

PERMIT BOOK

STATE OF MISSOURI



DEPARTMENT OF NATURAL RESOURCES

MISSOURI AIR CONSERVATION COMMISSION

PERMIT TO CONSTRUCT

Under the authority of RSMo 643 and the Federal Clean Air Act the applicant is authorized to construct the air contaminant source(s) described below, in accordance with the laws, rules and conditions as set forth herein.

Permit Number: **092012-008** Project Number: 2012-02-026
Installation Number: 095-0330

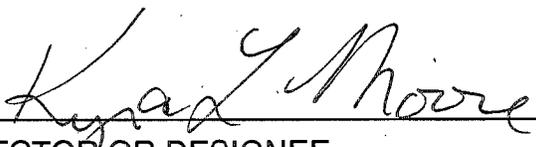
Parent Company: Continental Manufacturing, LLC
Parent Company Address: 800 South Wellington Street, Richmond, MO 64085
Installation Name: Continental Manufacturing, LLC
Installation Address: 1026 South Powell Street, Independence, MO 64056
Location Information: Jackson County, S4, T49, R31W

Application for Authority to Construct was made for:
Installation of a blending and extrusion operation for the manufacture of polyvinyl chloride (PVC) siding for the housing industry. This review was conducted in accordance with Section (5), Missouri State Rule 10 CSR 10-6.060, *Construction Permits Required*.

-
- Standard Conditions (on reverse) are applicable to this permit.
- Standard Conditions (on reverse) and Special Conditions are applicable to this permit.

SEP 24 2012

EFFECTIVE DATE



DIRECTOR OR DESIGNEE
DEPARTMENT OF NATURAL RESOURCES

STANDARD CONDITIONS:

Permission to construct may be revoked if you fail to begin construction or modification within two years from the effective date of this permit. Permittee should notify the Air Pollution Control Program if construction or modification is not started within two years after the effective date of this permit, or if construction or modification is suspended for one year or more.

You will be in violation of 10 CSR 10-6.060 if you fail to adhere to the specifications and conditions listed in your application, this permit and the project review. In the event that there is a discrepancy between the permit application and this permit, the conditions of this permit shall take precedence. Specifically, all air contaminant control devices shall be operated and maintained as specified in the application, associated plans and specifications.

You must notify the Department's Air Pollution Control Program of the anticipated date of startup of these air contaminant sources. The information must be made available within 30 days of actual startup. Also, you must notify the Department of Natural Resources Regional office responsible for the area within which you are located within 15 days after the actual startup of these air contaminant sources.

A copy of this permit and permit review shall be kept at the installation address and shall be made available to Department of Natural Resources' personnel upon request.

You may appeal this permit or any of the listed special conditions to the Administrative Hearing Commission (AHC), P.O. Box 1557, Jefferson City, MO 65102, as provided in RSMo 643.075.6 and 621.250.3. If you choose to appeal, you must file a petition with the AHC within 30 days after the date this decision was mailed or the date it was delivered, whichever date was earlier. If any such petition is sent by registered mail or certified mail, it will be deemed filed on the date it is mailed. If it is sent by any method other than registered mail or certified mail, it will be deemed filed on the date it is received by the AHC.

If you choose not to appeal, this certificate, the project review and your application and associated correspondence constitutes your permit to construct. The permit allows you to construct and operate your air contaminant sources(s), but in no way relieves you of your obligation to comply with all applicable provisions of the Missouri Air Conservation Law, regulations of the Missouri Department of Natural Resources and other applicable federal, state and local laws and ordinances.

The Air Pollution Control Program invites your questions regarding this air pollution permit. Please contact the Construction Permit Unit at (573) 751-4817. If you prefer to write, please address your correspondence to the Missouri Department of Natural Resources, Air Pollution Control Program, P.O. Box 176, Jefferson City, MO 65102-0176, attention: Construction Permit Unit.

Page No.	3
Permit No.	
Project No.	2012-02-026

SPECIAL CONDITIONS:

The permittee is authorized to construct and operate subject to the following special conditions:

The special conditions listed in this permit were included based on the authority granted the Missouri Air Pollution Control Program by the Missouri Air Conservation Law (specifically 643.075) and by the Missouri Rules listed in Title 10, Division 10 of the Code of State Regulations (specifically 10 CSR 10-6.060). For specific details regarding conditions, see 10 CSR 10-6.060 paragraph (12)(A)10. "Conditions required by permitting authority."

Continental Manufacturing, LLC
Jackson County, S4, T49, R31W

1. Control Device Requirement-Baghouse
 - A. Continental Manufacturing, LLC shall control emissions from the listed equipment in Table 1 using baghouses or filter receivers as specified in the permit application.

Table 1: Controlled Emission Sources

EMISSION SOURCE	EP#	Control	
		Designation	Description
PVC Resin Storage Silos (x2)	EP-1A	BH-01	baghouse
		BH-02	baghouse
CaCO3 Storage Silo	EP-1B	BH-03	baghouse
Raw Material Vacuum Receiver	EP-1C	FR-04	filter receiver
Raw Material Vacuum Receivers (x3)	EP-1D	FR-05	filter receiver
Blend Tower: batch mixing tank , cooler, staging take away bin	EP-2A	BH-06	baghouse
Blend Material Storage Silos (x4)	EP-2B	BH-07	baghouse
		BH-08	baghouse
		BH-09	baghouse
		BH-10	baghouse

Page No.	4
Permit No.	
Project No.	2012-02-026

SPECIAL CONDITIONS:

The permittee is authorized to construct and operate subject to the following special conditions:

EMISSION SOURCE	EP#	Control	
		Designation	Description
Extrusion Vacuum Receiver Bins (x5)	EP-2C	FR-11	filter receiver
		FR-12	filter receiver
		FR-13	filter receiver
		FR-14	filter receiver
		FR-15	filter receiver
Scrap Grinder	EP-3A	BH-16	baghouse

- B. The baghouses and filter receivers shall be operated and maintained in accordance with the manufacturer's specifications. The baghouse and filter receivers shall be equipped with a gauge or meter, which indicates the pressure drop across the control device. These gauges or meters shall be located such that the Department of Natural Resources' employees may easily observe them.
- C. Replacement filters for the baghouses and filter receivers shall be kept on hand at all times. The bags shall be made of fibers appropriate for operating conditions expected to occur (i.e. temperature limits, acidic and alkali resistance, and abrasion resistance).
- D. Continental Manufacturing, LLC shall monitor and record the operating pressure drop across the baghouses and filter receivers at least once every 24 hours. The operating pressure drop shall be maintained within the design conditions specified by the manufacturer's performance warranty.
- E. Continental Manufacturing, LLC shall maintain an operating and maintenance log for the baghouses and filter receivers which shall include the following:
 - 1) Incidents of malfunction, with impact on emissions, duration of event, probable cause, and corrective actions; and
 - 2) Maintenance activities, with inspection schedule, repair actions, and replacements, etc.

Page No.	5
Permit No.	
Project No.	2012-02-026

SPECIAL CONDITIONS:

The permittee is authorized to construct and operate subject to the following special conditions:

2. **Operational Requirement - Solvent/Cleaning Cloths**
 - A. Continental Manufacturing, LLC shall keep the solvents and cleaning solutions in sealed containers whenever the materials are not in use. Continental Manufacturing, LLC shall provide and maintain suitable, easily read, permanent markings on solvent and cleaning solution containers used with this equipment.

3. **Record Keeping and Reporting Requirements**
 - A. Continental Manufacturing, LLC shall maintain all records required by this permit for not less than five years and shall make them available immediately to any Missouri Department of Natural Resources' personnel upon request. These records shall include Material Safety Data Sheets (MSDS) for all materials used

 - B. Continental Manufacturing, LLC shall report to the Air Pollution Control Program's Compliance/Enforcement Section, P.O. Box 176, Jefferson City, MO 65102, no later than ten days after the end of the month during which any record required by this permit show an exceedance of a limitation imposed by this permit.

REVIEW OF APPLICATION FOR AUTHORITY TO CONSTRUCT AND OPERATE
SECTION (5) REVIEW

Project Number: 2012-02-026
Installation ID Number: 095-0330
Permit Number:

Continental Manufacturing, LLC
1026 South Powell Street
Independence, MO 64056

Complete: February 9, 2012

Parent Company:
Continental Manufacturing, LLC
800 South Wellington Street
Richmond, MO 64085

Jackson County, S4, T49, R31W

REVIEW SUMMARY

- Continental Manufacturing, LLC has applied for authority to install a blending and extrusion operation as defined in the application for the manufacture of PVC siding for the housing industry.
- This installation is located in Jackson County, a maintenance area for ozone and an attainment area for all other criteria pollutants.
- This installation is not a major source of hazardous air pollutants (HAPs). HAPs emissions are expected from the proposed equipment. HAPs of concern from this process are vinyl chloride (CAS# 75-01-4), manganese compounds, chromium compounds, and antimony compounds.
- None of the National Emission Standards for Hazardous Air Pollutants (NESHAPs) apply to this installation. None of the currently promulgated Maximum Achievable Control Technology (MACT) regulations apply to the proposed equipment.
- This installation has no units subject to the acid rain provisions of the Clean Air Act (CAA).
- None of the New Source Performance Standards (NSPS) apply to the installation.
- Dust collectors are being used to control the particulate matter less than two-and-a-half microns in diameter (PM_{2.5}), particulate matter less than ten microns (PM₁₀) and particulate matter emissions from the equipment in this permit.
- Ambient air quality modeling was not performed since potential emissions of the application are below de minimis levels.

- Emissions testing is not required for the equipment.
- This installation is not a Part 70 (Title V major source) installation. A Basic Operating Permit application is required for this installation within 30 days of equipment startup.
- This installation is not a major stationary source. The installation is not on the List of Named Installations found in 10 CSR 10-6.020 subsection (3)(B) *Table 2—List of Named Installations*. Therefore, the installation's major source threshold is 250 tons per year and fugitive emissions are not counted toward major source applicability.
- This review was conducted in accordance with Section (5) of Missouri State Rule 10 CSR 10-6.060, *Construction Permits Required*. Potential emissions of all air contaminants in 10 CSR 10-6.020 subsection (3) (A) *Table 1—De Minimis Emission Levels* are below the threshold *Emission Rates*.
- Approval of this permit is recommended with special conditions.

INSTALLATION DESCRIPTION

This is a de minimis construction permit. The emissions are controlled by baghouses and filter receivers. The plant is located in Jackson County in the City of Independence. The plant will make polyvinyl chloride siding for the housing industry. Continental's vinyl siding is manufactured using a patented coloring system with materials that have been designed to withstand all types of weather conditions and the damaging effects of ultraviolet light from the sun. The principal product from this plant will be siding.

No previous construction permits have been issued to Continental Manufacturing, LLC from the Air Pollution Control Program.

PROJECT DESCRIPTION

The Continental Manufacturing, LLC (Continental) proposed to install a blending and extrusion operation for the manufacture of polyvinyl chloride (PVC) siding for the housing industry.

The primary blend ingredients (PVC resin and calcium carbonate) arrive via truck and are pneumatically transferred via blower to one of three storage silos for future use. A baghouse atop each storage silo captures particles during unloading for resin in the process. Alternatively, calcium carbonate may be received in Gaylord containers for future use. Minor additives, such as wax which aids in the extrusion process, stabilizers that protect the siding from thermal and ultraviolet degradation and colorants, are brought on-site by truck and stored indoors.

The primary blend ingredients and minor ingredients are pneumatically transferred (vacuum fed) or pumped from the storage silos or containers/totes to one of four scales. Three scales are dedicated for powdered raw materials, and the remaining scale is for liquid additives. Once weighed, the raw powdered materials are pneumatically

transferred to one of three receivers located in the blend tower area. Each receiver is configured to capture particulates during transfer. From the receivers, the materials are gravity fed to the mixer for blending. In the mixer, the agitation of the raw materials generates a moderate amount of frictional heat during the blending process. After the compound is adequately blended in the mixing tank, it is transferred by gravity to one of two cooling units, which uses a heat exchanger to slowly cool the blended PVC compound. From the coolers, the blend material is pneumatically transferred (vacuum fed) to a staging bin, followed by transfer to a take away bin. The mixing tank, cooling units and staging/takeaway bins are configured to vent to one common baghouse filter to capture airborne particulates.

From the take away bin, the blended compound is pneumatically transferred (pressure blown) to one of four compound storage silos. Blended material not meeting product specifications is pneumatically routed from the cooler to a rerun storage silo or Gaylord container. From the rerun silo or Gaylord, the material can be pneumatically transferred (vacuum fed) back to blending for reuse in the process. The rerun silo and/or Gaylord will be configured to vent to the blend tower, with particulates being captured by the baghouse serving the blend tower.

From the storage silos, the blended PVC compound is pneumatically transferred (vacuum fed) into a feed hopper above one of five extrusion lines, each equipped with a cyclone separator and baghouse for recovery and reuse of blended PVC compound entrained in exhaust air during transfer. The filtered exhaust air from each cyclone separator and baghouse is vented through one of five vacuum receivers. Of the five extruders, one is a single screw extruder, and the remaining four are co-extruders.

The primary emissions are from blending calcium carbonate (CaCO_3) and polyvinyl chloride resin to make siding. The coloring of the material introduces several HAPs. The facility has silos for storage of the raw material and blended material. The colorant material is stored in barrels or smaller boxes. Colorant is added at the head of the extruder, along with the blended PVC compound, prior to extrusion. The blending portion of the plant has a cooler. The facility also has feed bins for the extruders. No combustion sources were reported in the application. The raw materials are coloring materials, polyvinyl chloride and CaCO_3 .

Occasionally, extruded material is produced that does not meet product specifications. This material is fed through a scrap grinder located inside the building, and the ground material is pneumatically conveyed to a gaylord or supersack. From the supersack, it is metered back into the feed system for reuse in the extrusion lines. An air conveyance system associated with the scrap grinder is routed through a cyclone separator and baghouse in order to recover airborne PVC for reuse in the process. The filtered exhaust air from the cyclone separator and baghouse is vented outside.

EMISSIONS/CONTROLS EVALUATION

The facility's production is limited by the "bottleneck" point, the extruders. The blend plant can blend materials beyond the capacity of the extruders, but the potential to emit was based on 25,000,000 pounds of siding blend, which is the extruders maximum hourly design rate. Each extruder's maximum design is 5,000,000 pounds per year or 2,853.88 pounds per hour, based on a 8,760 hour year.

The addition of more extruders, would allow more utilization of the blend plants unused capacity. Potential CaCO₃ usage is 2,500,000. Potential PVC resin usage is 20,000,000 pounds per year. The particulate emissions are controlled by baghouses and filter receivers.

Potential emissions of the application represent the potential of the new equipment, assuming continuous operation (8,760 hours per year.) The following table provides an emissions summary for this project. A ninety-nine percent (99%) control efficiency was given for the baghouse and filter receivers. A filter receiver is similar in operation to a baghouse.

PM, PM₁₀, and PM_{2.5} emissions are based on emission factors taken from AP-42, Chapter 11, Table 11.19.2-4 *Emission Factors for pulverized Mineral Processing Operations* and represent controlled emission factors from product storage with fabric filter control (SCC 3-05-038-13). The uncontrolled emissions were back calculated from the calculated emissions and control efficiency. The need for a permit was based on the facility's calculated uncontrolled PM₁₀ emissions. Potential VOC emissions from the blending and extrusion process were estimated using an emission factor as reported in the article "Process Emissions for the Vinyl Pipe Industry" by the Geon Company. Vinyl chloride can be found in the raw PVC resin. Emissions from the extrusion process have been estimated based on technical data provided by the PVC resin supplier (Georgia Gulf Company) dated May 2005 and assumes one hundred percent (100%) is emitted during blending.

Metals including antimony (Sb), trivalent chromium (Cr⁺³) and manganese (Mn) can be found in the siding colorants. Estimated metal emissions from the extrusion process were calculated based on the maximum metal content reported in the supplier's *Material Safety Data Sheets*. Usage was calculated assuming an average of two percent (2%) colorant added at the extruder head. (based on the blended material batch weight).

Table 1: Emissions Summary (values in tons per year)

Pollutant	Regulatory <i>De Minimis</i> Levels	Existing ¹ Potential Emissions	Existing Actual Emissions	Potential Emissions of the Application	New Installation Conditioned Potential
PM	25.0	N/A ²	N/A	0.21	0.21
PM ₁₀	15.0	N/A	N/A	0.03	0.03
PM _{2.5}	10.0	N/A	N/A	0.01	0.01

¹ This is a "green field" facility construction, so there is no existing equipment.

² N/A = Not Applicable

Pollutant	Regulatory <i>De Minimis</i> Levels	Existing ¹ Potential Emissions	Existing Actual Emissions	Potential Emissions of the Application	New Installation Conditioned Potential
SOx	40.0	N/A	N/A	N/A	N/A
NOx	40.0	N/A	N/A	N/A	N/A
VOC	40.0	N/A	N/A	0.74	0.74
CO	100.0	N/A	N/A	N/A	N/A
HAPs	10.0/25.0	N/A	N/A	0.51	0.51
Chromium Compounds	5.0	N/A	N/A	0.15	0.15
Manganese Compounds	0.8	N/A	N/A	0.16	0.16
Antimony Compounds	5.0	N/A	N/A	0.18	0.18

PERMIT RULE APPLICABILITY

This review was conducted in accordance with Section (5) of Missouri State Rule 10 CSR 10-6.060, *Construction Permits Required*. Potential emissions of all air contaminants in 10 CSR 10-6.020 subsection (3) (A) *Table 1—De Minimis Emission Levels* are below the threshold *Emission Rates*.

APPLICABLE REQUIREMENTS

Continental Manufacturing, LLC shall comply with the following applicable requirements. The Missouri Air Conservation Laws and Regulations should be consulted for specific record keeping, monitoring, and reporting requirements. Compliance with these emission standards, based on information submitted in the application, has been verified at the time this application was approved. For a complete list of applicable requirements for your installation, please consult your operating permit, which will be submitted and accepted at a later date.

Rule 10 CSR 10-6.400 *Restriction of Emission of Particulate Matter From Industrial Processes* provides the following exemption:

(1)(B) *The provisions of this rule shall not apply to the following:*

15. *Any particulate matter emission unit that is subject to a federally enforceable requirement to install, operate, and maintain a particulate matter control device system that controls at least ninety percent (90%) of particulate matter emissions;*

Continental Manufacturing, LLC controls particulate matter from all of its industrial processes with devices that controls at least ninety percent (90%) of emissions.

GENERAL REQUIREMENTS

- 10 CSR 10-6.110 *Submission of Emission Data, Emission Fees and Process Information,*
- 10 CSR 10-6.065 *Operating Permits,*
- 10 CSR 10-6.170 *Restriction of Particulate Matter to the Ambient Air Beyond the Premises of Origin,*
- 10 CSR 10-6.220 *Restriction of Emission of Visible Air Contaminants,*
- 10 CSR 10-6.165 *Restriction of Emission of Odors,*

STAFF RECOMMENDATION

On the basis of this review conducted in accordance with Section (5), Missouri State Rule 10 CSR 10-6.060, *Construction Permits Required*, I recommend this permit be granted with special conditions.

Randy E. Raymond
Environmental Engineer

Date

PERMIT DOCUMENTS

The following documents are incorporated by reference into this permit:

- The Application for Authority to Construct form, dated January 27, 2012, received February 09, 2012, designating Continental Manufacturing, LLC as the owner and operator of the installation.
- U.S. EPA document AP-42, *Compilation of Air Pollutant Emission Factors*, Fifth Edition.

Mr. Ramon Coleman
Vice President Manufacturing
Continental Manufacturing, LLC
800 South Wellington Street
Richmond, MO 64085

RE: New Source Review Permit - Project Number: 2012-02-026

Dear Mr. Coleman:

Enclosed with this letter is your permit to construct. Please study it carefully. Also, note the special conditions on the accompanying pages. The document entitled, "Review of Application for Authority to Construct," is part of the permit and should be kept with this permit in your files. Operation in accordance with these conditions, your new source review permit application is necessary for continued compliance. The reverse side of your permit certificate has important information concerning standard permit conditions and your rights and obligations under the laws and regulations of the State of Missouri.

If you have any questions regarding this permit, please do not hesitate to contact Randy E. Raymond, at the Department of Natural Resources' Air Pollution Control Program, P.O. Box 176, Jefferson City, MO 65102 or at (573) 751-4817. Thank you for your attention to this matter.

Sincerely,

AIR POLLUTION CONTROL PROGRAM

Susan Heckenkamp
New Source Review Unit Chief

SH: rrl

Enclosures

c: Kansas City Regional Office
PAMS File: 2012-02-026

Permit Number:

**File Material not in Permit
(not to be printed with permit)**

(this page blank)

2012-02-026

Continental Manufacturing

The maximum theoretical capacity of the blend plant is estimated to be 8000 pounds per hour or 70 million pounds per year.

8000 times 8760/2000 = tons per year 70 million pounds per year => 35000 tons per year

The five proposed PVC siding extruders have a maximum hourly design rate of 2854 pounds per hour.

This is the bottleneck of the plant.

Siding blend

5,000,000 each 2,854 80%

Continental Blend formula PVC Resin PVC Resin + Caco3 = 90%

siding blend

potential - Total estimate = 25,000,000

	controlled emission Factors			Emission Units- Control Device	lbs/yr	lbs/yr	lbs/yr	divide by .99 for uncontrolled				Potential PM2.5 emissions controlled	Potential PM10 emissions controlled	Potential PM2.5 emissions controlled
	lb PM/ton	lb pm10/ton	lb PM2.5 ton					tons/yr	tons/year	tons/year	tons/year			
	PM	PM10	PM2.5		Potential PM emissions controlled			Potential PM emissions uncontrolled	Potential PM10 emissions uncontrolled	Potential PM2.5 emissions uncontrolled	Potential PM emissions controlled	Potential PM10 emissions controlled	Potential PM2.5 emissions controlled	
Calcium Carbonate	0.0099	0.0016	0.0006	(1B) Truck/railcar to silo-baghouse, (1C) Silo to scale house - vacuum receiver, (1D) Scale to mixer hold bin-baghouse	37.125	6	2.25	1.838	0.297	0.111	0.0186	0.0030	0.0011	
Blended PVC Compound	0.0099	0.0016	0.0006	(2A) Mixer/cooler/takeaway-baghouse (2C) Takeaway to storage silo - baghouse (2D) Storage silo to extruder-cyclone/baghouse	371.25	60	22.5	18.377	2.970	1.114	0.1856	0.0300	0.0113	
Regrind material	0.0099	0.0016	0.0006	(3A) Extruder to scrap grinder -cyclone/baghouse (2C) Grinder to storage silo -baghouse (2D) Storage silo to extruder -cyclone baghouse	1.85625	0.3	0.1125	0.092	0.015	0.006	0.0009	0.0002	0.0001	
rerun material	0.0099	0.0016	0.0006	(2B) Carry away to silo-baghouse (2A) Storage silo to cooler-baghouse	6.1875	1	0.375	0.306	0.050	0.019	0.0031	0.0005	0.0002	
Look at VOC/HAPS					0.004238014			20.613	3.331	1.249	0.2082	0.0337	0.0126	
	pounds per hour uncontrolled	pounds per hour controlled	tons per year	SMAL		16	0.0625	Uncontrolled PTE			Controlled PTE			
total blended PVC material compound processed						200								
VOC	0.168379		0.74			5.0625	506.25	length of haul road						
	0.472000		2.07			2								
PVC resin											Control Device			
Vinyl Chloride	0.004566		0.02	0.2	EP-1A	Resin Storage					baghouse	1 and 2	CD 1 and 2	
	0.012800		0.06		EP-1B	CaCO3 Storage					baghouse	3	CD-3	
powered Colorant					EP-1C	Raw Material Vacuum Receiver					filter receiver		CD-4	
Antimony	4.00	0.039954338	0.18	5	EP-1D	Raw Material Vacuum Receiver					filter receiver		CD-5	
Cr (III)	3.42	0.034246575	0.15	5	EP-2A	Blend Tower Baghouse					baghouse	4	CD-6	
Manganese (Mn)	3.71	0.037100457	0.16	0.8	EP-2B	Blend Material Storage Silo B					baghouse	4	CD 7-10	
		total HAPS	0.51		EP-2C	Extrusion					baghouse		CD 11-15	
					EP-3A	Scrap Grinder					baghouse	16	CD-16	