

Facility Name: **Thermal Ceramics, Inc.**

City: Augusta

County: Richmond

AIRS #: 04-13-245-00005

Application #: TV-756805

Date SIP Application Received: N/A

Date Title V Application Received: July 20, 2023

Permit No: 3255-245-0005-V-04-2

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Introduction

This narrative is being provided to assist the reader in understanding the content of the referenced SIP permit to construct and draft operating permit amendment. Complex issues and unusual items are explained in simpler terms and/or greater detail than is sometimes possible in the actual permit. This permit is being issued pursuant to: (1) Sections 391-3-1-.03(1) and 391-3-1-.03(10) of the Georgia Rules for Air Quality Control, (2) Part 70 of Chapter I of Title 40 of the Code of Federal Regulations, and (3) Title V of the Clean Air Act Amendments of 1990. The following narrative is designed to accompany the draft permit and is presented in the same general order as the permit. This narrative is intended only as an adjunct for the reviewer and has no legal standing. Any revisions made to the permit in response to comments received during the public comment period and EPA review process will be described in an addendum to this narrative.

3255. Facility Description

3255. Existing Permits

Table 1 below lists the current Title V permit, and all administrative amendments, minor and significant modifications to that permit, and 502(b)(10) attachments.

Table 1: Current Title V Permit and Amendments

Permit/Amendment Number	Date of Issuance	Description
3255-245-0005-V-04-0	August 17, 2020	Title V Renewal
3255-245-0005-V-04-1	April 25, 2022	Minor Mod without Construction Install and Operate wet scrubber SW5 upstream of ESP on Tunnel Kiln TK7.

B. Regulatory Status

1. PSD/NSR/RACT

The Thermal Ceramics plant was originally constructed prior to the implementation of the PSD regulations and is considered to be an existing major source, with potential emissions of sulfur dioxide, particulate matter and PM₁₀ greater than 250 tons per year. This facility is not one of the 28 listed major source categories named in the PSD regulations, so the major source threshold is 250 tons. There have been no major modifications at this facility that have triggered PSD.

Fire brick, ceramics, and clay products are not included on the “list of 28” source categories included in 40 CFR 52.21, however, facility emissions of SO₂ exceed the 250 tpy major source threshold. The Augusta facility is presently a major source for the purposes of PSD permitting requirements as SO₂ emissions are greater than the major source threshold of 250 tpy. However, the permit includes PSD avoidance conditions. Since this plant is not in a non-attainment area, NSR regulations are inapplicable. This facility is not subject to any MACT Standards, since it is a minor source of HAPs.

2. Title V Major Source Status by Pollutant

Table 2: Title V Major Source Status

Pollutant	Is the Pollutant Emitted?	If emitted, what is the facility's Title V status for the Pollutant?		
		Major Source Status	Major Source Requesting SM Status	Non-Major Source Status
PM	Yes	✓		
PM ₁₀	Yes	✓		
PM _{2.5}	Yes	✓		
SO ₂	Yes	✓		
VOC	Yes			✓
NO _x	Yes			✓
CO	Yes			✓

TRS	Yes			✓
H ₂ S	Yes			✓
Individual HAP	Yes			✓
Total HAPs	Yes			✓

II. Proposed Modification

A. Description of Modification

Thermal Ceramics is proposing to remove their current wet electrostatic precipitator (WESP) from operation due to maintenance issues causing operational downtime since even while the WESP was not operating, the Process Weight Rule (PWR) Particulate Matter (PM) emission limit for TK7 was not exceeded when using the MicroMist Venturi (MMV) Scrubber System (ID No. SW5) to provide additional submicron particulate control upstream of the existing WESP on the Tunnel Kiln No. 7 (TK7).

Currently, the facility channels exhaust gas from Tunnel Kiln No. 7 (TK7) through a quench cooler and into a scrubber (SW5). Finally, the exhaust is passed through the WESP (ESP1) for additional control. However, due to recent maintenance issues, the facility intends to remove the WESP from its operations.

The addition of the scrubber (SW5) to the process in September of 2022 was intended to enhance submicron particulate control for PM/PM₁₀/PM_{2.5} and sulfuric acid mist (SAM). During a PM testing event when the WESP was offline, the facility observed that PM emissions were significantly below the PWR threshold specified in Permit No. 3255-245-0005-V-04-0. The facility has recognized that the advanced scrubbing technology of SW5 can meet all permit requirements without the need for the WESP in the process.

As the WESP is in series with the wet scrubber, the exhaust gas will continue to vent through the same emission point. The height of the exhaust stack will remain unchanged. Thermal Ceramics will continue to monitor the pressure drop (dP) and flow rate (gallons per minute) of the wet scrubber (SW5) on a three-hour period (arithmetic average of three contiguous one-hour periods). Monitoring data will continue to be collected using a distributed control system (DCS) and stored electronically.

Since there are no regulations or requirements in the permit for operating the WESP other than the original installation to ensure compliance with the PWR, Thermal Ceramics has proposed to remove the WESP from the facility permit.

B. Emissions Change

The WESP (ESP1) operates in series with a quench cooler and the wet scrubber. With the installation of the wet scrubber into operations in September of 2022 there had been an overall increase in control efficiency of PM/PM₁₀/PM_{2.5} and SAM due to the design of the control device and use of caustic to neutralize acid gases (SAM). Testing results that took place while the WESP had been offline due to maintenance problems, concluded that the unit was no longer necessary to the process.

The proposed removal of the WESP will not result in any increase in emissions due to the more efficient capture efficiency and control efficiency of submicron particles and acid gases from the use of the new wet scrubber (SW5). Potential emissions from the facility will not increase for any pollutant.

C. PSD/NSR Applicability

The removal of the WESP constitutes a physical change at the Augusta facility. However, as indicated previously, the removal of the WESP (ESP1) will not affect the overall PM emissions at the facility as the newly installed scrubber (SW5) was shown to have a capture efficiency that aligns with the PWR PM emission limit for TK7. Therefore, the emissions from this project do not constitute a major modification as potential emissions will not exceed the Significant Emission Rates (SER) for any pollutant. Specifically, there will not be an increase in SAM emissions over 7 tons per year, the SER threshold for a major PSD modification. Therefore, the Augusta facility's proposed change is not subject to any PSD permitting requirements.

III. Facility Wide Requirements

There is no change to the current facilitywide SO₂ emission limit due to the removal of wetESP from the facility.

IV. Regulated Equipment Requirements

A. Brief Process Description

Please refer to Section II. A of this narrative above.

B. Equipment List for the Process

The only change is that Tunnel Kiln TK7 emissions will not be controlled by the wetESP that is being removed. The wet Scrubber SW5 provides enough PM control for the tunnel kiln 7 to comply with the PM emission limit of Georgia Rule (e).

C. Equipment & Rule Applicability

Emission and Operating Caps –

No change to current emission and operating caps due to the wetESP removal.

Applicable Rules and Regulations -

The rules and regulations that applied to the wetESP will no longer apply after its removal.

Emission and Operating Standards: No change to the current emission and operating standards for Tunnel Kiln 7 (TK7).

D. Permit Conditions

Condition 3.2.6 is amended by requiring the operation of the wet scrubber SW5 whenever Tunnel Kiln 7 (TK7) operates.

V. Testing Requirements (with Associated Record Keeping and Reporting)

Condition 4.2.1 is amended by removing the wetESP and introducing the wet scrubber SW5.

Condition 4.2.2 is amended by requiring establishment of operating parameter ranges for efficient wet scrubber operation.

VI. Monitoring Requirements (with Associated Record Keeping and Reporting)

Condition 5.2.3 is amended by removing the monitoring requirements for wetESP which is being removed.

Current Condition 5.2.4 requiring wetESP power equation is deleted since it will be removed from the facility.

Condition 5.2.9 pertaining to CAM (compliance assurance monitoring) for PM emissions from Tunnel Kiln 7 (TK7) is amended by removing the wetESP indicator.

VII. Other Record Keeping and Reporting Requirements

In the excursion reporting section Condition 6.1.7.c.iii is deleted since it pertains to the wetESP that has been removed.

Condition 6.1.7c.vii is amended by including the excursion of the wet scrubber WS5 operating parameters.

VIII. Specific Requirements

Discuss any of the following specific requirements as they apply to the modification.

A. Operational Flexibility

Not applicable

B. Alternative Requirements

Not applicable

C. Insignificant Activities

No insignificant activities are added as part of this minor modification.

D. Temporary Sources

Not applicable

E. Short-Term Activities

Not applicable

F. Compliance Schedule/Progress Reports

Not applicable

G. Emissions Trading

Not applicable

H. Acid Rain Requirements/CAIR/CSPAR

Not applicable

I. Prevention of Accidental Releases

This modification does not change the source's applicability to this regulation which is not applicable.

J. Stratospheric Ozone Protection Requirements

This modification doesn't change the source's applicability to Title VI.

K. Pollution Prevention

Not applicable

L. Specific Conditions

Not applicable

Addendum to Narrative

The 30-day public review started on month day, year and ended on month day, year. Comments were/were not received by the Division.

//If comments were received, state the commenter, the date the comments were received in the above paragraph. All explanations of any changes should be addressed below.//