Georgia-Pacific Gypsum LLC
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September 20, 2019

Mr. Adam Pagarigan
New Jersey Department of Environmental Protection
Bureau of Stationary Sources
401 East State Street, 2nd Floor
P.O. Box 420
Trenton, NJ 08625-0027

Re: Georgia-Pacific Gypsum LLC
Title V Significant Modification
Camden Plant, Program Interest No. 51611, BOP180001

Dear Mr. Pagarian:

Georgia-Pacific Gypsum LLC ("GP Gypsum") owns and operates a gypsum and gypsum wallboard manufacturing plant in Camden, New Jersey ("Camden Plant" or "the facility"). The facility manufacturers gypsum plasters, stucco, and polypropylene Soundmat® products. Gypsum wallboard production is currently idled. GP Gypsum leases certain process equipment to GP Industrial Plasters LLC ("GP Plasters"), which conducts the gypsum mill operations. GP Gypsum and GP Plasters both operate pursuant to Title V Operating Permit (TVOP) Activity Number BOP180001, issued by the New Jersey Department of Environmental Protection (NJDEP) on July 24, 2018, with an expiration date of July 27, 2020.

GP is submitting this application for a significant modification to the Title V Operating Permit to incorporate a number of new projects at the Camden Plant. This letter provides the reason for application, an explanation of emission methodology for each project, a state and federal regulatory applicability analysis and a discussion of emission increases as related to emission rate changes (lb/hr), potential to emit changes (TPY), and the New Jersey Air Code Title 7, Chapter 27, Subchapter 18 Netting Analysis (N.J.A.C 7:27-18).

Reason for Application

This significant modification application contains the following individual projects:

1. Construction of a Polypropylene Pellet Silo (E121);
2. Construction of a Supersac Loading Spout (E103);
3. Replacement of the existing Kemutec Bulk Stucco Screener (E58) with an identical new screener;
4. Replacement of the existing Bulk Stucco Loading spout (E71) with an identical new spout;

5. Reconfiguration of Kettle #2 (E4) flue arrangement, and;
6. Replacement of Clean Air Plenums for both Raymond Mill #2 (CD18) and Kettle #3 (CD3) to the existing dust collectors.

The construction of a Supersac Loading Spout and Polypropylene Pellet Silo meet the definition of a significant modification (N.J.A.C. 7:27-22.24(b)) since the proposed Supersac Loading Spout is subject to the federal New Source Performance Standard (NSPS) Subpart OOO and both the Supersac Loading Spout and the proposed Polypropylene Pellet Silo are both capable of greater than 50 lb/hr of production. The projects involving the Kemutec Bulk Stucco Screener, Stucco Loading Spout, Kettle #2, Raymond Mill #2 Clean Air Plenum, and Kettle #3 Clean Air Plenum could be processed as minor modifications, but GP Gypsum is electing to include these projects as part of this Significant Modification permit application.

Emission Calculation Methodology

1. E121 Polypropylene Pellet Silo Installation

The facility is proposing to install a 2,282 cubic feet silo for polypropylene pellet storage that will be assigned the New Jersey equipment ID of E121. The silo will be fed by tanker trucks with truck-mounted with 450-1,300 cubic feet per minute (CFM) blower systems (U54, OS7). This equipment will be controlled by three Modular Cartridge Bin Vents in parallel, which GP is proposing to be considered one control device (CD41). These are passive air pollution control devices which do not have an exhaust blower. The silo, in conjunction with 1,600 lb gaylord boxes of polypropylene pellets, will feed existing U54 operations. Unloading into the silo will be performed using an existing vacuum loader/hopper dryer (E115-E116) authorized under BOP180001 U54, OS1 and OS2. Equipment Design Details and Supporting Documentation for this project is shown in **Attachment 1**.

The current permit addresses the Resin Extrusion Process under U54 OS1-OS6. As this bin will represent the onsite storage capacity for the Resin Extrusion Process, GP requests it be added as OS7 under U54 with corresponding emission limits for particulate emissions and throughput.

The hourly and annual TSP/PM_{10}/$PM_{2.5}$ emission rate calculations for the silo are based on the exhaust air flow from the truck-mounted blower and an outlet TSP/PM_{10}/$PM_{2.5}$ concentration for the air pollution control device (CD41)[1]. GP has no reason to believe this equipment will emit condensable particulate matter (CPM), so these emission estimates reflect filterable-only data.

The TSP/PM_{10}/$PM_{2.5}$ emission rate for the proposed silo is 0.21 lb/hr, based on a maximum exhaust flow rate of 1,136 dscfm and an outlet TSP/PM_{10}/$PM_{2.5}$ concentration of 0.02 grains per dry standard cubic foot (gr/dscf)[1] for the Modular Cartridge Bin Vents (CD41).

[1] Outlet grain loading-PM/PM10 (vendor data). NJAC 7:27-6 allowable emission rate.

The annual TSP/PM_{10}/$PM_{2.5}$ emission rate for the proposed silo, operating for 8,760 hours per year, is 0.85 tons/yr.

Emission calculations for the Polypropylene Pellet Silo are provided in **Attachment 5.**

2. E103 Supersac Loading Installation

The facility is proposing to install a new bulk bagging operation, referred to as a Supersac Loading Spout (E103). This equipment will be fed by the existing Blender/Weigher equipment (U36, OS2, E44). Similar to Bag Packer #1 (E43) and Bag Packer #2 (E102), the fugitive dust will be controlled by Gypcrete/Rock Bin Dust Collector (CD26, PT36). This new spout will have the capability to fill supersac bags. The existing Packer #1 and #2 spouts will also maintain the capability to fill 80 lb underlayment bags. Currently, the throughput of the Blender/Weigher (E44) is permitted as 40,000 lb/hr of material. However, since the capability of the new Supersac Loading Spout equipment is 60,000 lbs/hr of material, an increase in the throughput rate of the Blender/Weigher (E44) is necessary to accommodate the new equipment. The Camden facility total underlayment production of 525,600,000 lb/yr or 262,800 tons per year is not changing. After the project, final product will be dispensed into either Supersacks or 80 lb bags. Equipment Design Details and Supporting Documentation for this project is shown in **Attachment 2**.

The current permit addresses the Underlayment Production under U36 OS1-OS6. As this equipment will be in-line with the Blender/Weigher (E44), GP requests it be added as OS7 under U36 with corresponding emission limits for particulate emissions and throughput.

The hourly and annual TSP/PM_{10}/$PM_{2.5}$ emission rate calculations for this proposed Supersac Loading Spout (E103) are based on the "drop point" equation from U.S. EPA AP-42 Section 13.2.4-3, *Aggregate Handling and Storage Piles* for loading of aggregate material which estimates an emission factor (lb/ton) from aerodynamic particle size multiplier, k (TSP 0.74, PM_{10} 0.35, $PM_{2.5}$ 0.053), mean wind speed, U (1 mph for indoor air), and the material moisture content, M (2%)[2].

$$E = k(0.0032)\frac{\frac{U^{1.3}}{5}}{\frac{M^{1.4}}{2}}$$

The TSP/PM_{10}/$PM_{2.5}$ emission rate for the proposed Supersac Loading is below the reporting threshold listed in N.J.A.C. 7:27-22 (0.05 lb/hr).

The hourly and annual TSP/PM_{10}/$PM_{2.5}$ emission rate calculation for the Blender/Weigher is based on emission factors for crushed stone processing (lb/ton)[3] found in U.S EPA AP-42 Section 11.19, *Crushed Stone Processing and Pulverized Mineral Processing*. The TSP/PM_{10}/$PM_{2.5}$ hourly emission rate for E43 is below the reporting threshold listed in N.J.A.C. 7:27-22 (0.05 lb/hr).

[2] Particulate emissions from the hopper are estimated based on AP-42 13.2.4-3, Equation (1) for drop loading of aggregate.
[3] Emission factors from AP-42, Table 11.19.2-2 for controlled conveyor transfer for crushed stone processing.

Emission calculations for the Supersac Loading Spout and Blender/Weigher are provided in **Attachment 5**.

3. E58 Kemutec Bulk Stucco Screen Replacement

The facility is proposing to remove the existing Kemutec Bulk Stucco Screen (E58) and replace it with an identical unit. Due to the abrasive nature of gypsum, deterioration has occurred on several parts of the existing unit.

The hourly and annual TSP/PM_{10}/$PM_{2.5}$ emission rate calculation for the Kemutec are based on AP-42 emission factors for crushed stone processing (lb/ton)[4] found in U.S EPA AP-42. The TSP/PM_{10}/$PM_{2.5}$ hourly emission rate for the Kemutec is 0.011 lb/hr, 0.04 lb/hr, and 0.003 lb/hr, respectively, based on a maximum throughput of 30 tons per hour. The maximum emission rate is still below reporting threshold of 0.05 lb/hr. The annual TSP/PM_{10}/$PM_{2.5}$ emission rate for the Kemutec, operating for 8,760 hours per year, is 0.48 tons/yr, 0.16 tons/yr, and 0.01 tons/yr, respectively.

Emission calculations for the Kemutec Bulk Stucco Screen are provided in **Attachment 5**.

4. E71 Stucco Loading Spout Replacement

The facility is proposing to remove the existing enclosed-truck stucco system spout (E71) and construct a new loading spout with the same capacity. Due to the abrasive nature of gypsum and the physical contact that trucks make with the spout, deterioration has occurred to several components of the existing unit.

Replacement of the loading spout will not affect actual or potential emissions. For U31, OS8 (E71) emission calculations refer to current application BOP190001 under review.

5. U2 Kettle #2 Reconfiguration

The Camden Plant is proposing to reconfigure the #2 Kettle Calciner (E4), currently permitted under U2 Kettle Calciners #1, #2 and #3. The reconfiguration will change the internal structure of the #2 Kettle Calciner from a "triple-pass" flue gas arrangement, to a "double-pass." This change will result in less heat transfer because a smaller surface area of flue metal will be available. This change will also result in a larger actual material throughput per batch cycle because a smaller number of flue chambers within the kettle allows for greater material storage volume. Kettle #2 currently produces an average of 15 tons every 2.5 - 3 hours (batching mode) and 10 tons each 1 hour (continuous mode). This proposed flue arrangement modification will gain 11 cubic feet for each batch and lose 274 square feet of surface area for thermal conductivity. The loss of heat transfer may be compensated with higher temperatures during continuous mode, but still within OS4/OS5 fuel limits. The additional 11 cubic feet of volume equates to an additional 1,579.41 lbs per batch (using 2.3 g/cm^3 as the density of unprocessed gypsum rock). The

[4] Emission factors from AP-42 Table 11.19.2-2 Controlled Screening for Aggregate Production.

proposed configuration will not exceed the maximum rate of 40,000 lb/hr per batch or during continuous output (U2, OS6, Ref. #7) and the details of the calculations can be found in **Attachment 3**. Process emissions will continue to be controlled by CD2.

This proposed modification will not affect OS4 Kettle #2 natural gas combustion emissions or OS5 Kettle #2 ultra-low sulfur distillate fuel oil combustion emissions as the existing burners and fuel firing rates will not change. TSP/PM_{10}/$PM_{2.5}$ emissions from the operation are controlled by the existing Kettle #2 dust collector (CD2-PT6) under OS6.

6. Raymond Mill #2 and #3 Clean Air Plenum Replacements

The Camden Plant is proposing to dismantle the clean air plenum structures of the Raymond Mill #2 Dust Collector (CD2) and Kettle #3 Dust Collector (CD3), the tube sheet that supports the bags/cages, the air manifold, diaphragms/solenoids, pulser bars, and the clean air duct to the exhaust fan housing, and install identical Flex Kleen replacement parts. Due to the abrasive nature of gypsum, the brackish environment, and equipment lifecycle, significant deterioration has occurred to structural components exterior to the manufacturing building. Process emissions will continue to be controlled at a 99+% efficiency by CD18 and CD3, not to exceed the permit limits of 1.35 lb/hr and 1.55 lb/hr, respectively, each based on 0.02 grains/dscf. No changes will be made to the stacks or exhaust fans.

The hourly TSP/PM_{10}/$PM_{2.5}$ emission rates for Kettle #2 and Kettle #3 are based on updated emission factors from U.S. EPA AP-42 Section 11.6, *Gypsum Manufacturing*[5] and are still 0.12 lb/hr (as in BOP180002). However, the annual TSP/PM_{10}/$PM_{2.5}$ emission rates for each Kettle #2 and #3, operating for 8,760 hours per year, is now 0.53 tpy. U2, OS Summary, Reference #s 7, 8, 9 state combined potential to emit (PTE) for Kettle Calciners #1, #2, and #3. The adjustment to Kettle #2 lowers the PTE reported; the contribution from Kettle # 2 was 0.98 tpy and would now be 0.53 tpy. The combined rate 2.94 tons/yr is now 2.04 tons/yr. For U2, OS6 (E4) and OS9 (E5) emission calculations refer to current application BOP190004 under review.

Regulatory Applicability

The proposed modifications only affect particulate emissions (TSP, PM_{10}, $PM_{2.5}$) and thus no proposed modification is subject to Subchapter 16, *Control and Prohibition of Air Pollution by Volatile Organic Compounds*, Subchapter 17, *Control and Prohibition of Air Pollution by Toxic Substances and Hazardous Air Pollutants*, or Subchapter 19, *Control and Prohibition of Air Pollution by Oxides of Nitrogen*.

N.J.A.C. 7:27-6 Control and Prohibition of Particles from Manufacturing Processes

N.J.A.C. 7:27-6.2 ("Subchapter 6") sets forth allowable particulate matter emission rates for manufacturing processes. There are two criteria that must be assessed to determine the allowable

[5] AP-42 Table 11.16-2, continuous calciners with Bagfilter.

particulate matter emission rate: Potential Emission Rate from Source Operations (in lb/hr and scf/min). The maximum allowable particulate matter emission rate is the greater of the two values. Subchapter 6 also establishes an opacity limit of 20% for a period no longer than three minutes in any consecutive 30-minute period.

Proposed Polypropylene Pellet Silo:

Calculation of Value 1 from *Maximum Allowable Emission Rate for Particles* table:

The particulate matter (PM) PTE emission rate for the Polypropylene Pellet Silo is calculated to be 0.211 lb/hr, based on an exhaust flow rate of 1,230 scfm and an outlet concentration of 0.02 gr/scf. Since the PTE emission rate is less than 50 lb/hr, as listed in Column 1 of 7:27-6.2(a), the allowable PM emission rate from Column 2 of 7:27-6.2 is equal to 0.5 lb/hr.

Calculation of Value 2 from *Maximum Allowable Emission Rate for Particles* table:

The quantity of exhaust gas for this source is 1,230 scfm, which is less than the lowest entry of 3,000 scfm under Column 3 of 7:27-6.2(a). As a result, the allowable emission rate from Column 4 is 0.5 lb/hr.

Based on these two allowable emission rate values, which are the same, the maximum allowable PM emission rate is equal to 0.5 lb/hr. The potential particulate matter emission rate for U54 OS7 is 0.211 lbs/hr, which is below the allowable emission rate of 0.5 lb/hr.

Proposed Supersac Loading Spout:

Calculation of Value 1 from *Maximum Allowable Emission Rate for Particles* table:

The PTE emission rate for CD26 controlling emissions from the Bulk Supersac Loading Spout is calculated to be 0.80 lb/hr, based on an exhaust flow rate of 4,649 scfm and an outlet concentration of 0.02 gr/dscf. Since the PTE emission rate is less than 50 lb/hr, as listed in Column 1 of 7:27-6.2(a), the allowable particulate matter emission rate from Column 2 of 7:27-6.2 is equal to 0.5 lb/hr.

Calculation of Value 2 from *Maximum Allowable Emission Rate for Particles* table:

The quantity of exhaust gas for this source is 4,648 scfm, which is between 3,000 scfm and 6,000 scfm under Column 3 of 7:27-6.2. As a result, the allowable emission rate from Column 4 interpolated and is 0.775 lb/hr.

Based on these two allowable emission rate values, the maximum allowable particulate matter emission rate is equal to 0.80 lb/hr. The potential particulate matter emission rate for U36 is 0.80 lbs/hr, which is above the allowable emission rate of 0.775 lb/hr.

The Camden Plant has previously established maximum allowable particulate emission rates for the Kemutec Screen, Stucco Loading Spout, Kettle #2, Raymond Mill #2, and Kettle #3 based on

this regulation and it is represented accurately in the current Title V permit. Similarly, the 20% opacity limit or the more stringent *No Visible Emissions* requirements based on N.J.A.C. 7:27-3.2 are represented in the current Title V permit.

N.J.A.C 27:7-18 Control and Prohibition of Air Pollution from New or Altered Sources Affecting Ambient Air Quality (Emission Offset Rules)

Per N.J.A.C. 7:27-18.7 ("Subchapter 18"), an applicant must determine whether a potential emission rate proposed in a permit application would result in a significant net emission increase at the facility. Since this application has proposed potential emission rates, GP Gypsum is required to calculate the emissions increases and decreases that have occurred during the contemporaneous period[6]. The use of the Department provided eNAT Subchapter 18 Netting Analysis tool facilitates this comparison. Contemporaneous period data presented does not include any increases in the allowable emissions proposed in the Title V Renewal (BOP190002) or the corresponding minor modification (BOP190004) because this significant modification will result in an issued permit, commencement of construction, and commencement of operation prior to any pre-draft or draft permit action taken on the Renewal.

As shown in **Attachment 4** Table 1, actual emission increases for this Permit Action include those from the new Polypropylene Pellet Silo. Table 2 or total emission increases from the contemporaneous period includes projects from BOP190001 currently under review with the Department and expected to be processed with this Significant Modification. Those projects are total material transfer increases and total hours increases for both U14 and U31. From Tables 1 and 2 in **Attachment 4**, the net emission increase (NI) is calculated using a specific formula listed under N.J.A.C. 7:27-18.7. The net emissions changes for each pollutant are then compared to the significant net emission increase levels in Table 3 of Subchapter 18.7. These values do not exceed any of the significant net increase thresholds, and as a result, the project does not result in a significant net emissions increase.

This Significant Modification presents multiple projects, not all resulting in a proposed increase in allowable emissions of an air contaminant from either new construction, reconstruction, or modification of equipment. In some cases, GP Camden is proposing to increase hourly emission rates of TSP, $PM_{10,}$ and $PM_{2.5}$, but is not increasing the annual emission limits and therefore has not represented the projects in the Subchapter 18 Netting Analysis. In the cases of the Supersac Loading Spout (U36), Blender/Weigher (U36), Kemutec (U31), Stucco Loading Spout (U31), Kettle #2 (U2), Raymond Mill #2 (U24) and Kettle #3 (U2), the Potential to Emit for each Emission Unit (EU) is already calculated from maximum grain loading capacity of the air pollution control device at fan exhaust design capacity. For these reasons, **Table 1** presents each project's hourly emissions change, annual emissions change, and confirmation of inclusion in Table 1 in the Subchapter 18 Netting Analysis (IA).

[6] The contemporaneous period, as defined under N.J.A.C. 7:27-18.1 means, in respect to newly constructed, reconstructed, or modified equipment, or a change in method of operation, occurring within a time period which includes:

1. The five years prior to the commencement of construction; and
2. The period between the commencement of the construction and the initiation of operation of the newly constructed, reconstructed, or modified equipment.

Table 1: eNAT Subchapter 18 Summary						
EU	***Project***	***Hourly emission rate change?***	***Proposed EU Emission Rate (lb/hr)***	***Annual emission rate change?***	***Annual EU Emission Rate, PTE (tpy)***	***Included in Subchapter 18 Table 1?***
U54	Polypropylene Pellet Silo	yes, increasing	0.20	yes, increasing	0.85	yes
U36	Supersac Loading Spout	yes, increasing[3]	<0.05	no	3.49	no
	Blender/Weigher	yes, increasing[3]	<0.05			
U31	Kemutec Replacement	yes, increasing[3]	<0.05	no	5.72[1]	no
	Stucco Loading Spout Replacement	no	N/A	no		no
U24	Raymond Mill #2 Clean Air Plenum Replacement	no	0.35	no	2.55[5]	no
U2	Kettle #2 Flue Reconfiguration	no	0.12[2]	yes, decreasing[4]	2.04	no
	Kettle #3 Clean Air Plenum Replacement	no	0.12[2]	yes, decreasing[4]		no

[1]As proposed in BOP190001, a modification under review by the Department.
[2]As existing in BOP180001, a permit limit.
[3]But still below the Subchapter 22 reporting threshold.
[4]But not a creditable emission reduction.
[5]For Raymond Mills #1 and #2 combined.

The Camden Plant is a minor source under the Prevention of Significant Deterioration (PSD) permitting program. The post-project PTE for the entire facility will remain below the applicable major source threshold of 250 tpy for each regulated pollutant.

N.J.A.C. 7:27-22 Operating Permits

N.J.A.C. 7:27-22.16 ("Subchapter 22") lists the contents of operating permits in the State of New Jersey. One such rule is Compliance Assurance Monitoring (CAM). CAM rule is a companion rule to Title V, requiring that control device operating parameters be monitored in order to demonstrate compliance with a specified emission limitation or standard. In order for the CAM Rule to apply to a pollutant-specific emission unit, the following four criteria must be met as described by 40 CFR 64.2(a):

- The emission unit must be located at a major source for which a Part 70 or Part 71 permit is required.
- The emission unit must be subject to an emission limitation or standard.
- The emission unit must use a control device to achieve compliance.
- The emission unit must have potential, pre-controlled emissions of the pollutant of at least 100 percent of the major source threshold.

None of the proposed actions will result in potential, pre-controlled emissions of the pollutant of at least 100 percent of the major source threshold. Therefore, CAM does not apply.

40 CFR 60 Subpart OOO – New Source Performance Standards (NSPS) for Nonmetallic Mineral Processing Plants

In order to be subject to the federal New Source Performance Standards (NSPS) contained in 40 CFR Part 60, a facility must be in a listed NSPS category and equipment defined as an "affected facility" must have been constructed, modified, or reconstructed after the effective date of the respective NSPS rule. Under 40 CFR 60.670(a)(1), "*...the provisions of this subpart are applicable to the following affected facilities in fixed or portable nonmetallic mineral processing plants: each crusher, grinding mill, screening operation, bucket elevator, belt conveyor, bagging operation, storage bin, enclosed truck or railcar loading station."*

Pursuant to NSPS rules, a "modification" occurs if the project involves a physical change or change in the method of operation to an existing or affected facility that results in an increase in the maximum hourly emission rate of a regulated pollutant (40 CFR 60.14(a) & (b)). Reconstruction occurs when components of the affected or existing facility are replaced and the fixed capital cost of the new components for a project exceeds 50 percent of the fixed capital cost that would be required to construct a comparable entirely new affected facility (40 CFR 60.15). However, pursuant to §60.670(d)(1), when an existing facility is replaced by a piece of equipment of equal or smaller size, as defined in §60.671, having the same function as the existing facility, and there is no increase in the amount of emissions, the new facility is exempt from the provisions of §§60.672, 60.674, and 60.675 except as provided for in 40 CFR 60.671(d)(3) (i.e., when all of the existing facilities in a production line are replaced). An owner or operator complying with this replacement provision must submit the information required in §60.676(a), which relates to equipment specifications.

U36/CD26 – Proposed Supersac Loading

The proposed installation of a new Supersac Loading Spout and associated baghouse (Project #2 above) is construction of a new bagging operation, which is an "affected facility" under NSPS Subpart OOO. The Supersac Loading operation is subject to PM emission limits in §60.672, monitoring requirements in §60.674, and test methods in §60.675. Per Table 2 to NSPS Subpart OOO, an affected facility for which construction, modification, or reconstruction commenced on or after April 22, 2008, is subject to a stack emission limit of 0.014 gr/dscf. Per 60.674(c), the owner or operator of an affected facility for which construction, modification, or reconstruction commenced on or after April 22, 2008, that uses a baghouse to control emissions shall conduct quarterly 30-minute visibility tests using EPA Method 22. The test is successful if no visible emissions are detected. If visible emissions are detected, the facility must initiate corrective action with 24 hours and record the corrective action in a logbook. The initial performance test required by §60.8 will be conducted using methodology presented in §60.675.

U31/CD24 – Kemutec Screener & Stucco Loading Spout Replacements

The Kemutec Screener and Stucco Loading Spout are both affected facilities under NSPS Subpart OOO as the Kemutec Screener is a screening operation and the Stucco Loading Spout is an enclosed truck loading station. Each project satisfies the requirements to qualify as replacement facilities per 60.670(d) since the replacements will be the same size and have the same function as the existing equipment. Under 40 CFR 60.670(d)(1) of the Subpart OOO rules, when an existing "affected facility" is replaced by a piece of equipment of equal or smaller size, having the same function as the existing "affected facility', and

there is no increase in the amount of emissions, the new "affected facility" is exempt from the provisions of 40 CFR 60.672, 60.674, and 60.675.

Under 40 CFR 60.676(a)(2), for the Kemutec Screen replacement, the Camden Plant is required to provide the Department with the total surface area of the top screen of the existing screening operation being replaced and the total surface area of the top screen of the replacement screening operation:

Surface area of top screen of existing sifter: 16 ft^2

Surface area of top screen of replacement sifter: 16 ft^2

Under 40 CFR 60.676(a)(1), for the Stucco Loading Spout Replacement, the Camden Plant is required to provide the Department with the rated capacity of the enclosed truck loading station being replaced and the rated capacity of the replacement enclosed truck loading station.

Rated capacity of the existing loading spout: 50 tons per hour (tph)
Rated capacity of the replacement loading spout: 50 tph

U24/CD18 – Clean Air Plenum Replacements for Raymond Mill #2

Regarding the proposed replacement of the clean air plenum of the baghouse that services Raymond Mill #2 (CD8), the Raymond Mill #2 (E25) itself is an "affected facility". The air pollution control device itself is NOT part of the "affected facility" are thus are not subject to NSPS OOO review.

<u>40 CFR 60 Subpart UUU – New Source Performance Standards (NSPS) for Standards of Performance for Calcines and Dryers in Mineral Industries</u>

In order to be subject to the federal New Source Performance Standards (NSPS) contained in 40 CFR Part 60, a facility must be in a listed NSPS category and equipment defined as an "affected facility" must have been constructed, modified, or reconstructed after the effective date of the respective NSPS rule. Under 40 CFR 60.730(a), *"...the provisions of this subpart apply to each calciner and dryer at a mineral processing plant."*

Pursuant to NSPS rules, a "modification" occurs if the project involves a physical change or change in the method of operation to an existing or affected facility that results in an increase in the maximum hourly emission rate of a regulated pollutant (40 CFR 60.14(a) & (b)). Reconstruction occurs when components of the affected or existing facility are replaced and the fixed capital cost of the new components for a project exceeds 50 percent of the fixed capital cost that would be required to construct a comparable entirely new affected facility (40 CFR 60.15).

Kettle #2 Reconfiguration

By definition, the reconfiguration of Kettle #2 flues is not a modification. Although it involves a physical change and/or a change in the method of operation to an emission source, the project does not result in an increase in the maximum hourly emission rate of a regulated pollutant. Also, it does not meet the definition of Reconstruction at 60.15 because, the fixed capital cost of the new components (650K) does not exceed 50 percent of the fixed capital cost that would be required to construct a comparable entirely new facility (+2MM).

Clean Air Plenum Replacements for Kettle #3

Regarding the proposed replacement of the clean air plenum of the baghouse that services Kettle #3 (CD3), the Kettle #3 (E5) itself is an "affected facility". The air pollution control device itself is NOT part of the "affected facility" are thus are not subject to NSPS UUU review.

GP Gypsum has submitted the enclosed application for a significant modification to the Camden Plant TVOP using the Remote AIMS Data Input User System ("RADIUS") software and provided it as a PDF in **Attachment 6**.

If you have any questions, please contact Mr. Ben Chantz (856) 536-0725, by email at benjamin.chantz@gapac.com or Mr. Matthew Stresing at (404) 652-6026, by email at matthew.stresing@gapac.com.

Sincerely,

Robert P. Christensen, III
GP Industrial Plasters LLC
Plant Manager, Camden, NJ

Enclosures:
Attachment 1: Equipment Design Details and Supporting Documentation (Polypropylene Pellet Silo)
Attachment 2: Equipment Design Details and Supporting Documentation (Supersac Loading)
Attachment 3: Equipment Design Details and Supporting Documentation (Kettle #2 Flue Arrangement)
Attachment 4: Subchapter 18 Netting Analysis
Attachment 5: Emission Calculations
Attachment 6: RADIUS Application as a PDF

Attachment 1

Equipment Design Details and Supporting Documentation
Polypropylene Pellet Silo

Attachment 2

Equipment Design Details and Supporting Documentation
Supersac Loading

Attachment 3

Equipment Design Details and Supporting Documentation
Kettle #2 Flue Arrangement

Attachment 4

Subchapter 18 Netting Analysis

Attachment 5

Emission Calculations

Attachment 6

RADIUS Application

[redacted]

[redacted]

Quote No.: [redacted]

Reference Number: GP Gypsum May 20 2019

[redacted]

GP Gypsum
1101 S. Front Street
Camden NJ 08103

[redacted]

Dear [redacted]

We are pleased to offer the following quotation for pneumatic conveying and bulk storage equipment per your specifications.

This quotation is made without the benefit of a material sample, and is designed based on [redacted] past experience with polypropylene pellets. Specific characteristics of your material may affect the designed rate and operation of the system.

For your convenience, the quotation is divided into the following sections:

1. Schematic Flow Diagram
2. System Profile
3. Operational Sequence
4. System Components
5. Price Summary
6. Additions to Terms and Conditions of Sale

Please review the following proposal and let us know if you have any questions or comments.

Thank you for this opportunity to be of service. We hope you will select [redacted] for this project. We look forward to helping you make it successful.

Sincerely,

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

We are pleased to offer the following components:

Components

Item 001 System - Silo and Accessories		
Part No.:	5737-39	Quantity: 1
Description:	TRUCK UNLOAD ALARM PANEL: • Provides truck operator with a tank full alarm and indication at the fill connection • NEMA 4 electrical enclosure and switch components • Rotary selector for up to (7) tank destinations with or without bin vent filters and vent fans • Audible horn and flashing light with silence button • 120 VAC power supplied by customer • 24 VDC I/O	
Part No.:	2310-552	Quantity: 3
Description:	304 STAINLESS STEEL PIPE: • 114 mm O.D. [4 in pipe] Sch. 40 wall x 6 m [20 ft] long	
Part No.:	P2310-209.1	Quantity: 3
Description:	STAINLESS STEEL PIPE ELBOW: • 90 deg., 1219 mm [48 in.] Centerline Radius. • 114 mm [4 in. pipe] Sch. 40 wall.	
Part No.:	2311-314	Quantity: 11
Description:	LINE COMPRESSION COUPLING: • Galvanized band, 3-bolt • White gasket with grounding strip • 114 mm O.D. [4 in pipe]	
Part No.:	3501-160	Quantity: 1
Description:	THREADED PIPE THREAD: • Stainless steel construction. • 114 mm [4 in. Sch. 40 pipe], threaded one end.	
Part No.:	2311-112	Quantity: 1
Description:	QUICK FITTING: • 40A, male adapter • 4 in. NPT female • 316 Stainless steel	
Part No.:	5302-302	Quantity: 1
Description:	QUICK FITTING: • 40V, dust cap • 316 Stainless Steel Body • 300 Series Stainless Components • Brass security chain included	

[redacted]

[redacted]

Item 002 System - Silo and Accessories	
Part No.:	P6740-1.1 Quantity: 1
Description:	PNEUMATIC IN-LINE 4" PIPE MAGNET: • Designed for removal of fine metal contaminants in dilute-phase pneumatic conveying • Powerful rare earth neodymium-iron-boron magnet material (max temperature 176 deg F.) • Quick clean design features removable magnet element for quick and easy removal of tramp metal • 304 stainless steel construction • DESTACO quick release clamps for easy opening and closing • O-ring cord compression style gasket which offers a bullet-proof seal and virtually eliminates gasket replacement, white silicone gasket FDA approved • Raised magnetic poles designed to eliminate tramp metal "wash off" from the product flow, pole material 430 grade stainless steel, quantity 7. • Non product contact finish stitch welded, some welds may or may not be ground, economy MPI polish to reduce scratches and burns • Product contact finish seam welded, all seams are continuously welded, sanitary MPI polish to remove scratches and burns, 80 grit

Item 003 System - Silo and Accessories	
Part No.:	PF12104-142.1 Quantity: 1
Description:	INVENTORY LEVEL SENSOR: • Ultrasonic contactless level • PVDF sensor has 33ft measuring range • Self cleaning effect of sensor membrane • Blocking distance 1.6ft • Includes setup/diagnostic software • For non-hazardous general purpose area classification • Process connection: UNI flange 6" DN150/150, 316L max 2.5 bar/36psia • Power supply 2-wire 4-20mA HART • Operation w/o display, via communication • Housing:F12 Alu, coated IP68 NEMA6P • Cable entry: Thread NPT 1/2 • Process sealing sensor/flange: EPDM • This price includes commissioning service

[redacted]

[redacted]

Part No.:	F22104-163M Quantity: 1
Description:	SIDE MOUNT LEVEL SWITCH: • Model BMRX, rotating bin switch assembly • Stainless steel, single-blade paddle • 24 VDC motor drive with DPDT contacts, 10 Amps 250VAC • IP66, NEMA 4X, 5, 7, 9 & 12 rated enclosure • Compliant for hazardous locations Class I, Division 1, Groups C and D • Compliant for hazardous locations Class II, Division 1, Groups E, F and G • ATEX suitable for: Ex II 2GD/1D c (Dust Zone 20 inside, Zone 21 outside) • Stainless steel mounting plate, hex head bolts, washers and nuts, with white silicone gasket • Fail-Safe switch for high or low indication • CE Compliant

Item 004 System - Silo and Accessories	
Part No.:	F25214-258 Quantity: 3
Description:	STAINLESS STEEL MANUAL CLEANED STATIC TANK FILTER: • Filter cartridge with 9.3m3 [100 ft2] of tough, washable polyester filter media • Cartridge hangs vertically and has shallow, open pleats • Cartridge is removable from the top, with quick release clamp, without entering the filter housing. • Cartridge has stainless steel end caps and food grade gasket material • Housing is 304 stainless steel construction • Plenum is carbon steel construction, primed and painted enamel • Mounting flange matches standard 500mm [20 in.] diameter tank deck flange

[redacted]

[redacted]

Item 005 System - Silo and Accessories	
Part No.:	PSP2815-1.1 Quantity: 1
Description:	WELDED STORAGE TANK: • Designed for the storage of PP pellets, weighing up to 35 lbs./cu.ft. compacted bulk density. • Welded Stainless steel construction. • Nominal 12 ft. dia. by 33 ft. eave height. • Tank has Enclosed skirt support with .9 x 2.1 m [3 x 7 ft.] ventilated walk-in door. • 508 mm [20 in.] dia. center fill dome with cover. • 45 deg. hopper with 8 in. flanged center discharge. • 78 [in.] discharge clearance. • Seismic Design per IBC 2015, Risk Category II, Seismic factor 1, Soil class D, Snow load 30 PSF, 115 MPH wind load design, Wind exposure C. • Foundation anchor bolts. • Approximate weight each, 79,863 lbs. • Approximate working volume, ea., 2282 [cu.ft.] Tank(s) include(s) the following accessories: 1 - 508 mm [20 in.] combination manway, pressure relief valve. 4 - 508 mm [20 in.] hillside dome with cover. 1 - 508 mm [20 in.] split dome manway in sidewall. 1 - Flush access with cover in Sidewall. 2 - High level control Opening in deck. 1 - Low level control Coupling in Hopper. 1 - 3 [in.] flanged stub nozzle in Deck. __ Standard deck perimeter guard with galvanized steel supports and toeboard and aluminum railings, OSHA. 1 - 3 [ft.] Galvanized exterior ladder with safety cage, hinged access control door and rest platforms as required by customer. 1 - Pipe support brackets, Single line. One bracket every 1.8 m [6 ft.] is recommended.

Item 006 System - Silo and Accessories	
Part No.:	2315-692 Quantity: 1
Description:	ROUND MAINTENANCE GATE: • Model MGR-98-M-RD. • Aluminum channel frame, with 304 stainless steel blade. • Nylon inner gate liner and blade guides. • Braided Teflon bonnet seal for 121 deg. C [250 deg. F] maximum continuous service temperature. • Inlet and outlet transitions with round bolt hole pattern to match Premier accessories. • Manual hand crank actuator.

[redacted]

[redacted]

Item 007 System - Silo and Accessories	
Part No.: 5167-32	Quantity: 1
Description:	AEROLOCK™: • Model no. HDR-G-G-98-8NH-2-RT-T3 • 203 mm (8-inch) size rotary valve • Round inlet/outlet, drop-thru style housing for heavy-duty service • Stainless steel housing and end plates • Stainless steel, 8-blade, open end rotor • Relieved tip rotor blades • Class 2 rotor clearance • T-3 teflon insert shaft seals • 370 W [1/2 H.P.], right-angle, syncrogear motor, 230/460 volt, 3-phase, 60 cycle with TEFC rated enclosure, inverter ready motor • Totally enclosed OSHA drive guard • Industrial roller chain reduction drive • Aerolock speed (8 - 24 RPM) @ (20 - 60 Hz)
Part No.: 2121-228	Quantity: 1
Description:	VARIABLE FREQUENCY DRIVE PANEL: • IP65/NEMA 4X Enclosure design. • 380 to 480 VAC, 3-phase, 50-60 Hz input power. • For motor sizes up to 0.75 Kw [1 HP]. • LED display and digital keypad. •RS 485 communication capabilities. • CE compliant
Part No.: 2127-82	Quantity: 1
Description:	ENCLOSED LOAD DISCONNECT SWITCH • IP66 Enclosure design • 380 to 480 VAC, 3-phase, 50-60 Hz input power • Disconnect good for motors up to 4 Kw [5 HP]

Item 008 System - Silo and Accessories	
Part No.: 5312-9	Quantity: 1
Description:	TRANSITION: • 304 Stainless steel. • 200 mm [8 in.] I.D. round flange to 203 mm [8 in.] square flange. • 76 mm [3 in.] high.

[redacted]

[redacted]

Part No.:	P6740-1.2	Quantity: 1
Description:	DRAWER MAGNET WITH AUTOMATED SELF-CLEANING: • 304 stainless steel construction • 8" square inlet and outlet • (2) tiers of rare earth magnetic tubes • 2" horizontal and vertical spacing • Max temperature rating of 176 deg F • Gasket material white silicone, FDA approved • Stripper material UHMW • (2) pneumatic cylinders for self-clean package prepped for reed switches - 80 PSI input • 120VAC valve package • Non-product contact surfaces stitch welded non-continuous, some welds may or may not be ground, MPI polish to reduce scratches and burns • Product contact surfaces seam welded continuous, MPI polish to remove scratches and burns, 80 grit.	
Part No.:	5507-130	Quantity: 1
Description:	FINES COLLECTION KIT: • Kit includes accessories to contain collected material fines from the discharge of a pulse-cleaned 2400 in-line filter assembly. • Flanged adapter attaches filter flex sock from receiver to the top of a plastic fines container using a rim clamp. • Nominal 114 L [12 gal.] container capacity.	

Item 009 System - Silo and Accessories		
Part No.:	5312-9	Quantity: 1
Description:	TRANSITION: • 304 Stainless steel. • 200 mm [8 in.] I.D. round flange to 203 mm [8 in.] square flange. • 76 mm [3 in.] high.	

[redacted]

[redacted]

Part No.: P6740-1.3	Quantity: 1
Description:	SELF-CLEANING SCREENER FOR REMOVING ANGELHAIR STREAMERS: • 60" diameter single deck High Efficiency Vibro-Air Separator complete with one Screening deck and Air Separation deck • One (1) Vibro-Air top frame with internal baffle • One(1) middle spacing frame • One (1) discharge frame (table frame) • Special dust cover assembly complete with an 8” diameter inlet port, an exhaust Port and one inspection port • Material contact parts: 304 stainless steel with glass bead finish • Base and motor support table: epoxy coated carbon steel • Internal welds Specs: Welds continuous, Ground smooth • Screens: One (1) stainless steel screen installed • Vibroscreen Motor: One (1) 2 ½ HP, 230/460 volt, 3 phase, 60 Hz, TENV Vibrator motor with adjustable amplitude of Vibration (motor starter by others) • Vibro-Air separator design including internal baffles to improve lighter material removal efficiency • Velocity breaker/distributor included • One screen mesh installed • All material contact parts to be 304 stainless steel • White EPDM gaskets • Epoxy coated carbon steel base, motor support table • Stainless steel Vibration isolation spring assemblies • Stainless steel clamp ring assemblies • Anti-Static Grounding System
Part No.: 5713-25	Quantity: 1
Description:	MOTOR STARTER PANEL: • Door-mounted rotary IEC handle • Motor circuit controller disconnect with current limiting short circuit protection • Class 10 ambient temperature compensated overload protection • IP65 NEMA 4 electrical enclosure designed for wall mounting • For use with 24VDC control voltage • Protected motor amp range is 4.0 to 6.3 amps • 3.7 kW [5 HP] at 550-600 VAC, 3-phase • 2.2 kW [3 HP] at 440-480/380-415 VAC, 3-phase • 1.5 kW [2 HP] at 380-415 VAC, 3-phase • 1.1 kW [1.5 HP] at 220-240/208 VAC, 3-phase • 750 W [1 HP] at 220-240/208 VAC, 3-phase

[redacted]

[redacted]

Item 010 System - Silo and Accessories		
Part No.:	5314-84M	Quantity: 1
Description:	STAINLESS PROBE BOX: • Single-position probe box. • 304 Stainless steel construction. • 305 mm [12 in.] square flanged inlet with white neoprene gasket. • Accepts 102 mm [4 in.] horizontal vacuum probe.	
Part No.:	5314-94M	Quantity: 1
Description:	STAINLESS HORIZONTAL VACUUM PROBE: • Stainless steel material contact construction. • Adjustable air flow control sleeve. • 114 mm [4 in. pipe] line connection.	

System 1 Silo and Accessories $[redacted]

[redacted]

[redacted]

[redacted]

Additional Terms and Conditions

The terms and conditions of sale, under which this offering is made, appear at the end of this quotation. In addition, the following restrictions and clarifications apply.

System Design

We have designed and guarantee the pneumatic transfer rates and/or feeder delivery rates per the operational profiles outlined in the Proposal. Before we process your order, please confirm the operational profiles will meet your process and equipment needs. We will verify the system design and confirm the system rates. If there are any discrepancies we will notify you of any changes, if required.

Paint Specification

In general, painted components manufactured by [redacted] are finished Gray RAL 7035 with hazardous parts / safety devices finished Deep Orange RAL 2011, unless otherwise stated in our quotation. Standard bought-out items integrated into [redacted] components and systems are supplied with the original equipment manufacturers standard paint specification.

Approval Drawings

[redacted]

[redacted]

[redacted]

[redacted]

[redacted] a hard copy (printer required) of the entire manual or only specified sections upon your choosing.

Engineering Services
This Proposal includes numerous engineering services as detailed above with Approval Drawings and Owner's Manuals. In addition, the following engineering documents can be included upon request, without any additional fee:

• Basic material testing and test report showing properties and recommendations for your material

• Detailed equipment descriptions

• Process Flow Drawing (PFD) with parameters for each System: convey line dia., transfer rates, distances

• PFD Item Numbers use a strategic numbering scheme, providing a consistent cross-reference for all equipment across all documents in the Proposal, Equipment List, Item Descriptions, Owner’s Manual, Bills of Material, Spare Parts List, Packing List, etc. These consistent identification numbers result in better project communication for all parties and disciplines including project and process engineers, instrumentation and automation engineers, procurement, quality, installation, and service groups.

• Interactive PFD with Owner’s Manual using Item Numbers sequence for easy locating of equipment details.

[redacted]

[redacted]

• Customer inspections at our factory for basic examination.

• An experienced project manager who is the primary liaison for customer on all aspects of the project

• Compliance with the following codes as applicable for the designated location: OSHA, NEMA, CE

When Controls are purchased from [redacted] the following engineering services are included:

• Design, construction, and wiring drawings for Control Panels, HMIs, and Motor Control Panels

• PLC code/ladder logic, with supporting documentation such as block logic flow diagram, I/O schedule, and interface requirements with other known process equipment

• Written summary sequence of operations

• Testing of control panels at our factory

Unless specifically listed in this proposal, other engineering documents, certifications, and services are not included, but may be added for an additional fee.

Material Hazards and Explosion Protection

[redacted] is unable to act as the Authority Having Jurisdiction requiring the buyer to apply devices for potentially hazardous or explosive environments. [redacted] encourages the buyer to consult with their Authority Having Jurisdiction to verify the content of this proposal will meet their hazard and explosion protection requirements. [redacted] will be glad to provide information about past experience with similar materials, but the buyer is responsible for determining the extent of the protection measures that are required for their particular materials and processes.

Other Materials and Labor

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

Order Placement
Please address purchase orders to [redacted]

Thank you for your interest in [redacted]

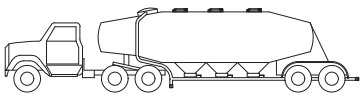
[redacted]

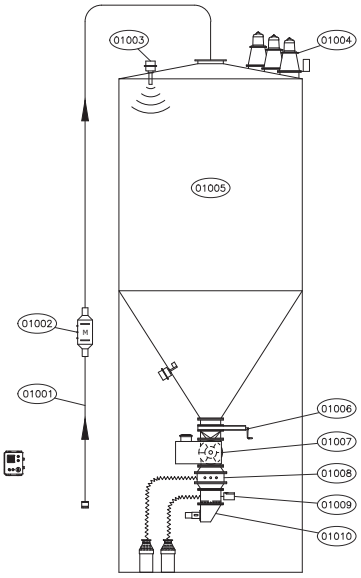
[redacted]

[redacted]

Terms and Conditions of Sale

[redacted]





FLOW
G.P. GYPSUM
CAMDEN, NJ

SCALE NTS	DRAWN:	MM.DD.YYYY	SIGN
		5/10/2019	MZ
THIRD ANGLE	APPROVED:	MM.DD.YYYY	SIGN

PAGE # OF 1	CATEGORY:	----	

DIMENSION SHOWN IN MILLIMETERS [INCHES]

[redacted]

FORMAT: B

NUMBER: [redacted]

REV: A

Modular Cartridge Bin Vent

Application

The Modular Cartridge Bin Vent provides excellent air filtration of fine airborne particles from within a storage tank and releases clean air to the atmosphere. While material is pneumatically conveyed into a storage tank, fine particles and air are efficiently separated by the unit's large cartridge filter. This enables clean air to pass from the tank out to the atmosphere. Reverse jet cleaning from a compressed air accumulator pulses the cartridge filter, dislodging any fines and returning them to the storage tank.

Design

The Modular Cartridge Bin Vent is maintenance friendly. Standard materials of construction include carbon steel enamel coating or stainless steel material contact areas. Stainless steel construction is available for abrasive, corrosive, and food-grade applications. Mounting on a standard 508 mm [20 in] diameter tank deck flange, the small modular unit is inexpensive and easy to install. The unit's single cartridge filter is constructed of tough, washable polyester for efficient filtration. The cartridge filter hangs vertically and has shallow, open pleats for efficient dust release, even with difficult materials. Each unit can filter 5.7 - 11.3 m^3/min [200 - 400 ft^3/min] of air, depending upon the application. Quick-release clamps allow easy access to the cartridge filter. The plenum features a built-in weather hood and specially designed diffuser which enables each air pulse to clean the entire filter. Unlike other bin vents, no exhaust fan is required.

Technical Data

Standard Features

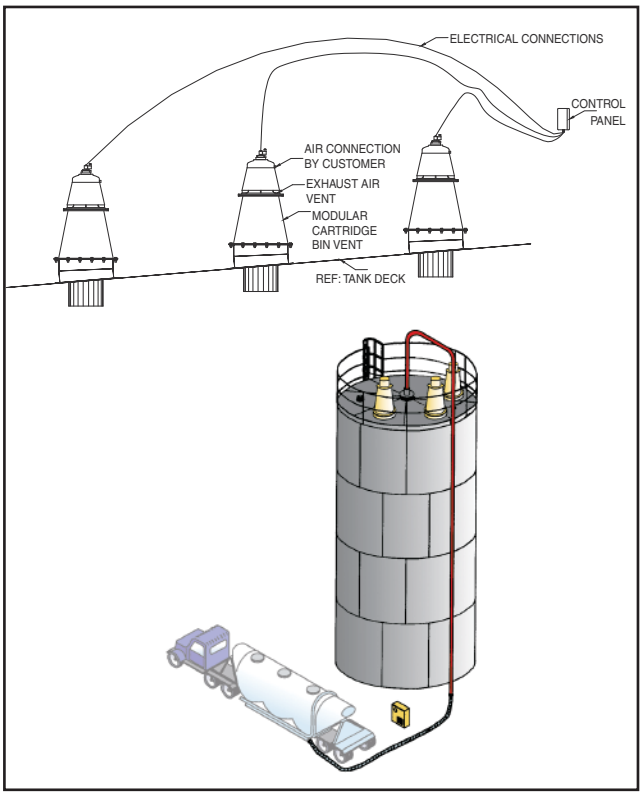
- Available in painted RAL 7035 gray carbon steel or 1.4301 (AISI 304) stainless steel construction
- Simple no-tool tank deck maintenance
- Large pulse-cleaned 100% spunbond polyester pleated cartridge filter with 9.3 m^2 [100 ft^2] cloth area
- 2.55 m^3/h [90 ft^3/h] of clean, dry compressed air required at 5.5 - 6.9 bar(g) [80 - 100 psi(g)]
- Built in weather hood
- Add additional units for greater filtration
- Cost effective and easy to install
- Quick-release clamps for easy cleaning and maintenance
- CE compliant
- 24 VDC solenoid

Pulse-Clean Control Panel (required, but sold separately)

- Regulates cleaning of the bin vent cartridge filter
- Easy frequency and pulse duration adjustment
- Controls up to 10 units
- When multiple units are used, the controller pulses one unit at a time, leaving the remaining units on-line for filtration
- Cleaning timer control panel with IP65 [NEMA 4X] enclosure and 24 VDC operation
- Hazardous Location:
  NEC Class 2, Div. 2, Groups E, F & G
  ATEX 3 GD rated

Options

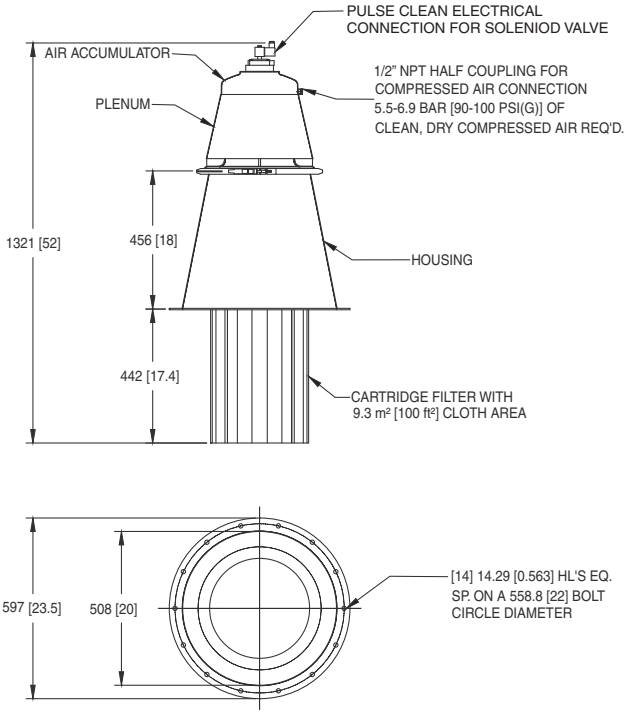
- Flanged adapter stubs (allows the Modular Cartridge Bin Vent to be mounted to the top of an existing storage tank)
- PTFE coated filter cartridges
- Oversized accumulator
- Explosion-proof NEMA 7 or 9 construction
- Hazardous Location:
  NEC Class 1, Div. 1, Groups C & D
  ATEX versions available



Example of a Modular Cartridge Bin Vent installation in a PD truck unloading system

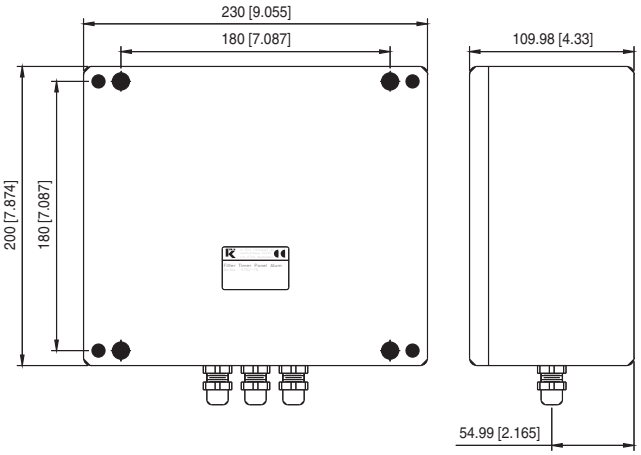
Dimensions of Modular Cartridge Bin Vent

mm [in]



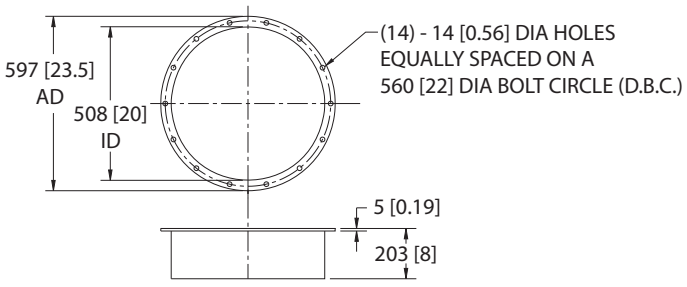
Dimensions of Pulse-Clean Control Panel (required, but sold separately)

mm [in]



Dimensions of Flanged Adapter Stubs (optional, sold separately)

mm [in]



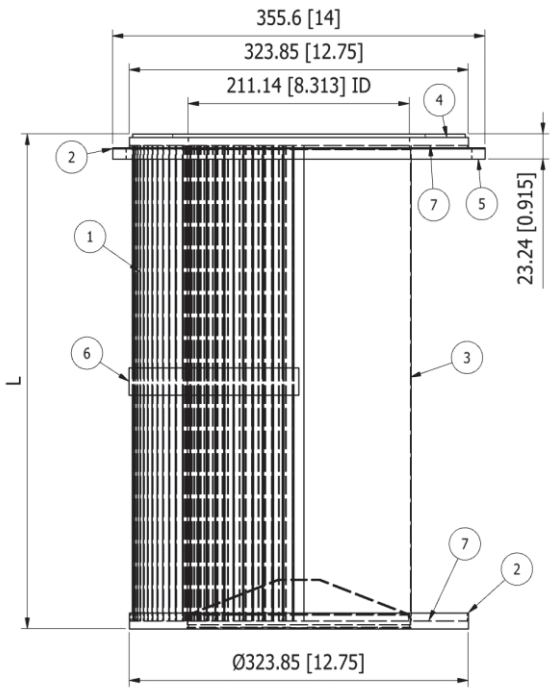
Caution: Measurements are for general reference only. Please consult dimensional drawing for exact measurements.

Filter Specification	**Cartridge Ø324 [Ø12.75 in]** **Spunbond Polyester 130°C [266°F]**	

1.Filter Media: Spunbond Polyester
Membrane: None
Finish: None
2.Cap Material: 304 Stainless Steel
3.Core Material: Galvanized Steel Core
Pleat Count: 105
Pleat Depth: 50.8mm [2in.]
Max Temp Limit: 130°C [266°F]
4.Gasket *(above flange)* : FDA White Silicone 1/8"
5.Gasket *(below flange)* : FDA White Silicone 3/8"
6.Banding: Polyester
7.Potting: Polyurethane

FDA Compliancy:
US FDA 21 CFR 177.1630
US FDA 21 CFR 177.2600
US FDA 21 CFR 177.121
US FDA 21 CFR 177.2420
US FDA 21 CFR 177.2600

Other Features:



Part Number	Filter Area m^2 [ft^2]	Height (L) mm [in.]	Bands (qty)
2313-248	4.8 [52]	457 [18]	1
2313-247	9.7 [104.7]	916 [36]	3

Properties of Filter Media

	Unit of measure	Measurement	Norm/Standard
Thickness	Mm [in.]	0.66 [0.024]	
Weight	G/m^2 [oz./yd^2]	260 [7.8]	
Air perm. (1/2" H^2O)	$Ft^3/(ft^2/min)$	18-26	ASTM D 737
Air permeability (200 Pa)	L/dm^2/min	86-125	DIN 53887
Dust class		M	DIN EN 60335–2–69
Penetration degree	[% @ µm]	< 0.1% @ 2.0	
Breakdown Voltage			
Electrical resistance	[Ohm]		
Bursting strength	Kg/cm^2 [lbs/in^2]		
Tensile strength [MD]	Kg/cm [lbs/in.]	91 [200]	
Tensile strength [CMD]	Kg/cm [lbs/in]	57 [125]	
Mullen Strength	Kg/cm^2 [lbs/in^2]	24.6 [350]	

Efficiency Statement

Fabric filter unit utilizing 271 g/m2 [8 oz/yd2] Fine Denier, Non-woven, Spunbond Polyester filter element when properly applied, installed, and maintained when operated per the design parameters, will be a minimum of 99.95% efficient based on mass and emit no more than 0.04576702 grams per dry, standard cubic meter of gas [0.02 grains per dry, standard cubic foot of gas] based on dry dust particle size of 2.5 microns and larger. Coperion K-Tron shall not be held responsible for any failures or excess emissions due to upset operating conditions nor liable for incidental or consequential damages. Data subject to change without notice.

Polypropylene Impact Copolymer

Safety Data Sheet

According to Regulation 2012 OSHA Hazard Communication Standard; 29 CFR Part 1910.1200

Section 1: Identification

1.1. Product identifier

Product form : Mixture

Product Identifier(s) : Polypropylene Impact Copolymer
Polypropylene
Ethylene-Propylene Copolymer

This SDS covers prime grades of ethylene-propylene copolymer incluidng but not limited to the follow grades:

4### ABC
5###ABC
GPI##ABC
PPC ####
PPC #####

where # can be any numeric digit (0-9) and ABC may be any combination of letters (the letters may or may not be present).

This MSDS also covers experimental grades which are copolymers including LX3 xx-xx & EOD xx-xx and specially compounded samples labeled Polypropylene Copolymer Nxxxxx and Nxxxxx-x, where x can be any numeric digit (0-9).

CAS No : 9010-79-1

1.2. Recommended use of the chemical and restrictions on use

Use of the substance/mixture : Manufacture of plastic articles

1.3. Details of the supplier of the safety data sheet

Total Petrochemicals & Refining USA, Inc.
P O Box 674411
Houston, TX 77267-4411

For non-emergency product information:
Phone: 713-483-5000
Email: product.stewardship@total.com

1.4. Emergency telephone number

Emergency number : CHEMTREC: 1-800-424-9300 (Toll Free USA & Canada) / 703-527-3887 (Multiple languages)
Total Petrochemicals & Refining USA, Inc.: 1-800-322-3462 (Language: English only)

Section 2: Hazards identification

2.1. Classification of the substance or mixture

GHS-US classification

Combustible Dust

2.2. Label elements

GHS-US labeling

Signal word (GHS-US) : **Warning**

Hazard statements (GHS-US) : **If small particles are generated during further processing, handling or by other means, may form combustible dust concentrations in air**

2.3. Hazards not otherwise classified

No additional information available

2.4. Unknown acute toxicity (GHS US)

Not applicable

2.5. Additional information

Based on conditions common to industrial workplace use of this product : Plastic bag or liner may cause a static ignition hazard.
Spilled pellets may create a slipping hazard. Sweep up spillage and dispose of properly.
Skin or eye contact with hot polymer can cause thermal burns.

Processing the polymer at high temperatures may form vapors that irritate the eyes and respiratory tract.

Section 3: Composition/Information on ingredients

3.1. Substance

Not applicable

3.2. Mixture

Name	CAS No	%
Propylene-Ethylene Copolymer	9010-79-1	>= 98
Additives (chemical identity withheld as a trade secret)	Trade Secret	<= 2 (Trade Secret)

Section 4: First aid measures

4.1. Description of first aid measures

First-aid measures after inhalation : Remove person to fresh air and keep comfortable for breathing. If necessary seek medical advice.

First-aid measures after skin contact : Gently wash with plenty of soap and water. Heated Material: For serious burns from heated material, get medical attention. In case of skin contact, immediately immerse in or flush with clean, cold water. Do not attempt to remove adhered material from skin.

First-aid measures after eye contact : Rinse eyes with water as a precaution. Obtain medical attention if irritation persists. In case of eye contact with hot material, cool immediately with plenty of water and obtain immediate medical treatment.

First-aid measures after ingestion : Remove material from mouth. Rinse mouth out with water. Do NOT induce vomiting.

4.2. Most important symptoms and effects, both acute and delayed

Symptoms/effects after inhalation : Nuisance dusts can be irritating to the upper respiratory tract. Irritating vapors may form when the polymer is processed at high temperatures.

Symptoms/effects after skin contact : Contact with skin or eyes with hot material may cause serious thermal burns to skin or eyes.

Symptoms/effects after eye contact : Dust from this product may cause minor eye irritation. Contact with skin or eyes with hot material may cause serious thermal burns to skin or eyes.

Symptoms/effects after ingestion : No effects are expected for ingestion of small amounts. May be a choking hazard.

4.3. Indication of any immediate medical attention and special treatment needed

No additional information available

Section 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media : For small fire: Dry chemical. Carbon dioxide. Water. For large fire: Foam. Water spray.

Unsuitable extinguishing media : Do not use a solid water stream as it may scatter and spread fire.

5.2. Special hazards arising from the chemical

Fire hazard : May be combustible at high temperature. Vapors generated from overheating/melting/decomposition may be flammable and may cause fire/explosion if source of ignition is present.

Explosion hazard : Potential dust explosion hazard. When dust becomes airborne and is exposed to an ignition source, sufficient combustible/flammable dust may exist to burn in the open or explode if confined.

Hazardous decomposition products in case of fire : Carbon oxides (CO, CO2). Aldehydes. Ketones. Hydrocarbons. Fire will produce dense black smoke. Soot.

5.3. Advice for firefighters

Firefighting instructions : Fight fire from safe distance and protected location. Avoid raising powdered materials into airborne dust, creating an explosion hazard. Apply aqueous extinguishing media carefully to prevent frothing/steam explosion. Prevent fire-fighting water from entering environment.

Protection during firefighting : Do not attempt to take action without suitable protective equipment. Self-contained breathing apparatus. Complete protective clothing.

Other information : May re-ignite itself after fire is extinguished.

Section 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Emergency procedures for non-emergency personnel : Material creates a slipping hazard on hard surfaces. Clean up spills from walking surfaces immediately.

6.2. Methods and material for containment and cleaning up

Methods for cleaning up : On land, sweep or shovel into suitable containers. Do not allow water contaminated with pellets or powder to enter any waterway, sewer or drain.

Other information : Dispose of contaminated material at an authorized site. Notify authorities if product enters sewers or public waters.

6.3. Reference to other sections

No additional information available

Section 7: Handling and storage

7.1. Precautions for safe handling

Precautions for safe handling : Ensure good ventilation of the work station. Wear personal protective equipment. Do not overheat the product. Avoid contact with heated product to prevent burns.

When handled in bulk quantities, this product and its associated packaging may present a crushing hazard due to the large masses involved, possibly resulting in severe injury or death.

Combustible dust precautions: Handling this product may result in electrostatic accumulation. Use proper grounding procedures. Use only non-sparking tools. Avoid raising powdered material due to explosion hazard. Prevent the build-up of electrostatic charge. The plastic packaging film used to secure bags of material on pallets can also develop static electricity -- remove packaging film in an area free from ignitable vapors/dust.

Processing or material handling equipment may generate dust of sufficiently small particle size, that when suspended in air may be explosive. Dust accumulations should be controlled through a comprehensive dust control program that includes, but is not limited to, source capture, inspection and repair of leaking equipment, routine housekeeping and employee training in hazards. Refer to the latest edition of the National Fire Protection Association (NFPA) 654 publication, "Standard for the Prevention of Fire and Dust Explosions in the Chemical, Dye, Pharmaceutical, and Plastics Industries", for complete discussion on dust explosion prevention and control measures.

Hygiene measures : Do not eat, drink or smoke when using this product. Keep away from food and drink. Always wash hands after handling the product.

7.2. Conditions for safe storage, including any incompatibilities

Technical measures : Ground/bond container and receiving equipment. Electrostatic charges may be generated when emptying sacks. It is recommended that sacks are emptied away from explosive atmospheres.

Storage conditions : Store at room temperature. Protect from heat and direct sunlight. Store in dry, cool, well-ventilated area.

Incompatible materials : Strong oxidizing agents.

Section 8: Exposure controls/personal protection

8.1. Occupational Exposure Limits

The following constituents are the only constituents of the product which have a PEL, TLV, or other recommended exposure limit. At this time, the other constituents have no known exposure limits.

Polypropylene Impact Copolymer (9010-79-1)		
USA ACGIH	ACGIH TWA (mg/m³)	10 mg/m³ (Inhalable fraction) 3 mg/m³ (Respirable Particles)
USA ACGIH	Remark (ACGIH)	Particulates, not otherwise classified
USA OSHA	OSHA PEL (TWA) (mg/m³)	5 mg/m³ Respirable fraction
USA OSHA	Remark (OSHA)	Note: OSHA Total Dust 15 mg/m³

8.2. Exposure controls

Appropriate engineering controls : Provide readily accessible eye wash stations and safety showers. Ensure adequate ventilation. If handling results in dust generation or high temperatures, local exhaust ventilation should be provided to insure that exposure to dust or decomposition products does not exceed the exposure recommended levels.

Hand protection : Use insulated gloves when handling this material hot.

Eye protection : Safety glasses.

Skin and body protection : Wear suitable protective clothing. Safety foot-wear.

Respiratory protection : In case of insufficient ventilation, wear suitable respiratory equipment.

Other information	:	In case of risk of overexposure to dust, vapour or fumes (during product processing), it is recommended that a local exhaust system is placed above the conversion equipment (a fume hood) and the working area must be properly ventilated.

Section 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	:	Solid
Appearance	:	Pellets.
Color	:	Translucent. Opaque.
Odor	:	Paraffin odor.
Odor threshold	:	No data available
pH	:	Not applicable
Relative evaporation rate (butyl acetate=1)	:	Negligible.
Melting point	:	120 - 170 °C
Freezing point	:	No data available
Boiling point	:	No data available
Flash point	:	No data available
Auto-ignition temperature	:	No data available
Decomposition temperature	:	No data available
Flammability (solid, gas)	:	No data available
Vapor pressure	:	No data available
Relative vapor density at 20 °C	:	No data available
Relative density	:	No data available
Solubility	:	Water: Negligible.
Log Kow	:	No data available
Viscosity, kinematic	:	Not applicable
Viscosity, dynamic	:	No data available
Explosion limits	:	No data available

9.2. Other information

No additional information available

Section 10: Stability and reactivity

10.1. Reactivity

Flowing product can create electrical charge, resulting sparks may ignite dust or cause an explosion in some concentration ranges.

10.2. Chemical stability

The product is stable at normal handling and storage conditions.

10.3. Possibility of hazardous reactions

Dust may form explosive mixture in air.

10.4. Conditions to avoid

Avoid dust formation. Avoid the build-up of electrostatic charge. Heat. Open flame. Sparks. Direct sunlight.

10.5. Incompatible materials

Strong oxidizing agents.

10.6. Hazardous decomposition products

Hazardous decomposition products formed under fire conditions: carbon monoxide, carbon dioxide, toxic fumes.

Section 11: Toxicological information

11.1. Information on toxicological effects

Likely routes of exposure	:	Inhalation. Ingestion. Skin and eye contact.
Acute toxicity	:	Not classified
Skin corrosion/irritation	:	Not classified
Serious eye damage/irritation	:	Not classified
Respiratory or skin sensitization	:	Not classified
Germ cell mutagenicity	:	Not classified

Carcinogenicity	: Not classified

Reproductive toxicity	:	Not classified
Specific target organ toxicity – single exposure	:	Not classified
Specific target organ toxicity – repeated exposure	:	Not classified
Aspiration hazard	:	Not classified

Section 12: Ecological information

12.1. Toxicity

Ecology - general : The product is not considered harmful to aquatic organisms nor to cause long-term adverse effects in the environment.

12.2. Persistence and degradability

Polypropylene Impact Copolymer (9010-79-1)	
Persistence and degradability	This material is persistent in the environment. Not readily biodegradable.
BOD (% of ThOD)	Below detection limit

12.3. Bioaccumulative potential

Polypropylene Impact Copolymer (9010-79-1)	
Bioaccumulative potential	This product is not expected to bioaccumulate through food chains in the environment.

12.4. Mobility in soil

Polypropylene Impact Copolymer (9010-79-1)	
Ecology - soil	low mobility.

12.5. Other adverse effects

Other information : Avoid release to the environment.

Section 13: Disposal considerations

13.1. Waste treatment methods

Waste treatment methods : This product has been evaluated for RCRA characteristics and does not meet the criteria of a hazardous waste if discarded in its purchased form . Under RCRA, it is the responsibility of the user of the product to determine at the time of disposal, whether the product meets RCRA criteria for hazardous waste. Transfer to a safe disposal area in accordance with federal, state, and local regulations.

Waste disposal recommendations : Recycle the material as far as possible.

Additional information : May be used as fuel in suitably designed installations.

US Transport (DOT) for Bulk Shipments (Non-Bulk Shipments May Differ)

Not regulated by US DOT

Transport by sea (IMDG)

Not regulated by IMDG

Air transport (IATA)

Not regulated by IATA

Section 15: Regulatory information

15.1. US Federal regulations

EPA TSCA Status

All components of this product are listed or exempt from listing on the United States Environmental Protection Agency Toxic Substances Control Act (TSCA) inventory.

SARA Section 313 Supplier Notification

This product contains no toxic chemicals in excess of the applicable de minimis concentration that are subject to the reporting requirements of Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR Part 372.

SARA Section 311/312 Hazard Classes Fire hazard

Export Control Classification Number (ECCN): EAR99 (No License Required)

15.2. International regulations

CANADA

Polypropylene Impact Copolymer (9010-79-1)
WHMIS Classification This product is not regulated according to WHMIS classification criteria

National inventories

No additional information available

15.3. US State regulations

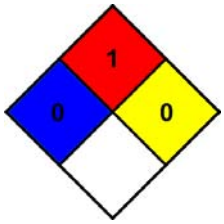
No additional information available

Section 16: Other information

Other information : Unless agreed to in a separate written agreement with Customer, Total Petrochemicals & Refining USA, Inc. makes no representations and disclaims all warranties, express or implied, with respect to biocompatibility and/or the suitability of this product for medical device applications including : (i) implantable devices intended for human or animal body, (ii) devices intended to be used in contact with internal body fluids, and (iii) devices intended to be used in contact with internal body tissues. If Customer intends to use this product for any such application, it must first contact Total Petrochemicals & Refining USA, Inc. and establish agreed terms and conditions for such use.

NFPA (National Fire Protection Association)

NFPA health hazard : 0
NFPA fire hazard : 1
NFPA reactivity : 0



Hazard Rating

Health : 0
Flammability : 1
Physical Hazard : 0
Personal protection : See section 8 of SDS

US OSHA LABEL as specified under 29 CFR §19 10.1200 (f)

Polypropylene Impact Copolymer

Total Petrochemicals & Refining USA, Inc.
P.O Box 674411
Houston, TX 77267-4411 USA
Tel. 713-483-5000

Warning

If small particles are generated during further processing, handling or by other means, may form combustible dust concentrations in air

Supplemental Information: Based on conditions common to industrial workplace use of this product

Plastic bag or liner may cause a static ignition hazard.
Spilled pellets may create a slipping hazard. Sweep up spillage and dispose of properly.
Skin or eye contact with hot polymer can cause thermal burns.

Processing the polymer at high temperatures may form vapors that irritate the eyes and respiratory tract.

Version : 2.1
Date of issue : April 17, 2017

MSDS ID: PP_CP_IMPACT
SDS REFERENCE NUMBER: PP0013I

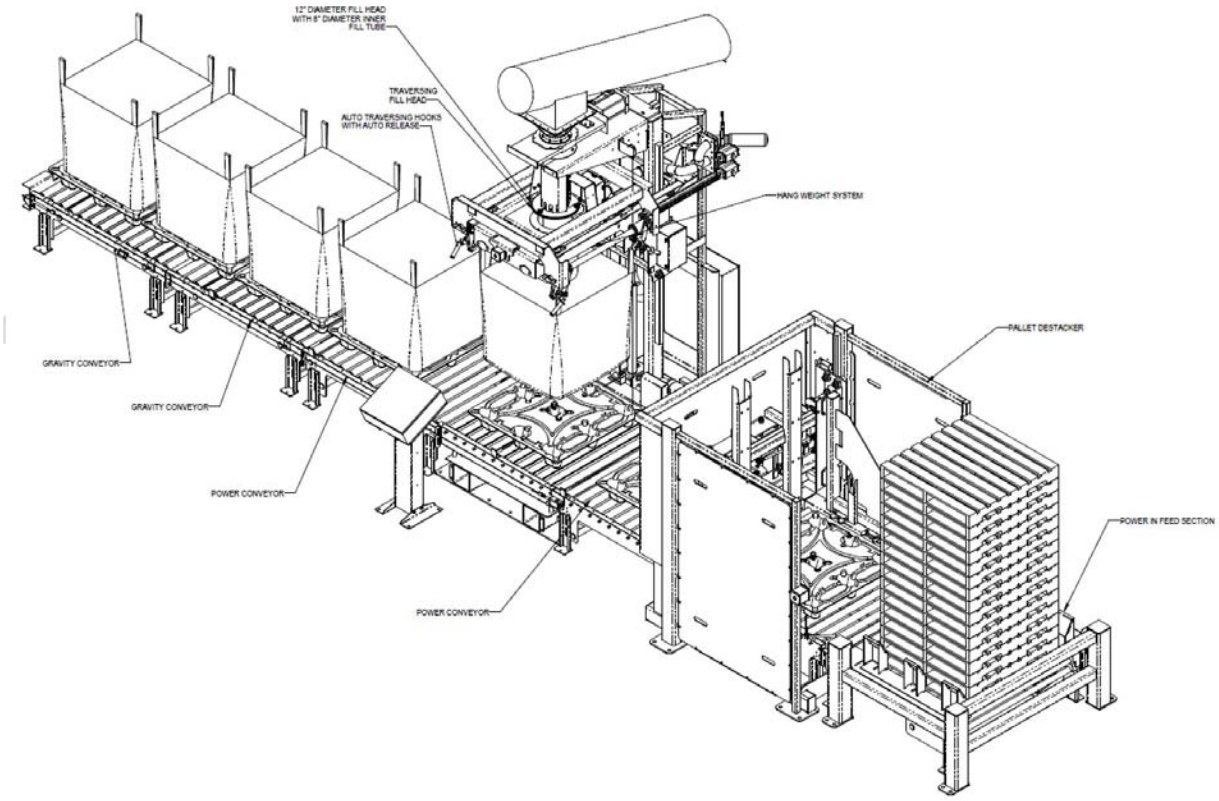
SDS Template - TOTAL SDS US (GHS HazCom 2012) TPRI Version 5.01

The information contained in this Safety Data Sheet (SDS) is believed by Total Petrochemicals & Refining USA, Inc. (TPRI) to be accurate on the date issued. However, materials may present unknown hazards and should be used with caution. Final determination of suitability and use of any material is the sole responsibility of the user. Neither TPRI nor any of its subsidiaries or affiliated companies assumes any liability whatsoever for the accuracy or completeness of the information contained herein or reliance thereto. If the material is repackaged, the user is responsible and must ensure that proper health, safety and other necessary information is included with the material and/or on the container. NO WARRANTIES OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, ARE MADE REGARDING THE MATERIALS OR THE INFORMATION CONTAINED IN THIS SDS. ALTERATION OF THIS DOCUMENT IS STRICTLY PROHIBITED.

NATIONAL BULK EQUIPMENT®
AN NBE COMPANY

Proposal Number: [redacted]

Equipment: Bulk Bag Filling System



Pictures/Illustrations within offer are intended for reference & may not reflect features and options quoted.

Presented to: Georgia Pacific

Prepared by:
National Bulk Equipment
[redacted]

Date Presented: October 9, 2018

[redacted]

Georgia Pacific
1101 South Front Street

Camden, NJ 08103
Attn: Claudia Krah
[redacted]

Proposal Number: [redacted]
Date: October 9, 2018
Status: Revised
Revision Date: June 27, 2019
NBE Regional Manager: [redacted]
NBE Applications Engineer: [redacted]
Local Representative: [redacted]

REVISION HISTORY

Revision #2 (June 27, 2019)

1. Revised in accordance with the formal specification provided.

MATERIAL INFORMATION

Material Name.....Calcined gypsum, Portland cement, and Denscal®, small additives
Bulk Density.....35-50 lbs/cubic foot
Particle Size.....78-80% thru 325 mesh
Product Temperature.....125°F Max
Flowability.....Free flowing
Moisture.....Zero
Characteristics.....Aerates

Material Sample Clause

This offering is based upon receiving material samples for evaluation. Please forward 1 liter of each material to be processed. If pilot testing is required, NBE will request sufficient material to perform these tests. If pilot testing is not necessary, this offering is valid. All shipment of material must be sent with the freight prepaid accompanied by an MSDS form with an NBE employee name or project number reference.

BAG/CONTAINER AND PALLET INFORMATION

Bulk Bag Dimensions	36”x36”x49”	37”x37”x62”	40”x40”x56”
Loop Length	12”	12”	Please advise
Spout Diameter	14”	14”	14”
Spout Length	18”	18”	15”
Liner	Yes	No	Yes
Capacity	2,500 lb	3,000 lb	3,000 lb
Pallet	42” x 52.75” x 4.5” high two way wooden pallet		

DESIGN SPECIFICATIONS

Product Contact Surfaces:.....Mild Steel
Product Weld Finish.....Continuous / Ground Smooth not necessarily flush
Non-Product Contact.....Carbon Steel Painted NBE Metallic Gray
Purchased parts are provided with standard construction finish/paint.
Non-Contact Weld Finish.....Stitch welded / Continuous where required for strength / Deburred

Electrical Supply.....460 VAC / 3 Ø / 60 Hz
Control Voltage.....24 VDC
Enclosures.....NEMA 12 control enclosures with grey powder coating
Electrical Listings & Approvals.....None required at time of offering
Washdown Procedure .....Dry wipe
Area Classification .....None provided at time of offering – Quoted as General Area

Plant Air .....10 CFM @ 80 PSI
Operation Temperature .....Assume 100° F and 100% humidity maximum
Location .....Indoor

Available Overhead Height: .....Per layout provided
Fill Rate: .....1,000 lbs/minute

NBE BULK FILLING SYSTEM

NBE's bulk filling systems are designed for each specific application. NBE provides pallet dispensers, slip sheet dispensers, cantilever and 4-post bulk bag/container fillers as well as gravity and powered roller conveyors including chain transfers and built in turntables. The bulk bag/container filler features selected are based on material characteristics and filling requirements. The equipment is designed with finite element analysis software to ensure equipment integration and a safe operating environment.

Bulk Bag/Container Filler Material Infeed Source

Customer's existing dual pant leg hopper above 80-pound bag fillers and NBE provided screw conveyors.

Replacement Surge Hopper

NBE to provide replacement hopper above the dual pant leg flange on the existing hopper to allow for screw conveyor feeding out of hopper.

Hopper Body and Framework: Surge Bin features a welded construction with support brackets. The bin includes two 1¼" NPT couplings for customer supplied high and low-level indicators. Hopper to include two bolted flush mounted 24"square access panels for hopper access/cleanout.

Hopper Discharge: Approximately 20"x40" flanged discharge opening to match existing pant leg flange.

Specifications

- Nominal Air Capacity: Approx. 104 cubic feet
- Base Dimension: Approx. 67" x 85"
- Hopper Slope: 70°

Screw Conveyors

Rigid Screw Conveyors: The system features (2) 12" diameter screw conveyors. Screw conveyor #1 is approx. 22'-6" long and integrated with the custom feed hopper on the inlet side and discharges into conveyor #2, includes a custom transition piece between the discharge of conveyor #1 and inlet of conveyor #2. Screw conveyor #2 is also approx. 22'-6" long and includes drop through discharge connection on the inlet end and will discharge into the filler. The screw conveyors include a spilt tubular housing designed with heavy duty wall pipe and includes bolted access hatches on both sides of the housing located at the inlet and discharge of each conveyor. The auger has a 12" pitch x 3/16" thick heavy duty flights which are welded on pull side of the auger. The auger will be driven by Dodge MTA gear motor assemblies and will be located on the discharge end of each conveyor. The augers will have Telemecanique Motion Sensor (TLQXSAV11801) located on the shaft assembly. Both ends of the conveyor include air purged seal w/solenoid, pressure regulator, manual ball valve, and (4) bolt flanged bearings. The auger shaft will also include (3) bolts auger shaft connection. Includes 12" pneumatically operated discharge slide gate and discharge transition at the interface between the two conveyors for system purging.

Filling System Infeed Dispensing

Automatic Pallet Dispenser with Integral Powered Roller Conveyor: The pallet dispenser is designed and manufactured for safe, trouble-free delivery of pallets including pallets with broken slat boards and/or exposed nails. The dispenser has a capacity of 20 pallets.

The magazine is designed to ensure proper alignment of the pallets as they are loaded and are ejected from the dispenser. The pallets are loaded from one of three sides using a forklift truck; please specify the desired loading orientation at the time of order.

Integral Powered Roller Conveyor: The powered roller conveyor is constructed of a formed steel framework with 2.5" OD 11 Ga tube clear zinc plated carbon steel rollers with sealed bearings. The rollers are driven by a gear-motor drive, along with a chain and sprocket configuration, to obtain a final drive speed of approximately 30' per minute. The conveyor extends outside the pallet dispenser to mate with the downstream conveying system.

Operating Sequence: Prior to the pallets being loaded, the pallet forks are retracted. After the pallets are loaded, the lateral pallet forks are extended to engage the second to the bottom pallet in the stack. The stack of pallets, minus the bottom one, is raised and the bottom pallet is conveyed to the adjacent conveyor outside of the pallet dispenser.

The pallet forks are driven horizontally by linear pneumatic cylinders. A bell-crank ensures symmetric lateral operation of the pallet forks while cam rollers are used to guide the assembly.

A hydraulic cylinder raises and lowers the pallet fork assembly and stack of pallets. It is powered by a hydraulic power unit mounted to the main framework.

The frame uprights feature stainless steel track-bars that the pallet fork assembly flanged cam rollers travel on. The flanged cam rollers are designed to guide the assembly along the track and include sealed bearings that do not require lubrication. The track bars ensure the pallet fork assembly remains centered in the framework and eliminate mechanical play.

Bulk Bag Filler Features

Framework: NBE's bulk container cantilever filling system features a heavy-duty framework design that provides automatic height adjustment to accommodate a range of bag heights. The base frame is constructed of carbon steel structural tubing and is approx. 65" wide x 83" deep. The base frame uprights feature steel track-bars that the cantilevered mast flanged rollers travel on. The flanged cam rollers are designed to guide the cantilevered mast along the track and include sealed bearings that do not require lubrication. The track bars ensure the cantilevered mast remains centered in the framework and eliminate mechanical play between the upper and lower frameworks. Mechanical play, visible in other designs, can attribute to false scale readings. The cantilevered carriage is actuated by a hydraulic cylinder. The hydraulic power unit is mounted to the main framework.

Bag Pre-Inflation: The filling head assembly includes an electric blower package, which provides bag pre-inflation prior to filling. The blower package is mounted to direct 600 CFM air into the 3" diameter pre-inflation inlet on the fill head assembly. The blower draws air in through an inlet filter and directs it into the container. The air is directed into the container through internal passages in the fill head assembly. The inlet and outlet passages are separate from the product inlet tube of the fill head assembly. This allows material to flow into the container and allows the displaced air to evacuate the bulk bag without slowing product supply. An automated butterfly valve is used to close the dust collection port during pre-inflation, this reduces the pre-inflation time.

Inlet Valve: System to include a fully mounted 8" diameter pneumatically actuated slide gate valve. The valve has bulk/dribble feed positions. The valve provides for more accurately filled bags due to the dribble position. The dribble position on the gate valve are adjustable by positioning the reed switch in the desired location. The slide gate valve will be mounted to the main framework of the filling station and will include an 8" diameter stub for connection to the fill head assembly. The valve will be connected to the filling head assembly using an 8" diameter flexible duct.

Filling Head Assembly: The fill head assembly has a concentric tube design and includes an 8" diameter infeed spout and a 12" diameter outer fill spout with inflatable bladder seal. The fill head includes a 3" diameter flanged inlet port connected to bag pre-inflation and a 3" diameter flanged exhaust vent port connection to connect to a central dust collection system. Dust collection line includes dual 3" pneumatically actuated butterfly valves with poly knife gate valve for air flow control/regulation. The fill head assembly includes a replaceable black inflatable bladder seal to ensure dust free operation. A manual Inflate/Deflate selector switch is located on the upper carriage for ease of bulk bag "spouting".

Bi-Parting Fill Tube Clamp: The clamp provides a high degree of flexibility and can be used to fill bulk bags (with or without liners), containers with poly-liners, or drums with poly-liners. The clamp is used in conjunction with the dust seal to ensure a dust tight system when the bag is properly connected. The fill spout is pulled over the dust seal and the clamp is manually closed by the operator. When the clamp reaches the closed sensor (located on the cylinder) the clamp is actuated and the seal is inflated automatically. This configuration provides the highest degree of reliability, dust control, and ease of operation. The clamp is a bi-parting collar type design with a replaceable rubber coating. This coating will allow an air tight seal and will avoid slipping of the bag spout or liner and extends the life of the seal.

Automatic Traversing Fill-Head Assembly: Once the fill-head is lowered to a comfortable working height, it is automatically positioned to the front of the filler. The fill-head traverses forward using a linear pneumatic cylinder that includes position switches to ensure proper operation. This allows the operator to spout an empty bag without reaching into the machine. In manual mode this is actuated through the HMI on the operator's control station. In automatic mode this is programmed into the operating logic to occur automatically without operator intervention. An 8" diameter fill-head flapper valve is included in the bottom section of the fill-tube. It will capture material that may line the flex hose. This will prevent material from being released into the bag prior to the taring sequence.
As the fill-head is raised up to begin the filling cycle, the product inlet valve and the flapper valve is closed, consequently displaced air is vented though a tube that terminates with a 3" diameter butterfly valve.

Debris Valve: An internal butterfly style debris valve is located within the fill head assembly. The valve reduces the amount of material (which is adhered to the internal surfaces of the filling chute and/or the flexible duct between moving components) discharge from the assembly between container cycles. This reduces the amount of airborne dust and/or debris generated by the equipment filling process. The flapper is constructed of food grade UHMW and is actuated by a pneumatic cylinder.

Automatic Traversing Rear Hooks: The rear hooks traverse to the front of the filler during bulk bag loading. This allows the operator to hang and spout an empty bag without walking onto the machine conveyor. The traversing hooks return to the back during the filling cycle.

Automatic Hooks Release: The hooks open and release the bulk bag once tension has been removed.

Powered Roller Conveyor (<u>Integrated into the Filler Deck</u>): The load height (top of roller) on this feature is approx. 21" (to be confirmed on the equipment approval drawings). The roller conveyor bed is constructed of carbon steel framework with carbon steel rollers and sealed bearings. The rollers are driven by a gear-motor, along with a chain and sprocket configuration, to obtain a final drive speed of approx. 30' per minute.

Densification: The base mounted densification system is integrated with the main framework and the powered conveyor base. The densification framework includes 3/8" vertical plates that rise between slots in the base (or) the rollers of an optional powered conveyor and lift the pallet and filled container off the base during the densification cycle. The pallet load height will remain approx. 21". The high intensity, medium frequency vibratory densification platform will settle the filled product in the bag during the filling cycle to produce a more accurately filled, dense, and square package.

During operation the densification platform is isolated from the main framework through the use of airbags. The vibration is accomplished through dual, counter-rotating, electric vibrators. The vibration intensity is adjustable by the placement of the vibrators' counterweights. This design provides vertical (thumping) action only. Any lateral movement generated by each of two vibrators is cancelled out by their opposing counterweights. The result is a dense square package upon completion. The Vibrators are by VIBCO or equivalent and have integrated motors.

Bulk Bag Filler Scale Package

Base Weigh Scale System: The load cells are isolated to lengthen load cell life. The controller is mounted either on the filler frame or in the main control enclosure. The weight is displayed on the digital readout and an analog output is supplied

The load cell mounts are easily trimmed for the best overall scale performance. The scale system is initially calibrated at our facility to ensure proper operation. Once the system has been completely installed, it should be calibrated on-site by an NTEP certified scale technician. It is designed to operate at an accuracy of plus or minus 0.5% bulk bag weight set point or better. Accuracy is dependent on the proper installation of the system, accurate scale calibration, and a regulated and consistent material supply.

Accumulation Conveyor

Qty (1) – Powered Infeed Roller Conveyor (54" Long Pallet Section): The infeed powered roller conveyor is constructed of a formed steel framework with 2.5" OD 11 Ga tube clear zinc plated carbon steel rollers with sealed bearings. The rollers are driven by a gear-motor drive, along with a chain and sprocket configuration, to obtain a final drive speed of approximately 30' per minute. Each section includes all necessary photoelectric sensors (with guards), guarding, and lanyard safety stops as required. The framework is designed with adjustable legs to allow leveling.

Qty (2) - Powered Accumulation Roller Conveyor (54" Long Pallet Section): The accumulation powered roller conveyor is constructed of a formed steel framework with 2.5" OD 11 Ga tube clear zinc plated carbon steel rollers with sealed bearings. The rollers are driven by a gear-motor drive, along with a chain and sprocket configuration, to obtain a final drive speed of approximately 30' per minute. Each section includes all necessary photoelectric sensors (with guards), guarding, and lanyard safety stops as required. The framework is designed with adjustable legs to allow leveling.

Qty (1) - Gravity Accumulation Roller Conveyor (54" Long Pallet Section): The gravity roller conveyor is constructed of a formed steel framework with 2.5" OD 11 Ga tube clear zinc plated carbon steel rollers with sealed bearings. The framework is designed with adjustable legs to allow leveling.

System Controls

Pneumatic System: The system will include a complete pneumatic control system for all pneumatic devices. The system will be provided with directional control valves, all necessary filter regulators, and a single supply connection complete with a block and bleed ball-valve. The system will be plumbed using flexible poly-tubing.

Hydraulic System: The system will include a complete hydraulic control system for all hydraulic devices (carriage lifting cylinder). The carriage is positioned using a 2 HP 460v/3ph/60Hz TEFC driven 4gpm hydraulic power unit. The power unit is mounted to the main framework. The vertical height is actuated by the automatic controls programmed into the operating logic.

System Controls Package: [redacted]

The electrical system includes (but is not limited to) the following features and options:

- [redacted]

Bulk Bag Filling System Price: ..... [redacted]

NBE BULK BAG FILLER - OPTIONS

Protective Bellows: Upgrade the system to include protective bellows on the hydraulic cylinder, auto hook release cylinders, Rear hooks forward slides, fill head forward slides, and bi-parting clamp cylinder. The bellows help keep dust and dirt out of the moving components.
Price: ..... [redacted]

Stretch Wrapper

STANDARD SPECIFICATIONS

The following Orion standards that will be used if required by your machinery or if purchased as options. If other brands are required, they will be considered deviations and will be priced accordingly.

Capacities

- Maximum Load Size 48"W x 48"L x 72"H
- Minimum Load Size 36"W x 36"L x 15"H
- Weight Capacity Up to 4,000 Pounds
- Stretch Film 20" Wide, up to 110 gauge

Utilities

- 115/1/60, 20 Amp Electrical Service (Not suitable for GFIC)
- 80 PSI clean/dry Compressed Air @ 3 CFM

Control Features

- [redacted]

Turntable Structure, Support & Drive

- Precision **Ring Bearing** Turntable Support System
- Up to **15 RPM** Variable Speed with adjustable Soft-Start
- Heavy Duty Direct Chain & Sprocket Drive
- **AC Drive Motor** with Variable Frequency Drive
- Electronically Adjustable Acceleration/Deceleration (Soft Start)

Conveyor Features

- **Power** Driven Turntable Conveyor
- One 5' Gravity Unloading Conveyor
- 2.5" Diameter Rollers on 3.25" Centers
- 18" Height to Top of Rollers x 52" Conveyor Width

Automatic Film Tail Treatment

- Film Tail Clamp, Hot-Wire Film Cutter, Film **Press-to Load** System

[redacted]

Film Carriage, Stretch & Delivery

- 20" Orion *Insta-Thread*™ Powered PreStretch Film Delivery System
- **260%** Standard Pre-Stretch (Sprocket changeable from 100% to 300%)
- ***AUTOMATIC* Film Force-to-Load Control** works like Cruise Control
- "Shock Absorber" Film Dancer Bar with Non-Wearing Sensor
- Precision Polyurethane Pre-Stretch Rollers for Consistent Film Yield
- **AC Drive Motor** with Variable Frequency Drive
- No Lube Belt Lift/Lower system with "Drop-Lock" Technology
- Multi-Point UHMW Precision Carriage Guidance System
- Insta-Sense™ Film Out/Broken Sensing Logic
- Touch-Screen Film Tension Control Adjustment

Machine Specific Features:

- [redacted]
- [redacted]
- [redacted]
- [redacted]
- [redacted]
- [redacted]
- [redacted]

Price: ..... [redacted]

[redacted]

EXCEPTIONS AND CLARIFICATIONS

The following items are clarifications and/or exceptions to the specifications provided. We have reviewed specifications and requirements of the specific application in detail. Please review the following clarifications and exceptions to the specifications and/or requirements provided. Please note; all items listed below apply to the entire specification regardless of its description in multiple locations.

- **Project Electrical Specifications – PLC Processor:** [redacted]

TERMS OF SALE

[redacted]

[redacted]

[redacted] [redacted]

[redacted] [redacted]

- [redacted]
- [redacted]
- [redacted]
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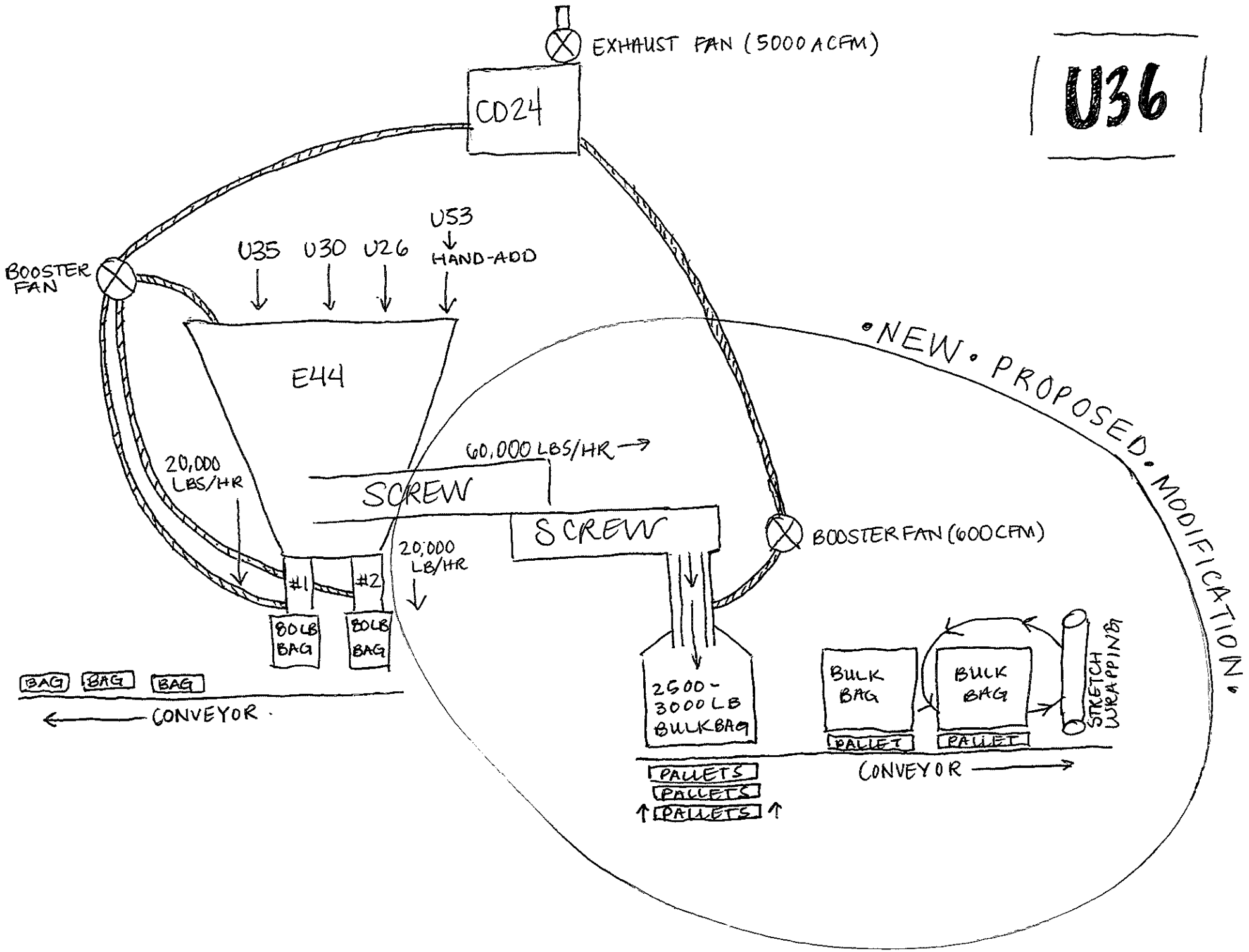
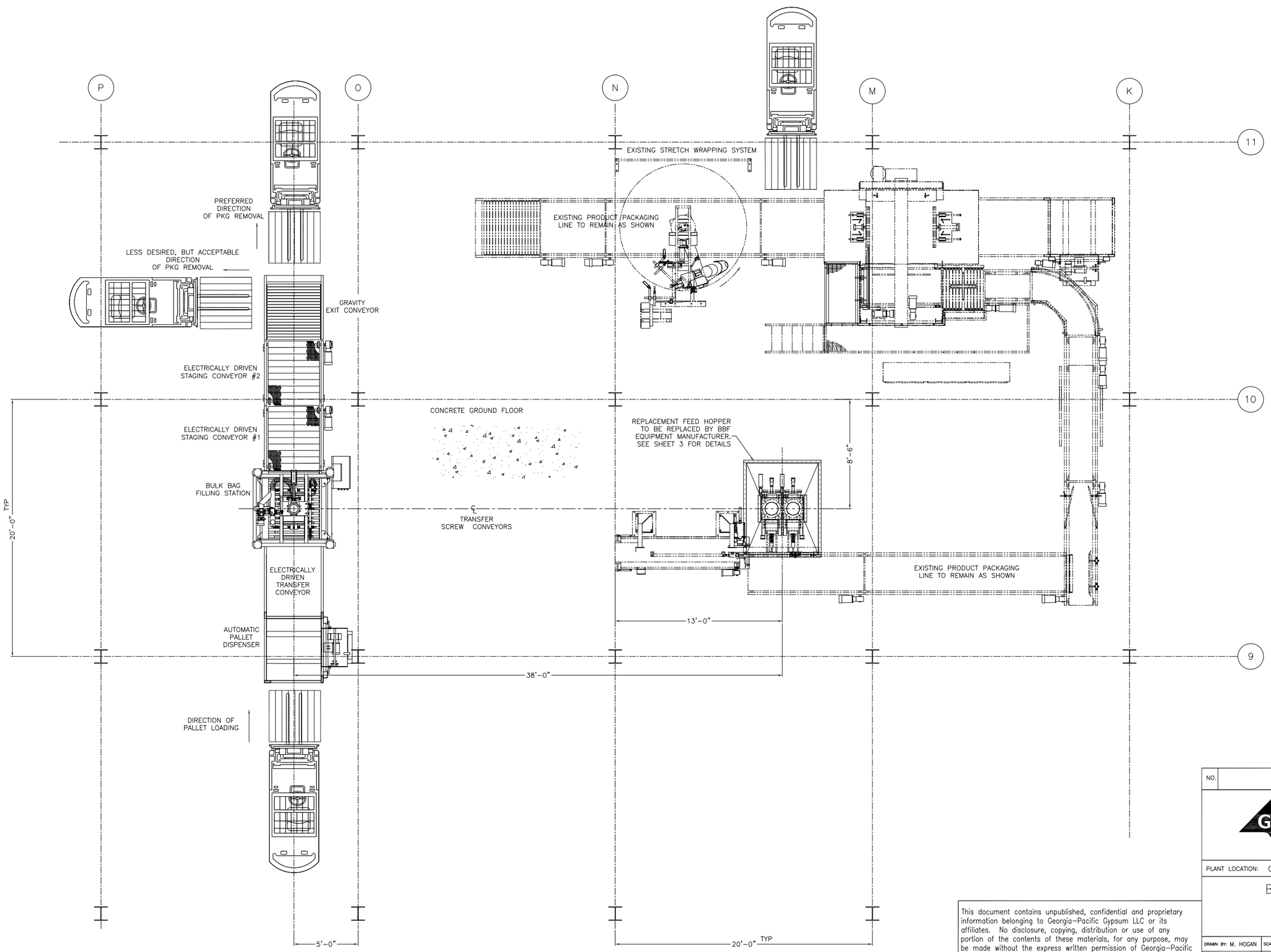

U36
EXHAUST FAN (5000 ACFM)
CD24
U35
U30
U26
U53
HAND-ADD
BOOSTER FAN
E44
20,000 LBS/HR
60,000 LBS/HR
SCREW
SCREW
20,000 LB/HR
#1
#2
80LB BAG
80LB BAG
BAG
BAG
BAG
CONVEYOR
BOOSTER FAN (600CFM)
2500-3000 LB BULKBAG
PALLETS
PALLETS
PALLETS
BULK BAG
BULK BAG
PALLET
PALLET
STRETCH WRAPPING
CONVEYOR
•NEW• PROPOSED• MODIFICATION•



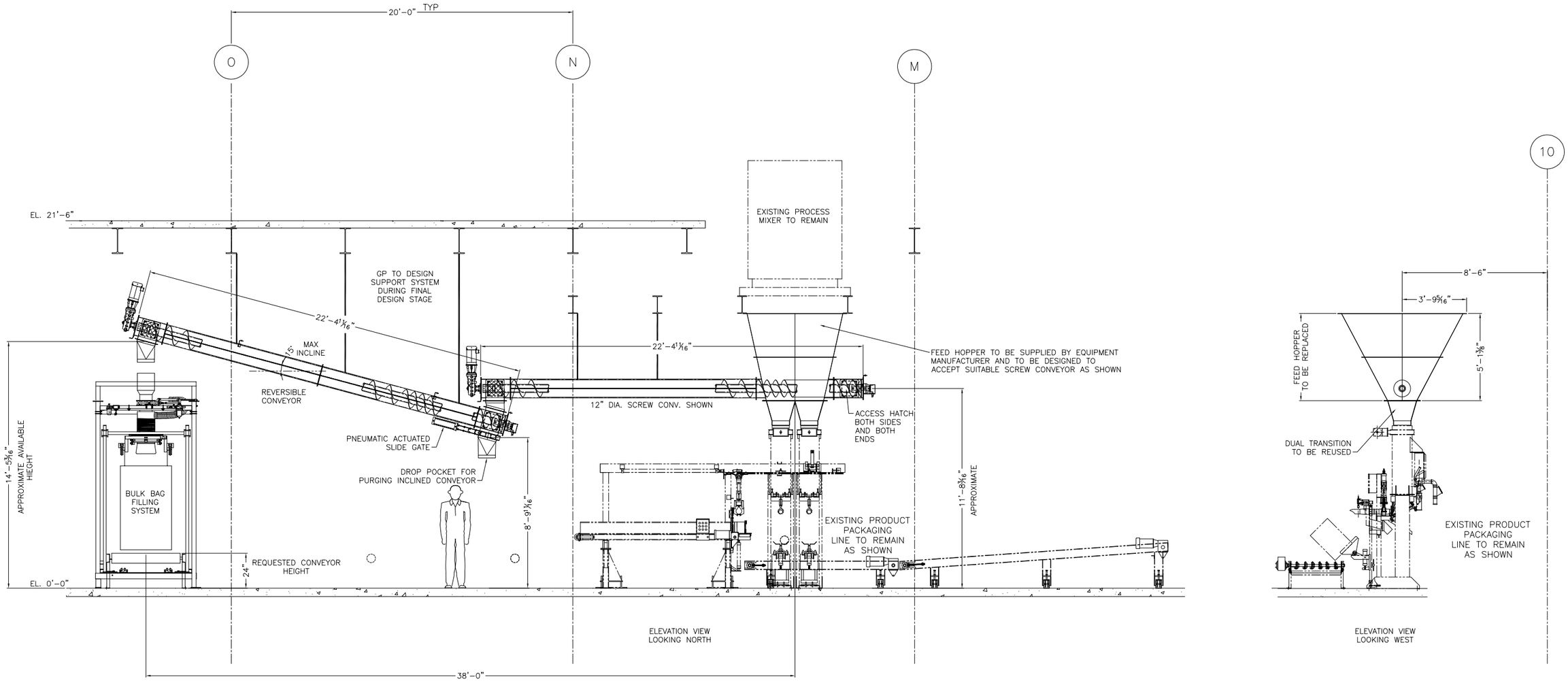
NO.	REVISIONS	BY	DATE	APP'D. BY

Georgia-Pacific
Georgia-Pacific Gypsum LLC
Atlanta, Georgia

PLANT LOCATION: CAMDEN, NJ | PROJECT NO. --

BULK BAG FILLING SYSTEM CONCEPTUAL PLAN VIEW FOR BIDDING PURPOSES

DRAWN BY: M. HOGAN	SCALE:	DRAWING NUMBER	REV. NO.
CHECKED BY:	DATE: 03-20-19	CAM BB 032019	
APPROVED BY:	LOCATION: NJ022	SHEET: 1of3	



TRANSFER SCREW GENERAL REQUIREMENTS
1. NO HANGER BEARINGS, FULL LENGTH SCREW.
2. TELEMECANIQUE MOTION SENSOR, TLQXSAV11801, GUARDED
3. DODGE MTA GEARMOTOR ASSEMBLY, NOT BELTS OR COUPLINGS.
3. SPLIT TUBULAR HOUSING DESIGN WITH ACCESS PORTS AS SHOWN.
4. BOTH SCREW CONVEYORS DESIRED TO BE IDENTICAL.
5. SCREW LENGTHS SHOWN ABOVE ARE FOR REFERENCE ONLY.
   EQ. MANUFACTURE TO DETERMINE ACTUAL LENGTHS NEEDED
6. H.D. SCREW DESIGN WITH HEAVY WALL PIPES AND 3 BOLT SHAFT CONNECTIONS

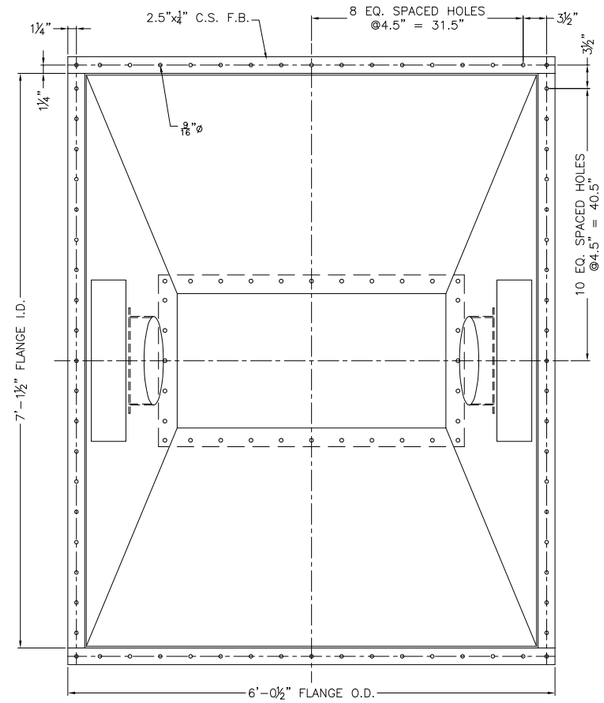
NO.	REVISIONS	BY	DATE	APP'D. BY

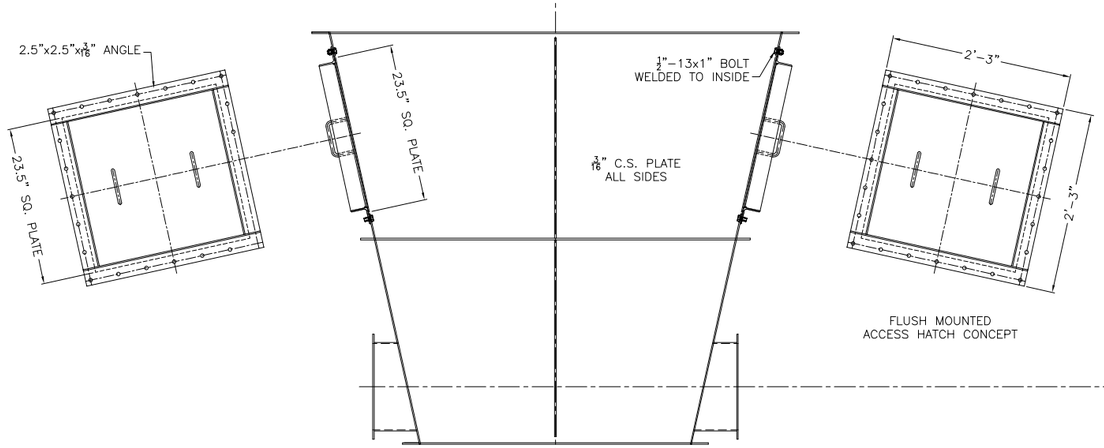
Georgia-Pacific
Georgia-Pacific Gypsum LLC
Atlanta, Georgia

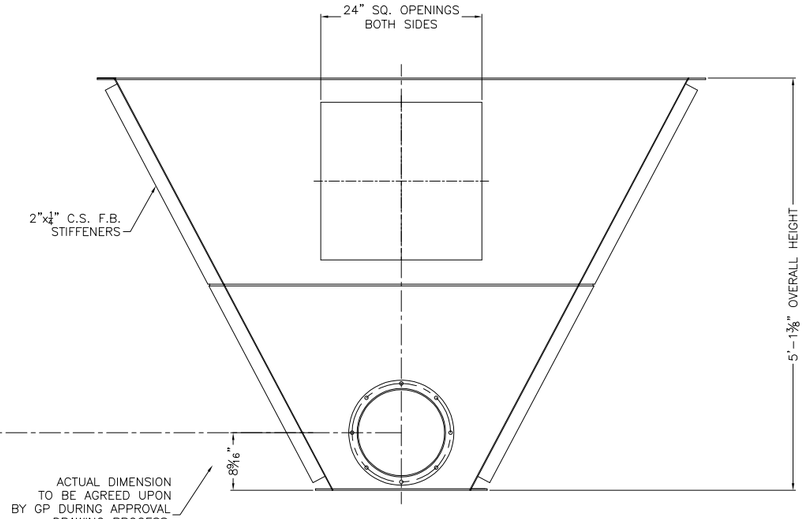
PLANT LOCATION: CAMDEN, NJ
PROJECT NO. --

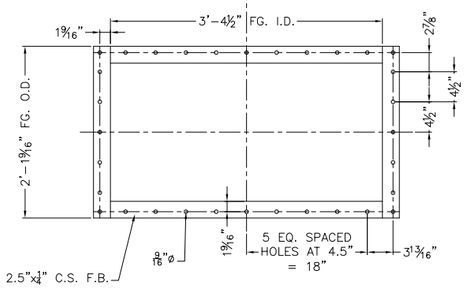
BULK BAG FILLING SYSTEM CONCEPTUAL ELEVATION VIEWS FOR BIDDING PURPOSES

DRAWN BY: M. HOGAN	SCALE:	DRAWING NUMBER	REV. NO.
CHECKED BY:	DATE: 03-20-19	CAM BB 032019	
APPROVED BY:	LOCATION: NJ022	SHEET: 2of3	









NOTES:
1. ALL WELDED CONSTRUCTION UNLESS NOTED.
2. ALL CARBON STEEL CONSTRUCTION UNLESS NOTED.
3. REMOVE ALL SHARP EDGES AND WELD SPATTER.
4. PRIME AND PAINT PER GP DESIRED COLOR. NO SPECIAL PAINTING TECHNIQUES REQ'D.

NO.	REVISIONS	BY	DATE	APP'D. BY

Georgia-Pacific
Georgia-Pacific Gypsum LLC
Atlanta, Georgia

PLANT LOCATION: CAMDEN, NJ
PROJECT NO. --

BULK BAG FILLING SYSTEM
FEED HOPPER FABRICATION DETAILS
FOR BIDDING PURPOSES

DRAWN BY: M. HOGAN	SCALE:	DRAWING NUMBER	REV. NO.
CHECKED BY:	DATE: 03-21-19	CAM BB 032019	
APPROVED BY:	LOCATION: NJ022	SHEET: 3of3	

SAFETY DATA SHEET

1. Identification

Product identifier **Hacker+ Floor Underlayments**

Product list
FIRM-FILL® Gypsum Concrete BR/CNJ/NV-270
FIRM-FILL® 2010+ BR/CNJ/NV-273
FIRM-FILL® 3310+ BR/CNJ/NV-271
FIRM-FILL® 3310 Classic BR/CNJ/NV-271
FIRM-FILL® 3310 Radiant BR/CNJ/NV-271
FIRM-FILL® 4010+ NV-275
FIRM-FILL® 4010 BR/NV-275
FIRM-FILL® CMD BR/NV-275
FIRM-FILL® High Strength BR/CNJ/NV-272
GYP-SPAN® Radiant BR/CNJ/NV-274

Other means of identification

SDS number GP-43H+

Recommended use Floor underlayment

Recommended restrictions Workers (and your customers or users in the case of resale) should be informed of the potential presence of respirable dust and respirable crystalline silica as well as their potential hazards. Appropriate training in the proper use and handling of this material should be provided as required under applicable regulations.

Manufacturer/Importer/Supplier/Distributor information

Manufacturer

Company name Georgia-Pacific Canada LP

Address 350 Argyle Street North
Caledonia, ON N3W 1M2

Telephone Technical Information: 905-765-1548
(M)SDS Request: 404.652.5119

e-mail MSDSREQ@GAPAC.com

Emergency phone number Chemtrec - Emergency: 800.424.9300

Importer/Supplier/Distributor Not applicable.

2. Hazard(s) identification

Physical hazards Not classified.

Health hazards

Acute toxicity, oral	Category 4
Skin irritation	Category 2
Serious eye damage	Category 1
Sensitization, skin	Category 1
Carcinogenicity	Category 1A
Specific target organ toxicity following repeated exposure	Category 1 (lung)
Health hazards not otherwise classified	Category 1

Environmental hazards Not classified.

Label elements

Signal word Danger

Hazard statement Harmful if swallowed. Causes skin irritation. May cause an allergic skin reaction. Causes serious eye damage. May cause cancer. Causes damage to organs (lung) through prolonged or repeated exposure. Heat develops as product hardens. May cause serious burns during hardening (rehydration) resulting in possible permanent injury.

Precautionary statement

Prevention Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Do not breathe dust. Wash thoroughly after handling. Do not eat, drink or smoke when using this product. Contaminated work clothing should not be allowed out of the workplace. Wear protective gloves/protective clothing/eye protection/face protection. After mixing with water, do not allow prolonged contact with skin until the product has completely hardened and cooled.

Response If swallowed: Rinse mouth. Call a poison center/doctor if you feel unwell. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER/doctor. IF ON SKIN: Wash with plenty of water. If skin irritation or rash occurs: Get medical advice/attention. Take off contaminated clothing and wash it before reuse. IF exposed or concerned: Get medical advice/attention. Specific treatment (see section 4 on the SDS).

Storage Store in a well-ventilated place. Keep container tightly closed. Store away from incompatible materials (see Section 10 of the SDS). Protect from moisture.

Disposal Dispose of contents/container in accordance with applicable regulations.

Other hazards None known.

Supplemental information None.

3. Composition/information on ingredients

Mixtures

Chemical name	Common name and synonyms	CAS number	%
Calcium sulfate hemihydrate		10034-76-1	80 - 90
Portland Cement		65997-15-1	5 - 15
Silica-crystalline, quartz		14808-60-7	1 - 5
Other components below reportable levels			< 1

All concentrations are in percent by weight unless ingredient is a gas. Gas concentrations are in percent by volume.

Composition comments Gypsum (calcium sulfate) and Portland Cement contain naturally occurring crystalline silica (quartz) which is listed as a lung carcinogen. See Section 8 for exposure information.

4. First-aid measures

Inhalation Move to fresh air. Call a physician if symptoms develop or persist.

Skin contact Remove contaminated clothing immediately and wash skin with soap and water. In case of eczema or other skin disorders: Seek medical attention and take along these instructions. Wash contaminated clothing before reuse.

Eye contact Do not rub eyes. Immediately flush eyes with plenty of water for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Get medical attention immediately.

Ingestion Rinse mouth. Do not induce vomiting without advice from poison control center. If vomiting occurs, keep head low so that stomach content doesn't get into the lungs. May result in obstruction and irritation if ingested. Get medical attention.

Most important symptoms/effects, acute and delayed Causes serious eye damage. Symptoms may include stinging, tearing, redness, swelling, and blurred vision. Permanent eye damage including blindness could result. Dusts may irritate the respiratory tract, skin and eyes. Coughing. Discomfort in the chest. Shortness of breath. Skin irritation. May cause redness and pain. May cause an allergic skin reaction. Dermatitis. Rash. Prolonged exposure may cause chronic effects. Skin contact during hardening (rehydration) may slowly develop sufficient heat that may cause severe burns possibly resulting in permanent injury. Do not allow product to harden around any body part or allow continuous, prolonged contact with skin. Handling can cause dry skin.

Indication of immediate medical attention and special treatment needed Provide general supportive measures and treat symptomatically. Keep victim warm. Keep victim under observation. Symptoms may be delayed.

General information IF exposed or concerned: Get medical advice/attention. If you feel unwell, seek medical advice (show the label where possible). Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves. Show this safety data sheet to the doctor in attendance. Wash contaminated clothing before reuse.

5. Fire-fighting measures

Suitable extinguishing media	Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.
Unsuitable extinguishing media	None known.
Specific hazards arising from the chemical	During fire, gases hazardous to health may be formed.
Special protective equipment and precautions for firefighters	Self-contained breathing apparatus and full protective clothing must be worn in case of fire.
Fire fighting equipment/instructions	Use water spray to cool unopened containers.
Specific methods	Use standard firefighting procedures and consider the hazards of other involved materials.
General fire hazards	No unusual fire or explosion hazards noted.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures	Keep unnecessary personnel away. Keep people away from and upwind of spill/leak. Wear appropriate protective equipment and clothing during clean-up. Do not breathe dust. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Ensure adequate ventilation. Local authorities should be advised if significant spillages cannot be contained. For personal protection, see section 8 of the SDS.
Methods and materials for containment and cleaning up	Sweep up or gather material and place in appropriate container for disposal. Minimise dust generation and accumulation. If sweeping of a contaminated area is necessary use a dust suppressant agent which does not react with the product. Contain the spill, then place in a suitable container. For waste disposal, see section 13 of the SDS. Prevent entry into waterways, sewer, basements or confined areas.
Environmental precautions	Avoid discharge into drains, water courses or onto the ground. If large quantities enter a waterway, advise local authorities.

7. Handling and storage

Precautions for safe handling	Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Minimise dust generation and accumulation. Provide appropriate exhaust ventilation at places where dust is formed. Do not breathe dust. Do not taste or swallow. Avoid contact with eyes, skin, and clothing. Avoid prolonged exposure. When using, do not eat, drink or smoke. Should be handled in closed systems, if possible. Wear appropriate personal protective equipment. Wash hands thoroughly after handling. Observe good industrial hygiene practices.
Conditions for safe storage, including any incompatibilities	Store in original tightly closed container. Store in a dry place. Store in a well-ventilated place. Store away from incompatible materials (see Section 10 of the SDS).

8. Exposure controls/personal protection

Occupational exposure limits

US ACGIH Threshold Limit Values: Time Weighted Average (TWA): mg/m3, non-standard units

Components	Type	Value	Form
Calcium sulfate hemihydrate (CAS 10034-76-1)	TWA	10 mg/m3	Inhalable fraction.
Portland Cement (CAS 65997-15-1)	TWA	1 mg/m3	Respirable fraction.
Silica-crystalline, quartz (CAS 14808-60-7)	TWA	0.025 mg/m3	Respirable fraction.

Canada. Alberta OELs (Occupational Health & Safety Code, Schedule 1, Table 2)

Components	Type	Value	Form
Portland Cement (CAS 65997-15-1)	TWA	10 mg/m3	
Silica-crystalline, quartz (CAS 14808-60-7)	TWA	0.025 mg/m3	Respirable particles.

Canada. British Columbia OELs. (Occupational Exposure Limits for Chemical Substances, Occupational Health and Safety Regulation 296/97, as amended)

Components	Type	Value	Form
Calcium sulfate hemihydrate (CAS 10034-76-1)	STEL	20 mg/m3	Total dust.
Portland Cement (CAS 65997-15-1)	TWA	3 mg/m3	Respirable fraction.
		10 mg/m3	Total dust.
Silica-crystalline, quartz (CAS 14808-60-7)	TWA	0.025 mg/m3	Respirable fraction.

Canada. Manitoba OELs (Reg. 217/2006, The Workplace Safety And Health Act)

Components	Type	Value	Form
Calcium sulfate hemihydrate (CAS 10034-76-1)	TWA	10 mg/m3	Inhalable fraction.
Portland Cement (CAS 65997-15-1)	TWA	1 mg/m3	Respirable fraction.
Silica-crystalline, quartz (CAS 14808-60-7)	TWA	0.025 mg/m3	Respirable fraction.

Canada. Ontario OELs. (Ministry of Labor - Control of Exposure to Biological or Chemical Agents)

Components	Type	Value	Form
Calcium sulfate hemihydrate (CAS 10034-76-1)	TWA	10 mg/m3	Inhalable fraction.
Portland Cement (CAS 65997-15-1)	TWA	1 mg/m3	Respirable fraction.
Silica-crystalline, quartz (CAS 14808-60-7)	TWA	0.1 mg/m3	Respirable fraction.

Canada. Quebec OELs. (Ministry of Labour - Regulation Respecting the Quality of the Work Environment)

Components	Type	Value	Form
Portland Cement (CAS 65997-15-1)	TWA	5 mg/m3	Respirable dust.
		10 mg/m3	Total dust.
Silica-crystalline, quartz (CAS 14808-60-7)	TWA	0.1 mg/m3	Respirable dust.

Biological limit values No biological exposure limits noted for the ingredient(s).

Exposure guidelines Occupational exposure to nuisance dust (total and respirable) and respirable crystalline silica should be monitored and controlled.

Appropriate engineering controls When using product, provide local and general exhaust ventilation to keep airborne dust concentrations below exposure limits. Use wet methods, if appropriate, to reduce the generation of dust.

Individual protection measures, such as personal protective equipment

Eye/face protection Wear safety glasses with side shields (or goggles). Eye wash fountains are required.

Skin protection

Hand protection Wear appropriate chemical resistant gloves.

Other Impervious protective clothing and gloves recommended to prevent drying or irritation of skin. Safety shower/eye wash fountain is recommended in the workplace area.

Respiratory protection When workers are facing concentrations above the exposure limit they must use appropriate certified respirators.

Thermal hazards Wear appropriate thermal protective clothing, when necessary.

General hygiene considerations Observe any medical surveillance requirements. Keep away from food and drink. Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants.

9. Physical and chemical properties

Appearance Powder.

Physical state Solid.

Form	Powder.
Colour	Light grey to white
Odour	Low odor.
Odour threshold	Not available.
pH	10 - 12
Melting point/freezing point	1450 °C (2642 °F) estimated
Initial boiling point and boiling range	Not applicable.
Flash point	Not applicable.
Evaporation rate	Not applicable.
Flammability (solid, gas)	Not flammable
Upper/lower flammability or explosive limits	
Flammability limit - lower (%)	Not applicable.
Flammability limit - upper (%)	Not applicable.
Explosive limit - lower (%)	Not applicable.
Explosive limit – upper (%)	Not applicable.
Vapour pressure	Not applicable.
Vapour density	Not applicable.
Relative density	2.3 - 2.5 g/cm3
Solubility(ies)	
Solubility (water)	Insoluble.
Partition coefficient (n-octanol/water)	Not available.
Auto-ignition temperature	Not applicable.
Decomposition temperature	Not available.
Viscosity	Not applicable.
Other information	
Explosive properties	Not explosive.
Oxidising properties	Not oxidising.

10. Stability and reactivity

Reactivity	Reacts with water (normal condition of use).
Chemical stability	Material is stable under normal conditions.
Possibility of hazardous reactions	Not expected under normal conditions of use.
Conditions to avoid	Contact with incompatible materials. Avoid dispersal of dust in the air (i.e., clearing dust surfaces with compressed air). Exposure to moisture.
Incompatible materials	Acids.
Hazardous decomposition products	May include, and are not limited to: calcium oxide and sulfur dioxide.

11. Toxicological information

Information on likely routes of exposure

Inhalation	May cause damage to organs through prolonged or repeated exposure by inhalation. Dust may irritate respiratory system.
Skin contact	Causes skin irritation. May cause an allergic skin reaction. Skin contact during hardening (rehydration) may slowly develop sufficient heat that may cause severe burns possibly resulting in permanent injury. Do not allow product to harden around any body part or allow continuous, prolonged contact with skin. Handling can cause dry skin.

Eye contact Causes serious eye damage.

Ingestion Harmful if swallowed.

Symptoms related to the physical, chemical and toxicological characteristics Causes serious eye damage. Symptoms may include stinging, tearing, redness, swelling, and blurred vision. Permanent eye damage including blindness could result. Dusts may irritate the respiratory tract, skin and eyes. Coughing. Discomfort in the chest. Shortness of breath. Skin irritation. May cause redness and pain. May cause an allergic skin reaction. Dermatitis. Rash. Skin contact during hardening (rehydration) may slowly develop sufficient heat that may cause severe burns possibly resulting in permanent injury. Do not allow product to harden around any body part or allow continuous, prolonged contact with skin. Handling can cause dry skin.

Information on toxicological effects

Acute toxicity Harmful if swallowed.

Product	Species	Test results
Hacker+ Floor Underlayments		
Acute		
Inhalation		
LC50	Rat	1333 mg/l, 4 Hours estimated
Oral		
LD50	Rat	1886 mg/kg estimated

Components	Species	Test results
Calcium sulfate hemihydrate (CAS 10034-76-1)		
Acute		
Oral		
LD50	Rat	> 1581 mg/kg

* Estimates for product may be based on additional component data not shown.

Skin corrosion/irritation Causes skin irritation. Skin contact during hardening (rehydration) may slowly develop sufficient heat that may cause severe burns possibly resulting in permanent injury. Do not allow product to harden around any body part or allow continuous, prolonged contact with skin. Handling can cause dry skin.

Serious eye damage/eye irritation Causes serious eye damage.

Respiratory or skin sensitisation

Respiratory sensitisation Not a respiratory sensitizer.

Skin sensitisation May cause an allergic skin reaction.

Germ cell mutagenicity No data available to indicate product or any components present at greater than 0.1% are mutagenic or genotoxic.

Carcinogenicity Exposure to respirable crystalline silica in the form of quartz or cristobalite from occupational sources is listed by IARC and NTP as a lung carcinogen. Prolonged exposure to respirable crystalline silica has been known to cause silicosis, a lung disease, which may be disabling. While there may be a factor of individual susceptibility to a given exposure to a respirable silica dust, the risk of contracting silicosis and the severity of the disease is clearly related to the amount of respirable crystalline silica exposure and the length of time (usually years) of exposure

ACGIH Carcinogens

Portland Cement (CAS 65997-15-1)	A4 Not classifiable as a human carcinogen.
Silica-crystalline, quartz (CAS 14808-60-7)	A2 Suspected human carcinogen.

Canada - Alberta OELs: Carcinogen category

Silica-crystalline, quartz (CAS 14808-60-7)	Suspected human carcinogen.

Canada - Manitoba OELs: carcinogenicity

Portland Cement (CAS 65997-15-1)	Not classifiable as a human carcinogen.
Silica-crystalline, quartz (CAS 14808-60-7)	Suspected human carcinogen.

Canada - Quebec OELs: Carcinogen category

Silica-crystalline, quartz (CAS 14808-60-7)	Suspected carcinogenic effect in humans.

IARC Monographs. Overall Evaluation of Carcinogenicity

Silica-crystalline, quartz (CAS 14808-60-7)	1 Carcinogenic to humans.

US. National Toxicology Program (NTP) Report on Carcinogens

Silica-crystalline, quartz (CAS 14808-60-7)	Known To Be Human Carcinogen.

Reproductive toxicity	This product is not expected to cause reproductive or developmental effects.
Specific target organ toxicity - single exposure	Not classified.
Specific target organ toxicity - repeated exposure	Causes damage to organs (lung) through prolonged or repeated exposure.
Aspiration hazard	Not an aspiration hazard.
Chronic effects	Causes damage to organs through prolonged or repeated exposure. Prolonged inhalation may be harmful. Prolonged exposure may cause chronic effects.

12. Ecological information

Ecotoxicity The product is not classified as environmentally hazardous. However, this does not exclude the possibility that large or frequent spills can have a harmful or damaging effect on the environment.

Components		Species	Test results
Calcium sulfate hemihydrate (CAS 10034-76-1)			
Aquatic			
Fish	LC50	Fathead minnow (Pimephales promelas)	> 1970 mg/l, 96 hours
Silica-crystalline, quartz (CAS 14808-60-7)			
Aquatic			
Acute			
Fish	LC50	Zebra danio (Danio rerio)	> 10000 mg/l, 96 Hours OECD SIDS

Persistence and degradability	No data is available on the degradability of this product.
Bioaccumulative potential	No data available.
Mobility in soil	No data available.
Other adverse effects	No other adverse environmental effects (e.g. ozone depletion, photochemical ozone creation potential, endocrine disruption, global warming potential) are expected from this component.

13. Disposal considerations

Disposal instructions	Dispose of contents/container in accordance with local/regional/national/international regulations.
Local disposal regulations	Dispose in accordance with all applicable regulations.
Hazardous waste code	The waste code should be assigned in discussion between the user, the producer and the waste disposal company.
Waste from residues / unused products	Dispose of in accordance with local regulations. Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe manner (see: Disposal instructions).
Contaminated packaging	Since emptied containers may retain product residue, follow label warnings even after container is emptied. Empty containers should be taken to an approved waste handling site for recycling or disposal.

14. Transport information

TDG

Not regulated as dangerous goods.

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code Not available.

15. Regulatory information

Canadian regulations

Controlled Drugs and Substances Act

Not regulated.

Export Control List (CEPA 1999, Schedule 3)

Not listed.

Greenhouse Gases

Not listed.

Precursor Control Regulations

Not regulated.

International regulations

Stockholm Convention

Not applicable.

Rotterdam Convention

Not applicable.

Kyoto protocol

Not applicable.

Montreal Protocol

Not applicable.

Basel Convention

Calcium sulfate hemihydrate (CAS 10034-76-1)

International Inventories

Country(s) or region	Inventory name	On inventory (yes/no)*
Canada	Domestic Substances List (DSL)	Yes
United States & Puerto Rico	Toxic Substances Control Act (TSCA) Inventory	Yes

*A "Yes" indicates that all components of this product comply with the inventory requirements administered by the governing country(s)
A "No" indicates that one or more components of the product are not listed or exempt from listing on the inventory administered by the governing country(s).

16. Other information

Issue date 01-27-2017

Version No. 01

Disclaimer This SDS is intended to quickly provide useful information to the user(s) of this material or product. It is not intended to serve as a comprehensive discussion of all possible risks or hazards, and it assumes a reasonable use of the product. The information contained in this SDS is believed to be accurate as of the date of preparation of this SDS and has been compiled from sources believed to be reliable. It is offered for your consideration, investigation and verification. The user or handler (or their employer) should consider the specific conditions in which this material will be used, handled, or stored and determine what specific safety or other precautions are required. Employers should ensure that their employees, agents, contractors, and customers who will use the product receive adequate warnings and safe handling procedures, including a current SDS. Product users or handlers (or their employer) who are unsure of what specific precautions are required should consult their employer, product supplier, or safety or health professionals before handling or working with this product. Please notify us immediately if you believe this SDS or other safety and health information about this product is inaccurate or incomplete.

Revision information Product and Company Identification: Product Codes
Composition / Information on Ingredients: Ingredients
Physical & Chemical Properties: Multiple Properties
Ecological Information: Ecotoxicity
GHS: Classification

MATERIAL SAFETY DATA SHEET

1. Product and Company Identification

Material name **42A PLASTERS**

Product use Industrial Plasters

Product list See Product List found in Section 16

Manufacturer information

Georgia-Pacific Gypsum LLC
133 Peachtree Street, NE
Atlanta, GA 30303
MSDS Request 404.652.5119
Technical Information 800.225.6119
Chemtrec - Emergency 800.424.9300

2. Hazards Identification

Emergency overview

CAUTION!

A natural chemical reaction during hardening (rehydration) develops sufficient heat that may cause severe burns in the event of contact with skin. These burns may possibly result in permanent injury. Do not allow product to harden around any body part or allow continuous, prolonged contact with skin. Crushing, mixing, sanding, or otherwise working with this product may generate large amounts of dust. Dust can be irritating to the eyes, skin, and respiratory system.

Potential health effects

Eyes Dust may cause eye irritation. Symptoms may include discomfort or pain, excess blinking and tear production, with possible redness and swelling.

Skin Skin contact during hardening (rehydration) may slowly develop sufficient heat that may cause severe burns possibly resulting in permanent injury. Do not allow product to harden around any body part or allow continuous, prolonged contact with skin. Handling can cause dry skin.

Inhalation Dust may cause respiratory tract irritation.

Ingestion Not applicable under normal conditions of use. May result in obstruction or temporary irritation of the digestive tract.

3. Composition / Information on Ingredients

Components	CAS #	Percent
GYPSUM (CALCIUM SULFATE)	10034-76-1	90 - 100
AMMONIUM CHLORIDE**	12125-02-9	1 - 5
CRYSTALLINE SILICA (QUARTZ)*	14808-60-7	1 - 5

Composition comments

Gypsum (calcium sulfate) contains naturally occurring crystalline silica (quartz) which is listed as a lung carcinogen. See Section 8 for exposure information.

*The weight percent for crystalline silica represents total crystalline silica and not the respirable fraction. Testing conducted by Georgia-Pacific did not detect respirable crystalline silica during activities associated with the normal use of this product; however, jobsite air monitoring should be conducted to determine actual exposure when permissible exposure limits may be exceeded.

** Found in products in List B, Section 16 of this MSDS.

4. First Aid Measures

First aid procedures

Eye contact Immediately flush eyes with plenty of water for at least 15 minutes. Get medical attention if irritation develops or persists.

Skin contact For skin contact, wash immediately with soap and water. Get medical attention if irritation develops or persists.

Inhalation Remove to fresh air. If symptoms persist, get medical attention.

Ingestion May result in obstruction and irritation if ingested. Get medical attention.

5. Fire Fighting Measures

General fire hazards

Flammable properties Not flammable by OSHA/WHMIS criteria.

Extinguishing media

Suitable extinguishing media Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

Fire fighting equipment/instructions Firefighters should wear full protective clothing including self contained breathing apparatus.

Explosion data

Sensitivity to static discharge Not applicable.

Sensitivity to mechanical impact Not applicable.

Hazardous combustion products May include, and are not limited to: calcium oxide and sulfur dioxide.

6. Accidental Release Measures

Personal precautions Use personal protection recommended in Section 8. Keep unnecessary personnel away from the release.

Environmental precautions Keep out of drains, sewers, ditches, and waterways.

Methods for containment Contain the spill, then place in a suitable container. Minimize dust generation.

Methods for cleaning up Sweep up or gather material and place in appropriate container for disposal.

7. Handling and Storage

Handling Avoid contact with skin and eyes. Use only in well-ventilated areas. Handle and open container with care. Wear appropriate NIOSH approved dust mask or filtering facepiece if dust is generated. Do not eat or drink while using the product. Wash hands before eating, drinking, or smoking.

Storage Keep the container tightly closed and dry. Store in a covered, dry, climate controlled area, away from incompatibles.

8. Exposure Controls / Personal Protection

Occupational exposure limits

ACGIH

Components	Type	Value	Form
AMMONIUM CHLORIDE** (12125-02-9)	STEL	20 mg/m3	(Fume)
	TWA	10 mg/m3	(Fume)
CRYSTALLINE SILICA (QUARTZ)* (14808-60-7)	TWA	0.025 mg/m3	(Respirable fraction)
GYPSUM (CALCIUM SULFATE) (10034-76-1)	TWA	3 mg/m3	(Respirable fraction)
		10 mg/m3	(Inhalable fraction)

U.S. - OSHA

Components	Type	Value	Form
CRYSTALLINE SILICA (QUARTZ)* (14808-60-7)	TWA	4.3 mg/m3	(Total dust)
		1.4 mg/m3	(Respirable fraction)
GYPSUM (CALCIUM SULFATE) (10034-76-1)	TWA	15 mg/m3	(Total dust)
		5 mg/m3	(Respirable fraction)

Exposure guidelines

*The weight percent for crystalline silica represents total crystalline silica and not the respirable fraction. Testing conducted by Georgia-Pacific did not detect respirable crystalline silica during activities associated with the normal use of this product; however, jobsite air monitoring should be conducted to determine actual exposure when permissible exposure limits may be exceeded.

The US OSHA exposure limits for CRYSTALLINE SILICA (QUARTZ) are calculated from the following equations: 30/(%SiO2+2) mg/m3 for total dust; and 10/(%SiO2+2) mg/m3 for the respirable fraction.

US ACGIH Threshold Limit Values: Short Term Exposure Limit (STEL): mg/m3

AMMONIUM CHLORIDE** (CAS 12125-02-9)	US ACGIH Threshold Limit Values: Short Term Exposure Limit (STEL): mg/m3

Engineering controls

When using product, provide local and general exhaust ventilation to keep airborne dust concentrations below exposure limits. Use wet methods, if appropriate, to reduce the generation of dust.

Personal protective equipment

Eye / face protection

Safety glasses or goggles are recommended when using this product. Ensure compliance with OSHA's PPE standard (29 CFR 1910.132 and .133) for eye and face protection. Safety shower/eye wash fountain must be readily available in the workplace area (29 CFR 1910.151(c)).

Skin protection

Impervious protective clothing and gloves recommended to prevent drying or irritation of skin. Ensure compliance with OSHA's PPE standards (29 CFR 1910.132 (general) and 138 (hand protection)). Safety shower/eye wash fountain is recommended in the workplace area (29 CFR 1910.151 (c)).

Respiratory protection

A NIOSH approved dust mask or filtering facepiece is recommended in poorly ventilated areas or when permissible exposure limits may be exceeded. Respirators should be selected by and used under the direction of a trained health and safety professional following requirements found in OSHA's respirator standard (29 CFR 1910.134) and ANSI's standard for respiratory protection (Z88.2).

9. Physical & Chemical Properties

Appearance	Powder
Color	Light grey to white
Form	Not available.
Odor	Low odor
Odor threshold	Not available
pH	6 - 10
Freezing point	Not available
Boiling point	Not applicable
Flash point	Not applicable
Evaporation rate	Not available
Flammability	Not flammable
Flammability limits in air, upper, % by volume	Not applicable
Flammability limits in air, lower, % by volume	Not applicable
Vapor pressure	Not applicable
Vapor density	Not applicable
Specific gravity	2.3 - 2.7
Partition coefficient (n-octanol/water)	Not available
Solubility (water)	0.2 - 1 % at 22°C
Auto-ignition temperature	Not applicable
Percent volatile	Not available.

10. Chemical Stability & Reactivity Information

Chemical stability	Stable at normal conditions.
Conditions to avoid	
Conditions of reactivity	Reacts with water (normal condition of use).

Incompatible materials None known.

Hazardous decomposition products May include and are not limited to: calcium oxide and sulfur dioxide.

Possibility of hazardous reactions

11. Toxicological Information

Toxicological information No toxicological data available for this product. Toxicological information for components of this product is listed below.

Toxicological information (Ingredients)

GYPSUM (CALCIUM SULFATE) (CAS # 10034-76-1)

Toxicology Data - Selected LD50s and LC50s

Oral LD50 Mouse: 5824 mg/kg
Oral LD50 Rat: 3000 mg/kg

Sensitization Not expected to be hazardous by OSHA/WHMIS criteria.

Chronic effects Not expected to be hazardous by OSHA/WHMIS criteria.

Carcinogenicity Not expected to be hazardous by OSHA/WHMIS criteria.

ACGIH Carcinogens

CRYSTALLINE SILICA (QUARTZ)* (CAS 14808-60-7) US ACGIH Threshold Limit Values: A2 carcinogen

IARC Monographs Overall Evaluation of Carcinogenicity

CRYSTALLINE SILICA (QUARTZ)* (CAS 14808-60-7) IARC Monographs: Overall evaluation 1 Volume 68, Volume 100C

Mutagenicity Not expected to be hazardous by OSHA/WHMIS criteria.

Reproductive effects Not expected to be hazardous by OSHA/WHMIS criteria.

Teratogenicity Not expected to be hazardous by OSHA/WHMIS criteria.

Synergistic materials Not available.

12. Ecological Information

Ecotoxicity Not considered to be harmful to aquatic life.

Components	Test Results
GYPSUM (CALCIUM SULFATE) (10034-76-1)	LC50 Fish: 2980 96.00 Hours

13. Disposal Considerations

Disposal instructions This product, in its present state, when discarded or disposed of, is not a hazardous waste according to Federal regulations (40 CFR 261.4 (b)(4)). Under RCRA, it is the responsibility of the user of the product to determine, at the time of disposal, whether the product meets RCRA criteria for hazardous waste.

14. Transport Information

DOT

Not regulated as dangerous goods.

TDG

Not regulated as dangerous goods.

15. Regulatory Information

Superfund Amendments and Reauthorization Act of 1986 (SARA)

Hazard categories Immediate Hazard - Yes
Delayed Hazard - No
Fire Hazard - No
Pressure Hazard - No
Reactivity Hazard - No

Section 302 extremely hazardous substance No

Section 311 hazardous chemical No

Section 313 hazardous chemical No

US federal regulations

US CERCLA Hazardous Substances: Reportable quantity

AMMONIUM CHLORIDE** (CAS 12125-02-9)	5000 LBS

Canadian regulations

Canada WHMIS Ingredient Disclosure: Threshold limits

AMMONIUM CHLORIDE** (CAS 12125-02-9)	1 %
CRYSTALLINE SILICA (QUARTZ)* (CAS 14808-60-7)	1 %

WHMIS status Non-controlled

Inventory status

Country(s) or region	Inventory name	On inventory (yes/no)*
Canada	Domestic Substances List (DSL)	Yes
Canada	Non-Domestic Substances List (NDSL)	No
United States & Puerto Rico	Toxic Substances Control Act (TSCA) Inventory	Yes

*A "Yes" indicates that all components of this product comply with the inventory requirements administered by the governing country(s)

16. Other Information

Product list

Product List A

BASECOAT PLASTER	BR-170
DENSCAL® BASE	BR-700
DENSCAL® BLEND	BR-707
DENSCAL® IC LOW EXPANSION	BR-704
DENSCAL® IC REGULAR	BR-703
DENSCAL® OIL WELL	BR-735, 736, 835
DENSCAL® SLOW SET	BR-706
DENSCAL® WH	BR-705
DENSITE® BASE	BR-800
DENSITE® BASE - FINE GRIND	BR-850
DENSITE® HL	BR-853, NV-853
DENSITE® HS	BR-854
DENSITE® K-11	BR-811
DENSITE® K-16	BR-816
DENSITE® K-4	BR-864
DENSITE® K-4 LE	BR-865, NV-872
DENSITE® K-5	BR-805
DENSITE® K-6	BR-806
DENSITE® K-7	BR-807
DENSITE® K-7 WHITE	BR-810
DENSITE® K-8 YELLOW	BR-808
DENSITE® K-9	BR-809
DENSITE® MEDIUM LOW EXPANSION	BR-815
DENSITE® RA	BR-868
DENSITE® STATUARY PLASTER	BR-856, NV-856
DRYCAST	BR-863
GAUGING PLASTER - QUICK SET	BR-155
GAUGING PLASTER - SLOW SET	BR-158
GAUGING PLASTER - STABILIZED SET	BR-231
IMPRESSION PLASTER	BR-265
INDUSTRIAL MOLDING PLASTER	BR-232
INDUSTRIAL MOLDING PLASTER - MEDIUM SET	NV-233
LABORATORY PLASTER	BR-264
MANUFACTURERS STUCCO - TUBED	BR-244

Product list

MANUFACTURERS STUCCO - UNTUBED	BR-240
MOLDING PLASTER - FAST SET	NV-234
MOLDING PLASTER - SLOW SET	BR-230, CNJ-230, NV-230
NOVEX #3 PLASTER	BR-171
NS GROUT STATUARY	BR-624
OIL WELL ULTRA DENSITE®	BR-861
POTTERY PLASTER	BR-251
POTTERY PLASTER K-55	BR-255
POTTERY PLASTER K-58	BR-658
POTTERY PLASTER K-59	BR-659
POTTERY PLASTER K-60	BR-660
POTTERY PLASTER K-62	BR-662
POTTERY PLASTER K-63	BR-663
PREMIX PLASTER	BR-822
SAFE FILLER	BR-241
STATUARY CASTING PLASTER	BR-252, 646, 648, 649
STUCCO	BR/CNJ/NV - 35, 46, 48, 53
SUPER ANHYDRITE	BR-400
ULTRA DENSITE® BASE	BR-860
ULTRA RH	BR-862
WHITE MOLDING PLASTER	BR-236, NV-236
WHITE MOLDING PLASTER (90 MINUTE MOLDING)	NV-237
.....	.....
Product List B	
MANUFACTURERS STUCCO - UNTUBED**	NV-240

HMIS® ratings

Health: 1
Flammability: 0
Physical hazard: 0

NFPA ratings

Health: 1
Flammability: 0
Instability: 0

Disclaimer

The information and data herein are believed to be accurate and have been compiled from sources believed to be reliable. It is offered for your consideration, investigation and verification. Buyer assumes all risk of use, storage and handling of the product in compliance with applicable federal, state and local laws and regulations. Georgia-Pacific and its subsidiaries make no warranty of any kind, expressed or implied, concerning the accuracy or completeness of the information and data herein. The implied warranties of merchantability and fitness for a particular purpose are specifically excluded. Georgia-Pacific and its subsidiaries will not be liable for claims relating to any party's use of or reliance on information and data contained herein regardless of whether it is claimed that the information and data are inaccurate, incomplete or otherwise misleading.

Effective Date

18-Jun-2013

Prepared by

Georgia-Pacific LLC
404.652.5119

SAFETY DATA SHEET

1. Identification

Product identifier **MAXXON UNDERLAYMENTS**

Product list
GYP-CRETE® BR-253, CNJ/NV-251
DURA-CAP® BR/CNJ/NV-254
DURA-CAP® with Calcination BR/CNJ/NV-254
THERMA-FLOOR® BR/CNJ/NV-257
GYP-CRETE® 2000 BR/CNJ/NV-258
RAPID FLOOR® Underlayment BR/CNJ/NV-690
RAPID FLOOR® Plus BR/CNJ/NV-691
RAPID FLOOR® Ultra BR/CNJ/NV-692
Rapid Radiant BR/CNJ/LV-693
Commercial Topping BR/LV-268
Commercial Topping with Calcination BR/LV-268

Other means of identification

SDS number GP-43B

Recommended use Floor underlayment

Recommended restrictions Workers (and your customers or users in the case of resale) should be informed of the potential presence of respirable dust and respirable crystalline silica as well as their potential hazards. Appropriate training in the proper use and handling of this material should be provided as required under applicable regulations.

Manufacturer/Importer/Supplier/Distributor information

Company name Georgia-Pacific Gypsum LLC
Address 133 Peachtree Street, NE
Atlanta, GA 30303
Telephone Technical Information 800.225.6119
(M)SDS Request 404.652.5119
E-mail Not available.

Emergency phone number Chemtrec - Emergency 800.424.9300

2. Hazard(s) identification

Physical hazards Not classified.

Health hazards

Acute toxicity, oral	Category 4
Serious eye damage	Category 1
Sensitization, skin	Category 1
Carcinogenicity	Category 1A
Specific target organ toxicity, repeated exposure	Category 1 (lung)

Environmental hazards Not classified.

OSHA defined hazards Not classified.

Label elements

Signal word Danger

Hazard statement Harmful if swallowed. Causes serious eye damage. May cause an allergic skin reaction. May cause cancer. Causes damage to organs (lung) through prolonged or repeated exposure.

Precautionary statement

Prevention Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Do not breathe dust. Contaminated work clothing must not be allowed out of the workplace. Wear protective gloves/protective clothing/eye protection/face protection. Wash thoroughly after handling. Do not eat, drink or smoke when using this product. After mixing with water, do not allow prolonged contact with skin until the product has completely hardened and cooled.

Response If swallowed: Rinse mouth. Call a poison center/doctor if you feel unwell. If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a poison center/doctor. If on skin: Wash with plenty of water. If skin irritation or rash occurs: Get medical advice/attention. Wash contaminated clothing before reuse. Specific treatment (see section 4 on the SDS).

Storage Store away from incompatible materials (see Section 10 of the SDS). Protect from moisture. Keep container tightly closed.

Disposal Dispose of contents/container in accordance with applicable regulations.

Hazard(s) not otherwise classified (HNOC) Heat develops as product hardens. May cause serious burns during hardening (rehydration) resulting in possible permanent injury.

Supplemental information None.

3. Composition/information on ingredients

Mixtures

Chemical name	Common name and synonyms	CAS number	%
CALCIUM SULFATE DIHYDRATE		10101-41-4	80 - 90
PORTLAND CEMENT		65997-15-1	5 - 10
CRYSTALLINE SILICA (QUARTZ)		14808-60-7	1 - 5
Other components below reportable levels			3 - 5

The specific chemical identity and/or percentage of composition has been withheld as a trade secret.

Composition comments Gypsum (calcium sulfate) and Portland Cement contain naturally occurring crystalline silica (quartz) which is listed as a lung carcinogen. See Section 8 for exposure information.

4. First-aid measures

Inhalation Remove to fresh air. If symptoms persist, get medical attention.

Skin contact Remove contaminated clothing immediately and wash skin with soap and water. In case of eczema or other skin disorders: Seek medical attention and take along these instructions.

Eye contact Do not rub eyes. Immediately flush eyes with plenty of water for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Get medical attention immediately.

Ingestion Rinse mouth. Do not induce vomiting without advice from poison control center. If vomiting occurs, keep head low so that stomach content doesn't get into the lungs. May result in obstruction and irritation if ingested. Get medical attention.

Most important symptoms/effects, acute and delayed Causes serious eye damage. Symptoms may include stinging, tearing, redness, swelling, and blurred vision. Permanent eye damage including blindness could result. Dusts may irritate the respiratory tract, skin and eyes. Skin contact during hardening (rehydration) may slowly develop sufficient heat that may cause severe burns possibly resulting in permanent injury. Do not allow product to harden around any body part or allow continuous, prolonged contact with skin. Handling can cause dry skin. May cause an allergic skin reaction. Dermatitis. Rash. Coughing. Discomfort in the chest. Shortness of breath. Prolonged exposure may cause chronic effects.

Indication of immediate medical attention and special treatment needed Provide general supportive measures and treat symptomatically. Keep victim warm. Keep victim under observation. Symptoms may be delayed.

General information IF exposed or concerned: Get medical advice/attention. If you feel unwell, seek medical advice (show the label where possible). Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves. Show this safety data sheet to the doctor in attendance. Wash contaminated clothing before reuse.

5. Fire-fighting measures

Suitable extinguishing media Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

Unsuitable extinguishing media None known.

Specific hazards arising from the chemical	During fire, gases hazardous to health may be formed.
Special protective equipment and precautions for firefighters	Self-contained breathing apparatus and full protective clothing must be worn in case of fire.
Fire fighting equipment/instructions	Firefighters should wear full protective clothing including self contained breathing apparatus. Use water spray to cool unopened containers.
Specific methods	Use standard firefighting procedures and consider the hazards of other involved materials.
General fire hazards	No unusual fire or explosion hazards noted.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures	Keep unnecessary personnel away. Keep people away from and upwind of spill/leak. Wear appropriate protective equipment and clothing during clean-up. Do not breathe dust. Use a NIOSH/MSHA approved respirator if there is a risk of exposure to dust/fume at levels exceeding the exposure limits. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Ensure adequate ventilation. Local authorities should be advised if significant spillages cannot be contained. For personal protection, see section 8 of the SDS.
Methods and materials for containment and cleaning up	Sweep up or gather material and place in appropriate container for disposal. Minimize dust generation and accumulation. If sweeping of a contaminated area is necessary use a dust suppressant agent which does not react with the product. Contain the spill, then place in a suitable container. For waste disposal, see section 13 of the SDS. Prevent entry into waterways, sewer, basements or confined areas.
Environmental precautions	Avoid discharge into drains, water courses or onto the ground.

7. Handling and storage

Precautions for safe handling	Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Minimize dust generation and accumulation. Provide appropriate exhaust ventilation at places where dust is formed. Do not breathe dust. Do not taste or swallow. Avoid contact with eyes, skin, and clothing. Avoid prolonged exposure. When using, do not eat, drink or smoke. Should be handled in closed systems, if possible. Wear appropriate personal protective equipment. Wash hands thoroughly after handling. Observe good industrial hygiene practices.
Conditions for safe storage, including any incompatibilities	Store in a dry place. Store in original tightly closed container. Store in a well-ventilated place. Store away from incompatible materials (see Section 10 of the SDS). Keep away from food, drink and animal feedingstuffs.

8. Exposure controls/personal protection

Occupational exposure limits

US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000)

Components	Type	Value	Form
CALCIUM SULFATE DIHYDRATE (CAS 10101-41-4)	PEL	5 mg/m3	Respirable fraction.
		15 mg/m3	Total dust.
CRYSTALLINE SILICA (QUARTZ) (CAS 14808-60-7)	PEL	0.05 mg/m3	
PORTLAND CEMENT (CAS 65997-15-1)	PEL	5 mg/m3	Respirable fraction.
		15 mg/m3	Total dust.

US ACGIH Threshold Limit Values: Time Weighted Average (TWA): mg/m3, non-standard units

Components	Type	Value	Form
CALCIUM SULFATE DIHYDRATE (CAS 10101-41-4)	TWA	10 mg/m3	Inhalable fraction.
CRYSTALLINE SILICA (QUARTZ) (CAS 14808-60-7)	TWA	0.025 mg/m3	Respirable fraction.
PORTLAND CEMENT (CAS 65997-15-1)	TWA	1 mg/m3	Respirable fraction.

US. NIOSH: Pocket Guide to Chemical Hazards

Components	Type	Value	Form
CALCIUM SULFATE DIHYDRATE (CAS 10101-41-4)	TWA	5 mg/m3	Respirable.
		10 mg/m3	Total
CRYSTALLINE SILICA (QUARTZ) (CAS 14808-60-7)	TWA	0.05 mg/m3	Respirable dust.
PORTLAND CEMENT (CAS 65997-15-1)	TWA	5 mg/m3	Respirable.
		10 mg/m3	Total

Biological limit values No biological exposure limits noted for the ingredient(s).

Exposure guidelines Occupational exposure to nuisance dust (total and respirable) and respirable crystalline silica should be monitored and controlled.

Appropriate engineering controls When using product, provide local and general exhaust ventilation to keep airborne dust concentrations below exposure limits. Use wet methods, if appropriate, to reduce the generation of dust.

Individual protection measures, such as personal protective equipment

Eye/face protection Wear safety glasses with side shields (or goggles). Ensure compliance with OSHA's PPE standard (29 CFR 1910.132 and .133) for eye and face protection. Safety shower/eye wash fountain must be readily available in the workplace area (29 CFR 1910.151(c)).

Skin protection

Hand protection Wear appropriate chemical resistant gloves.

Other Impervious protective clothing and gloves recommended to prevent drying or irritation of skin. Ensure compliance with OSHA's PPE standards (29 CFR 1910.132 (general) and 138 (hand protection)). Safety shower/eye wash fountain is recommended in the workplace area (29 CFR 1910.151 (c)).

Respiratory protection A NIOSH approved dust mask or filtering facepiece is recommended in poorly ventilated areas or when permissible exposure limits may be exceeded. Respirators should be selected by and used under the direction of a trained health and safety professional following requirements found in OSHA's respirator standard (29 CFR 1910.134) and ANSI's standard for respiratory protection (Z88.2).

Thermal hazards Wear appropriate thermal protective clothing, when necessary.

General hygiene considerations Observe any medical surveillance requirements. Keep away from food and drink. Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants.

9. Physical and chemical properties

Appearance Powder

Physical state Solid.

Form Powder.

Color Grey

Odor Odorless.

Odor threshold Not available.

pH 10 - 12

Melting point/freezing point 2642 °F (1450 °C) estimated

Initial boiling point and boiling range Not available.

Flash point Not applicable

Evaporation rate Not available.

Flammability (solid, gas) Not available.

Upper/lower flammability or explosive limits

Flammability limit - lower (%) Not applicable

Flammability limit - upper (%) Not applicable

Explosive limit - lower (%)	Not applicable
Explosive limit - upper (%)	Not applicable
Vapor pressure	Not applicable
Vapor density	Not applicable
Relative density	2.26 - 2.3 g/cm3 estimated
Solubility(ies)	
Solubility (water)	Insoluble
Partition coefficient (n-octanol/water)	Not available.
Auto-ignition temperature	Not available.
Decomposition temperature	Not available.
Viscosity	Not available.
Other information	
Explosive properties	Not explosive.
Oxidizing properties	Not oxidizing.
Specific gravity	2.26 - 2.3

10. Stability and reactivity

Reactivity	Reacts with water (normal condition of use).
Chemical stability	Stable at normal conditions.
Possibility of hazardous reactions	Not expected under normal conditions of use.
Conditions to avoid	Contact with incompatible materials. Avoid dispersal of dust in the air (i.e., clearing dust surfaces with compressed air). Exposure to moisture.
Incompatible materials	Acids.
Hazardous decomposition products	May include and are not limited to: calcium oxide and sulfur dioxide.

11. Toxicological information

Information on likely routes of exposure

Inhalation	May cause damage to organs through prolonged or repeated exposure by inhalation. Dust may irritate respiratory system.
Skin contact	Dust or powder may irritate the skin. May cause an allergic skin reaction. Skin contact during hardening (rehydration) may slowly develop sufficient heat that may cause severe burns possibly resulting in permanent injury. Do not allow product to harden around any body part or allow continuous, prolonged contact with skin. Handling can cause dry skin.
Eye contact	Causes serious eye damage.
Ingestion	Harmful if swallowed.
Symptoms related to the physical, chemical and toxicological characteristics	Causes serious eye damage. Dusts may irritate the respiratory tract, skin and eyes. Coughing. Discomfort in the chest. Shortness of breath. Symptoms may include stinging, tearing, redness, swelling, and blurred vision. Skin contact during hardening (rehydration) may slowly develop sufficient heat that may cause severe burns possibly resulting in permanent injury. Do not allow product to harden around any body part or allow continuous, prolonged contact with skin. Handling can cause dry skin. May cause an allergic skin reaction. Dermatitis. Rash.

Information on toxicological effects

Acute toxicity Harmful if swallowed.

Product	Species	Test Results
MAXXON UNDERLAYMENTS		
Acute		
Inhalation		
LC50	Rat	828 mg/l, 4 hours estimated
Oral		
LD50	Rat	1786 mg/kg estimated

Components	Species	Test Results
CALCIUM SULFATE DIHYDRATE (CAS 10101-41-4)		
Acute		
Oral		
LD50	Rat	> 1581 mg/kg

* Estimates for product may be based on additional component data not shown.

Skin corrosion/irritation Skin contact during hardening (rehydration) may slowly develop sufficient heat that may cause severe burns possibly resulting in permanent injury. Do not allow product to harden around any body part or allow continuous, prolonged contact with skin. Handling can cause dry skin.

Serious eye damage/eye irritation Causes serious eye damage.

Respiratory or skin sensitization

Respiratory sensitization Not classified.

Skin sensitization May cause an allergic skin reaction.

Germ cell mutagenicity Not classified.

Carcinogenicity Exposure to respirable crystalline silica in the form of quartz or cristobalite from occupational sources is listed by IARC and NTP as a lung carcinogen. Prolonged exposure to respirable crystalline silica has been known to cause silicosis, a lung disease, which may be disabling. While there may be a factor of individual susceptibility to a given exposure to a respirable silica dust, the risk of contracting silicosis and the severity of the disease is clearly related to the amount of respirable crystalline silica exposure and the length of time (usually years) of exposure.

IARC Monographs. Overall Evaluation of Carcinogenicity

CRYSTALLINE SILICA (QUARTZ) (CAS 14808-60-7) 1 Carcinogenic to humans.

OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)

Not regulated.

US. National Toxicology Program (NTP) Report on Carcinogens

CRYSTALLINE SILICA (QUARTZ) (CAS 14808-60-7) Known To Be Human Carcinogen.

Reproductive toxicity Not classified.

Specific target organ toxicity - single exposure Not classified.

Specific target organ toxicity - repeated exposure Causes damage to organs (lung) through prolonged or repeated exposure.

Aspiration hazard Not an aspiration hazard.

Chronic effects Causes damage to organs through prolonged or repeated exposure. Prolonged inhalation may be harmful. Prolonged exposure may cause chronic effects.

12. Ecological information

Ecotoxicity The product is not classified as environmentally hazardous. However, this does not exclude the possibility that large or frequent spills can have a harmful or damaging effect on the environment. Large quantities of this product may be harmful to aquatic life due to high pH.

Components		Species	Test Results
CALCIUM SULFATE DIHYDRATE (CAS 10101-41-4)			
Aquatic			
Acute			
Fish	LC50	Fathead minnow (Pimephales promelas)	> 1970 mg/l, 96 hours
CRYSTALLINE SILICA (QUARTZ) (CAS 14808-60-7)			
Aquatic			
Acute			
Fish	LC50	Zebra danio (Danio rerio)	> 10000 mg/l, 96 Hours OECD SIDS

* Estimates for product may be based on additional component data not shown.

Persistence and degradability No data is available on the degradability of this product.

Bioaccumulative potential No data available.

Mobility in soil No data available.

Other adverse effects No other adverse environmental effects (e.g. ozone depletion, photochemical ozone creation potential, endocrine disruption, global warming potential) are expected from this component.

13. Disposal considerations

Disposal instructions Under RCRA, it is the responsibility of the user of the product to determine, at the time of disposal, whether the product meets RCRA criteria for hazardous waste.

Local disposal regulations Dispose in accordance with all applicable regulations.

Hazardous waste code The waste code should be assigned in discussion between the user, the producer and the waste disposal company.

Waste from residues / unused products Dispose of in accordance with local regulations. Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe manner (see: Disposal instructions).

Contaminated packaging Since emptied containers may retain product residue, follow label warnings even after container is emptied. Empty containers should be taken to an approved waste handling site for recycling or disposal.

14. Transport information

DOT

Not regulated as dangerous goods.

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code Not applicable.

15. Regulatory information

US federal regulations This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)

Not regulated.

CERCLA Hazardous Substance List (40 CFR 302.4)

Not listed.

SARA 304 Emergency release notification

Not regulated.

OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)

Not regulated.

Superfund Amendments and Reauthorization Act of 1986 (SARA)

Hazard categories Immediate Hazard - Yes
Delayed Hazard - Yes
Fire Hazard - No
Pressure Hazard - No
Reactivity Hazard - No

SARA 302 Extremely hazardous substance

Not listed.

SARA 311/312 Hazardous chemical Yes

SARA 313 (TRI reporting)

Not regulated.

Other federal regulations

Clean Air Act (CAA) Section 112 Hazardous Air Pollutants (HAPs) List

Not regulated.

Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130)

Not regulated.

Safe Drinking Water Act (SDWA) Not regulated.

US state regulations

US. California. Candidate Chemicals List. Safer Consumer Products Regulations (Cal. Code Regs, tit. 22, 69502.3, subd. (a))

CRYSTALLINE SILICA (QUARTZ) (CAS 14808-60-7)

US. California Proposition 65

WARNING: This product contains a chemical known to the State of California to cause cancer.

US - California Proposition 65 - CRT: Listed date/Carcinogenic substance

CRYSTALLINE SILICA (QUARTZ) (CAS 14808-60-7) Listed: October 1, 1988

International Inventories

Country(s) or region	Inventory name	On inventory (yes/no)*
Canada	Domestic Substances List (DSL)	Yes
United States & Puerto Rico	Toxic Substances Control Act (TSCA) Inventory	Yes

*A "Yes" indicates that all components of this product comply with the inventory requirements administered by the governing country(s)
A "No" indicates that one or more components of the product are not listed or exempt from listing on the inventory administered by the governing country(s).

16. Other information, including date of preparation or last revision

Issue date February-20-2015

Revision date January-26-2017

Version # 03

HMIS® ratings Health: 3*
Flammability: 0
Physical hazard: 1

NFPA ratings Health: 3
Flammability: 0
Instability: 0

Disclaimer This SDS is intended to quickly provide useful information to the user(s) of this material or product. It is not intended to serve as a comprehensive discussion of all possible risks or hazards, and it assumes a reasonable use of the product. The information contained in this SDS is believed to be accurate as of the date of preparation of this SDS and has been compiled from sources believed to be reliable. It is offered for your consideration, investigation and verification. The user or handler (or their employer) should consider the specific conditions in which this material will be used, handled, or stored and determine what specific safety or other precautions are required. Employers should ensure that their employees, agents, contractors, and customers who will use the product receive adequate warnings and safe handling procedures, including a current SDS. Product users or handlers (or their employer) who are unsure of what specific precautions are required should consult their employer, product supplier, or safety or health professionals before handling or working with this product. Please notify us immediately if you believe this SDS or other safety and health information about this product is inaccurate or incomplete.

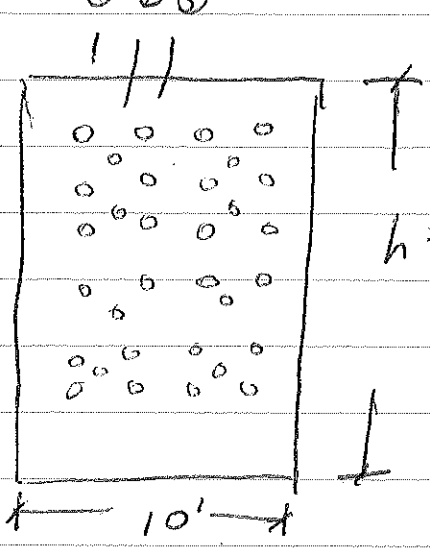
Revision information This document has undergone significant changes and should be reviewed in its entirety.

KETTLE #1

VOLUME

$L_1 = 7.69$ $L_3 = 9.71$

$L_2 = 8.98$



$A_{8"SCH40} = \frac{\pi(.71875)^2}{4} = 0.41\ FT^2$

$C_{8"SCH40} = 2.26$

$V_{POT} = \frac{\pi(10)^2}{4}(11.66) = 915.31\ CF$

$V_{FL1} = (0.41)(7.69) = 3.15\ (12) = 37.8\ CF$

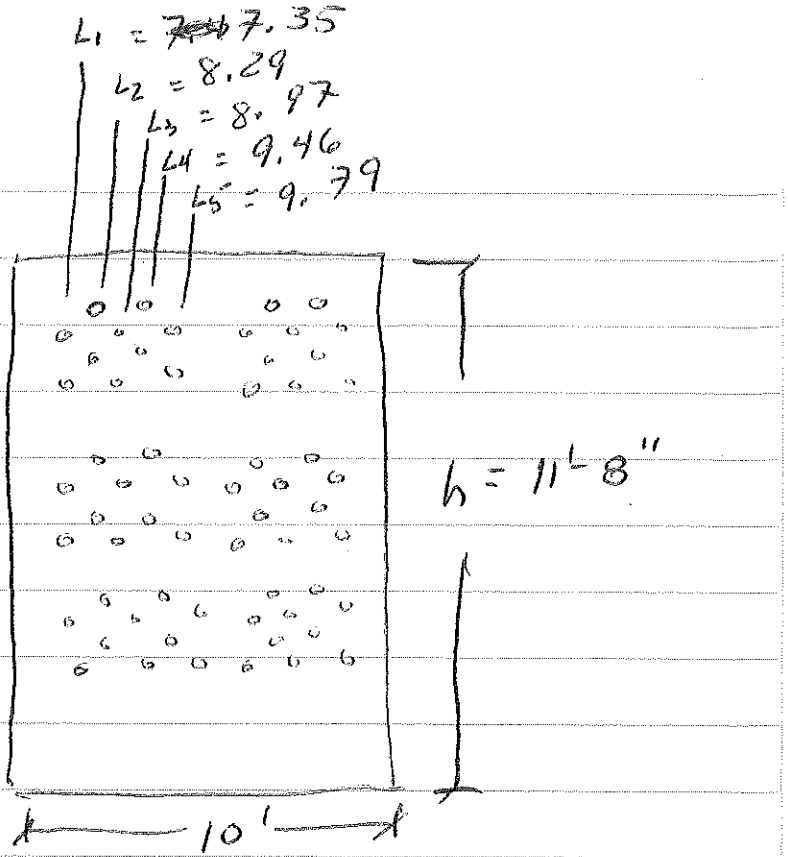
$V_{FL2} = (0.41)(8.98) = 3.68\ (8) = 29.44\ CF$

$V_{FL3} = (0.41)(9.71) = 3.98\ (12) = 47.77\ CF$

SUM = 115.01 CF

$V_{TOT} = 915.31 - 115.01 = 800\ FT^3$

KETTLE #2
VOLUME



$A_{6"sch40} = \frac{\left(\frac{6.625}{12}\right)^2 \pi}{4} = 0.24\ Ft^2$

$V_{pot} = \frac{\pi (10)^2}{4} (11.66) = 915.31\ CF$

$V_{FL1} = (0.24)(7.35) = 1.76\ (12) = 21.12$

$V_{FL2} = (0.24)(8.29) = 1.99\ (12) = 23.88$

$V_{FL3} = (0.24)(8.97) = 2.15\ (12) = 25.8$

$V_{FL4} = (0.24)(9.46) = 2.27\ (12) = 27.24$

$V_{FL5} = (0.24)(9.79) = 2.34\ (12) = 28.04$

sum = 126.16

$V_{TOT} = 915.31 - 126.16 = 789\ CF$

OPTION #1

AREA

$A_{POT} = \pi(10)(11.66) = 366.31\ FT^2$

$- (0.41)(64) =$

$= 340\ FT^2$

$C_{g\text{"scrub"}} = 2.26\ FT$

$A_{FL1} = (2.26)(7.69) = 17.38\ (12) = 208.56$

$A_{FL2} = (2.26)(\cancel{7.69}\ 8.98) = 20.29\ (8) = 162.32$

$A_{FL3} = (2.26)(\cancel{7.69}\ 9.71) = 21.94\ (12) = 263.28$

$sum = 634\ FT^2$

$A_{TOT} = 340 + 634 = 974\ FT^2$

FIGURE # 2

AREA

$C_{6"\,SCH\,40} = \left(\frac{6.625}{12}\right)\pi = 1.73$ FT

$A_{6"} = \frac{\left(\frac{6.625}{12}\right)^2 \pi}{4} = 0.24$

$A_{POT} = \pi(40)(11.66) = 366.31\ FT^2$

$-(0.24)(120) = 29.$

$= 337.31$

$A_{FL1} = (1.73)(7.35) = 12.72\,(12) = 152.64$

$A_{FL2} = (1.73)(8.29) = 14.34\,(12) = 172.08$

$A_{FL3} = (1.73)(8.97) = 15.52\,(12) = 186.24$

$A_{FL4} = (1.73)(9.46) = 16.36\,(12) = 196.32$

$A_{FL5} = (1.73)(9.79) = 16.94\,(12) = 203.28$

Sum = 910.56

$A_{TOT} = 337.31 + 910.56 = 1,248\ FT^2$

NETTING ANALYSIS RESULTS

Consistent with N.J.A.C. 7:27-18.7

Facility Information → Facility PI: 51611 Facility Name: Georgia-Pacific Industrial Plasters LLC BOP Activity: 180001

Calculation of NI for this Permit Action - NO DATA ENTRY REQUIRED

This table is automatically populated after Table 1 and Table 2 below are completed.

Air Contaminant	IP Emission Increase from Permitted Sources	INP Emission Increase from Non-Permitted Sources	IF Emission Increase from Fugitive Emissions	IA Emission Increase from the Current Modification	DO Emission Decrease from Emission Offsets	DC Emission Decrease from Creditable Emission Reductions	NI Net Emission Increase at the Facility	Significant Net Emission Increase Thresholds (N.J.A.C. 7:27-18.7 Table 3)	Significant Net Emission Increase? Yes/No
VOC	0.68	0.00	0.00	0.00	0.00	0.00	0.68	25	No
NOx	0.32	0.00	0.00	0.00	0.00	0.00	0.32	25	No
CO	0.13	0.00	0.00	0.00	0.00	0.00	0.13	100	No
SO2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	40	No
TSP	0.43	0.00	0.00	7.98	0.00	0.00	8.42	25	No
PM10	0.36	0.00	0.00	8.38	0.00	0.00	8.75	15	No
PM2.5	0.36	0.00	0.00	8.38	0.00	0.00	8.75	10	No

Table 1 - Calculation of Total IA for this Permit Action (Modification or GOP) - ENTER ALL DATA FOR THIS PERMIT ACTION

Equipment ID	Emission Unit / Batch Process	Equipment Description	Start of Constr. Date	Start of Operation Date	VOC TPY	NOx TPY	CO TPY	SO2 TPY	TSP TPY	PM10 TPY	PM2.5 TPY
E21	U54	Polypropylene Silo	11/1/2019	11/1/2019					0.85	0.85	0.85
E14, E38	U14	Landplaster Bulk Loading System	11/1/2019	11/1/2019					1.41	1.41	1.41
E71	U31	Stucco Cooling System	11/1/2019	11/1/2019					5.72	6.12	6.12
			Totals for this Permit Action (IA):		0.00	0.00	0.00	0.00	7.98	8.38	8.38

NETTING ANALYSIS RESULTS

Consistent with N.J.A.C. 7:27-18.7

Table 2 - Total IP, INP, IF, DO, & DC for the Contemporaneous Period – ENTER ALL DATA FOR THE CONTEMPORANEOUS PERIOD SHOWN BELOW

Contemporaneous Period Start:	1/1/2014	Contemporaneous Period End:	11/1/2019

Use the Equipment ID drop-down filter to uncheck blank rows before printing.

Equipment ID	Emission Unit / Batch Process	Equipment Description	BOP Activity	Permit Approval Date	Netting Term	VOC TPY	NOx TPY	CO TPY	SO2 TPY	TSP TPY	PM10 TPY	PM2.5 TPY
E115 - E120	U54	Resin Extrusion Process	BOP170002	4/2/2018	IP	0.66				0.26	0.26	0.26
	IS24	Three (3) Slitters (each	BOP170002	4/2/2018	IP					0.01	0.01	0.01
E113	U53	Feed Hopper	BOP160002	6/26/2017	IP					0.06	0.02	0.02
E114	U53	DeLumper/Discharge Auger	BOP160002	6/26/2017	IP					0.10	0.05	0.05
	IS26	Four (4) Natural Gas-Fired Space Heaters (0.2	BOP170002	5/1/2018	IP	0.02	0.32	0.13	0.00	0.01	0.03	0.03

U31 Stucco Cooling

Original date of construction for Sifter: 1995 (Permit to construct issued 1996)

NSPS Applicability: Subject to Subpart OOO since sifter is a screening device which is an "affected facility" under the OOO rules

Emission Unit No.	U31
Equipment No.	E58
Control Device No.	CD24
Emission Point No.	PT33
Operating Scenario No.	OS10

Maximum Annual Operation	8,760 hr/yr
Maximum hourly process filling rate:	100,000 lb/hr
Maximum hourly process rate:	50.0 tons/hr
Maximum annual process rate:	428,000 tons/yr
TSP/PM_{10} emission factor[a]:	0.0022 lb/ton
TSP/PM_{10} emission factor[a]:	0.00074 lb/ton
$PM_{2.5}$ emission factor[a]:	0.00005 lb/ton
TSP emission rate:	0.110 lb/hr
TSP emission rate:	0.48 tons/yr
PM_{10} emission rate:	0.04 lb/hr
PM_{10} emission rate:	0.16 tons/yr
$PM_{2.5}$ emission rate:	0.003 lb/hr
$PM_{2.5}$ emission rate:	0.01 tons/yr

[a] AP-42, Table 11.19.2-2 for Screening (controlled), for aggregate processing in Table B.2.2 for Category 4, material handling and processing of processed ores and minerals.

Maximum emission rate of 0.11 lb/hr is now above reporting threshold of 0.05 lb/hr in Appendix to N.J.A.C. 7:27-22. [N.J.A.C. 7:27-22.16(e)]

Georgia-Pacific Gypsum LLC (51611)

Date: 9/20/2019

New Jersey Department of Environmental Protection
Reason for Application

Permit Being Modified

Permit Class: BOP **Number:** 180001

Description of Modifications: Georgia-Pacific Gypsum LLC ("GP Gypsum") submits this application for a significant modification to the Title V Operating Permit for the gypsum manufacturing plant in Camden, New Jersey ("Camden Plant") to incorporate several new projects at the Camden Plant. The specific projects the Camden Plant is proposing are summarized below:

- Kettle #2 reconfiguration;

- Polypropylene Pellet Silo installation;

- Supersac Loading installation;

- Kemutec replacement;

- Stucco Loading Spout replacement;

- Raymond Mill #2 Clean Air Plenum replacement; and

- Kettle #3 Clean Air Plenum replacement.

Please see the cover letter of the permit application for additional details.

New Jersey Department of Environmental Protection
Facility Profile (General)

Facility Name (AIMS): Georgia-Pacific Gypsum LLC **Facility ID (AIMS):** 51611

Street Address: 1101 SOUTH FRONT ST
CAMDEN, NJ 08103

Mailing Address: ROBERT CHRISTENSEN
1101 SOUTH FRONT ST
CAMDEN, NJ 08103

State Plane Coordinates:

X-Coordinate:	1,869,725
Y-Coordinate:	400,039
Units:	Feet
Datum:	Unknown
Source Org.:	Other/Unknown
Source Type:	Hard Copy Map

County: Camden

Location Description: Lat/Long: 39,55,52/75,07,49

Industry:

Primary SIC:	
Secondary SIC:	
NAICS:	327420

New Jersey Department of Environmental Protection
Facility Profile (General)

Contact Type: Air Permit Information Contact

Organization: Georgia-Pacific Gypsum LLC
Org. Type: LLC
Name: Benjamin Chantz
NJ EIN:
Title: Environmental Manager
Phone: (856) 963-6936 x0000
Fax: (856) 964-2868 x0000
Other: (856) 536-0725 x
Type: Mobile
Email: benjamin.chantz@gapac.com
Mailing Address: 1101 South Front St
Camden, NJ 08103

Contact Type: Fees/Billing Contact

Organization: Georgia-Pacific Gypsum LLC
Org. Type: LLC
Name: Robert Christensen
NJ EIN:
Title: Plant Manager
Phone: (856) 963-6931 x
Fax: (856) 964-2868 x
Other: ( ) - x
Type:
Email: robert.christensen@gapac.com
Mailing Address: 1101 South Front Street
Camden, NJ 08103

Contact Type: Responsible Official

Organization: Georgia-Pacific Gypsum LLC
Org. Type: LLC
Name: Robert Christensen
NJ EIN:
Title: Plant Manager
Phone: (856) 963-6931 x
Fax: (856) 964-2868 x
Other: ( ) - x
Type:
Email: robert.christensen@gapac.com
Mailing Address: 1101 South Front Street
Camden, NJ 08103

Georgia-Pacific Gypsum LLC (51611) Date: 9/20/2019

New Jersey Department of Environmental Protection
Facility Profile (Permitting)

1. Is this facility classified as a small business by the USEPA?	No
2. Is this facility subject to N.J.A.C. 7:27-22?	Yes
3. Are you voluntarily subjecting this facility to the requirements of Subchapter 22?	No
4. Has a copy of this application been sent to the USEPA?	No
5. If not, has the EPA waived the requirement?	No
6. Are you claiming any portion of this application to be confidential?	No
7. Is the facility an existing major facility?	Yes
8. Have you submitted a netting analysis?	Yes
9. Are emissions of any pollutant above the SOTA threshold?	No
10. Have you submitted a SOTA analysis?	No
11. If you answered "Yes" to Question 9 and "No" to Question 10, explain why a SOTA analysis was not required	
12. Have you provided, or are you planning to provide air contaminant modeling?	No

Georgia-Pacific Gypsum LLC (51611) Date: 9/20/2019

New Jersey Department of Environmental Protection
Equipment Inventory

Equip. NJID	Facility's Designation	Equipment Description	Equipment Type	Certificate Number	Install Date	Grand-Fathered	Last Mod. (Since 1968)	Equip. Set ID
E103	Supersac	Supersac Loading	Manufacturing and Materials Handling Equipment		11/1/2019			
E121	PP Silo	Polypropylene Pellet Silo	Storage Vessel		11/1/2019			

Georgia-Pacific Gypsum LLC (51611) Date: 9/20/2019

New Jersey Department of Environmental Protection
Control Device Inventory

CD NJID	Facility's Designation	Description	CD Type	Install Date	Grand-Fathered	Last Mod. (Since 1968)	CD Set ID
CD26	Blndr Pkr DC	Blender and Packer Dust Collector	Particulate Filter (Baghouse)	10/16/1998	No	10/16/1998	
CD41	PP Silo Cart	Polypropylene Pellet Silo Cartridge	Particulate Filter (Cartridge)	11/1/2019			

Georgia-Pacific Gypsum LLC (51611)

Date: 9/20/2019

New Jersey Department of Environmental Protection
Emission Points Inventory

PT NJID	Facility's Designation	Description	Config.	Equiv. Diam. (in.)	Height (ft.)	Dist. to Prop. Line (ft)	Exhaust Temp. (deg. F)			Exhaust Vol. (acfm)			Discharge Direction	PT Set ID
							Avg.	Min.	Max.	Avg.	Min.	Max.		
PT36	Supersac EP	Supersac Loading Emission Point	Round	15	95	180	70.0	70.0	110.0	17.3			Up	
PT151	PP Silo EP	Polypropylene Pellet Silo Emission Point	Round	20	33		100.0			1,200.0			Up	

Georgia-Pacific Gypsum LLC (51611)

Date: 9/20/2019

New Jersey Department of Environmental Protection
Emission Unit/Batch Process Inventory

U 36 B/P System Blender/Packer System

UOS NJID	Facility's Designation	UOS Description	Operation Type	Signif. Equip.	Control Device(s)	Emission Point(s)	SCC(s)	Annual Oper. Hours Min.	Annual Oper. Hours Max.	VOC Range	Flow (acfm) Min.	Flow (acfm) Max.	Temp. (deg F) Min.	Temp. (deg F) Max.
OS7	Supersac	Supersac Loading	Normal - Steady State	E103	CD26 (P)	PT36		0.0	8,760.0		0.0	17.3	100.0	100.0

U 54 Resin Ext Resin Extrusion Process

UOS NJID	Facility's Designation	UOS Description	Operation Type	Signif. Equip.	Control Device(s)	Emission Point(s)	SCC(s)	Annual Oper. Hours Min.	Annual Oper. Hours Max.	VOC Range	Flow (acfm) Min.	Flow (acfm) Max.	Temp. (deg F) Min.	Temp. (deg F) Max.
OS7	PP Silo	Polypropylene Pellet Silo	Normal - Steady State	E121	CD41 (P)	PT151		0.0	8,760.0		0.0	1,300.0	100.0	100.0

51611 Georgia-Pacific Gypsum LLC Date: 9/20/2019

New Jersey Department of Environmental Protection
Potential to Emit

Subject Item: **U36 B/P System**

Operating Scenario: **OS7**

Step:

Air Contaminant Category (HAPS)	Fugitive Emissions	Emissions Before Controls	Emissions After Controls	Total Emissions	Units	Alt. Em. Limit
Pb					lb/hr	No
PM-10 (Total)			0.00410000	0.00410000	lb/hr	No
TSP			0.00900000	0.00900000	lb/hr	No

Subject Item: **U54 Resin Ext**

Operating Scenario: **OS7**

Step:

Air Contaminant Category (HAPS)	Fugitive Emissions	Emissions Before Controls	Emissions After Controls	Total Emissions	Units	Alt. Em. Limit
PM-10 (Total)			0.19500000	0.19500000	lb/hr	No
TSP			0.19500000	0.19500000	lb/hr	No

000000 E103 (Manufacturing and Materials Handling Equipment)
Print Date: 9/20/2019

Make:	NBE Bulk Filling System
Manufacturer:	National Bulk Equipment
Model:	
Type of Manufacturing and Materials Handling Equipment:	Bulk Bag Packer
Capacity:	6.00E+04
Units:	other units
Description (if other):	lbs/hr
Have you attached a diagram showing the location and/or the configuration of this equipment?	Yes
Have you attached any manuf.'s data or specifications to aid the Dept. in its review of this application?	Yes
Comments:	

000000 E121 (Storage Vessel)
Print Date: 9/20/2019

What type of contents is this storage vessel equipped to contain by design?	Solids Only
Storage Vessel Type:	Silo
Design Capacity:	3,732
Units:	ft^3
Ground Location:	
Is the Shell of the Equipment Exposed to Sunlight?	
Shell Color:	
Description (if other):	
Shell Condition:	
Paint Condition:	
Shell Construction:	Welded
Is the Shell Insulated?	
Type of Insulation:	
Insulation Thickess (in):	
Thermal Conductivity of Insulation [(BTU)(in)(hr)(ft2)(deg F)]:	
Shape of Storage Vessel:	Cylindrical
Shell Height (From Ground to Roof Bottom) (ft):	
Length (ft):	33.00
Width (ft):	
Diameter (ft):	12.00
Other Dimension	
Description:	
Value:	
Units:	
Fill Method:	
Description (if other):	
Maximum Design Fill Rate:	
Units:	ft^3/min
Does the storage vessel have a roof or an open top?	
Roof Type:	
Roof Height (From Roof Bottom to Roof Top) (ft):	
Roof Construction:	
Primary Seal Type:	
Secondary Seal Type:	
Total Number of Seals:	
Roof Support:	
Does the storage vessel have a Vapor Return Loop?	

000000 E121 (Storage Vessel)
Print Date: 9/20/2019

Does the storage vessel have a Conservation Vent?	
Have you attached a diagram showing the location and/or the configuration of this equipment?	Yes
Have you attached any manuf.'s data or specifications to aid the Dept. in its review of this application?	Yes
Comments:	

000000 CD41 (Particulate Filter (Cartridge))
Print Date: 9/20/2019

Make:	Modular Cartridge Bin Vent
Manufacturer:	Coperion
Model:	K-Tron
Number of Cartridges:	3
Size of Cartridges (ft²):	104.70
Total Cartridge Area (ft²):	314.70
Maximum Design Temperature Capability (°F):	266.0
Maximum Design Air Flow Rate (acfm):	400.0
Maximum Air Flow Rate to Filter Area Ratio:	
Minimum Operating Pressure Drop (in. H2O):	
Maximum Operating Pressure Drop (in. H2O):	
Maximum Inlet Temperature (°F):	
Maximum Operating Exhaust Gas Flow Rate (acfm):	
Method for Determining When Cartridge Replacement is Required:	
Maximum Number of Sources Using this Apparatus as a Control Device (Include Permitted and Non-Permitted Sources):	1
Alternative Method to Demonstrate Control Apparatus is Operating Properly:	
Have you attached a Particle Size Distribution Analysis?	○ Yes ● No
Have you attached data from recent performance testing?	○ Yes ● No
Have you attached any manufacturer's data or specifications in support of the feasibility and/or effectiveness of this control apparatus?	● Yes ○ No
Have you attached a diagram showing the location and/or configuration of this control apparatus?	● Yes ○ No

Comments:

51611 Georgia-Pacific Gypsum LLC BOP000000 U36 OS7 (Efficiency Table - CD26)
Print Date: 9/20/2019

Pollutant Category	Capture Efficiency (%)	Removal Efficiency (%)	Overall Efficiency (%)
CO			
HAP (Total)			
NOx			
Other (Total)			
Pb			
PM-10	100.00	99.00	99.00
PM-2.5	100.00	99.00	99.00
SO2			
TSP	100.00	99.00	99.00
VOC (Total)			

51611 Georgia-Pacific Gypsum LLC BOP000000 U54 OS7 (Storage Vessel Content)
Print Date: 9/20/2019

Content Name:	Other (Total)
CAS Number:	
Is the Content Under Pressure?	
Pressure (PSIG):	
Physical State:	Solid
Estimated Average Working Volume:	
Units:	f3
Density of Contents:	
Units:	lb/ft^3
Estimated Minimum Storage Temperature (deg F):	
Estimated Maximum Storage Temperature (deg F):	
Estimated Average Storage Temperature (deg F):	
Does the Content Contain VOCs?:	
Organic Density:	
Units:	
Molecular Weight (Lbs/Lbs-Mole):	
Vapor Pressure at Average Storage Temperature (PSIA):	
Vapor Pressure at 70 deg F (mmHg):	
Estimated Average Annual Throughput:	
Units:	
Estimated Maximum Annual Throughput:	
Units:	

51611 Georgia-Pacific Gypsum LLC BOP000000 U54 OS7 (Efficiency Table - CD41)
Print Date: 9/20/2019

Pollutant Category	Capture Efficiency (%)	Removal Efficiency (%)	Overall Efficiency (%)
CO			
HAP (Total)			
NOx			
Other (Total)			
Pb			
PM-10	100.00	99.95	99.95
PM-2.5	100.00	99.95	99.95
SO2			
TSP	100.00	99.95	99.95
VOC (Total)			

Georgia-Pacific Gypsum LLC
1101 South Front Street
Camden, NJ 08103
(856) 966 - 7600 Telephone

November 1, 2019

Adam Pagarigan
State of New Jersey
Department of Environmental Protection
Bureau of Stationary Sources
Operating Permit Section

Re: Georgia-Pacific Gypsum LLC (PI#51611)
Information Request for BOP190001-U31 proposed modification

Mr. Pagarigan,

Please find the questions that were sent via email on Monday September 23, 2019 below in blue text. Georgia-Pacific's (GP's) responses to these requests are in red. An updated RADIUS application is being submitted on the NJDEP-Online portal as well as an emissions spreadsheet. The "Description of Modifications:" write-up in the RADIUS form has been revised to reflect these changes. If you have further questions, please don't hesitate to reach out.

Regards,

Ben Chantz
Facility Environmental Manager

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1. Short term (lb/hr) emission limits are required in the operating permit for each piece of equipment. The proposed modification is requesting a combined lb/hr emission limit for all 11 pieces of equipment in emission unit U31. Also, the Attachment 4 emission calculations provided with the modification application (attached) shows that the hourly emission rate for 9 of the 11 pieces of equipment below permit reporting threshold? Please note the allowable emission rate per piece of equipment (Subchapter 22 limit) is different than the NJ Subchapter 6 particulate limit of 1.09 lb/hr. Please reply with proposed emission limits per piece of equipment. Please provide backup emission data from the baghouse manufacturer to support your proposed emission calculations showing the baghouse control efficiency, grains/scf emissions, etc., based on the maximum material throughput proposed.

Response: Per discussion during the October 15, 2019 conference call with NJDEP, short term emissions limits have only been calculated for the two pieces of equipment (E71 and E106) for which the emissions rate is over the reporting threshold of 0.05 lb/hr in Subchapter 22. No changes to the calculation spreadsheet were necessary to address this comment.

2. When calculating tons per year emissions for U31, only include the pollutants from the operating scenarios at or above the 0.05 lb/hr reporting threshold. Please reply with the proposed annual emission limit for U31.

Response: Per discussion during the October 15, 2019 conference call with NJDEP, total ton per year emissions from U31 are a sum of emissions from E77 and E106 (i.e., the two pieces of equipment for which the emissions rate is over the reporting threshold) both of which use the Subchapter 6 grain loading of 0.02 gr/dscf to develop hourly and annual emissions. The calculation spreadsheet has been revised.

3. The current Subchapter 6 limit of 1.09 lb/hr is correct per the rule (there was a note in the modification that this number was not reproducible). Per NJ Subchapter 6, for rates between any two consecutive values stated in columns 1 and 3 of the N.J.A.C. 7:27-6.2 table, the corresponding allowable emission rates shall be as determined by interpolation. See attached U31; E71 Spout spreadsheet tab showing this calculation.

Response: N/A - No change necessary.

4. Footnote 2, indicates the 11,000 is based on BOP180001? Please add footnote to show you are proposing to change the fan acfm to 11,000 based on the current fan installed or a fan that was installed…

Response: A footnote (#5) has been added to the calculation spreadsheet to indicate the derivation of the updated fan speed for CD24.

5. The proposed U31 annual TSP/PM10 emission limits are based on the "assumption" of 0.02 grains/scf and max flow rates. The typical controlled level of particulate emissions from this type of baghouse range from 0.005 gr/scf to 0.01 fr/scf. Back calculating the current permitted U31 annual TSP emission and current emission point flowrate and temperature, the calculations indicate that the baghouse outlet grain loading is 0.0042 gr/scf. Please propose an outlet grain loading rate that represents the actual emission from the U31 baghouse, and minimizes the TSP/PM10 emission increase.

Response: The calculation spreadsheet has been revised to show that the total emissions from U31 are a sum of emissions from E77 and E106. The previous calculations conservatively used the lb/hr emission rate developed from the Subchapter 6 methodology which, through discussion with NJDEP during the October 15, 2019 conference call, GP realizes is inappropriate and results in excessive emissions that are not representative of the potential emissions from this emission unit.

Attachment 4
Emission Calculations
U31; E71 Spout
Georgia-Pacific Gypsum LLC
Camden, NJ

Throughput Summary - BOP180001	
E106 Total Operating Hours (hrs)[2]	8,760
E71 Total Operating Hours (hrs)[2]	1,000
E71 Total Throughput (tons/hr)[2]	50
Exhaust temperature for E71	190
Grain Loading (grains/dscf)[4]	0.02
CD24 Fan Capcity (acfm)[2]	8,000
CD24 Fan Capcity (dscfm)	6,523
E71 Booster Fan Capacity (acfm)[3]	1,000
E71 Booster Fan Capacity (dscfm)	815

Throughput Summary - Proposed Modification	
E106 Total Operating Hours (hrs)[2]	8,760
E71 Total Operating Hours (hrs)[1]	8,760
E71 Total Throughput (tons/hr)[2]	50
Exhaust temperature for E71	190
Grain Loading (grains/dscf)[4]	0.02
CD24 Fan Capcity (acfm)[5]	11,000
CD24 Fan Capcity (dscfm)	8,969
E71 Booster Fan Capacity (acfm)[3]	1,000
E71 Booster Fan Capacity (dscfm)	815

Emissions - BOP180001	*OS1*	*OS2*	*OS3*	*OS4*	*OS5*	*OS6*	*OS7*	*OS8*	*OS9*	*OS10*	*OS11*				
Pollutant	E31 Hourly Emissions (lb/hr)[2]	E32 Hourly Emissions (lb/hr)[2]	E33 Hourly Emissions (lb/hr)[2]	E34 Hourly Emissions (lb/hr)[2]	E35 Hourly Emissions (lb/hr)[2]	E36 Hourly Emissions (lb/hr)[2]	E37 Hourly Emissions (lb/hr)[2]	E71 Hourly Emissions (lb/hr)	E57 Hourly Emissions (lb/hr)[2]	E58 Hourly Emissions (lb/hr)[2]	E106 Hourly Emissions (lb/hr)	E71 Annual Emissions (tpy)	E106 Annual Emissions (tpy)	U31 Annual Emissions (tpy)	U31 Emission Rate (lb/hr)
PM_{10}	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	0.10	< 0.05	< 0.05	0.13	0.05	0.57	0.62	1.09
$PM_{2.5}$	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	0.10	< 0.05	< 0.05	0.13	0.05	0.57	0.62	1.09
TSP	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	0.10	< 0.05	< 0.05	0.22	0.05	0.96	1.01	1.09
uncontrolled emission rate														*55.9*	

Emissions - Proposed Modification	*OS1*	*OS2*	*OS3*	*OS4*	*OS5*	*OS6*	*OS7*	*OS8*	*OS9*	*OS10*	*OS11*				
Pollutant	E31 Hourly Emissions (lb/hr)[2]	E32 Hourly Emissions (lb/hr)[2]	E33 Hourly Emissions (lb/hr)[2]	E34 Hourly Emissions (lb/hr)[2]	E35 Hourly Emissions (lb/hr)[2]	E36 Hourly Emissions (lb/hr)[2]	E37 Hourly Emissions (lb/hr)[2]	E71 Hourly Emissions (lb/hr)	E57 Hourly Emissions (lb/hr)[2]	E58 Hourly Emissions (lb/hr)[2]	E106 Hourly Emissions (lb/hr)[3]	E71 Annual Emissions (tpy)	E106 Annual Emissions (tpy)	U31 Annual Emissions (tpy)	U31 Emission Rate (lb/hr)
PM_{10}	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	0.14	< 0.05	< 0.05	0.13	0.61	0.57	1.18	1.51
$PM_{2.5}$	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	0.14	< 0.05	< 0.05	0.13	0.61	0.57	1.18	1.51
TSP	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	0.14	< 0.05	< 0.05	0.22	0.61	0.96	1.58	1.51
uncontrolled emission rate														*673.5*	

Notes:

1) Total operating hours based on operating schedule of 24 hrs/day 7 days/week for 12 months.
2) Based on BOP180001.
3) Truck loading performed with separate fan rated at 1,000 acfm at 190 ºF that discharges dust back to bin vent. Spout is double-walled, meaning that material flows through inner portion while captures fugitive dust from truck loading.
4) N.J.A.C. 7:27-6.2(a)4 & Table 2 to Subpart OOO of Part 60 - Stack Emission Limits for Affected Facilities with Capture Systems.
5) From Chicago Blower Fan Replacement Specifications S/N 138383

Methodology:

- Emissions are calculated using the following formulas:

$$\textbf{Annual Emissions (tpy)} = Hourly\ Emissions\ Rate \times Opertating\ Hours \times k$$

where, k = constant, 1 ton / 2000 lb

$$dscfm \times 60\frac{mins}{hour} \times 0.02\frac{grains}{dscf} \times t$$

$$dscfm \times 60\frac{mins}{hour} \times 0.02\frac{grains}{dscf}$$

Attachment 4
Emission Calculations
U31; E71 Spout
Georgia-Pacific Gypsum LLC
Camden, NJ

dscfm = $\frac{\text{[illegible]}}{(y+k)}$ *(100 - % moisture)*

where, *x = standard temperature, 70°F*
y = actual temperature °F
k = constant, 459.67°R

uncontrolled emissions rate = $\frac{\text{[illegible]}}{k}$ */(100%-99%)*

where, *t = operating hours*
k = conversion from grains to pounds, 7000 grains/lb
assume, *baghouse efficicency is assume to be 99%*

Hourly Emissions Rate = $\frac{\text{[illegible]}}{k}$

where, *k = constant, 7000 grains/lb*