



Frequently Asked Questions About Sugar Facility Odors

This page answers some of the most common questions regarding odors in sugarbeet processing. No matter the location of a sugarbeet factory in the United States, sugarbeet processing creates odors. Michigan Sugar Company is committed to using the best and latest technology to control odors at all our facilities - and we are constantly investigating new practices and technologies to minimize our impacts.

◆ What causes odors at sugarbeet factories?

Beets are perishable vegetables and can deteriorate. In general, there are odors inherent to the breakdown of organic material and the process of extracting sugar from beets.

Consequently, there are three key areas that we constantly monitor for odors: beets in storage (where weather and temperature variations can lead to odors from the beets), beet processing (where slow cooking to extract sugar from the beets releases organic materials and odors), and water storage ponds (where organic material in process and wastewaters can cause odors).

Because the water used for beet processing contains dirt from the beets and other organic material, it must be stored in ponds before further treatment, and these organic materials can generate odors. Often, odors are released when we proactively clean the water storage ponds to remove excess dirt and organic material.

Michigan Sugar Company is actively studying additional and alternative options for removing dirt and organic material to minimize odors.

◆ Why do the odors occur at different times?

Odors are impacted by many different factors. These range from the weather, to wind speed and direction, to atmospheric conditions.

Temperature inversion is another factor. For example, when a warm evening is followed by a cool, still morning, odors can get trapped in the lower atmosphere and concentrated in small areas.

◆ How does weather affect beet storage?

Cold winter weather is beneficial for beet preservation. Early warm weather, or a series of freeze/thaw cycles, can cause beet piles to deteriorate prematurely, resulting in odors. Weather also plays an important role during harvest. If beets have been damaged by frost during harvest, they do not store well in piles and can begin to deteriorate quickly.

As a result, unharvested sugarbeets damaged by frost or freeze in the field are not allowed by Michigan Sugar Company to be delivered and must remain unharvested. Additionally, Michigan Sugar constantly monitors our beet piles, removing weather-impacted beets to ensure that stored beet odors are controlled as much as possible.

◆ Can odors be completely eliminated?

Unfortunately, odors cannot be eliminated entirely - no sugarbeet processing facility can completely eliminate odors, and there are no solutions using current technology that can completely eliminate odors.

Processing of sugarbeets, which are 75 percent water, will always generate wastewater that must be stored prior to treatment. Additionally, as noted above, weather conditions also have an impact on the ponds and stored beets. Thus, odors may occur from time to time and fluctuate in intensity despite Michigan Sugar's ongoing efforts to control them.

◆ What has Michigan Sugar Company done to control odors?

Michigan Sugar has taken steps to address odor at all of its facilities, but odor control is particularly challenging at the Bay City facility because residential neighborhoods have been developed around the Michigan Sugar site. When the Michigan Sugar Bay City production facility began operation in 1901, well over 100 years ago, no one could have anticipated the rezoning and adjacent development that were to follow. Nevertheless, Michigan Sugar is making significant efforts to minimize odors. In recent years, Michigan Sugar's Bay City facility has become an industry leader in testing and implementing odor control technologies.

Among the odor control activities undertaken at the Michigan Sugar Bay City facility are the following:

- ◆ Installation of advanced ventilation systems to minimize sugarbeet deterioration;
- ◆ Implementation of new beet-handling and processing changes (including use of state of the art harvesting and handling equipment) to reduce loading of dirt and other organics into the process and wastewater systems;
- ◆ Using state-of-the-art screening processes to remove dirt from the beets and beet chips from wastewater to reduce loading to the process and wastewaters (including one of the few dry-screeners in use in the industry);
- ◆ Updating pond dikes and flume systems to help minimize amounts of dirt and organic matter entering ponds, and thereby reducing pond odors;
- ◆ Updating and modernizing the wastewater treatment system. Michigan Sugar utilizes a professionally operated wastewater treatment system that includes an anaerobic digester (one of the few digesters in use at sugar processing facilities in the United States), an equalization basin, and several aeration ponds to reduce organics in the ponds and resultant odors.
- ◆ In 2013, Michigan Sugar installed an additional treatment pond to increase the capacity of the wastewater treatment system and also allow for improved maintenance of the main aeration pond.
- ◆ Installation of a new, advanced odor management system that surrounds portions of the wastewater system to help minimize odors.

◆ What additional steps is Michigan Sugar Company currently taking to control odors?

Michigan Sugar is constantly investigating and researching new technologies that could further reduce odors.

We have retained a highly-qualified environmental consultant to study potential new technologies and methods to minimize odors in the future.

We are committed to following industry best practices, and leading the way in the sugarbeet industry in use of the latest and most effective technologies. In fact, Michigan Sugar Company was recently featured in [Sugar Producer Magazine](#) as an industry leader in using new technology. We also consult with our counterparts across the sugar industry to make sure that Michigan Sugar is using the best industry practices and technology.

Want to ask a question? Michigan Sugar is always available to answer questions about our company. You can contact our Community Relations Director, Ray VanDriessche at any time, by calling 989-686-0161.

This FAQ is available at www.michigansugar.com/growing-production/resources/faqs-on-odors/.