

**DEPARTMENT OF ENVIRONMENTAL QUALITY  
AIR QUALITY DIVISION  
ACTIVITY REPORT: On-site Inspection**

N314574549

<b>FACILITY:</b> FLORACRAFT CORPORATION		<b>SRN / ID:</b> N3145
<b>LOCATION:</b> ONE LONGFELLOW PLACE, LUDINGTON		<b>DISTRICT:</b> Cadillac
<b>CITY:</b> LUDINGTON		<b>COUNTY:</b> MASON
<b>CONTACT:</b> Phillip Gable , Vice President of Extrusion		<b>ACTIVITY DATE:</b> 11/06/2024
<b>STAFF:</b> Tammie Puite	<b>COMPLIANCE STATUS:</b> Compliance	<b>SOURCE CLASS:</b> MAJOR
<b>SUBJECT:</b> 2025 FCE Inspection, PTI 30-24 Initial Testing Inspection, and ROP Initial Application due in March Inspection.		
<b>RESOLVED COMPLAINTS:</b>		

Shane Nixon and I met with Phil Gable, VP of Extrusion and Jacob Pleiness, production chemist for Flora Craft for an inspection of FloraCraft / Victoria FC USA, LLC. This source is a polystyrene foam extrusion/production facility. The company currently has 2 permits 245-09C and 30-24. Flora Craft is currently transitioning from a minor source to a Title V source, with a Renewable Operating Permit Initial Application Due in March of 2025.

This facility produces foam products that are primarily used in the craft and floral industries. They have 3 production lines, each housed in their own buildings, a recycling process, 2 packaging and shipping plants, multiple silos for raw product storage, and semi-trailers for extra product storage that do not fit into the warehouses. There is 3-20,000 gallon +/- propane style tanks for chemical storage, that is fenced in and equipped with an emergency alert system. At the time of our inspection, the safety equipment required by the company was only safety glasses.

The EU-EXTRUSIONLINE1 is a closed cell foam production process that produces small products. This is a tandem extrusion system with primary and secondary extruders and a die to manufacture extruded polystyrene foam. The primary extruder is a 4 inch diameter and the secondary extruder is a 5 inch diameter. Ethyl chloride, pentane, butane, and difluoroethane are the blowing agents. A collection hood and exhaust system is located above the extruder. This process has a central dust collection system with a cyclone and baghouse that vents back into the indoor air of the building. The dust collection system was designed in house. The particulate from the baghouse is reclaimed and sent to the recycling process where the waste product is shredded and compacted into pellets to be used back in the production process. The company states that all the particulate and VOC emissions are heavier than air, thus the buildings are kept under negative pressure when closed up, and there is low level vacuum (18 inches +/- from the floor) units to capture anything that has escaped the hood vents, and other vacuum units along the process. The company states the there are no emissions off the foam after it is produced due to it being a closed cell product. The products from this process are then transferred over to the shaping and cutting lines for further processing, prior to being taken to the packaging and shipping plants. This process has a stack for fresh air to enter the building. There are multiple doors that can be opened to allow for cool air to enter the process.

The EU-EXTRUSIONLINE2 is a closed cell foam production process that produces large size products. This is a tandem extrusion system with primary and secondary extruders and a die to manufacture extruded polystyrene foam. Pentane (with small percentage of ethyl chloride), butane, and difluoroethane are the blowing agents. The finished product is loaded by a robot onto pallets that are then transferred over to shaping and cutting or packing and shipping. This process has its own central dust collection system that also vents back into the building, and its own reclaim process of the excess of particulate. It has a stack for fresh air to enter the building. There are multiple doors that can be opened to allow for cool air to enter the process.

The EU-DUSTCOLLECT2 is the process of capturing the indoor air and particulate for each extrusion line, that is filtered through the cyclone dust collectors and a self-contained bagless system and then vented internally to each extrusion line building. There is a separate dust collection system for each extrusion process building. The permitted pollution control consists of 2 cyclone dust collectors and 2 bagless dust collectors controlling the foam cutter stations and recycle grinder and fabric filters on exhaust stack controlling the reclaim line. The particulate is captured in large cardboard boxes that is vacuumed up and sent to the recycle process where it is compressed and formed back into pellets and placed into storage silos to be remade back into products. The dust from the recycling process is controlled by a fabric filter and exhausted from stack SV-DUSTCOLLECT2 which is located on the EU-EXTRUSIONLINE2 building.

The EUFLORAFOAM line produces open celled foam products. This is a phenolic resin foam production line. This process is covered under permit to install 30-24, and was permitted and installed in 2024. This production process is in a preliminary phase, while they continued to fine tune the process. The process starts with products from the chillers, which are 2 chilled 400 barrels +/- tanks that are kept at 40 °F, that house the raw foam

agent. Then there is a chemical storage locker that is explosion proof, that house several 55 gallon drums of chemicals that are hooked up to syphons to withdraw product as needed. There is no open venting of the containers. This storage locker has a 12-inch stack that is not detailed out in the permit. There is a 12 inch square vent where outside air contaminants may enter the locker, but these emissions are believed to be minimal.

Stack testing will be performed on this stack to determine the real amount of indoor air emissions that escape through the stack. The chemicals for the mixture are piped to an open air lab where they are combined into a mechanical mixture, mixed and poured into 1 of 5 ovens. The product then gets processed for 40 min at a temperature as high as 52 °C, and by the time the product is removed it is at 150 °F. The product is then transferred to a cooling room for 24 hours, before being transferred to the cutting and packaging room where a robotic razor wire cutter cuts the product, and is equipped with a 6 bag vacuumed baghouse that is similar to something you would see in a woodshop. The particulate from this process is currently sent to landfill, with hopes to be able to recycle it in the future. This process has a 14 inch stack where the emissions from the 5 hood vents located over the ovens are directly vented to atmosphere. There are multiple doors that can be opened to allow for cool air to enter the process. The stack from this process is also scheduled to be tested to determine the true amount of emissions venting from the stack. The company stated that they have submitted testing from the mixing process to ensure the safety of the employees and to determine if any further safety requirements are needed. Currently the safety requirements are a lab coat, gloves and safety glasses for the employees work in this area.

This facility was inspected per Permit to Install 245-09C which was issued November 16, 2023, and Permit to Install 30-24 which was issued March 21, 2024. The records review associated with this source is documented separately.



**Image 1(EU EXTRUSION1)** : Cyclone and Bagless Baghouse for EU EXTRUSION1 process.





**Image 2(EUEXTRUSION1)** : Cyclone and Bagless Baghouse for EUEXTRUSION1 process.



**Image 3(EUEXTRUSION2)** : Cyclone and Bagless Baghouse of the EUEXTRUSION2 process.





**Image 4(EUEXTRUSION2) :** Closer View of the Cyclone



**Image 5(EUFLORALFOAM) :** Chemical Storage Locker and view of stacks exiting the building. Center - Heating and cooling vent. Round Stack on Left - from oven hood vents. Round stack on right - Chemical storage locker.



**Image 6(EUFLORALFOAM) :** Exterior view of stacks. Left is chemical storage locker, and right is the oven hood vents, and then you can see the heating/cooling duct work.

NAME 

DATE 12-4-24

SUPERVISOR 