings and structures that house the emission units. Stationary sources can range from a fruit and vegetable drying operation, which can contain one emission unit (i.e., a dryer) to a large canning operation which can contain multiple buildings housing multiple emission units.</p> <p>Facilities can be broken down into many levels. The highest level is the stationary source itself. The next level is the emission unit level. Lastly are the process equipment, control equipment, and stacks.</p>
<p>Potential to Emit</p>	<p>Potential to Emit (PTE) is a term used to predict the release of an air contaminant from an emission unit operating at its maximum rate capacity, 24 hours per day, 365 days a year, and without any air pollution control process. It is defined in Michigan rule 336.1116(m). A source's PTE of each air contaminant is the summation of the PTE of all emission units. PTE is typically reported in tons of a specific air contaminant per year, e.g., 200 tons of sulfur dioxide per year.</p> <p>The PTE of emission units can be reduced by installing control equipment such as a dust collector or odor scrubber, or by placing restrictions on operating hours and/or the amount of raw materials used as long as the operation of the control equipment and restrictions are part of a special condition of an air quality Permit to Install or ROP.</p>

TABLE 1.1 DEFINITIONS OF IMPORTANT AIR QUALITY TERMS (continued)

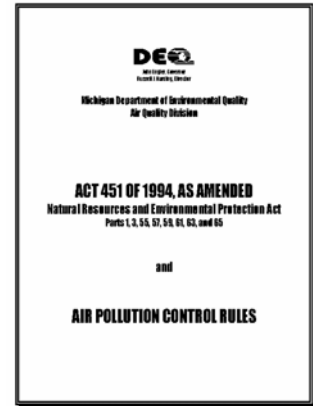
<p>Potential to Emit <i>(continued)</i></p>	<p>The AQD uses special conditions of a Permit to Install to lower the PTE of an emission unit and, in turn, the stationary source. Many sources operating without air quality permits have actual emissions much lower than their PTE because many emission units do not run continuously and at full capacity.</p> <p>For unpermitted emission units, it is technically impossible for the actual emissions to exceed the PTE. For permitted emission units, if the actual emissions of an air contaminant exceed the PTE, the source is in violation of the air quality Permit to Install conditions.</p> <p>PTE is such an important concept because applicability of the state and federal requirements is dependent upon a source's or emission unit's potential to emit, not actual emissions. Actual emissions can deviate day-to-day and year-to-year and are unpredictable, whereas the PTE remains consistent and predictable because it is based upon maximum capacity, continuous operation, or is reflected in an emission limit found in an air quality Permit to Install.</p> <p>Company ABC operates three emission units: a boiler, Pulp Dryer #1 and Pulp Dryer #2. The company applied for and received an air quality Permit to Install for the two dryers. The permit limits the emissions of PM to 10 and 8 tons per year, respectively. The boiler is not covered under a permit because it is exempt from the air quality Permit to Install requirements. The company calculated the boiler's PTE assuming continuous operation and maximum capacity. The table below identifies the PTE of each air contaminant from each emission unit and from the source.</p>					
<p>PTE Calculation for Company ABC (tons per year)</p>						
<p>Emission Unit</p>		<p>VOC</p>	<p>CO</p>	<p>NOx</p>	<p>SO2</p>	<p>PM</p>
<p>Pulp Dryer # 1</p>		<p>5</p>				<p>10</p>
<p>Pulp Dryer #2</p>		<p>5</p>				<p>8</p>
<p>Boiler</p>			<p>6</p>	<p>5</p>	<p>1</p>	<p>3</p>
<p>PTE of Source</p>		<p>10</p>	<p>6</p>	<p>5</p>	<p>1</p>	<p>21</p>
<p>Major Source</p>	<p>A major source is a stationary air pollution source whose PTE exceeds established annual emission thresholds. These levels have been set for individual air contaminants. There are four different types of major sources: major prevention of significant deterioration source (PSD), major offset source, major ROP source, and major HAP source. Each one of these major air pollution sources has different annual emissions threshold levels. For example, under the ROP program, a major source is one that has a PTE greater than 100 tons or more of any regulated air contaminant, 10 tons of a single HAP, or 25 tons of a combination of HAPs. Under PSD, a major source may be one that has a PTE greater than 100 or 250 tons of any regulated air contaminant. The 100 ton limit applies to facilities classified under one of the 28 source categories.</p> <p>Sources that meet one or more major source definition can become subject to some very complex and costly air pollution control requirements.</p>					

TABLE 1.1 DEFINITIONS OF IMPORTANT AIR QUALITY TERMS (continued)

Minor Source	Air pollution sources whose PTE is less than the major source annual emission thresholds are considered minor sources. A true minor air pollution source is one that, even operating at its maximum capacity and continuously, cannot exceed the annual emission threshold levels. A synthetic minor source is an air pollution source that has a permit (i.e., an air quality Permit to Install) with conditions that legally restrict its PTE to below the threshold levels. Many air pollution sources avoid PSD, offset, and ROP requirements by becoming a synthetic minor source.
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1.1 Overview of Michigan’s Air Quality Rules

Section 1.1 provides a summary of the state air quality regulations that may affect Michigan fruit and vegetable processors. DEQ’s AQD has developed numerous regulations including air permitting to control the release of air contaminants. The purpose of these rules is to keep Michigan in compliance (or attainment) with the National Ambient Air Quality Standards (NAAQS). The EPA has set NAAQS standards for six air contaminants: ozone, particulate matter, sulfur dioxide, nitrogen dioxide, lead, and carbon monoxide. Adverse effects to human health and the environment can occur when the concentration of these pollutants exceeds (or is in nonattainment of) the standard.



The rules developed under Part 55 of Act 451, the Michigan Air Pollution Control Rules, are grouped into parts.

- Part 1 - Definitions.
- Part 2 – Air Use Approval (Air Permitting, Offsets, and Air Toxics).
- Part 3 – Emissions Limitations and Prohibitions – Particulate Matter.
- Part 4 – Emissions Limitations and Prohibitions – Sulfur-Bearing Compounds.
- Part 6 – Emissions Limitations and Prohibitions – Existing Sources of Volatile Organic Compound (VOC) Emissions
- Part 7 – Emissions Limitations and Prohibitions – New Sources of VOC Emissions
- Part 8 – Emissions Limitations and Prohibitions – Oxides of Nitrogen.
- Part 9 - Miscellaneous Provisions.
- Part 10 – Intermittent Testing and Sampling
- Part 11 – Continuous Emissions Monitoring
- Part 12 – Emissions Averaging and Emission Reduction Credit Trading
- Part 14 – Clean Corporate Citizen Program

- Part 16 - Organization, Operation, and Procedures
- Part 17 - Hearings
- Part 18 - Prevention of Significant Deterioration of Air Quality

Sections 1.2 through 1.14 contain a more detailed explanation of each of these parts and how they affect fruit and vegetable processors in Michigan.



To obtain a copy of the Michigan Air Pollution Control Laws and Rules, contact the DEQ, Environmental Assistance Program at (800) 662-9278 for an order form. The form is also available at www.michigan.gov/deqair (select "Laws & Rules" then "Air Pollution Control Rules").

The EPA develops its share of complex air quality regulations such as New Source Performance Standards (NSPS), and National Emission Standards for Hazardous Air Pollutants (NESHAP), to name a few. These regulations are discussed in Section 1.15 through 1.21.



How do you know which regulations apply to your sources of air pollution? Prior to installing a new source of air pollution, you must complete and submit an air quality Permit to Install application to the AQD. During the permitting process, all of the applicable federal and state regulations are identified and incorporated into the approved Permit to Install. Staying abreast of the laws as they are developed is the only way to know which regulations apply to sources of air pollution that are covered under older air permits or are exempt from the permit requirements.

1.2 Part 2 Rules: Air Permits, Offset Requirements, and Air Toxics Regulations

The two state air permitting requirements, the Permit to Install and the Renewable Operating Permit, are found in Part 2 of the Michigan Air Pollution Control Rules. In addition, the Part 2 rules contain "offset" requirements and a set of rules that regulate the emission of toxic air contaminants. Below is a summary of these widely applicable rules.

1.2.1 Air Permits

There are two different, yet related air permit programs that fruit and vegetable processors should be aware of: the Permit to Install and the Renewable Operating Permit (ROP). Both programs are administered by the AQD.

Air permitting is the vehicle through which regulatory agencies combine all applicable state, federal, and local requirements associated with a source of air pollution into one legally and enforceable document. Facilities that are exempt from the air permitting requirements do not go unregulated. They still may be subject to air quality regulations, however, usually not as many as the permitted sources.

1.2.2 Permit to Install Program

Many businesses are faithful about obtaining building permits, electrical permits, or mechanical permits for the installation of new structures and equipment from their local building officials. However, many of these same businesses may not be aware that an air permit from the AQD may be required for equipment and activities that emit air contaminants.

According to rule 336.1201 of the Michigan Air Pollution Control Rules, before a facility can legally install, relocate, modify, or reconstruct equipment that emits air contaminants, it must apply for and receive an approved air quality Permit to Install. Each approved Permit to Install contains a list of general and special conditions that the air pollution source must comply with. These conditions typically:

- ✓ Limit the emission of air contaminant.
- ✓ Restrict hours of operation.
- ✓ Limit the amount and type of raw materials used.
- ✓ Require the operation of air pollution control equipment.

Not all sources of air contaminants need to be permitted under the air permitting requirement. Part 2 of the Michigan Air Pollution Control Rules contains numerous rules that exempt insignificant sources of air pollution from the Permit to Install requirement. For example, cold storage refrigeration units and associated tanks that store less than 500 gallons of anhydrous ammonia, and internal combustion engines that have a heat input of less than 10 million Btu/hr are exempt from the permitting requirements.

Those fruit and vegetable processing facilities that store or handle more than 500 gallons but less than 30,000 gallons of anhydrous ammonia must obtain a *General Permit to Install for Anhydrous Ammonia Storage and Handling* from the AQD. Copies of the *General Permit* can be obtained from the AQD web site at www.michigan.gov/deqair. Select “Permits” from the left-hand menu and then “Permits to Install/New Source Review” under “Information” in the middle of the page. Then from the left column of the “Michigan Air Permits System,” select “General Permits – Application Forms and Instructions.”



Common Processing Equipment that May Require An Air Permit to Install

- Boilers
- Coating machines
- Dryers
- Emergency generators
- Fryers
- Kilns
- Ovens
- Turbine engines

Below are some important characteristics of the Permit to Install program:

- A Permit to Install is a state license to emit air contaminants into the ambient air.
- A facility’s compliance with conditions of the permit protects public health and the environment.
- The permitting process uncovers all of the specific state and federal rules that apply to the

equipment covered under the permit. Many of these applicable rules become conditions of the permit.

- Conditions of a Permit to Install limit the potential to emit of the applicant's facility.
- No fees are associated with obtaining a Permit to Install. It's free!
- The permit does not expire; it does not have to be renewed. It is good for as long as the equipment is in operation and has not been modified. However, it may require notification of completion of the installation, construction, reconstruction, relocation, or modification, and a notification of compliance.
- An administratively complete *General Permit to Install for Anhydrous Ammonia Storage and Handling* application must be processed within 30 days by the AQD. Often, these permits are issued within 7 business days.

The Environmental Assistance Program and Air Quality Division have developed a number of useful guidebooks on this subject. The "**Permit to Install: Determining Applicability Guidebook**" contains a very in-depth discussion of what triggers the need for an air permit. If you determine that you do need a permit, obtain the "**Permit to Install Workbook – A Practical Guide to Completing an Air Permit Application.**" Permit to Install application forms and instructions are available from the Environmental Assistance Program and the AQD's district offices.

1.2.3 The Renewable Operating Permit (ROP) Program

It is important not to confuse the Permit to Install with Michigan's other air permit program: the ROP. The ROP program falls under Title V of the Clean Air Act Amendments of 1990 and is also administered by the AQD. The ROP program consolidates all the requirements that apply to a facility that emits air contaminants. Currently, these obligations are scattered among numerous state and federal regulations. The ROP incorporates all requirements into a single document that gives the facility, state and local regulatory agencies, the EPA, and the public a clearer picture of the air contaminants being emitted from a facility.

Facilities that meet the definition of a "major source" must obtain a ROP. The EPA has also required all acid rain and waste incineration facilities to obtain a ROP even if they are below the major source thresholds.

The ROP program does not supersede or replace the Permit to Install program. Sources having to apply for a ROP are still required to submit a Permit to Install application when installing or modifying emission units. All Permit to Install conditions are eventually folded into the facility's ROP.




For guidance on determining whether or not your facility is a "major source" and subject to the ROP program, contact the Environmental Assistance Program at (800) 662-9278.

1.2.4 Offset Requirements

Manufacturers who submit a Permit to Install application for a new source or modification of emission units at an existing source need to be aware of the offset requirements found in R 336.1220. Applications for a “major offset source” or “major offset modification” are subject to the offset requirements. Applications for any of the following three situations are subject to offset requirements:

1. Applications for an entirely new source with the potential to emit greater than 100 tons per year of a pollutant for which the area has been designated nonattainment.
2. Applications for an existing source for new emission units that, by themselves, will have combined potential to emit greater than 100 tons per year of a nonattainment pollutant.
3. Applications to modify an existing “major offset source” that will result in both a significant emissions increase from the modification itself, and a significant net emissions increase from the entire source. The emissions increase must be an increase in a nonattainment pollutant and a significant increase is an increase greater than that pollutant’s significant emission threshold.

The goal of the offset program is to improve the quality of air in areas that are not meeting the NAAQS for a particular air contaminant, while still allowing the installation of new sources that emit air contaminants. For this goal to be realized, sources subject to the offset requirements need to meet stringent control requirements (known as lowest achievable emission rate [LAER]); and emission increases of the proposed air contaminant must be offset by a decrease in the same air contaminant from existing sources.

	To help determine whether or not your proposed installation will trigger the offset requirements, contact the Michigan Environmental Assistance Program at (800) 662-9278.
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1.2.5 Air Toxics Regulations

In response to increased concern over adverse health effects related to air toxics, new federal regulations and state requirements are being developed in an attempt to reduce air toxics emissions. In Michigan, air toxics are controlled under two sets of regulations: (1) state administrative rules which regulate toxic air contaminants or TACs; and (2) the federal Clean Air Act which regulates the release of hazardous air pollutants (HAPs). See Section 1.17 for the discussion on HAPs.

States may implement a plan specific to the needs of their communities with regard to air emission regulations. According to Michigan’s rules, all known substances which are or may become harmful to public health or the environment can be regulated as “toxic air contaminants (TAC).”

In the fruit and vegetable processing industry, generation of air emissions can occur at almost any stage in the food processing line. These emissions may be volatile in nature (VOCs) and can be regulated as TACs in Michigan. Many VOCs in fruit and vegetable processing are most

commonly generated during the thermal processing stages, such as blanching, drying or dehydration, and sweating of the food product.

The state of Michigan addresses toxic air contaminants in R 336.1224-1232 (Rules 224-232) of the Michigan Air Pollution Control Rules developed under Part 55 of Act 451.

These rules apply to all new or modified sources of air pollution that are required under Michigan regulations to obtain a Permit to Install (see Section 1.2.2). Michigan's toxic air contaminant rules require a two-fold analysis. First, the owners or operators of sources of TACs are required to evaluate and use the best economically feasible, technologically advanced air pollution controls. This means that, as new technology progresses and better air pollution controls are developed, each new or modified source is required to consider the newest and best technology. Second, DEQ engineers review the permit application to determine the amount of toxic air pollution the facility could possibly emit after the best controls are installed. The facility is required to limit its toxic air emissions to amounts at or below those deemed safe for protecting public health for each toxic air contaminant. Again, as technology progresses, these limits must be continuously reviewed and changed if necessary, for each toxic air contaminant.

Common Equipment Used to Provide Air Pollution Control

- Anaerobic digesters
- Carbon adsorption filters
- Chilled water condensers
- Cyclones
- Dust collectors
- Scrubbers

Michigan Best Available Control Technology for Toxics (T-BACT)

The special conditions of a Permit to Install set emission limits and work practice standards that are enforceable. The toxic air contaminant emission limits are based on a control technology analysis (T-BACT). Emission limits are expressed in pounds/hour based on maximum operational capacity and in terms of process variables such as material processed, fuel consumed, or pollutant concentrations (e.g., pounds of TAC per million BTUs [lbs/10⁶ Btu], pounds of TAC per gallon of coating solids applied, or micrograms of TAC per dry standard cubic meter of air [ug/dscm]).

Best available control technology for toxics (T-BACT) is the most efficient alternative which is reasonably achievable.

Screening Levels

The toxics rules contain a methodology that the AQD uses to demonstrate that emissions of TACs from an emission unit do not result in a harmful effect on the public being exposed to the air contaminants. One does this by comparing the predicted outdoor air level of the air contaminant at the facility's property line with the appropriate health-based screening level (defined below). If the predicted outdoor air level is below the screening level and the air contaminant is adequately controlled under best available control technology for toxics (T-BACT), then the air contaminant's emissions are acceptable. If it exceeds the screening level, the facility must make changes to reduce the emission or improve the dispersion of the air contaminant, or both, to reduce the predicted ambient level to below the screening level.

A screening level is the concentration of an air contaminant that is designed to be protective of public health. In general, the initial threshold screening levels (ITSL) are screening levels designed to protect against noncarcinogenic effects; and initial risk screening levels (IRSL) and secondary risk screening levels (SRSL) protect against carcinogenic effects. Screening levels are

developed from toxicological data and are expressed in concentrations of micrograms per cubic meter (ug/m³) and in various averaging times; i.e., 1 hour, 8 hours, 24 hours, and annually. The AQD maintains a list of all screening levels that have been established by the division. The list of screening levels is updated periodically as more compounds are evaluated. You can get a list of the screening levels at www.michigan.gov/deqair (select "Air Toxics") or by contacting the Environmental Assistance Program at (800) 662-9278.

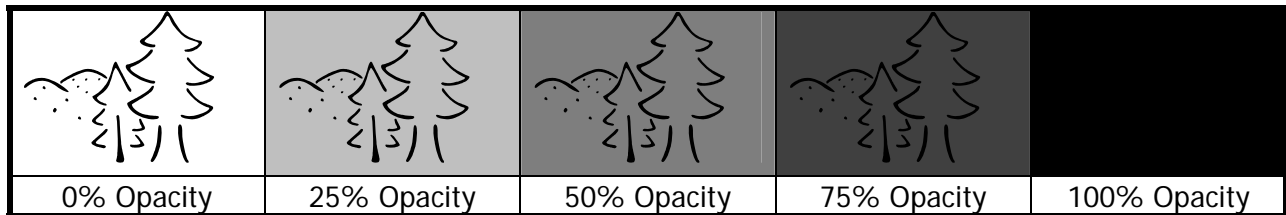
1.3 Part 3 Rules: Particulate Matter

Part 3 of the Michigan Air Pollution Control Rules establishes particulate emission limitations for various activities. Open burning and the density of visible emissions from a vent or stack are regulated as well. Certain facilities are required to develop plans to control fugitive dust from roadways, storage and loading areas, and other dust-generating activities.

1.3.1 Particulate Emission Limits

R 336.1331 contains maximum allowable emission rates of particulate matter or dust from a variety of activities such as fuel-burning equipment and exhaust systems serving material handling equipment. The majority of emission rates are expressed in pounds of particulate emitted per 1,000 pounds of exhaust gas.

1.3.2 Opacity



Opacity is defined as the degree to which air pollution reduces the amount of background light that can be seen through observation. Opacity is measured in percentages. For example, if the opacity of air pollution coming from a smoke stack is 20 percent, then 20 percent of the light traveling through the haze plume is blocked by the pollution, allowing 80 percent of the light to shine through the plume. The higher the opacity percentage, the denser the pollution plume of air emissions. The Michigan Air Pollution Control Rules limit the level of pollution that can be released from an emission unit. The rules prevent fruit and vegetable processors from discharging dense black or white smoke from their activities, however uncombined water vapors may be discharged to the atmosphere and are not restricted by opacity limits.

1.3.3 Open Burning

Open burning is the burning of unwanted materials, such as paper, trees, brush, leaves, grass, and other debris, where smoke and other emissions are released directly into the air without passing through a chimney or stack. In Michigan, three agencies administer open burning regulations: the DEQ Waste and Hazardous Materials Division, DEQ AQD, and the Department of Natural Resources. Each governing law along with the rules for each agency, regulate the practice of open burning. In addition to state regulations, local units of government often regulate the practice as well. Local laws take precedence over state regulations only if the local regulations are more restrictive of open burning.



Open burning is not an acceptable disposal method for waste generated at commercial and industrial facilities. Neither the solid waste nor the air quality regulations permit the open burning of commercial and industrial wastes. There are a number of regulations which allow the open burning of household waste; however, this applies only to waste generated at an individual household. Waste generated at commercial or industrial operations cannot be open burned at a private residence.

More information about open burning can be found at the DEQ's open burning web site: www.michigan.gov/deqair (select "Open Burning Information").

1.4 Part 4 Rules: Sulfur Bearing Compounds

Part 4 of the Michigan Air Pollution Control Rules establish sulfur dioxide emission limitations on boilers and other fuel-burning equipment. The sulfur content of fuels, such as coal and fuel oil, must fall within prescribed percentages.

1.5 Part 6 Rules: Existing Sources of VOC Emissions

In 1978, the EPA published a document containing available methods and technologies designed to reduce emissions from a variety of sources that emit Volatile Organic Compounds (VOCs). Many of the control strategies in this document were incorporated into the Michigan Air Pollution Control Rules, specifically the Part 6 rules.

The EPA document describes the technologies as reasonable available control technology (RACT). RACT was developed to help state and local agencies determine the level of VOC control needed to meet the lowest achievable air pollution rate using reasonable available control technology. Significant research was conducted to establish RACT and identify a level of air pollution control that industry could comply with, while benefiting the environment through improved air quality. The Part 6 rules for VOC control are often referred to as the RACT rules, and they are used to regulate existing sources of VOCs in accordance with state obligations under the federal Clean Air Act.

Table 1.2 contains a listing of all the VOC-emitting emission units regulated under the Part 6 rules for fruit and vegetable processors.

TABLE 1.2 SUMMARY OF PART 6 RULES		
Rule Number*	Emission Unit	Existing Means Equipment Installed before:
604-605	Storage of organic compounds	July 1, 1979
611-614	Solvent vapor degreasers and cold cleaners	July 1, 1979
623	Storage of petroleum liquids	July 1, 1980
628	Synthetic organic chemicals	January 5, 1981

1.6 Part 7 Rules: New Sources of VOC Emissions

Under Part 7 of the Michigan Air Pollution Control Rules, a new source is defined as any emission unit placed into service on or after July 1, 1979. When installing a new source of VOCs or modifying an existing source, a facility must evaluate the following four emission rates and use whichever one results in the lowest maximum allowable emission rate (pollution) of VOCs.

1. An emission rate based upon BACT.
2. The maximum allowable emission rate specified by an NSPS developed by the EPA.
3. The maximum allowable emission rate specified as a condition of a Permit to Install.
4. The maximum allowable emission rate specified in the Part 6 rules of the Michigan Air Pollution Control Rules.

BACT Analysis

BACT is defined as the most stringent emission limit or control technique that has either been achieved in practice for a category of emission units, is found in other state air quality rules, or is considered by the regulatory agency to be technically feasible and cost effective. A BACT analysis, which is performed as part of the permit review process, triggers continual use of technology that results in low emissions of air contaminants. Since technology is ever-changing, BACT is an evolutionary process that strives for continuous improvement of air quality in the state.

New Source Performance Standards

Under Section 111 of the Clean Air Act, the EPA is authorized to establish new source performance standards (NSPS) for new or modified pollution sources in particular industrial categories. These standards set emission limits for over 75 categories that have the potential to emit a significant amount of air contaminants that could endanger public health and welfare.

The NSPS requirements are found in the federal rules published in the Code of Federal Regulations (CFR). The federal rules relating to environmental protection are contained in Title 40 of the CFR. Air quality regulations are found in Parts 50 to 99 of Title 40. The NSPS requirements are located in Part 60. Each specific NSPS is a subpart of Part 60.

Fruit and vegetable processing facilities that have boilers that burn coal, oil, natural gas, and wood are subject to the NSPS, Subpart Dc. This federal regulation has the following requirements:

1) Initial Notification

Send a written notification of the following information for each NSPS boiler.

Within 30 days after commencing construction:

- The date of original construction or reconstruction, and anticipated startup.
- The design heat-input capacity of the boiler and identification of the fuels to be combusted in the boiler (with regard to this fact sheet, only natural gas).
- The annual capacity (fuel consumption) at which you anticipate operating the boiler.

Within 15 days after startup:

- The date of actual startup.

A sample notification form is available on the MDEQ web site at www.michigan.gov/deqair. Select "Clean Air Assistance" from the drop down items on the left-hand menu. Then select "NSPS – Boilers Burning Natural Gas Only" from the "Federal Regulations" selection in the middle of the page.

Submit the completed form or one you create to the appropriate MDEQ-AQD District Office (see Appendix C). Even if your boiler has been installed and operating for years, it is important that you comply with the NSPS by completing the initial notification requirement if you have not already done so.

2) Recordkeeping

Monthly fuel usage records shall be maintained separately for each boiler for a period of two years. You may use fuel bills if you only have one boiler at your facility. While reviewing the fuel bills, remember that natural gas meters measure the volume of gas in units of cubic hundred feet (ccf, where the first "c" stands for the Roman numeral one hundred) or thousand cubic feet (mcf, where the "m" stands for the Roman numeral one thousand).

If you have two or more boilers, the fuel bill does not identify the amount of natural gas burned in each boiler. Therefore, the easiest way to obtain monthly fuel usage records for more than one boiler is to install a dedicated natural gas meter for each boiler and take meter readings on a calendar month basis. Keep in mind that the addition of an individual gas meter will require a separate capital investment.

If you choose not to install a gas meter on each boiler, you may be able to prorate or predict the natural gas usage based upon many different methods. Upon prior approval by the MDEQ's AQD District Supervisor, each individual boiler's natural gas usage may be calculated using an acceptable alternative method proposed by your facility.

Finally, it is important to remember that the Michigan Department of Environmental Quality (MDEQ), Air Quality Division (AQD) has been given authority by the U.S. EPA to enforce this federal air quality regulation. This means that typically an inspector from the MDEQ's AQD, not U.S. EPA, will visit your facility.

Appendix 1-C lists all of the NSPS subparts that may be applicable to fruit and vegetable processing facilities.

Permit Conditions

An emission rate contained in a previously issued Permit to Install is reviewed by the permit engineer of the AQD, and is also applied to a similar new source of air contaminants that may be undergoing the permit review process. In some cases, a NSPS limit may be inappropriate to use because it has become outdated. In response, the AQD may apply a more stringent limit through the permitting process than what is normally required in the NSPS.

Part 6 Rules

Finally, the last step to identify the lowest maximum allowable emission rate for a proposed new source of VOC emissions is the emission limitations contained within the Part 6 rules of Michigan Air Pollution Control Rules. It is a reasonable expectation that new sources of VOCs should emit no more air pollution than existing sources of VOCs.

1.7 Part 8 Rules: Oxides of Nitrogen (NO_x)

Part 8 of the Michigan Air Pollution Control Rules establishes emission limits on sources of nitrogen oxides. These sources include larger fossil fuel-fired emission units such as electricity generating units, boilers/process heaters, stationary internal combustion engines, kilns, and stationary gas turbines. Emission units subject to the Part 8 rules must comply with the emission limits provided, as well as all applicable monitoring, testing, and recordkeeping requirements.

1.8 Part 9 Rules: Miscellaneous Provisions

Odors generated from fruit and vegetable processing plants usually are a mixture of various organic and inorganic compounds in low concentrations of aldehydes, ketones, alcohols, acids, ammonia, amines, sulfides, mercaptans, and hydrogen sulfide. The rules in Part 9 of the Michigan Air Pollution Control Rules apply to any fruit and vegetable processor, regardless of the type of air pollution generated or equipment installed.

1.8.1 Odor Control and Complaints

Organic and inorganic compounds emitted from various fruit and vegetable processing operations may become nuisances in your community. The Part 9 rules include provisions that are designed to protect communities from these nuisances when the community perceives an odor to be objectionable by the general public. Essentially, it is a violation of the air pollution control requirements in Part 9 to cause air pollution in quantities that could have an injurious effect on human health or safety, or cause unreasonable interference with the comfortable enjoyment of life and property.

Complaints regarding odor problems are usually reported by the public to the AQD District Office that is closest to the facility. AQD District Office staff take information about the nuisance event and then conduct an investigation to determine if the complaint has merit. If the complaint is found to be valid, a facility could undergo enforcement action by the AQD and must take steps to correct the air quality violation. To learn more about best management practices and odor control technologies best suited for fruit and vegetable processing facilities, see Section 3.6, which discusses wastewater technology.

1.8.2 Equipment Malfunctions

Fruit and vegetable processors, upon request from the AQD, must prepare a malfunction abatement plan to prevent, detect, and correct malfunctions resulting in the emissions of air contaminants that exceeding any applicable limits. When a fruit and vegetable processor has a malfunction of an air pollution process and/or control equipment that results in the exceedance of an emission standard or limitation over a prescribed amount of time, it must be reported to the AQD.

1.9 Part 10 Rules: Intermittent Testing and Sampling

Part 10 of the Michigan Air Pollution Control Rules give the AQD authority to require sources to quantify their air emissions by testing and measuring in order to verify compliance with the air pollution standards. The testing must be performed in accordance with established testing methodologies.

1.10 Part 11 Rules: Continuous Emission Monitoring

Large sources of air contaminants must operate continuous emission monitoring equipment to verify compliance of their equipment with the applicable emission standards. The monitoring equipment is typically installed as a part of the process equipment or in the stack.

1.11 Part 14 Rules: Clean Corporate Citizen Program

The voluntary Clean Corporate Citizen (C3) Program offers public recognition and enhanced environmental regulatory flexibility for establishments that demonstrate strong environmental performance and a commitment to continual improvement. The C3 Program is based on the concept that existing Michigan establishments, consistently demonstrating a



strong environmental ethic and stewardship, can be relied upon to carry out their environmental protection responsibilities without rigorous oversight.

Clean Corporate Citizens show other industrial, commercial, and municipal establishments that a voluntary State partnership program leading to continual environmental improvement adds lasting value to the state's overall environmental picture. Participation is voluntary and diverse with a wide variety of establishments designated including: manufacturing; auto assembly; power generation; furniture making; natural gas transmission; hospitals, universities, paper production; office management; research and development; and more.

The C3 Program is administered by the Michigan Department of Environmental Quality (DEQ), Environmental Science and Services Division. Those applying for and receiving the designation under the Administrative Rules qualify for regulatory benefits, including streamlined permit processing in the air, surface water, groundwater, and underground storage tank programs.. For more information, call (800) 662-9278 or go to www.michigan.gov/deqc3.

1.12 Part 18 Rules: Prevention of Significant Deterioration

The primary provisions of the Prevention of Significant Deterioration (PSD) program require that new major stationary sources and major modifications at existing major sources of air pollution be carefully reviewed prior to construction. The review is intended to ensure compliance with the national ambient air quality standards, the applicable PSD increment concentrations, and the requirement to apply best available control technologies on the project's emissions of air contaminants. The review for major stationary sources and major modifications to major stationary sources are required by the Clean Air Act to undergo a new source review (NSR) and obtain a permit before construction.

The basic goals of the PSD program are: (1) to ensure that economic growth can continue while simultaneously preserving existing air quality (i.e., prevent degradation of an attainment area into a nonattainment area); and (2) to preserve and protect the air quality in areas of special natural recreational, scenic, or historic value, such as national parks and wilderness areas (i.e., Class I areas).

Recent addition of the Part 18 rules will:

- Provide for efficient emission-reducing improvements at existing permitted sources by allowing facilities to use plant wide (emission) applicability limits which are already in use at the federal level;
- Provide Michigan with a federally approved program to issue permits through state rules for major air pollution sources located in counties that have met the National Ambient Air Quality Standards (NAAQS); and
- Include a change to Michigan's administrative procedures to adopt the state's administrative hearings and rules process for administrative appeals to the state's Permit to Install program. The purpose is to mirror the federal administrative appeal process that is currently in place for major sources in Michigan's attainment areas.

1.13 Michigan Air Emissions Reporting System

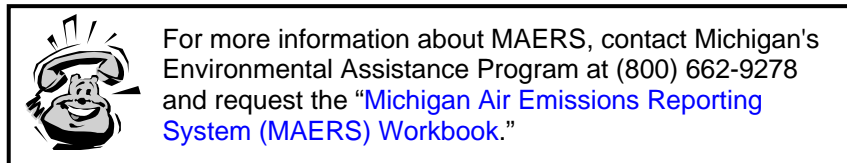
The federal Clean Air Act requires that each state maintain an inventory of air pollution emissions for certain facilities and update this inventory every year. Michigan's emission

inventory is called the Michigan Air Emissions Reporting System (MAERS). The AQD maintains MAERS by requesting certain facilities to annually report their emissions. This information is used to track air pollution trends, determine the effectiveness of current air pollution control programs, serve as a basis for future-year projections of air quality, track air pollution source compliance, provide information for permit review, and calculate the emissions portion of the air quality fee.

Not every facility is required to report under MAERS. Facilities that have a NSPS or NESHAP requirement, or opt-out of the ROP program must report emissions, and are therefore subject to fee assessments based on their emissions reporting. In addition, facilities with actual annual emissions greater than the following thresholds will be included in MAERS and will be notified to report emissions annually:

- Carbon monoxide (CO) - 100 tons per year
- Nitrogen oxides (NO_x) - 40 tons per year
- Sulfur dioxide (SO₂) - 40 tons per year
- Particulate matter (PM) - 25 tons per year
- Particulate matter (PM-10) - 15 tons per year
- Volatile organic compounds (VOC) - 10 tons per year

MAERS reports are due by March 15 each year. By the end of January, the AQD notifies those facilities that must submit the MAERS report.



1.14 Tax Exemption for Air Pollution Control

As per Article II, Chapter I, Part 59 (Air Pollution Control Facility; Tax Exemption) of Public Act 451 of 1994, hereinafter referred to as "Part 59," tax exemptions for air pollution control are available through an application separate from the Permit to Install application. Specific procedures must be followed to be granted tax relief and tax exemption certificates are terminated when equipment is removed.

Part 59 provides facilities in the state with an exemption from sales, use, and property taxes (equipment installed prior to the effective date of Part 59 is eligible for tax exemption). The responsibility for the evaluation of all pollution control tax exemption certificate applications lies with district staff of the DEQ, AQD. All questions regarding the processing of these applications should be directed to the attention of the appropriate supervisor at each AQD district office.

Applications for a tax exemption for air pollution control facilities must be submitted to the Michigan State Tax Commission (STC) in triplicate on the "**Application for Air Pollution Control Tax Exemption Certificate**" forms. **All applications must be submitted by July 15, and be administratively complete**, to ensure that final determinations are made by the end of the tax year. These forms can be obtained from:

Michigan State Tax Commission
Department of Treasury
430 W. Allegan Street
Lansing, MI 48922
Telephone: (517) 373-3272

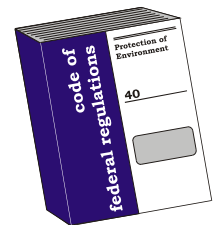
or from the Michigan State Tax Commission's website at www.michigan.gov/treasury (select "Individual," "Property Owners," "Forms & Instructions," "Property Tax - Abatement/Exemption," then select "#3828, Application for Air Pollution Control Tax Exemption Certificate").

The evaluation of an application, the decision of what equipment meets the requirements of Part 59 will be based on the descriptions and eligibility criteria specified in the Act, and described in the "**Tax Exemption Application Guidance Document**" available on the MDEQ, AQD web site at: www.michigan.gov/deqair (under "Spotlight" select "Air Publications").

Once submitted, an administrative completeness check will be conducted by the STC for each application. Failure to complete the required information will result in a return of the application. A technical completeness check will be conducted by the MDEQ. If the application is technically incomplete, and the requested additional information is not submitted within 30 days of notification of the deficiency, the MDEQ will consider the application withdrawn and it will be returned to the STC. The STC will then place the application on inactive status, and notify the company that no certificate will be issued. Once an application is administratively and technically complete, the STC keeps the official copy, and then forwards a copy to the AQD District Office, and the third copy to the local tax assessor. Most tax exemption determinations are completed by October or November of the same tax year.

1.15 Federal Air Regulations

The EPA develops federal rules and standards that affect a wide variety of sources of air contaminants, especially those operated by commercial and industrial companies. The DEQ, AQD receives delegation from the EPA to implement and enforce compliance with these federal regulations. Some of the federal air quality regulations that all fruit and vegetable processors should be aware of include: New Source Performance Standards (NSPS), National Emission Standards for Hazardous Air Pollutants (NESHAPs), Risk Management Plans, and the regulation of chlorofluorocarbons (CFCs).



1.16 National Emission Standards for Hazardous Air Pollutants (NESHAPs)

The 1970 version of the federal Clean Air Act required the EPA to set emission standards referred to as National Emission Standards for Hazardous Air Pollutants or NESHAPs. From 1970 to 1990, NESHAPs were issued for only seven compounds: asbestos, beryllium, mercury, vinyl chloride, arsenic, radionuclides, and benzene.

Under Title III of the Clean Air Amendments of 1990, Congress wanted EPA to speed up the pace of regulation. Section 112 of the Clean Air Act Amendments calls for the development of

NESHAPs to reduce the emissions of 187 hazardous air pollutants (HAPs). The original list of HAPs contained 189 compounds; however, capalactum and methyl ethyl ketone (MEK) have been removed from the list. See Appendix 1-A for a listing of HAPs.

Implementation of Section 112 began with the identification of air pollution sources that are the major contributors of the 187 HAPs. EPA has identified over 174 source categories of sources that emit HAPs and that should be regulated.

1.16.1 Major and Area HAP Sources Defined

A “major HAP air pollution source” is a facility that has the potential to emit more than 10 tons per year of any single HAP or 25 tons of all HAPs combined. An “area source” is one that has the potential to emit less than 10 tons of any single HAP or 25 tons of all HAPs combined. The vast majority of NESHAPs being developed apply to major HAP sources. Only a few NESHAPs have been or will be developed for both major and area sources.

1.16.2 Regulating Major and Area HAP Sources - MACT and GACT

Section 112 of the federal Clean Air Act requires the EPA to develop regulations that establish emission standards (commonly referred to as NESHAP) for each category of major sources and area sources of HAPs identified in their schedule of regulation promulgation. The standards for major sources of HAPs must require the maximum degree of emission reduction that the EPA determines to be achievable by each particular air pollution source category. This standard is referred to as the maximum achievable control technology or MACT for short. MACT levels can be different for existing and new sources of air pollution. The EPA determines what kind of controls qualify as the “maximum control” for each category of HAP sources. For source categories with at least 30 air pollution sources nationwide, MACT must be no less stringent than the average emission rate achieved by the best performing 12 percent of existing sources. Maximum achievable control technology ensures that both new and existing major sources of toxic air pollution use the kind of technology which provides maximum control of HAPs on an ongoing basis. The terms NESHAP and MACT are often used interchangeably.

Area sources may require either MACT or Generally Available Control Technology (GACT). GACT are standards less stringent than MACT.

Appendix 1-D contains a list of the major and area source categories that are relevant to fruit and vegetable processing facilities regulated under a MACT or GACT, as well as the corresponding subpart. All developed MACTs are found in subparts of Title 40, Part 63, of the Code of Federal Regulations.

1.16.3 Schedule for Compliance with the NESHAPs

New sources (i.e., sources that commence construction or reconstruction after proposal of the NESHAPs) must comply with the standard immediately upon start-up with one exception. Sources constructed or reconstructed after the NESHAPs proposal, but before development, must comply with the developed standard within three years of promulgation. Existing sources (i.e., sources in operation prior to the proposed standard) have three years from the promulgation date to comply with the NESHAP.

1.16.4 Additional NESHAP Information

For more complete information on NESHAPs, log on to the EPA’s Technology Transfer Network web site at www.epa.gov/ttn/atw. It contains a wealth of information concerning all the existing and proposed NESHAP developments.

One NESHAP which may be applicable to some larger fruit and vegetable processing facilities is the Industrial, Commercial and Institutional Boilers and Process Heaters NESHAP found in 40 CFR Part 63, (Subpart DDDDD). It affects major sources of boilers and process heaters that emit HAPs and heavy metals such as arsenic, cadmium, chromium, hydrogen chloride, hydrogen fluoride, lead, manganese, mercury and nickel. Among other things, the NESHAP requires facilities to:

- Submit an initial notification form.
- Conduct performance testing and site-specific fuel analysis.
- Submit a quality assurance and test plan.
- Submit a semiannual compliance report.

To obtain copies of the NESHAP standards as they appear in the Code of Federal Regulations (CFR), go to www.epa.gov/epahome/rules.html#codified. The NESHAPs are contained in Title 40 of the CFR, Part 63. For additional guidance on how to obtain federal regulations, see Appendix D.

To obtain copies of outreach materials on some of the developed NESHAPs, contact the DEQ, Environmental Assistance Program, at (800) 662-9278. Some of the publications can be downloaded at www.michigan.gov/deqair (select “Clean Air Assistance”).

1.16.5 Comparison of Federal and Michigan Air Toxics Rules

Michigan’s air toxics rules (see Section 1.2.5) take precedence over the federal Clean Air Act regulations where the rules provide for stricter control of toxic air pollution. The following table outlines the provisions of both Michigan’s toxic air contaminant regulations and the federal Clean Air Act Amendment’s hazardous air pollutant regulations:

TABLE 1.3 COMPARISON OF FEDERAL AND STATE AIR TOXIC REGULATIONS		
	Federal Clean Air Act Amendments	Michigan Air Toxics Rules
Applies to new or modified sources of air toxics?	Yes	Yes
Applies to existing sources of air toxics?	Yes	No
Which air toxics are regulated?	At present, 187 chemicals known as hazardous air pollutants or HAPs (the list is subject to change)	All substances which are harmful except for 41 specifically exempted compounds (see Appendix 1-B). These regulated contaminants are known as toxic air contaminants or TACs.
Effective date of regulations	Phased in between 1990 and 2000 (and beyond)	In effect now

Types of air pollution controls required	Maximum achievable controls	Best available controls and health-based screening levels
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1.16.6 NESHAP for Asbestos

Fruit and vegetable processors that are contemplating the demolition or renovation of any structure should be aware that this activity may be regulated under the NESHAP for Asbestos. The purpose of this NESHAP is to minimize the release of asbestos fibers during renovation and demolition activities. The NESHAP applies to renovations of institutional, commercial, or industrial structures if the amount of regulated asbestos-containing material is 260 or more linear feet, 160 or more square feet, or 35 or more cubic feet. The NESHAP applies to all demolition activities at institutional, commercial, or industrial structures, regardless of whether or not the structures contain asbestos. The NESHAP for Asbestos was developed on April 6, 1973, and later revised in 1990, and is one of the earliest NESHAPs developed.



The NESHAP for Asbestos basically has four requirements: notification, work practice standards, proper waste disposal, and training. A notification form describing the project must be postmarked or hand delivered at least 10 working days before beginning demolition or renovation activities to enable the regulatory agency to ensure that all precautions are being taken to minimize asbestos fibers and dust. The work practice standards require that the asbestos be adequately wetted and carefully lowered to the ground. For waste disposal, all asbestos-containing waste must be placed in leak-tight containers or leak-tight wrapping. These containers or wrapped materials must be properly labeled and taken to an appropriate waste disposal site as soon as is practical. Finally, the training requirement is met by having at least one trained supervisor present when asbestos is stripped, removed, disturbed, or otherwise handled.

While the NESHAP is concerned about the release of asbestos fibers to the outer air, there are other asbestos regulations focusing on worker protection. For more information about the worker protection requirements and the asbestos regulation, contact the Department of Labor and Economic Growth, Occupational Safety and Health Division's Asbestos Program at (517) 322-1320. For more detailed information about the NESHAP for Asbestos, contact the MDEQ AQD NESHAP Asbestos Coordinator at (517) 373-7023. To obtain a copy of the **“Understanding the Asbestos NESHAP”** fact sheet, contact the DEQ, Environmental Assistance Program, at (800) 662-9278. This publication can also be downloaded from www.michigan.gov/deqair (select “Asbestos NESHAP Program”).

1.17 New Source Performance Standards

New Source Performance Standards (NSPS) are federal requirements applicable to over 75 categories of industrial emission units. The EPA developed these standards to ensure that older sources of air pollution would be replaced with less polluting equipment and technology, thus having a net benefit to air quality.

Not only does the installation of certain new emission units after a specific date trigger applicability of the NSPS, changes to your existing emission unit could subject you to the

standards. Changes are defined in terms of modification and reconstruction to existing air pollution equipment. A modification is defined as “any physical or operational change to an existing emission unit which results in an increase in emissions to the atmosphere of any pollutant to which a standard applies.” If the fixed capital cost of the changes you make to your emission unit is more than 50 percent of the fixed capital costs required to construct a comparable emission unit, then your facility has been “reconstructed” under the NSPS definition. For example, if you rebuild an existing boiler in a vegetable and fruit canning operation, you would need to compare the cost of a replacement boiler to the cost of rebuilding the existing boiler as defined in the NSPS for Industrial, Commercial and Institutional Boilers and Process Heaters facilities to determine if your changes fall under the definition of reconstruction.

All of the NSPS are located in Title 40, Part 60, of the Code of Federal Regulations. Each regulation is identified in subparts of Part 60. Appendix 1-C contains a brief description of the emission units covered under an NSPS, along with an effective date and subpart. The NSPS applies to emission units constructed, modified, or reconstructed after the effective date of the standard.

It is important that you understand the definitions of an affected facility under NSPS before you install, modify, or reconstruct sources of air pollution so that you will be able to comply with all of the pertinent emission limits, record keeping, reporting, and other operational requirements that may be included in the NSPS.

1.17.1 Additional Sources of NSPS Information

To obtain copies of the NSPS regulations as they appear in the Code of Federal Regulations (CFR), go to www.epa.gov/epahome/rules.html#codified (Appendix D contains additional information on how to find federal regulations on the Internet). You can also get help by calling the Environmental Assistance Program at (800) 662-9278.

1.18 Managing Chemical Risk: Accidental Release/Risk Management Plan

On June 21, 1999, companies of all sizes that use certain listed chemicals, submitted for the first time, plans that detail how they will prevent accidental chemical releases from occurring. This compliance requirement is known as the Accidental Release/Risk Management Program of the 1990 Clean Air Act Amendment's Section 112(r). The goal of this regulation is to communicate potential risks to the public and ensure that facilities have implemented a baseline internal management structure that includes safety and prevention and emergency response programs to reduce the possibility of an accidental release. The primary tool used to accomplish this goal is the Risk Management Plan (RMP). A facility must develop an RMP if they have a regulated substance (comprised of toxic chemicals and flammables) identified under Section 112(r) at or above a specific threshold quantity that is set for each substance. Size of the company does not determine applicability; a business is required to complete a RMP if the type and quantity of chemicals used are listed as regulated substances under the rule. There are three levels of compliance with Section 112(r) called “Programs.” Facilities that have a process that uses, stores, manufactures, processes, handles or transports on-site a Section 112(r) regulated substance over the threshold quantity, are required to conduct some level of accidental release “Program” planning. There are three Programs. Program 1 is the most lenient while Program 3 is the most stringent. The Programs are comprised of four major

Common Fruit and Vegetable Processes and RMP Applicability

Process Type	Regulated Substance	Threshold Quantity
<ul style="list-style-type: none"> • Closed loop refrigeration system • Storage or nurse tanks that are stand alone, interconnected or piped to other processes 	Anhydrous Ammonia	10,000 lbs
	Ammonia (20% + concentration)	20,000 lbs
	Percentage of anhydrous ammonia or 20%+ concentration of ammonia content in mixtures	10,000 and 20,000 lbs, respectively
<ul style="list-style-type: none"> • Facility owned and/or operated wastewater treatment plants 	Chlorine Percentage of chlorine content in mixtures	2,500 lbs 2,500 lbs
<ul style="list-style-type: none"> • Anaerobic digester 	Methane	10,000 lbs

components:

1. A Hazard Assessment including the modeling of a worst case and alternative accidental chemical release.
2. Establishment of a Management Program (i.e., who is in charge of the RMP).
3. A Prevention Program to minimize the potential occurrence of an accidental release.
4. An Emergency Response Program to protect public health and the environment.

Program 1, 2, or 3 applicability dictates which of these components a facility must comply with. Facilities subject to Section 112(r) must meet their Program compliance requirements by June 21, 1999, or at the time that a substance is first present at their facility.



For more information on risk management planning, or questions regarding the rule, contact Michigan's Environmental Assistance Program at (800) 662-9278. Additional resources and guidance documents for compliance can be downloaded from the EPA accidental release planning web site at www.epa.gov/ceppo (select "Chemical Preparedness and Prevention").

1.19 Ozone Depleting Substances

Chlorofluorocarbons (CFCs) and hydrochlorofluorocarbons (HCFCs) are inert, toxic chemicals that are used as refrigerants for air conditioning, home and commercial refrigeration, and in process cooling equipment that supports manufacturing. Scientists worldwide have concluded that CFCs and HCFCs deplete the ozone layer. As a result, the United States joined 160 nations in signing the Montreal Protocol, an international treaty designed to protect the ozone layer. In the United States, the Protocol is implemented by Title VI of the



Clean Air Act (CAA) and Title 40, Part 82, of the Code of Federal Regulations. The regulations provided for the phase-out of CFC production by 1996, HCFC-22 production by 2020, and all other HCFCs by 2030. The regulations also put strict limitations on CFC/HCFC sales, their use in stationary and mobile sources, and their disposal.

The CAA prohibits individuals from knowingly venting CFCs, HCFCs, or any alternative refrigerant into the atmosphere while maintaining, servicing, repairing, or disposing of air conditioning or refrigeration equipment. Furthermore, only EPA-certified technicians can service or dispose of refrigeration or air conditioning equipment for both stationary sources such as facilities and mobile sources such as vehicles. The EPA regional office must be notified that all equipment used in the recycling or recovery of refrigerants meets EPA standards. A list of approved certification programs and Air Conditioning and Refrigeration Institute (ARI)-rated recovery/recycle equipment is available from the Stratospheric Protection Hotline at (800) 296-1996. Owners of air conditioning and refrigeration equipment with more than 50 pounds of charge must keep records of the quantity of refrigerant added to their equipment during servicing and maintenance procedures. Any “substantial” leaks in equipment must be repaired within 30 days.

As the effects of ozone-depleting substance phase-outs begin to take hold, the development and usage of viable alternatives becomes increasingly important. In 1994, the EPA established the significant new alternatives policy (SNAP) program to evaluate new alternatives for ozone-depleting substances. Alternatives that are rated “acceptable” by the SNAP Program can be implemented into equipment as legal substitutes. The use of any substance not approved by the SNAP Program is illegal.



Persons with questions concerning CFC/HCFC regulations, the SNAP Program, and stratospheric ozone protection can contact the “Ozone Protection Hotline” toll free at (800)296-1996. If you have Internet access, visit the EPA, Stratospheric Protection Division web site at www.epa.gov/ozone.

APPENDIX 1-A: HAZARDOUS AIR POLLUTANTS (HAPs)

CAS No.	Chemical	CAS No.	Chemical	CAS No.	Chemical	CAS No.	Chemical
75070	Acetaldehyde	84742	Dibutylphthalate	7647010	Hydrochloric acid	75558	1,2-Propylenimine (2-Methyl aziridine)
60355	Acetamide	106467	1,4-Dichlorobenzene(p)	7664393	Hydrogen fluoride (hydrofluoric acid)	91225	Quinoline
75058	Acetonitrile	91941	3,3-Dichlorobenzidene	123319	Hydroquinone	106514	Quinone
98862	Acetophenone	111444	Dichloroethyl ether (Bis(2-chloroethyl)ether)	78591	Isophorone	100425	Styrene
53963	2-Acetylaminofluorene	542756	1,3-Dichloropropene	58899	Lindane (all isomers)	96093	Styrene oxide
107028	Acrolein	62737	Dichlorvos	108316	Maleic anhydride	1746016	2,3,7,8-Tetrachlorodibenzo p-dioxin
79061	Acrylamide	111422	Diethanolamine	67561	Methanol	79345	1,1,2,2-Tetrachloroethane
79107	Acrylic acid	21697	N,N-Diethyl aniline (N,N-Dimethylaniline)	72435	Methozychlor	127184	Tetrachloroethylene (Perchloroethylene)
107131	Acrylonitrile	64675	Diethyl sulfate	74839	Methyl bromide (Bromomethane)	7550450	Titanium tetrachloride
107051	Allyl chloride	119904	3,3-Dimethoxybenzidine	74873	Methyl chloride (Chloromethane)	108883	Toluene
92671	4-Aminobiphenyl	60117	Dimethyl aminoazobenzene	71556	Methyl chloroform (1,1,1-Trichloroethane)	95807	2,4-Toluene diamine
62533	Aniline	119937	3,3-Dimethyl benzidine	60344	Methyl hydrazine	584849	2,4-Toluene diisocyanate
90040	o-Anisidine	79447	Dimethyl carbarmoyl chloride	74884	Methyl iodide (Iodomethane)	95534	o-Toluidine
1332214	Asbestos	68122	Dimethyl formamide	108101	Methyl isobutyl ketone (Hexone)	8001352	Toxaphene (chlorinated camphene)
71432	Benzene	57147	1,1 Dimethyl hydrazine	624839	Methyl isocyanate	120821	1,2,4-Trichlorobenzene
92875	Benzidine	131113	Dimethyl phthalate	80626	Methyl methacrylate	79005	1,1,2-Trichloroethane
98077	Benzotrichloride	77781	Dimethyl sulfate	1634044	Methyl tert butyl ether	79016	Trichloroethylene
100447	Benzyl chloride	534521	4,6-Dintro-o-cresol, and salts	101144	4,4-Methylene bis (2-chloroaniline)	95954	2,4,5-Trichlorophenol
92524	Biphenyl	51285	2,4-Dinitrophenol	75092	Methylene chloride (Dichloromethane)	88062	2,4,6-Trichlorophenol
117817	Bis (2-ethylhexyl) phthalate (DEHP)	121142	2,4-Dinitrotoluene	101688	Methylene diphenyl diisocyanate (MDI)	121448	Triethylamine
542881	Bis (chloromethyl) ether	123911	1,4-Dioxane (1,4-Diethyleneoxide)	101779	4,4'-methylenedianiline	1582098	Trifluralin
75252	Bromoform	122667	1,2-Diphenylhydrazine	91203	Naphtalene	540841	2,2,4-Trimethylpentane
106990	1,3-Butadiene	106898	Epichlorohydrin (1-Chloro-2,3-epoxypropane)	98953	Nitrobenzene	108054	Vinyl acetate
156627	Calcium cyanamide	106887	1,2-Epozybutane	92933	4-Nitrobiphenyl	593602	Vinyl bromide
133062	Captan	140885	Ethyl acrylate	100027	4-Nitrophenol	75014	Vinyl chloride
63252	Carbaryl	100414	Ethyl benzene	79469	2-Nitropropane	75354	Vinylidene chloride (1,1 Dichloroethylene)
75150	Carbon disulfide	51796	Ethyl carbamate (Urethane)	684935	N-Nitroso-N-methylurea	1330207	Xylenes (isomers and mixtures)
56235	Carbon tetrachloride	75003	Ethyl chloride (Chloroethane)	62759	N-Nitrosodimethylamine	95476	o-Xylenes
463581	Carbonyl sulfide	106934	Ethylene dibromide (Dibromoethane)	59892	N-Nitrosomorpholine	108383	m-Xylenes
120809	Catechol	107062	Ethylene dichloride (1,2-Dichloroethane)	56382	Parathion	106423	p-Xylenes
133904	Chloramben	107211	Ethylene glycol	82688	Pentachloronitrobenzene (Quintobenzene)		COMPOUNDS
57749	Chlordane	151564	Ethylene imine (Aziridine)	87865	Pentachlorophenol		Antimony compounds
7782505	Chlorine	75218	Ethylene oxide	108952	Phenol		Arsenic compounds (inorganic including arsine)
79118	Chloroacetic acid	96457	Ethylene thiourea	106503	p-Phenylenediamine		Beryllium compounds
532274	2-Chloroacetophenone	75343	Ethylidene dichloride (1,1-Dichloroethane)	75445	Phosgene		Cadmium compounds
108907	Chlorobenzene	50000	Formaldehyde	7803512	Phosphine		Chromium compounds
510156	Chlorobenzilate	76448	Heptachlor	7723140	Phosphorus		Cobalt compounds
67663	Chloroform	118741	Hexachlorobenzene	85449	Phthalic anhydride		Coke oven emissions
107302	Chloromethyl methyl ether	87683	Hexachlorobutadiene	1336363	Polychlorinated biphenyls (Aroclors)		Cyanide compounds
126998	Chloroprene	77474	Hexachlorocyclo pentadiene	1120714	1,3-Propane sultone		Fine mineral fibers
1319773	Cresols/Cresylic acid (isomers and mixtures)	67721	Hexachloroethane	57578	beta-Propiolactone		Glycol ethers*
95487	o-Cresol	822060	Hexamethylene-1,6- diisocyanate	123386	Propionaldehyde		Lead compounds
108394	m-Cresol	680319	Hexamethyl phosphoramidate	114261	Propoxur (Baygon)		Manganese compounds
106445	p-Cresol	110543	Hexane	75569	Propylene oxide		Mercury compounds
98828	Cumene	302012	Hydrazine	78875	Propylene dichloride (1,2-Dichloropropane)		Nickel compounds
94757	2,4-D, salts and esters						Polycyclic organic matter
3547044	DDE						Radionuclides (including radon)
334883	Diazomethane						Selenium compounds
132649	Dibenzofurans						
96128	1,2-Dibromo-3- chloropropane						

* Ethylene Glycol Monobutyl Ether-(2-butoxyethanol; Butyl "Cellosolve") CAS # 111-76-2 **DELISTED 11/29/04**

**APPENDIX 1-B:
LIST OF COMPOUNDS EXCLUDED FROM THE DEFINITION OF A TOXIC AIR
CONTAMINANT**

- | | |
|--|---|
| <ul style="list-style-type: none"> • Acetylene • Aluminum metal dust • Aluminum oxide (nonfibrous forms) • Ammonium sulfate • Argon • Calcium carbonate • Calcium hydroxide • Calcium oxide • Calcium silicate • Calcium sulfate • Carbon dioxide • Carbon monoxide • Cellulose • Coal dust • Crystalline silica emissions from processes specified in Rule 120(f)(xi) • Emery • Ethane • Graphite (synthetic) • Grain dust • Helium | <ul style="list-style-type: none"> • Hydrogen • Iron oxide • Lead • Liquefied petroleum gas (LPG) • Methane • Neon • Nitrogen • Nitrogen oxide • Nuisance particulates • Oxygen • Ozone • Perlite • Portland cement • Propane • Silicon • Starch • Sucrose • Sulfur dioxide • Vegetable oil mist • Water vapor • Zinc metal dust |
|--|---|

APPENDIX 1-C STANDARDS OF PERFORMANCE FOR NEW STATIONARY SOURCES POTENTIALLY AFFECTING FRUIT AND VEGETABLE PROCESSORS Performance Standards Developed as of March 2006			
Source	40 CFR 60 Subpart	Regulated Pollutants	Effective Date
Industrial-commercial-institutional steam generators >100 MM/Btu/hr	Db	PM, NO _x , SO ₂	Construction, modification, or reconstruction commenced after 6/19/84
Small industrial-commercial-institutional steam generators >10 MM/Btu/hr but <100 MM/Btu/hr	Dc	PM, SO ₂	Construction, modification, or reconstruction commenced after 6/9/84
Stationary gas turbines with a heat input peak load equal to or >10.7 gigajoules per hour, based on the lower heating value of the fuel fired	GG	NO _x , SO ₂	Construction or modification or reconstruction commenced after 10/3/77
KEY NO _x - Nitrogen Oxides PM - Particulate Matter SO ₂ - Sulfur Dioxide			

APPENDIX 1-D: NESHAP (MACT) STANDARDS POTENTIALLY AFFECTING FRUIT AND VEGETABLE PROCESSORS	
Combustion Turbines YYYY	Manufacturing Nutritional Yeast (formerly Bakers Yeast)..... CCCC
Industrial, Commercial and Institutional Boilers and Process Heaters DDDDD	Reciprocating, Internal Combustion Engines (RICE) (NESHAP/NSPS) ZZZZ
Industrial Cooling Towers..... Q	Solvent Extraction for Vegetable Oil Production..... GGGG

WHERE TO GO FOR HELP

SUBJECT: State and federal air quality regulations

CONTACT: DEQ, Environmental Assistance Program (EAP)
(800) 662-9278
www.michigan.gov/deqair (select "Clean Air Assistance")

PUBLICATIONS: **Air Emissions Reporting:**

1. Michigan Air Emissions Reporting System (MAERS) Workbook

Air Permits:

1. Permit to Install: Determining Applicability Guidebook
2. Permit to Install Workbook – A Practical Guide to Completing an Air Permit Application
3. PASS-ROP Workbook – A Practical Guide to Completing an Electronic Renewable Operating Permit Application
4. Life After ROP – Renewable Operating Permit Reporting and Revisions

General Publications:

1. Air Pollution Control 101
2. Environmental Regulations Affecting Anaerobic Digesters
3. Michigan Air Pollution Control Rules Order Form
4. What is an Air Contaminant/Pollutant?
5. Working with an Environmental Consultant
6. Michigan Clean Air Consultant Directory
7. Michigan Open Burning Guide

National Emission Standards for Hazardous Air Pollutants (NESHAP):

1. Understanding the Asbestos NESHAP
-

SUBJECT: State and federal air quality regulations and programs

CONTACT: DEQ, Air Quality Division
(517) 373-7023
www.michigan.gov/deqair

SUBJECT: Federal air quality regulations

CONTACT: U.S. Environmental Protection Agency, Office of Air and Radiation
www.epa.gov/oar
www.epa.gov/oar/oaqps
www.epa.gov/ttn

SUBJECT: Evaluation of the Environmental Assistance Program and Clean Air Ombudsman

CONTACT: Clean Air Compliance Advisory Panel

(800) 662-9278
www.michigan.gov/deqair (select "Clean Air Assistance")

SUBJECT: Michigan Clean Air Ombudsman

CONTACT: Michigan Economic Development Corporation
(517) 373-9808
www.michigan.org