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July 5, 2012

Mr. William Rogers  
Stationary Source Permit Program Coordinator  
Idaho Department of Environmental Quality  
1410 N. Hilton Street  
Boise, Idaho 83706

**Re: Basalite Concrete Products, Meridian Idaho  
Permit to Construction Application**

Dear Mr. Rogers,

JBR Environmental Consultants, Inc. (JBR), on behalf of Basalite Concrete Products, is submitting a Permit to Construct (PTC) Application for an initial air quality permit for the facility located at 1300 E. Franklin Road, Meridian, Idaho 83642. This application has been developed to ensure all applicable state requirements as defined in IDAPA 58.01.01.200-228 are met. In addition, applicable federal requirements have been included.

This submittal includes the PTC application, a modeling section that demonstrates compliance with all applicable requirements and a detailed emissions inventory (both hardcopy and electronic). Finally, \$1,000 PTC application fee is also included.

Pursuant to IDAPA.01.01.123, all information contained within this application has been certified to be true, accurate and complete by Travis Duvall of Basalite Concrete.

Should you have any questions please do not hesitate to call Travis Duvall at (208) 888-4050 or myself at the number below.

Sincerely,

JBR Environmental Consultants, Inc.

A handwritten signature in black ink that reads "Eric E. Clark".

Eric Clark, EIT  
Environmental Analyst II  
(208) 853-0883

Enclosures: PTC Application, CD containing all data in electronic format

# **Basalite Concrete Products**

## **Permit to Construct Application**

### **Basalite Boise Plant**

**Submitted to:**

Idaho Department of Environmental Quality  
Division of Air Quality  
1410 North Hilton  
Boise, ID 83706  
208.373.0502

**Prepared for:**

Basalite Concrete Products  
1300 Franklin Road  
Meridian, ID 83712  
Contact: Travis DuVall  
Ph: 208.537.1750

**Prepared by:**

JBR Environmental Consultants, Inc.  
7669 West Riverside Drive, Suite 101  
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**July 2012**



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## TABLE OF CONTENTS

<u>Section</u>	<u>Page</u>
EXECUTIVE SUMMARY .....	i
1.0 PROCESS DESCRIPTION .....	4
1.1 Overview.....	4
1.2 Raw Material - Transportation and Storage.....	4
1.3 Raw Material - Batching.....	5
1.4 Block Machine Forming, Curing and Cubing.....	7
2.0 REGULATORY APPLICABILITY.....	9
2.0 National Ambient Air Quality Standards (NAAQS) .....	10
2.1 Title V (Part 70) Operating Permit .....	10
2.2 National Emission Standards for Hazardous Air Pollutants (NESHAPs) .....	10
2.3 New Source Review (NSR) Requirements .....	11
2.4 New Source Performance Standards (NSPS) .....	11
2.5 Acid Rain Requirements .....	11
2.6 Risk Management Programs for Chemical Accidental Release Prevention.....	11
2.7 State Rules .....	12
2.7.1 Certification of Documents.....	12
2.7.2 Excess Emissions .....	12
2.7.3 Demonstration of Preconstruction Compliance with Toxic Standards.....	12
2.7.4 Ambient Air Quality Standards for Specific Air Pollutants .....	12
2.7.5 Toxic Air Pollutants.....	12
2.7.6 Open Burning.....	13
2.7.7 Visible Emission Limitation .....	13
2.7.8 Rules for Control of Fugitive Dust .....	13
2.7.9 Fuel Burning Equipment – Particulate Matter .....	13
2.7.10 Odors.....	13
3.0 EMISSION SUMMARY.....	14
3.1 Emission Calculations.....	14
3.2 Toxic Air Pollutants.....	14

## **APPENDIXES**

Appendix A	Site Location Map and Plot Plan
Appendix B	PTC Application Forms and Checklists
Appendix C	Process Flow Diagram
Appendix D	Manufacturer Information
Appendix E	Emissions Inventory
Appendix F	Modeling Analysis

## **EXECUTIVE SUMMARY**

Basalite Concrete Products – Boise is applying for an initial Permit to Construct that will include the following emission units.

- Two steam generating vaporizers.
- A fifteen (15) T/hr jaw crusher and thirty (30) T/hr roll crusher.
- Two (2) cement storage silos and one (1) fly ash/supplement storage silo.
- Particulate emissions associated with screening.
- Fugitive emission sources associated with aggregate handling, transfer points, stockpiles and conveyance transfer.

Basalite Concrete Products – Boise will be a minor facility regarding Title V with a potential to emit (PTE) less than 100 tons per year (tpy) for all criteria pollutants and hazardous air pollutant (HAP) thresholds of 10 tpy of a single HAP and 25 tpy for all aggregated HAP emissions.

## **1.0 PROCESS DESCRIPTION**

### **1.1 Overview**

Basalite Concrete Products (Basalite) brings in raw materials in various amounts. These materials are mixed in recipe specific batches to form concrete based products including but not limited to CMU (concrete masonry units), SRW (segmented retaining wall units), interlocking paver units, garden line product units, and water revetment erosion control units. Mixes are formed in molds, which are then heated with steam to cure as final products. Final product is stored at the facility property until units are shipped state-wide as well as to bordering states.

Emission points are primarily the raw material intake points, a small percentage of the material transfer or handling points that are not fully enclosed, crushing and screening operations, and two 5 MMBtu/hr natural gas fired boilers that provide heat for curing the molded concrete based products. The crushing and screening operation handles reclaimed materials (molded concrete product not up to specification) for reuse in the product development process. The crushing and screening occur in an enclosed building, with the emissions from crushers, the screening operation, and some material transfers controlled by a baghouse inside that building. A more detailed description of the facility process is described in the following sub-sections.

### **1.2 Raw Material - Transportation and Storage**

ASTM C33 Sand and 3/8" Chip Gravel are the most common used aggregates by Basalite. These two items are brought in via tractor-trailer transportation. After arriving, there is one of two locations in which they are placed. Either aggregate may be delivered to a dedicated location stockpile on the ground or to a small drive-over hopper. This drive-over hopper is used for supplying aggregate to the plant for relatively immediate use. Stockpile aggregate locations are used for after-hours supply, emergency supply, or inclement weather supply.

3/8" Black Cinder, 3/8" Gold Pumice, and 7/16" Red Cinder are used in specialty mix designs only. 3/8" Gold Pumice is brought in via tractor-trailer transportation. 3/8" Black Cinder and 7/16" Red Cinder is brought in via dump truck and dump pup trailer. Each of these items has a dedicated location stockpile on the ground, but may also be loaded into the plant live bins via the drive-over hopper.

3/8" #8 White Pumice is used in the majority of Basalite's mix designs. This item is currently brought to the facility via railcar, although there is also the ability to bring it in via tractor-trailer transportation. Railcars are 99 ton capacity and delivered to the facility upon a rail spur that is located on the property. These railcars are pushed through an open-sided building (75% enclosed) called the Screen Shed. Upon delivery, railcars are opened from bottom slide gate hoppers (belly drop) and material falls upon a large drive-over hopper 13' 2" x 25' 8" (grizzly).

Belt conveyors transport the White Pumice to large closed roof aggregate silos on the property for storage until needed for use. There are four large aggregate storage silos and one middle septum small aggregate storage silo. Each of the large aggregate storage silos has a capacity of 960 ton while the middle septum aggregate storage silo has a capacity of 320 ton. There are no ambient air emission points associated with these silos other than drop transfer points when the white pumice is transferred via conveyor to the batching building.

Type II-V Cement and Type F Fly Ash are used in every concrete product mix design. These two items are also brought in via tractor-trailer transportation. After arriving, Type II-V Cement is pneumatically pumped (blown by air displacement) into one of two storage silos on the facility. Type F Fly Ash is also pneumatically pumped into a third storage silo on the facility. Line A Cement silo has a 100 ton capacity and Line B Cement silo has a 115 ton capacity. Line A/B Fly Ash silo has a 50 ton capacity. However, the typically throughput rate of transfer to the silos is 5 ton/hr.

3/8" Minus Reclaim is currently not used but has a potential of being used in about 25% of all current mix designs. 3/8" Minus Reclaim is simply crushed concrete by-product. Concrete products manufactured by Basalite in Meridian are generally of 1<sup>st</sup> quality standards at all times; although sometimes substandard product is manufactured by accident. This product is deemed not worthy of addition to stock product quantities. Product deemed for crushing is stored on wood pallets until 3/8" Minus Reclaim is needed. Crushed product is processed near the rail spur in the Screen Shed and stored within Basalite's large aggregate storage silos until needed in the plant for manufacturing.

All other Raw Materials including concrete product chemical admixtures, concrete product iron oxide pigments, and 94# sacked White Cement are brought in via LTL tractor-trailer transportation and are stored within our warehouse until necessary for manufacturing.

### **1.3 Raw Material - Batching**

Most raw aggregate materials (sand, gravel, red and black cinder) arrive via belly dump trucks. They are unloaded via a short drop (approximately 13") onto a 13' 2" x 13' 2" grated cover (grizzly) which is located over an underground storage bin. Aggregate is moved from the underground storage bin via an incline belt conveyor to 6 (six) bins atop the block plant. The block plant is the main building at the facility where the materials are mixed, molded, and then baked into the concrete based products the facility produces.

A six-way spout directs the product into the appropriate aggregate bin, with no opening for any air releases. Each product flow is directed to its own aggregate bin (This description describes material flow into four of those six aggregate bins). Throughput of these processes is limited by the truck unloading rate which is 38 tons per hour, the capacity of the grizzly, the storage bin

below it and the conveyor. The truck unloading rate of 38 tons per hour is the limiting factor. Six fully enclosed conveyors, one from each aggregate bin, takes product from the bottoms of these aggregate bins to aggregate hoppers immediately at the two mixers, where the materials to be formed into the saleable product are combined. In getting there, those six conveyors have one transfer each onto reversing conveyors.

All other aggregates are batched from inside the plant utilizing aggregate bucket belt conveyors to load the mixers. From storage within the six live bins at the top of the batching system, recipes are called up in which a combination of aggregates are needed to suffice a certain mix design. Aggregates are volumetrically pulled via 'counts' into an aggregate weight hopper(s) (one per machine) by way of a network of stage belt conveyors. This aggregate weight hopper is levied upon large load cells that detect weight, communicating changes in mass upon the batching system CPU. Aggregate is continually loaded until the recipe is satisfied based on total weight achieved for the recipe that is called for. The aggregate weight hopper(s) are located directly above the mixers. Aggregates are dumped into the mixer by use of slide gates (gravity-fed).

Type II-V Cement and Type F Fly ash are conveyed via screw conveyor(s) to their own respective weight hoppers (one per machine). The cement weight hopper(s) are located directly above the mixers. Cement product is dispensed by use of a butterfly valve (gravity-fed vibrator actuated).

94# White Cement is batched by hand at the mixer when certain specialty mix designs require this raw material to be added. Quantity is generally batched by number of sacks.

All additional raw materials used including chemical admixtures and iron oxide pigments have their own respective 'side systems' designed for batching control based on recipes called upon. Chemical admixtures batch in ounces, while iron oxide pigments batch in pounds. Chemical admixtures are batched into the mixer via liquid pump(s) while the iron oxide pigments are batched into the mixer pneumatically.

All mixing occurs within an enclosed building. All transfer of cement and fly ash to mixer is fully enclosed. Only the addition of the chemical admixtures has the potential to escape into the air within the building. However, to minimize impact, a secondary filtration system is installed. Ultimately, there are minimal particulate emissions from the batching process that escape into the building much less ambient air. As a result batching emissions from the mixing of product has a negligible impact on the surrounding ambient air.

Upon receipt of all recipe batch amount CPU completion signals, an orchestra of action begins upon a careful and calculated process of events in which all raw materials are introduced to each

other. First aggregates and mix water combine, and then cement and fly ash is dumped, next admixture and pigments are added, and finally an additional amount of mix water is allocated. Batches generally take around 10 minutes to be called up, from start to finish. Once finished, a timer energizes and the mix is dumped from an access gate upon the lower back-side of the mixer. As the mixer continually spins, mix is continually dumped from the mixer itself into a large 'skip' bucket located sub-grade below the mixer to the rear. A mix is dumped within 30 seconds. As timers time-out, the mixer gate shuts and the batching process begins again almost immediately. As the mixer gate shuts an additional switch is energized and the 'skip' bucket begins its 90 second journey from a sub-grade level to a height nearly 30 feet in the air above Basalite's block machine batch hopper. Stops on the bucket's guide rails hold the rotating 'skip' axle as the bucket continues to be pulled from the top. As the bucket reaches its final resting stop, it finds itself tipped nearly completely upside-down. It is within this motion that the mix is dumped into the block machine batch hopper.

#### **1.4 Block Machine Forming, Curing and Cubing**

The Line A block machine is fed via gravity while Basalite's Line B block machine is fed via a small staging conveyor belt at the bottom of the block machine batch hopper. The concrete mix ("mud") flows from the block machine batch hopper to the 'throat' of the block machine itself. Mud is fed via gravity from the block machine throat to a storage cavity within a 'feedbox'. The feedbox is an oscillating shelf that maintains a consistent amount of mud to be fed to the mold within the block machine. The fundamental origin of a concrete unit is made when the mud is fed into a mold, is vibrated and compacted, and subsequently stripped out of the mold and delivered onto a chain conveyor. The concrete unit is formed on a thin flat plate of steel, commonly called a steel 'pallet'. The steel pallets are stripped from the mold with the fragile concrete units atop. They are moved via chain conveyor to the kiln. After being pushed into the kiln they are ready to be cured. A single process of the mud being molded onto a steel pallet and stripped from the block machine is called a 'cycle'. There are two Besser Company V3-12 Vibrapac block machines capable of running 540 cycles per hour each, although most mix designs and mechanical conditions do not allow us to run at that rate. Per each block machine, Basalite has a quantity of four individual kilns in which to cure product. Each kiln can handle up to 1404 cycles of product at any given time. The time in which it generally takes to load 1 kiln (1404 cycles) is 4.5 hours. With time allocated for batching, breaks, product changeovers, and clean-up, a full day's work is generally anywhere between 8 and 10 hours long. Each block machine has four individual kilns available to push product into.

Each series of four individual kilns utilizes one of two individual 5 MMBtu/hr steam generators. There are two vents associated with each of the four kilns. A total of eight kilns comprise the two steam generators, hence there are 16 total vents used as emission points related to the curing process. The two machines are utilized to push dry steam into the kilns for use of curing the concrete products. The normal cure cycle begins with product in the kiln at a normal ambient

temperature (60° F in the winter, 80° F in the summer). The first stage in the cure cycle is the Preset. The Preset is a period of time in which the product is simply held at the current ambient temperature. This 'holding pattern' assists with color consistency across a wide range of cement products at the onset of the curing process. Preset is generally 5 hours in the winter months and is adjusted down as the outside temperature increases. Preset in the middle of summer can sometimes be eliminated altogether. After Preset is finished, the next step in the cycle begins, Ramp. Ramp is generally always a five hour period as the purpose of the Ramp is to slowly increase the temperature of the kiln, always at no more than 1° F per minute. When Ramp ends, curing of the concrete product occurs at 160° F. The next step in the cure cycle is Hold, and the Hold is simply a period of time in which the kiln temperature is held at 160° F. This step generally lasts a minimum of five hours as well. The general curing of the product is done at the end of this step as the next step begins, Exhaust. Exhaust can range in time from anywhere between 2 and 20 hours, and is ultimately based on how quickly cured product is pushed out of the system. Generally, the cycle time lasts around 17 hours from start to finish.

As product is pushed out of the kiln, subsequent product (freshly made) is being pushed in from the other end. This (one-in, one-out) process is inherent with the BECO system of which is in place at Basalite in Boise. Cured product is transported by chain conveyor to an area in which it is 'depalleted' from the steel pallet. Cured product is then transported via belt conveyor or roller conveyor to an area in which it is staged for 'cubing'. Semi automatic machines are used to 'cube' product together onto wood pallets for ease of storage and transport via forklifts and tractor-trailers. After product is cubed, it is staged in the yard to await shipment.

## 2.0 REGULATORY APPLICABILITY

A review of state and local air quality regulations is provided in Table 2-1. Each regulation is described in the following sections. Included in Appendix B is the completed federal regulatory applicability PTC form.

**Table 2-1 Regulatory Applicability Summary**

	<b>Program Description</b>	<b>Regulatory Citation</b>	<b>Applicable</b>
2.1	National Ambient Air Quality Standards (NAAQS)- (dispersion modeling)	40 CFR Part 50	No
2.2	Title V Operating Permit	40 CFR Part 70	No
2.3	Air Pollutants (NESHAPs)	40 CFR Parts 61, 63	No
2.4	New Source Review (NSR)	40 CFR Part 52	No
2.5	New Source Performance Standards (NSPS)	40 CFR Part 60	No
2.6	Acid Rain Requirements	40 CFR Parts 72-78	No
2.7	Risk Management Programs For Chemical Accidental Release Prevention	40 CFR Part 68	No
2.8.	State Rules		
2.8.1	Certification of Documents	IDAPA 58.01.01.123	Yes
2.8.2	Excess Emissions	IDAPA 58.01.01.130-136	Yes
2.8.3	Demonstration of Preconstruction Compliance with Toxic Standards	IDAPA 58.01.01.210	Yes
2.8.4	Ambient Air Quality Standards for Specific Air Pollutants	IDAPA 58.01.01.577	Yes
2.8.5	Toxic Air Pollutants	IDAPA 58.01.01.585 and 586	Yes
2.8.6	Open Burning	IDAPA 58.01.01.600-616	Yes
2.8.7	Visible Emissions	IDAPA 58.01.01.625	Yes
2.8.8	Rules for Control of Fugitive Dust	IDAPA 58.01.01.650	Yes
2.8.9	Fuel Burning Equipment	IDAPA 58.01.01.676	Yes
2.8.10	Odors	IDAPA 58.01.01.775-776	Yes

## **2.0 National Ambient Air Quality Standards (NAAQS)**

Primary National Ambient Air Quality Standards (NAAQS) are identified in 40 CFR Part 50 and define levels of air quality, which the United States Environmental Protection Agency (USEPA) deems necessary to protect the public health. Secondary NAAQS define levels of air quality, which the USEPA judges necessary to protect public welfare from any known, or anticipated adverse effects of a pollutant. Examples of public welfare include protecting wildlife, buildings, national monuments, vegetation, visibility, and property values from degradation due to excessive emissions of criteria pollutants.

Specific standards for the following pollutants have been promulgated by USEPA: PM<sub>10</sub>, SO<sub>2</sub>, NO<sub>x</sub>, CO, ozone, lead, and PM<sub>2.5</sub>. The Basalite Boise facility will emit PM<sub>10</sub>, PM<sub>2.5</sub>, SO<sub>2</sub>, NO<sub>x</sub>, CO, and VOCs, a precursor to ozone. However, all emission estimates are below modeling thresholds and a NAAQS demonstration is not necessary. For further detail please refer to Appendix F.

### **2.1 Title V (Part 70) Operating Permit**

Title V of the Clean Air Act (CAA) created the federal operating permit program. These permitting requirements are codified in 40 CFR Part 70. These permits are required for major sources with a PTE (considering federally enforceable limitations) greater than 100 tpy for any criteria pollutant, 25 tpy for all hazardous air pollutants (HAPs) in aggregate, or 10 tpy of any single HAP. Basalite is a minor source because the potential to emit of all criteria emissions does not exceed 100 tons per year, nor are the HAPs thresholds exceeded. Therefore, a Title V Operating permit is not needed.

### **2.2 National Emission Standards for Hazardous Air Pollutants (NESHAPs)**

Two sets of National Emissions Standards for Hazardous Air Pollutants (NESHAPs) may potentially apply to Basalite. The first NESHAP regulations were developed under the auspices of the original CAA. These standards are codified in 40 CFR Part 61, and address a limited number of pollutants and industries. 40 CFR Part 61 regulations do not apply to this facility.

Newer regulations are codified in 40 CFR Part 63 under the authority of the 1990 Clean Air Act Amendments (CAAA). These standards regulate HAP emissions from specific source categories and typically affect only major sources of HAPs, however some affect minor sources of HAPs. Part 63 regulations are frequently called Maximum Achievable Control Technology (MACT) standards. Major HAP sources have the PTE 10 tpy or more of any single HAP or 25 tpy or more of all combined HAP emissions. At the Basalite, Boise facility, potential emissions of individual HAPs will be less than 10 tpy and combined HAP emissions will be less than 25 tpy. A review of all potential NESHAPS concluded that there are no subparts applicable to Basalite.

### **2.3 New Source Review (NSR) Requirements**

Ada County is designated as an attainment area for all criteria pollutants. Therefore, the prevention of significant deterioration (PSD) regulations codified in 40 CFR Part 52 could potentially apply to the proposed facility. The PSD rule applies to: (1) a new major source that has the potential to emit 100 tons per year or more for any criteria pollutant for a facility that is one of the 28 industrial source categories listed in 40 CFR § 52.21(b)(1)(i)(a); or (2) a new major source that has the potential to emit 250 tons per year or more if the facility is not on the list of industrial source categories; or (3) a modification to an existing major source that results in a net emission increase greater than a PSD significant emission rate as specified in 40 CFR § 52.21 (b)(23)(i); or (4) a modification to an existing minor source that is major in itself. The proposed permitting action does not trigger any PSD actions.

### **2.4 New Source Performance Standards (NSPS)**

New Source Performance Standards (NSPS) in 40 CFR Part 60 are applicable to new, modified, or reconstructed stationary sources that meet or exceed specified applicability thresholds. Two NSPS standards were evaluated that apply to the units in this application. These include Subpart OOO and Dc for the two crushing units and steam generators. The Jaw crusher is not applicable because it has a maximum capacity of less than 25 T/hr. The Roll crusher is not applicable because it was constructed prior to August 31, 1983. The two stream vaporizers are not applicable to Subpart Dc because the heat rating is less than 10 MMBtu/hr.

### **2.5 Acid Rain Requirements**

The acid rain requirements codified in 40 CFR Parts 72-78 apply only to utilities and other facilities that combust fossil fuel and generate electricity for wholesale or retail sale. The proposed facility will not produce electrical power for sale. Therefore, the facility is not subject to the acid rain provisions and will not require an acid rain permit.

### **2.6 Risk Management Programs for Chemical Accidental Release Prevention**

The facility is not subject to the Chemical Accidental Release Prevention Program and will not be required to develop a Risk Management Plan (RMP). Facilities that produce, process, store, or use any regulated toxic or flammable substance in excess of the thresholds listed in 40 CFR Part 68 must develop a RMP. The facility does not store any regulated toxic or flammable substances in excess of the applicable thresholds. A RMP is not necessary for this facility.

## **2.7 State Rules**

The Idaho Administrative Procedure Act (IDAPA) promulgates several emissions regulations that apply to Basalite in addition to those listed above.

### **2.7.1 Certification of Documents**

IDAPA 58.01.01.123 requires all documents including application forms for permits to construct, records, and monitoring reports submitted to the Department shall contain a certification by a responsible official. Basalite will comply with this requirement and the appropriate certifications by a responsible official are being submitted with this application.

### **2.7.2 Excess Emissions**

IDAPA 58.01.01.130-136 establishes procedures and requirements to be implemented in all excess emissions events. Basalite will comply with the procedures and requirements outlined in Section 131-136 and submit the necessary information and reports to DEQ related to excess emissions due to startup, shutdown, scheduled maintenance, safety measures, upsets and breakdowns.

### **2.7.3 Demonstration of Preconstruction Compliance with Toxic Standards**

IDAPA 58.01.01.210 establishes requirements for preconstruction compliance with toxic standards. Basalite will comply with this rule by identifying and calculating the toxic pollutant emission rates from the new dehydration air dryer and new air makeup unit.

As described in Section 3.0 Emission Summary, Basalite calculated the total amount of Toxic Air Pollutant (TAP) emission rates from all units and compared them to the screening levels. Basalite then modeled the ambient concentrations for those toxics which exceeded their respective emission screening levels. A complete modeling report is included in Appendix F which documents how Basalite demonstrates preconstruction compliance with toxic air quality preconstruction standards.

### **2.7.4 Ambient Air Quality Standards for Specific Air Pollutants**

IDAPA 58.01.01.577 establishes ambient air quality standards for specific air pollutants including PM10, PM2.5, Sulfur Dioxide, Ozone, Nitrogen Oxide, Carbon Monoxide, Fluorides and Lead. Basalite is below the IDEQ modeling emissions threshold for all pollutants of which there is a standard. Therefore, modeling was not conducted for these pollutants.

### **2.7.5 Toxic Air Pollutants**

IDAPA 58.01.01.585 and 586 establishes requirements for compliance with toxic air pollutants. Basalite demonstrates compliance with the standards in the modeling report included in Appendix F.

### **2.7.6 Open Burning**

IDAPA 58.01.01.600 and 616 establishes requirements for open burning. Basalite does not expect to conduct open burning at the facility however will comply with the requirements under Section 600-616 if any allowable burning is to be conducted at the facility.

### **2.7.7 Visible Emission Limitation**

IDAPA 58.01.01.625 restricts discharge of air pollutants into the atmosphere which is greater than 20% opacity for a period or periods aggregating more than three (3) minutes in any sixty (60) minute period. Basalite will comply with this rule by conducting monthly facility-wide inspections of potential sources of visible emissions, during daylight hours and under normal operating conditions. The inspection will consist of a see/no see evaluation for each potential source. If any visible emissions are observed Basalite will take corrective action or perform a Method 9 opacity test in accordance with the procedures outlined in IDAPA 58.01.01.625. Basalite will keep records onsite documenting the monthly visible emission inspection and Method 9 test conducted.

### **2.7.8 Rules for Control of Fugitive Dust**

IDAPA 58.01.01.650 requires that all reasonable precautions be taken to prevent the generation of fugitive dust. Basalite will continue to comply with fugitive particulate matter regulations.

### **2.7.9 Fuel Burning Equipment – Particulate Matter**

IDAPA 58.01.01.677 restricts any fuel burning source of less than 10 MMBtu to limit the PM released from combustion to 0.015 gr/dscf for gas fuel. The two steam generators are below 10 MMBtu/hr and will comply with this standard as provided in the attached emission inventory in Appendix E.

### **2.7.10 Odors**

IDAPA 58.01.01.775-776 requires no emissions of odorous gases, liquids, or solids to the atmosphere in such quantities as to cause air pollution. Basalite will comply with this requirement by keeping records of all odor complaints received and will take appropriate action for each complaint which has merit.

### 3.0 EMISSION SUMMARY

#### 3.1 Emission Calculations

A summary of the emissions based on the potential to emit of the following equipment are presented in Table 3-1.

- Two steam generating vaporizers
- A fifteen (15) T/hr jaw crusher and thirty (30) T/hr roll crusher.
- Two (2) cement storage silos and one (1) fly ash/supplement storage silo.
- Particulate emissions associated with screening.
- Fugitive emission sources associated with aggregate handling, transfer points, stockpiles and conveyance transfer.

Detailed emission calculations are included in Appendix E. Permit application forms are included as Appendix B.

**Table 3-1 PTC for Facility-Wide Emissions**

Source	NO <sub>x</sub>		CO		PM <sub>10</sub>		PM <sub>2.5</sub>		SO <sub>2</sub>		VOC		Lead		GHG
	(lb/hr)	(tpy)	(lb/hr)	(tpy)	(lb/hr)	(tpy)	(lb/hr)	(tpy)	(lb/hr)	(tpy)	(lb/hr)	(tpy)	(lb/hr)	(tpy)	(tpy)
Vaporizer #1	0.144	0.450	0.121	0.378	0.011	0.034	0.011	0.034	0.001	0.003	0.008	0.025	7.2E-07	2.3E-06	1,971.5
Vaporizer #2	0.144	0.450	0.121	0.378	0.011	0.034	0.011	0.034	0.001	0.003	0.008	0.025	7.2E-07	2.3E-06	
Cement Silo - Line A	--	--	--	--	1.7E-03	5.3E-03	6.8E-04	2.1E-03	--	--	--	--	5.5E-08	1.7E-07	
Cement Silo - Line B	--	--	--	--	1.7E-03	5.3E-03	6.8E-04	2.1E-03	--	--	--	--	5.5E-08	1.7E-07	
Supplement Silo - Line A & B	--	--	--	--	0.025	0.076	6.7E-03	2.1E-02	--	--	--	--	2.6E-06	8.1E-06	
Roll Crusher	--	--	--	--	7.2E-04	1.8E-04	1.8E-04	1.8E-04	--	--	--	--	--	--	
Jaw Crusher	--	--	--	--	3.6E-04	1.8E-04	1.8E-04	1.8E-04	--	--	--	--	--	--	
Railcar Emissions to Baghouse	--	--	--	--	2.9E-03	6.9E-04	6.9E-04	6.9E-04	--	--	--	--	--	--	
<b>Total PTE</b>	<b>0.288</b>	<b>0.900</b>	<b>0.242</b>	<b>0.756</b>	<b>0.054</b>	<b>0.156</b>	<b>0.031</b>	<b>0.094</b>	<b>0.002</b>	<b>0.005</b>	<b>0.016</b>	<b>0.050</b>	<b>4.2E-06</b>	<b>1.3E-05</b>	<b>1,971.5</b>

#### 3.2 Toxic Air Pollutants

A summary of the increase in Toxic Air Pollutant (TAP) emissions resulting from the PTC modification are presented in Table 3-2 and Table 3-3 below. Detailed emission calculations are included in Appendix E. All non-carcinogens meet their respective EL. The carcinogens exceeding the EL are Arsenic, Cadmium, Chromium IV, and Total PAH.

**Table 3-2 TAPs PTE  
NON-CARCINOGENS**

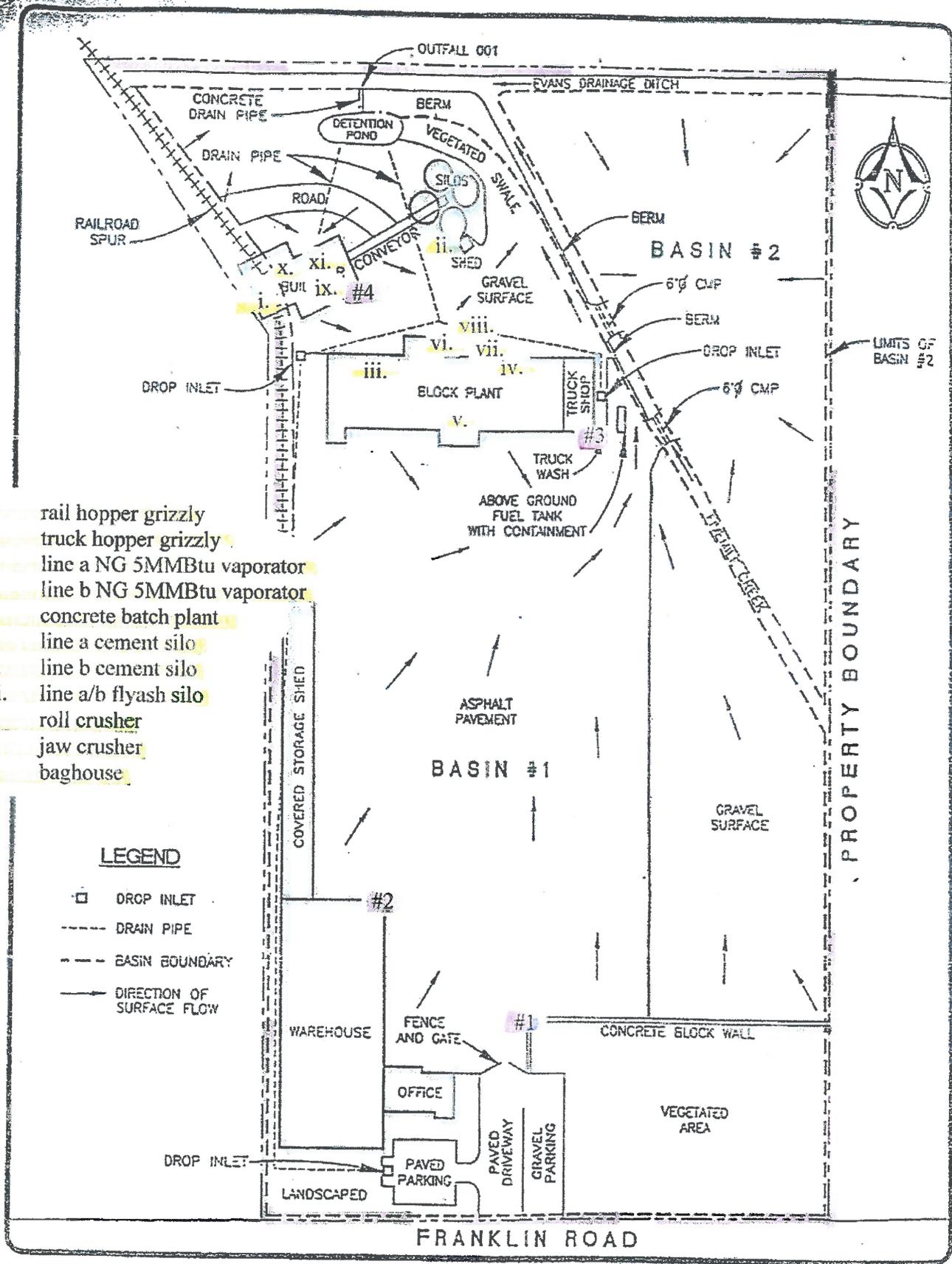
Pollutant	CAS #	TAP Emissions (lb/hr)	Pre-Project TAP Emissions (lb/hr)	Difference (lb/hr)	Screening Level (lb/hr)	Modeling (Yes/No)	TAP Emissions (tpy)
Barium	7440-39-3	1.27E-05	0.0	1.27E-05	3.30E-02	No	3.96E-05
Chromium	7440-47-3	6.48E-06	0.0	6.48E-06	3.30E-02	No	3.25E-05
Cobalt	7440-48-4	2.42E-07	0.0	2.42E-07	3.30E-03	No	7.56E-07
Copper	7440-50-8	2.45E-06	0.0	2.45E-06	6.70E-02	No	7.65E-06
Hexane	110-54-3	5.19E-03	0.0	5.19E-03	12	No	1.62E-02
Manganese	7439-96-5	3.55E-06	0.0	3.55E-06	3.33E-01	No	1.11E-05
Molybdenum	7439-98-7	3.17E-06	0.0	3.17E-06	3.33E-01	No	9.90E-06
Naphthalene	91-20-3	1.76E-06	0.0	1.76E-06	2.00E-06	No	5.49E-06
Pentane	109-66-0	7.50E-03	0.0	7.50E-03	118	No	2.34E-02
Phosphorus	7723-14-0	1.36E-04	0.0	1.36E-04	7.00E-03	No	4.23E-04
Selenium	7782-49-2	4.31E-07	0.0	4.31E-07	1.30E-02	No	1.35E-06
Vanadium	71-43-2	6.63E-06	0.0	6.63E-06	3.00E-03	No	2.07E-05
Toluene	108-88-3	9.81E-06	0.0	9.81E-06	25	No	3.06E-05
Zinc	7440-66-6	8.37E-05	0.0	8.37E-05	6.67E-01	No	2.61E-04

**Table 3-3 TAPs Increase  
CARCINOGENS**

Pollutant	CAS #	TAP Emissions (lb/hr)	Pre-Project TAP Emissions (lb/hr)	Difference (lb/hr)	Screening Level (lb/hr)	Modeling (Yes/No)	TAP Emissions (tpy)
Arsenic	7440-38-2	4.00E-06	0.0	4.00E-06	1.50E-06	Yes	1.75E-05
Benzene	74-43-2	4.32E-06	0.0	4.32E-06	8.00E-04	No	1.89E-05
Beryllium	7440-41-7	3.50E-07	0.0	3.50E-07	2.80E-05	No	1.53E-06
Cadmium	7440-43-9	4.00E-06	0.0	4.00E-06	3.70E-06	Yes	1.75E-05
Chromium VI	7440-47-3	1.36E-06	0.0	1.36E-06	5.60E-07	Yes	5.95E-05
Formaldehyde	50-00-0	1.54E-04	0.0	1.54E-04	5.10E-04	No	6.75E-04
Naphthalene	91-20-3	1.25E-06	0.0	1.25E-06	9.10E-05	No	5.49E-06
Nickel	7440-02-0	1.27E-05	0.0	1.27E-05	2.70E-05	No	5.58E-05
POM (7-PAH)	50-32-8	2.34E-08	0.0	2.34E-08	2.00E-06	No	1.03E-07
Total PAH		5.23E-06	0.0	5.23E-06	2.00E-06	Yes	2.29E-05

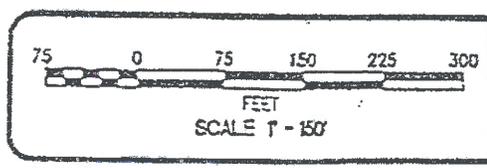
**APPENDIX A**

**SITE LOCATION MAP AND PLOT PLAN**



**centurywest**  
ENGINEERING CORPORATION

5227 FAIRWAY AVENUE, SUITE 250  
BOISE, IDAHO 83758



**FIGURE 2 - SITE PLAN**  
BUILDERS MASONRY PRODUCTS  
1300 EAST FRANKLIN ROAD  
MERIDIAN, IDAHO

# Site Location and Property Boundary



Datum: WGS84, UTM Coordinates: T11, 550.2 km E, 4828.4 km N, Elevation: 795 m

**APPENDIX B**

**PTC APPLICATION FORMS AND CHECKLISTS**



## Department of Environmental Quality - Air Quality Division Minor Source Permit to Construct Application Completeness Checklist

This checklist is designed to aid the applicant in submitting a complete permit to construct application.

### I. Actions Recommended Before Submitting Application

- Refer to the Rule. Read the Permit to Construct requirements contained in IDAPA 58.01.01.200-228, Rules for the Control of Air Pollution in Idaho. The Rules are available on DEQ's website (go to <http://adm.idaho.gov/adminrules/rules/idapa58/0101.pdf>).
- Refer to DEQ's Permit to Construct Guidance Document. DEQ has developed a guidance document to aid applicants in submitting a complete permit to construction application. The guidance document is located on DEQ's website (go to [http://www.deq.idaho.gov/air/permits\\_forms/permitting/ptc\\_prepermit\\_guidance.pdf](http://www.deq.idaho.gov/air/permits_forms/permitting/ptc_prepermit_guidance.pdf)).
- Consult with DEQ Representatives. It is recommended that the applicant schedule a pre-application meeting with DEQ to discuss application requirements before submitting the permit to construct application. The meeting can be in person or on the phone. Contact DEQ's Air Quality Hotline at **877-5PERMIT** to schedule the pre-application meeting.
- Submit Ambient Air Quality Modeling Protocol. It is strongly recommended that an ambient air quality modeling protocol be submitted to DEQ at least two (2) weeks before the permit to construct application is submitted. Contact DEQ's Air Quality Hotline at **877-5PERMIT** for information about the protocol.

### II. Application Content

**Application content should be prepared using the checklist below. The checklist is based on the requirements contained in IDAPA 58.01.01.202.**

- Apply for a Permit to Construct. Submit a Permit to Construct application using forms available on DEQ's website at [http://www.deq.idaho.gov/air/permits\\_forms/forms/ptc\\_general\\_application.pdf](http://www.deq.idaho.gov/air/permits_forms/forms/ptc_general_application.pdf).
- Permit to Construct Application Fee. The permit to construct application fee of \$1000 must be submitted at the time the original permit to construct application is submitted. Refer to IDAPA 58.01.01.224. If the permit to construct application is withdrawn or denied and a new application is submitted, a new \$1,000 application fee is required to be submitted. The application fee is not transferable or refundable. The application fee can be paid by check, credit card or Electronic Funds Transfer (EFT). If you choose to pay by credit card or EFT, please refer to the following Access Idaho link:  
<https://www.accessidaho.org/secure/deq/payport/item.html?id=511>  
If you choose to pay by check, enclose the check with your permit to construct application.
- Process Description(s). The process or processes for which construction is requested must be described in sufficient detail and clarity such that a member of the general public not familiar with air quality can clearly understand the proposed project. A process flow diagram is required for each process.
- Equipment List. All equipment that will be used for which construction is requested must be described in detail. Such description includes, but is not limited to, manufacturer, model number or other descriptor, serial number, maximum process rate, proposed process rate, maximum heat input capacity, stack height, stack diameter, stack gas flowrate, stack gas temperature, etc. All equipment that will be used for which construction is requested must be clearly labeled on the process flow diagram.
- Potential to Emit. Submit the uncontrolled potential to emit (pre-control equipment emissions estimates) and the controlled potential to emit (post-control equipment emissions estimates) for all equipment for which construction is requested. Any limit on the equipment for which is construction is requested may become a



**Department of Environmental Quality**

1410 N. Hilton, Boise, ID 83706

For assistance, call the

Air Permit Hotline - 1-877-5PERMIT

AQ-CH-P008

limit on that equipment in the permit to construct.

- Potential to Emit and Modeled Ambient Concentration for All Regulated Air Pollutants.** All proposed emission limits and modeled ambient concentrations for all regulated air pollutants must demonstrate compliance with all applicable air quality rules and regulations. Regulated air pollutants include criteria air pollutants, toxic air pollutants listed pursuant to IDAPA 58.01.01.585 and 586, and hazardous air pollutants listed pursuant to Section 112 of the 1990 Clean Air Act Amendments (go to <http://www.epa.gov/ttn/atw/188polls.html>). Describe in detail how the proposed emissions limits and modeled ambient concentrations demonstrate compliance with each applicable air quality rule and regulation. It is requested that emissions calculations, assumptions, and documentation be submitted with sufficient detail so DEQ can verify the validity of the emissions estimates.
- Scaled Plot Plan.** It is required a scaled plot plan be included in the permit to construct application and it must clearly label the location of each proposed process and the equipment that will be used in the process.
- List all Applicable Requirements.** All applicable requirements must be cited by the rule or regulation section/subpart that applies for each emissions unit.
- Certification of Permit to Construct Application.** The permit to construct application must be signed by the Responsible Official and must contain a certification signed by the Responsible Official. The certification must state that, based on information and belief formed after reasonable inquiry, the statements and information in the document are true, accurate, and complete. Refer to IDAPA 58.01.01.123.
- Submit the Permit to Construct Application.** Submit the permit to construct application and application fee to the following address:

Air Quality Program Office – Application Processing  
Department of Environmental Quality  
1410 N. Hilton  
Boise, ID 83706-1255



**DEQ AIR QUALITY PROGRAM**  
 1410 N. Hilton, Boise, ID 83706  
 For assistance, call the  
**Air Permit Hotline – 1-877-5PERMIT**

Cover Sheet for Air Permit Application – Permit to Construct **Form CSPTC**

Please see instructions on page 2 before filling out the form.

**COMPANY NAME, FACILITY NAME, AND FACILITY ID NUMBER**

1. Company Name	Basalite Concrete Products	
2. Facility Name	Boise Plant	3. Facility ID No.
4. Brief Project Description - One sentence or less	Manufacturing of concrete masonry , segmented retaining wall units, pavers, garden line product units, and water revetment erosion control units	

**PERMIT APPLICATION TYPE**

5.  New Source  New Source at Existing Facility  PTC for a Tier I Source Processed Pursuant to IDAPA 58.01.01.209.05.c  
 Unpermitted Existing Source  Facility Emissions Cap  Modify Existing Source: Permit No.: \_\_\_\_\_ Date Issued: \_\_\_\_\_  
 Required by Enforcement Action: Case No.: \_\_\_\_\_

6.  Minor PTC  Major PTC

**FORMS INCLUDED**

Included	N/A	Forms	DEQ Verify
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Form CSPTC – Cover Sheet	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Form GI – Facility Information	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	Form EU0 – Emissions Units General	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	Form EU1– Industrial Engine Information Please specify number of EU1s attached: _____	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	Form EU2– Nonmetallic Mineral Processing Plants Please specify number of EU2s attached: _____	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	Form EU3– Spray Paint Booth Information Please specify number of EU3s attached: _____	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	Form EU4– Cooling Tower Information Please specify number of EU3s attached: _____	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Form EU5 – Boiler Information Please specify number of EU4s attached: 2	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	Form CBP– Concrete Batch Plant Please specify number of CBPs attached: _____	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	Form HMAP – Hot Mix Asphalt Plant Please specify number of HMAPs attached: _____	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	PERF – Portable Equipment Relocation Form	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	Form AO – Afterburner/Oxidizer	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	Form CA – Carbon Adsorber	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	Form CYS – Cyclone Separator	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	Form ESP – Electrostatic Precipitator	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Form BCE– Baghouses Control Equipment	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	Form SCE– Scrubbers Control Equipment	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	Form VSCE – Venturi Scrubber Control Equipment	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	Form CAM – Compliance Assurance Monitoring	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Forms EI– Emissions Inventory	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>	PP – Plot Plan	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Forms MI1 – MI4 – Modeling (Excel workbook, all 4 worksheets)	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Form FRA – Federal Regulation Applicability	<input type="checkbox"/>



Please see instructions on page 2 before filling out the form.

**All information is required. If information is missing, the application will not be processed.**

**IDENTIFICATION**

1. Company Name	2. Facility Name:
Basalite Concrete Products	Boise Plant
3. Brief Project Description:	Initial PTC for a concrete products manufacturer. This includes pavers, retaining walls, garden line units and other masonry products.

**FACILITY INFORMATION**

4. Primary Facility Permit Contact Person/Title	Travis Duvall	Plant Manager
5. Telephone Number and Email Address	208-888-4050	travis.duvall@paccoast.com
6. Alternate Facility Contact Person/Title	George Morgan	Plant Superintendent
7. Telephone Number and Email Address	208-888-4050	george.morgan@paccoast.com
8. Address to Which the Permit Should be Sent	1300 East Franklin Road	
9. City/County/State/Zip Code	Meridian	Ada Idaho 83642
10. Equipment Location Address (if different than the mailing address above)	Same As Above	
11. City/County/State/Zip Code		
12. Is the Equipment Portable?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
13. SIC Code(s) and NAICS Code	Primary SIC: 3271	Secondary SIC: NAICS: 327331
14. Brief Business Description and Principal Product	Concrete masonry manufacturing	
15. Identify any adjacent or contiguous facility that this company owns and/or operates	None	
16. Specify the reason for the application	<input checked="" type="checkbox"/> Permit to Construct (PTC) <div style="border: 1px solid black; padding: 5px; margin: 5px 0;"> <p><u>For Tier I permitted facilities only:</u> If you are applying for a PTC then you must also specify how the PTC will be incorporated into the Tier I permit.</p> <input type="checkbox"/> Incorporate the PTC at the time of the Tier I renewal  <input type="checkbox"/> Co-process the Tier I modification and PTC  <input type="checkbox"/> Administratively amend the Tier I permit to incorporate the PTC upon your request (IDAPA 58.01.01.209.05.a, b, or c)         </div> <input type="checkbox"/> Tier I Permit <input type="checkbox"/> Tier II Permit <input type="checkbox"/> Tier II/Permit to Construct	

**CERTIFICATION**

In accordance with IDAPA 58.01.01.123 (Rules for the Control of Air Pollution in Idaho), I certify based on information and belief formed after reasonable inquiry, the statements and information in the document(s) are true, accurate, and complete.

17. Responsible Official's Name/Title	Travis DuVall	Plant Manager
18. Responsible Official Address	1300 E. Franklin Road	
19. Responsible Official Telephone Number	208-888-4050	
20. Responsible Official Email Address	travis.duvall@paccoast.com	
21. Responsible Official's Signature		Date: 07/03/2012

22.  Check here to indicate that you would like to review the draft permit prior to final issuance.





Complete this form for each baghouse. Please see instructions on page 2 before filling out the form.

**IDENTIFICATION**

1. Company Name Basalite Concrete Products	2. Facility Name: Boise Plant
3. Brief Project Description: Crushing / Reclaim of concrete masonry units, segmented retaining wall, gardenline & patio paver stones.	

**BAGHOUSE INFORMATION**

4. Baghouse Manufacturer: Emtrol / Filter Technology	5. Baghouse Model: 36-10 BR	6. Baghouse Equipment ID: 36BV360C 4341
7 (a). Baghouse particulate matter emission concentration. _____ gr/dscf <b>Note: Provide information in 7(a)-(c) or answer question #8 below.</b>	Manufacturers typically provide guarantees in grains per dry standard cubic foot (gr/dscf). Provide a copy of the guarantee, or other documentation, with the application along with a description of the types of bags that must be used to achieve the emission concentration. <b>Emission concentrations less than 0.01 gr/dscf will receive additional scrutiny by DEQ and a source test of the baghouse may be required.</b> If a guarantee is not provided then you must document how you obtained the emission concentration. Without documentation the application is not complete.	
7 (b). Percentage PM <sub>10</sub> _____ % Or Provide PM <sub>10</sub> Emission Concentration _____ gr/dscf	What percentage of the PM concentration listed in question #7(a) is PM <sub>10</sub> . You must provide documentation as to how the percentage was determined (i.e per the baghouse manufacturer). Without documentation the application is not complete.	
7 (c). Baghouse flow rate _____ dscfm	Provide the baghouse flow rate in dry standard cubic feet per minute. Actual cubic feet per minute may be given in lieu of dscfm <b>if it is documented</b> that moisture content is insignificant. You must provide documentation as to how this flow rate was determined (i.e. per the exhaust fan manufacturer, combustion evaluation, etc.). Without documentation the application is not complete.	
8. Baghouse particulate matter control efficiency. <u>99.98</u> % PM control <u>00.02</u> % PM <sub>10</sub> control <b>Note: Not needed if section #7 is completed.</b>	Applicant's providing the control efficiency of the baghouse must provide control efficiency for both PM and PM <sub>10</sub> . Provide a copy of the control efficiency documentation with the application. Documentation must include a description of the types of bags that must be used to achieve the control efficiency. Without documentation the application is not complete.	
9. Is the baghouse equipped with a bag leak detector? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If a bag leak detector is installed provide documentation on the leak detector, including; how the leak detector functions and what level of the output signal indicates that a bag is leaking. Without documentation the application is not complete.	



Please see instructions on page 2 before filling out the form.

**IDENTIFICATION**

1. Company Name: Basalite Concrete Products	2. Facility Name: Boise Plant	3 Facility ID No:
4. Brief Project Description: Steam Generator Vaporizer		

**EXEMPTION**

Please see IDAPA 58.01.01.222 for a list of industrial boilers that are exempt from Permit to Construct requirements.

**BOILER (EMISSION UNIT) DESCRIPTION AND SPECIFICATIONS**

5. Type of Request: <input type="checkbox"/> New Unit <input checked="" type="checkbox"/> Unpermitted Existing Unit <input type="checkbox"/> Modification to a Unit with Permit #:		
6. Use of Boiler: <input checked="" type="checkbox"/> % Used For Process <input type="checkbox"/> % Used For Space Heat <input type="checkbox"/> % Used For Generating Electricity <input type="checkbox"/> Other:		
7. Boiler ID Number: Vaporizer #1 - Line A	8. Rated Capacity: <input checked="" type="checkbox"/> 5 Million British Thermal Units Per Hour (MMBtu/hr) <input type="checkbox"/> 1,000 Pounds Steam Per Hour (1,000 lb steam/hr)	
9. Construction Date: 1998	10. Manufacturer: Kemco Systems	11. Model: 50/4B
12. Date of Modification (if applicable): N/A	13. Serial Number (if available):	14. Control Device (if any): None <b>Note: Attach applicable control equipment form(s)</b>

**FUEL DESCRIPTION AND SPECIFICATIONS**

15. Fuel Type	<input type="checkbox"/> Diesel Fuel (# / gal/hr)	<input checked="" type="checkbox"/> Natural Gas 1442.31 (cf/hr)	<input type="checkbox"/> Coal (unit: /hr)	<input type="checkbox"/> Other Fuels (unit: /hr)
16. Full Load Consumption Rate				
17. Actual Consumption Rate				
18. Fuel Heat Content (Btu/unit, LHV)				
19. Sulfur Content wt%				
20. Ash Content wt%		N/A		

**STEAM DESCRIPTION AND SPECIFICATIONS**

21. Steam Heat Content	NA	NA		
22. Steam Temperature (°F)	N/A	N/A		
23. Steam Pressure (psi)	N/A	N/A		
24 Steam Type	N/A	N/A	<input type="checkbox"/> Saturated <input type="checkbox"/> Superheated	<input type="checkbox"/> Saturated <input type="checkbox"/> Superheated

**OPERATING LIMITS & SCHEDULE**

25. Imposed Operating Limits (hours/year, or gallons fuel/year, etc.):	18 MMscf/yr
26. Operating Schedule (hours/day, months/year, etc.):	10-15 hours/day, 4-5 days/week
27. NSPS Applicability: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If Yes, which subpart:



Please see instructions on page 2 before filling out the form.

**IDENTIFICATION**

1. Company Name: Basalite Concrete Products	2. Facility Name: Boise Plant	3 Facility ID No:
4. Brief Project Description: Steam Generator Vaporizer		

**EXEMPTION**

Please see IDAPA 58.01.01.222 for a list of industrial boilers that are exempt from Permit to Construct requirements.

**BOILER (EMISSION UNIT) DESCRIPTION AND SPECIFICATIONS**

5. Type of Request: <input type="checkbox"/> New Unit <input checked="" type="checkbox"/> Unpermitted Existing Unit <input type="checkbox"/> Modification to a Unit with Permit #:		
6. Use of Boiler: <input checked="" type="checkbox"/> % Used For Process <input type="checkbox"/> % Used For Space Heat <input type="checkbox"/> % Used For Generating Electricity <input type="checkbox"/> Other:		
7. Boiler ID Number: Vaporizer #2	8. Rated Capacity: <input checked="" type="checkbox"/> 5 Million British Thermal Units Per Hour (MMBtu/hr) <input type="checkbox"/> 1,000 Pounds Steam Per Hour (1,000 lb steam/hr)	
9. Construction Date: 2000	10. Manufacturer: Kemco Systems	11. Model: 50/4B
12. Date of Modification (if applicable): N/A	13. Serial Number (if available):	14. Control Device (if any): None <b>Note: Attach applicable control equipment form(s)</b>

**FUEL DESCRIPTION AND SPECIFICATIONS**

15. Fuel Type	<input type="checkbox"/> Diesel Fuel (# gal/hr)	<input checked="" type="checkbox"/> Natural Gas 1442.31 (cf/hr)	<input type="checkbox"/> Coal (unit: /hr)	<input type="checkbox"/> Other Fuels (unit: /hr)
16. Full Load Consumption Rate				
17. Actual Consumption Rate				
18. Fuel Heat Content (Btu/unit, LHV)				
19. Sulfur Content wt%				
20. Ash Content wt%		N/A		

**STEAM DESCRIPTION AND SPECIFICATIONS**

21. Steam Heat Content	NA	NA		
22. Steam Temperature (°F)	N/A	N/A		
23. Steam Pressure (psi)	N/A	N/A		
24 Steam Type	N/A	N/A	<input type="checkbox"/> Saturated <input type="checkbox"/> Superheated	<input type="checkbox"/> Saturated <input type="checkbox"/> Superheated

**OPERATING LIMITS & SCHEDULE**

25. Imposed Operating Limits (hours/year, or gallons fuel/year, etc.):	18 MMscf/yr
26. Operating Schedule (hours/day, months/year, etc.):	10-15 hours/day, 4-5 days/week
27. NSPS Applicability: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	If Yes, which subpart: Dc



**DEQ AIR QUALITY PROGRAM**  
 1410 N. Hilton, Boise, ID 83706  
 For assistance, call the  
**Air Permit Hotline – 1-877-5PERMIT**

# AIR PERMIT APPLICATION

Revision 6  
 10/7/09

For each box in the table below, CTRL+click on the blue underlined text for instructions and information.

## IDENTIFICATION

1. Company Name:  Basalite Concrete Products	2. Facility Name:  Boise Plant
3. Brief Project Description:                      Concrete masonry manufacturing	

## APPLICABILITY DETERMINATION

4. List applicable subparts of the New Source Performance Standards (NSPS) ( <a href="#">40 CFR part 60</a> ).  Examples of NSPS affected emissions units include internal combustion engines, boilers, turbines, etc. The applicant must thoroughly review the list of affected emissions units.	List of applicable subpart(s):  <input checked="" type="checkbox"/> Not Applicable
5. List applicable subpart(s) of the National Emission Standards for Hazardous Air Pollutants (NESHAP) found in <a href="#">40 CFR part 61</a> and <a href="#">40 CFR part 63</a> .  Examples of affected emission units include solvent cleaning operations, industrial cooling towers, paint stripping and miscellaneous surface coating. <a href="#">EPA has a web page dedicated to NESHAP</a> that should be useful to applicants.	List of applicable subpart(s):  <input checked="" type="checkbox"/> Not Applicable
6. For each subpart identified above, conduct a complete a regulatory analysis using the instructions and referencing the example provided on the following pages.  <b>Note</b> - Regulatory reviews must be submitted with sufficient detail so that DEQ can verify applicability and document in legal terms why the regulation applies. Regulatory reviews that are submitted with insufficient detail will be determined incomplete.	<input checked="" type="checkbox"/> A detailed regulatory review is provided (Follow instructions and example).  <input type="checkbox"/> DEQ has already been provided a detailed regulatory review. Give a reference to the document including the date.

**IF YOU ARE UNSURE HOW TO ANSWER ANY OF THESE QUESTIONS, CALL THE AIR PERMIT HOTLINE AT 1-877-5PERMIT**

*It is emphasized that it is the applicant's responsibility to satisfy all technical and regulatory requirements, and that DEQ will help the applicant understand what those requirements are prior to the application being submitted but that DEQ will not perform the required technical or regulatory analysis on the applicant's behalf.*

## ***Subpart 000—Standards of Performance for Nonmetallic Mineral Processing Plants***

### ***§ 60.670 Applicability and designation of affected facility.***

(a)(1) Except as provided in paragraphs (a)(2), (b), (c), and (d) of this section, 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. Also, crushers and grinding mills at hot mix asphalt facilities that reduce the size of nonmetallic minerals embedded in recycled asphalt pavement and subsequent affected facilities up to, but not including, the first storage silo or bin are subject to the provisions of this subpart.

(2) The provisions of this subpart do not apply to the following operations: All facilities located in underground mines; plants without crushers or grinding mills above ground; and wet material processing operations (as defined in §60.671).

(b) An affected facility that is subject to the provisions of subparts F or I of this part or that follows in the plant process any facility subject to the provisions of subparts F or I of this part is not subject to the provisions of this subpart.

(c) Facilities at the following plants are not subject to the provisions of this subpart:

*(1) Fixed sand and gravel plants and crushed stone plants with capacities, as defined in §60.671, of 23 megagrams per hour (25 tons per hour) or less.*

(2) Portable sand and gravel plants and crushed stone plants with capacities, as defined in §60.671, of 136 megagrams per hour (150 tons per hour) or less; and

(3) Common clay plants and pumice plants with capacities, as defined in §60.671, of 9 megagrams per hour (10 tons per hour) or less.

(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 paragraph (d)(3) of this section.

(2) An owner or operator complying with paragraph (d)(1) of this section shall submit the information required in §60.676(a).

(3) An owner or operator replacing all existing facilities in a production line with new facilities does not qualify for the exemption described in paragraph (d)(1) of this section and must comply with the provisions of §§60.672, 60.674 and 60.675.

*(e) An affected facility under paragraph (a) of this section that commences construction, modification, or reconstruction after August 31, 1983, is subject to the requirements of this part.*

(f) Table 1 of this subpart specifies the provisions of subpart A of this part 60 that do not apply to owners and operators of affected facilities subject to this subpart or that apply with certain exceptions.

**The two rock crushing units operated by Basalite Concrete Products is not subpart to 40 CFR 60, Subpart 000 because of 60.670(c)(1) and 60.670(e). Section 60.670(a)(1) states that there are exceptions to applicability under subsections (b), (c) and (d). The jaw crusher has a maximum capacity of less than 25 T/hr. It is only 15 T/hr. Therefore, under subsection (c) it is not subject to the subpart. In addition, subsection (e) states that an affected source as defined in (a) is one that commenced constructed after August 31, 1983. The roll crusher was installed and be operational since 1977. Thus, it too is not an affected source and not subject to the subpart.**

***Subpart Dc—Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units***

***§ 60.40c Applicability and delegation of authority.***

(a) Except as provided in paragraphs (d), (e), (f), and (g) of this section, the affected facility to which this subpart applies is each steam generating unit for which construction, modification, or reconstruction is commenced after June 9, 1989 and that has a maximum design heat input capacity of 29 megawatts (MW) (100 million British thermal units per hour (MMBtu/h)) or less, but greater than or equal to 2.9 MW (10 MMBtu/h).

**Both steam generating vaporizers were built after 1989, 1998 and 2000, respectively. However, per the name plate on both units, the maximum design heat input capacity is not between 10 and 100 MMBtu/hr. Rather, they are both only 5 MMBtu/hr. Therefore, the subpart does not apply to Basalite Concrete Products.**







	DEQ AIR QUALITY PROGRAM 1410 N. Hilton, Boise, ID 83706 For assistance, call the Air Permit Hotline - 1-877-5PERMIT	<b>PERMIT TO CONSTRUCT APPLICATION</b> Revision 3 4/5/2007
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*Please see instructions on page 2 before filling out the form.*

Company Name:	Basalite Concrete Products
Facility Name:	Boise Plant
Facility ID No.:	
Brief Project Description:	Manufacturing of concrete masonry, segmented retaining wall units, pavers, garden line products units etc.

SUMMARY OF AIR IMPACT ANALYSIS RESULTS - CRITERIA POLLUTANTS						
Criteria Pollutants	Averaging Period	1. Significant Impact Analysis Results (µg/m <sup>3</sup> )	2. Full Impact Analysis Results (µg/m <sup>3</sup> )	3. Background Concentration (µg/m <sup>3</sup> )	4. Total Ambient Impact (µg/m <sup>3</sup> )	5. Percent of NAAQS
PM <sub>10</sub>	24-hour	5	See information in Appendix F of this document for modeling details.			150
	Annual	1				50
	3-hr	25				1300
SO <sub>2</sub>	24-hr	5				365
	Annual	1				80
NO <sub>2</sub>	Annual	1				100
	1-hr	2000				10000
CO	8-hr	500				40000



## Facility Wide Potential to Emit Emission Inventory Application Template and Instructions

For new stationary sources provide the facility's potential to emit for all NSR Regulated Air Pollutants. The potential to emit provided here must match the emissions rates which are requested to be permitted.

For modifications to existing facilities (including the addition of new emissions units), if the existing facility classification is in question an existing facility wide potential to emit emission inventory will be required to be submitted<sup>1</sup>. Contact DEQ to determine if a facility wide emission inventory for the existing facility is required.

**All emissions inventories must be submitted with thorough documentation.** The emission inventories will be subjected to technical review. Therefore, prepare your application with sufficient documentation so that the public and DEQ can verify the validity of the emission estimates. **Applications submitted without sufficient documentation are incomplete. Follow the instructions provided on page 2; do not proceed until you have read the instructions.**

**Applicants must use the Potential to Emit Summary table provided below.**

**Table 1. POTENTIAL TO EMIT FOR NSR REGULATED POLLUTANTS**

Emissions Unit	NSR Pollutant <sup>a</sup> T/yr					
Point Sources						
<i>See Appendix E of this document for Emission inventory Details.</i>						
Fugitive Sources						
<i>{For listed source categories only, see item 3 below in the instructions}</i>						
<b>Totals</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>

a) NSR Regulated air Pollutants are defined<sup>2</sup> as: Particulate Matter (PM, PM-10, PM-2.5), Carbon Monoxide, Lead, Nitrogen Dioxide, Ozone (VOC), Sulfur Dioxide, CO<sub>2</sub>e<sup>3</sup>, Green House Gases (GHG) mass, all pollutants regulated by NSPS (40 CFR 60)(i.e. TRS, fluoride, sulfuric acid mist) & Class I & Class II Ozone Depleting Substances (40 CFR 82)(i.e. CFC, HCFC, Halon, etc.)

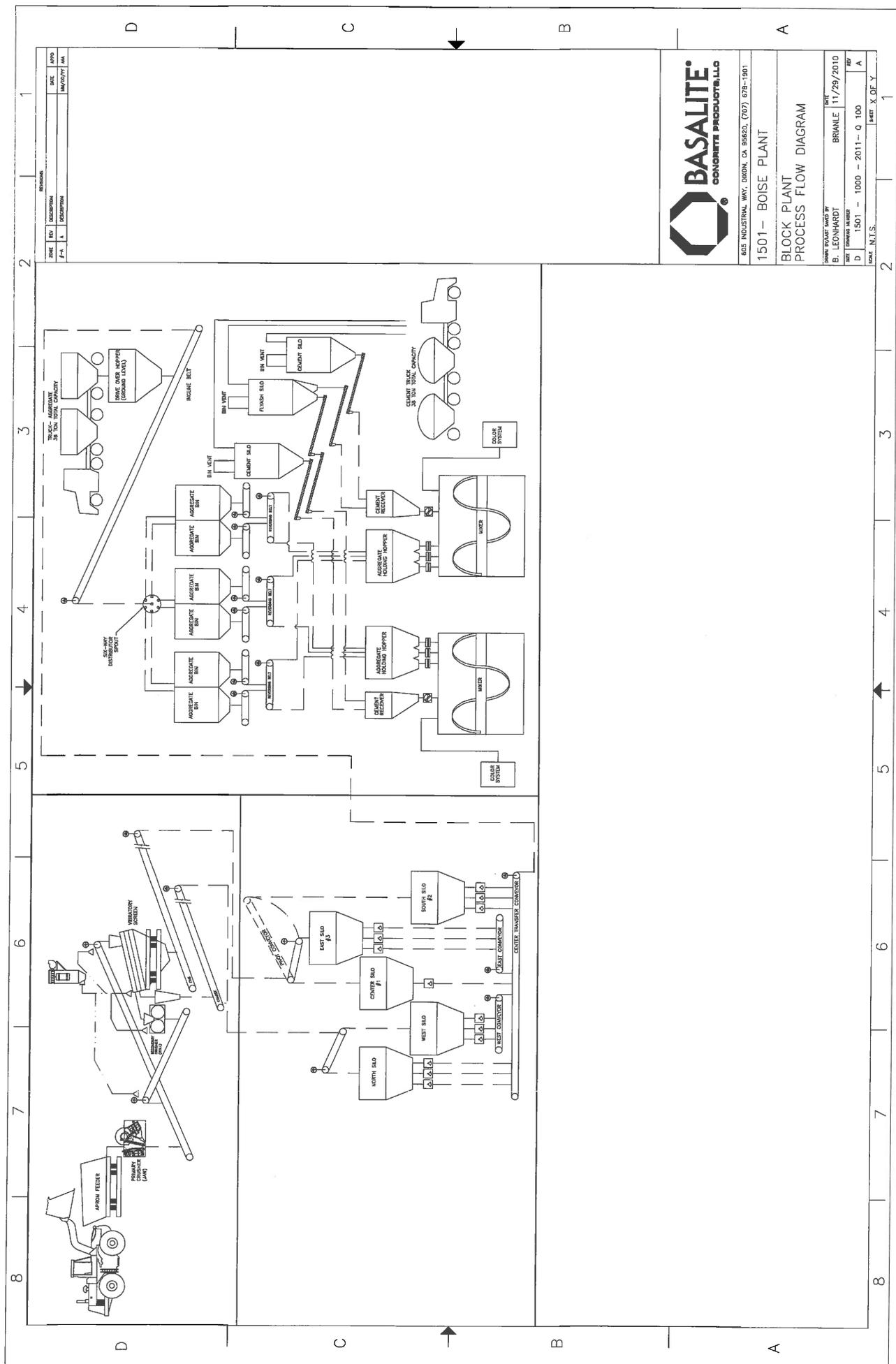
Applicants are encouraged to call DEQ's Air Quality Permit Hotline (1-877-573-7648) to ask questions as they prepare the application. **Emission Inventory Instructions:**

<sup>1</sup> The applicant must determine if the existing facility is a major facility. If the facility is an existing PSD major facility and changes are being made to the facility the major modification test must be conducted.

<sup>2</sup> 40 CFR 52.21(b)(50), as incorporated by reference at IDAPA 58.01.01.107.03.d

<sup>3</sup> Multiply each green house gas (GHG) by the global warming potential (GWP) listed at 40 CFR 98, Table A- 1 of Subpart A then sum all values to determine CO<sub>2</sub>e (GHGs are carbon dioxide, nitrous oxide, methane, hydrofluorocarbons, perfluorocarbons, sulfur hexafluoride). Be sure to show all calculations as described in the instructions.

**APPENDIX C**  
**PROCESS FLOW DIAGRAM**



1501 - BOISE PLANT  
 BLOCK PLANT  
 PROCESS FLOW DIAGRAM

DATE: 11/29/2010  
 DRAWN BY: BRIANLE  
 CHECKED BY: B. LEONHARDT  
 PROJECT NUMBER: 1501 - 1000 - 2011 - 0 100  
 SHEET NUMBER: A  
 SHEET TOTAL: X OF Y

ZONE	REV	DESCRIPTION	DATE	APP'D
P-4	4	DESCRIPTION		

**APPENDIX D**  
**MANUFACTURER INFORMATION**



# U.S. Air Filtration, Inc.

*Clearing the Air for a Cleaner Environment*

STANDARD SPECIFICATION FOR:	16 oz Polyester Felt	
Construction	Polyester Needle Punched Felt	
Fiber Composition	PET	
Scrim Composition	PET	
Felt Area Weight	16.2 +/-5%	oz/sy
Thickness	0.06 - 0.07	inch
Mean Air Permeability	32 - 39	cfm/sf/min @ 0.5" H2O
Breaking Strength - MD	>290	PSI
Breaking Strength - CMD	>320	PSI
Breaking Elongation (PSI) - MD	20	%
Breaking Elongation (PSI) - CMD	40	%
Dry Shrinkage MD (265 F) warp	<1.5	%
Dry Shrinkage CMD (265 F) weft	<1.5	%
Operating Temperatures	<265	deg F
Recommended Maximum Continuous	265	deg F
Recommended Maximum Surge	300	deg F
Finish	Heat Set, Singed, Calendered	

sff

# Technical Bulletin

<b>GRADE:</b>	<b>SB-HO*</b>
<b>FIBER TYPE:</b>	<b>Polyester</b>
<b>DESCRIPTION:</b>	Fine denier, spun bond polyester, renewable media, which combines high efficiency, excellent release characteristic with an enhanced surface treatment that repels water and oil (hydro and oleophobic). This media is ideal for applications with light moisture or oil contaminants.

	<b>IMPERIAL</b>	<b>METRIC</b>
<b>MATERIAL WEIGHT</b>	8 oz/vd <sup>2</sup>	278 G/M <sup>2</sup>
<b>CALIPER OVERALL</b>	.024 inches	.61 mm
<b>PERMEABILITY**</b>	24	192
<b>MULLEN BURST DRY</b>	388 PSI	2675 KPA
<b>TEMPERATURE LIMIT</b>	275° F	135° C

<b>EFFICIENCY AT OPERATING CONDITIONS</b>	<b>99.99%</b>
---	---------------

## BIA RATING U, S, G, C

\* HO media is not recommended for food-grade or sanitary-grade environments.

\*\* Frazier Method – the volume of air, in CFM, that can flow through 1 ft.<sup>2</sup> of media at 0.5 W.G. pressure drop (or L/sec/M<sup>2</sup> at 20 mm H<sub>2</sub>O).

Specifications are subject to change without notice.

All data listed are average values.

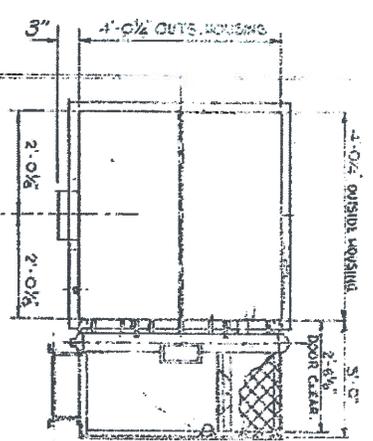


**TDC  
FILTER  
MANUFACTURING, INC.**

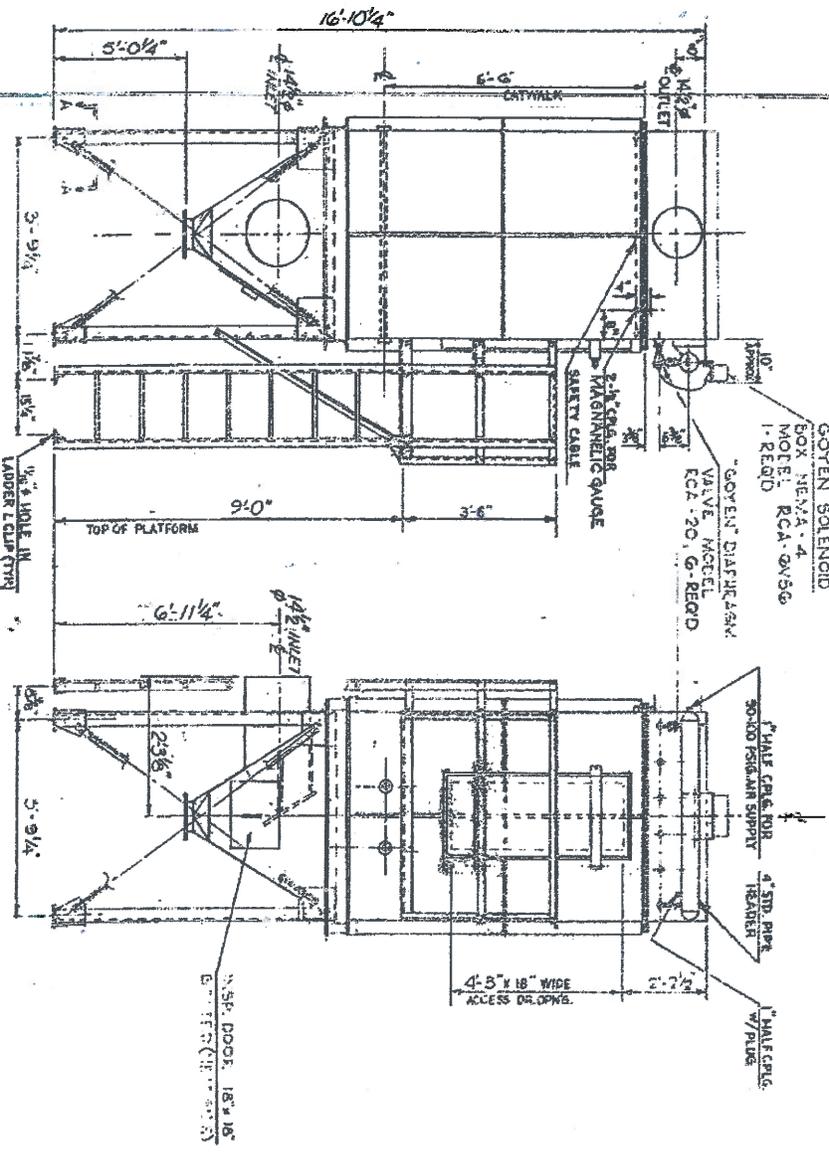
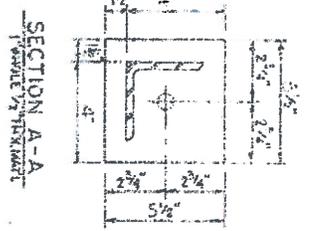
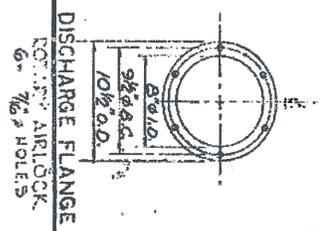
1331 S. 55TH COURT CICERO, IL 60804  
1-800-424-1910 (708) 863-4400  
FAX (708) 863-4472

**midwesco**  
Filter Resources, Inc.

385 BATAILLE DRIVE, WINCHESTER, VA 22601  
1-800-336-7300 (540) 667-8500  
FAX (540) 667-9074



PLAN



ELEVATION

SIDE

**CONSTRUCTION MATERIAL**

- #12 MILD CARBON STEEL CASING
- #10 MILD CARBON STEEL TUBE SHEET
- VENTURI CUPS TO BE ALUMINUM
- BAG CAGES TO BE CARBON STEEL
- BAG CLOSURE TO BE S.S. 304
- BAGS TO BE #4 LD-40 OZ. POLYESTER
- SOLID STATE SEQUENTIAL TIMER
- POWER INPUT 120 V 60 HZ, G POSITION

PAINT  
OUTSIDE ONLY ONE (1) COAT OF RED PRIMER

**DESIGN DATA**

GAS VOLUME	2880 ACFM
CAS TEMPERATURE	AMBIENT
COMPR AIR REQUIREMENTS	11 SCFM
COMPR AIR PRESSURE	90-100 PSIG
AIR/CLATHR RATIO	8:1
ENTER DIAL SPEED	2100 R
ENTER DIAL PRESSURE	1800 R
ENTER DIAL TIME	1000 R

NO.	DATE	BY	APP.

**JET FILTER**  
MODEL 36BVS360  
ARRANGEMENT "C"

ISSUED	DIRECTOR	DATE	SCALE
7/9/79	TA	7-12-79	N.T.S.

DATE: 7/9/79 CM-434-1 REV:



**From:** [Travis DuVall](#)  
**To:** [Eric Clark](#)  
**Cc:** [Dave Strohm](#)  
**Subject:** FW: Manufacturer Specifications Needed - Basalite Boise  
**Date:** Thursday, June 28, 2012 10:19:14 AM  
**Attachments:** [1008227 \(dust collector starter assembly 440-575 vac\) M.pdf](#)  
[1008228 \(dust collector assembly 440-575 vac\).pdf](#)  
[EmtrolBaghouseSpecs.pdf](#)  
[1501 BOISE CRUSHER DC- BAGHOUSE MOD.pdf](#)  
[DRAWING SET 1501-5420-2010-M-D.pdf](#)

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Eric –

Please find the attached information on our Color Machine Dust Collection systems as well as the email below.

Please disregard all information in respect to initial data regarding the WAM 03505 system; the Eagle Engineering Dust Collection System is what we have in operation.

Also attached is the most basic information included within our Emtrol Dust Collection system for our crushing operation (Emtrol Baghouse Specs).

The baghouse was modified to accept additional cfm capacity based on preliminary calculations done by our in-house engineer (Dixon, CA).

Be sure to find the baghouse modification .pdf, and drawing set .pdf.

I am still reviewing the application and have plans to return it to Dave by Friday of this week...

Please contact me with any additional inquiries.

Thank you very much.

Travis DuVall | Plant Manager

## **BASALITE**

CONCRETE PRODUCTS, LLC

1300 E. Franklin Road

Meridian, ID 83642

office: 800-473-4080

cell: 208-573-1750

email: [travis.duvall@paccoast.com](mailto:travis.duvall@paccoast.com)

web: [www.basalite.com](http://www.basalite.com)

 Please consider the environment before printing this e-mail.

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**From:** Jeffrey A. Bruski [<mailto:jbruski@eaglecompanies.com>]  
**Sent:** Thursday, June 28, 2012 6:21 AM  
**To:** Travis DuVall  
**Subject:** RE: Manufacturer Specifications Needed - Basalite Boise

Hi Travis

Dust collector information.

### **FILTER**

Eagle Part # 1008268

3 used per collector.

FILTER - 38.5 X 7 X 3.625 ID 55 PLEATS @ 0.05 DEPTH, HEAVY 16GA EXPANDED INNER CORE, 1/2" X 3/8 GASKET INSTALLED IN VOID OF TOP CAP. METAL BOTTOM CAP, POTTED IN URETHANE.  
ECO DUCKS BACK POLYESTER MEDIA 99.95% EFFICIENT @ 1-2 MICRON, 3 POLYESTER

BANDS

BLOWER  
Eagle Part # 108232

BLOWER - 1000CFM 11.5"WG 5HP 3450RPM 440 - 575V 3-PHASE 60HZ  
MFG Cincinnati Fan  
Part # PB-14A

Hope this helps.

Thanks for the opportunity!

Jeff Bruski  
Dispensing Systems Manager  
Outside sales

Any Color, Any Time, **Any Questions?**

Eagle Engineering  
101 North Industrial Highway  
Alpena Michigan 49707

Office 989-356-4526  
Mobile 989-657-6699



*Powering Business Worldwide*

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**From:** Debra Werner (Eagle Companies) [mailto:dwerner@eaglecompanies.com]  
**Sent:** Wednesday, June 27, 2012 4:19 PM  
**To:** 'Jeffrey A. Bruski'  
**Subject:** FW: Manufacturer Specifications Needed - Basalite Boise

---

**From:** Travis DuVall [mailto:Travis.DuVall@paccoast.com]  
**Sent:** Wednesday, June 27, 2012 3:50 PM  
**To:** 'dwerner@eaglecompanies.com'  
**Subject:** FW: Manufacturer Specifications Needed - Basalite Boise  
Thank you.

Travis DuVall | Plant Manager

# MATERIAL SAFETY DATA SHEET

# LANXESS

Energizing Chemistry

**LANXESS Corporation**  
Product Safety & Regulatory Affairs  
111 RIDC Park West Drive  
Pittsburgh, PA 15275-1112  
USA

## TRANSPORTATION EMERGENCY

CALL CHEMTREC: (800) 424-9300  
INTERNATIONAL: (703) 527-3887

## NON-TRANSPORTATION

LANXESS Emergency Phone: (800) 410-3063  
LANXESS Information Phone: (800) LANXESS

### 1. Product and Company Identification

**Product Name:** BAYFERROX 330 C  
**Material Number:** 4987977  
**Chemical Family:** Inorganic Metal Oxide  
**Color Index Name:** Pigment Black 11  
**Color Index-No.:** 77499  
**Chemical Name:** Iron Oxide  
**Synonyms:** Iron (III) Oxide  
**Formula:** Fe<sub>3</sub>O<sub>4</sub>

### 2. Hazards Identification

#### Emergency Overview

**Color:** Black **Form:** solid Powder **Odor:** Odorless.  
Product poses little or no hazard if spilled. May cause mechanical irritation (abrasion).  
May cause lung damage.

#### Potential Health Effects

**Primary Routes of Entry:** Inhalation, Skin Contact, Eye Contact, Ingestion

**Medical Conditions Aggravated by Exposure:** Respiratory disorders

#### HUMAN EFFECTS AND SYMPTOMS OF OVEREXPOSURE

##### Inhalation

##### Acute Inhalation

**For Component: Amorphous Silica**

May cause mechanical irritation.

**For Component: Proprietary ammonium salt**

May cause mechanical irritation.

**Chronic Inhalation**

For Component: Amorphous Silica

Prolonged inhalation of amorphous silica may produce x-ray changes in the lungs without disability.

**Skin**

**Acute Skin**

For Component: Proprietary ammonium salt

May cause mechanical irritation.

**Eye**

**Acute Eye**

For Component: Amorphous Silica

May cause mechanical irritation.

For Component: Proprietary ammonium salt

May cause mechanical irritation.

**Ingestion**

**Acute Ingestion**

For Component: Proprietary ammonium salt

Symptoms of ingestion may include abdominal pain, nausea, vomiting, and diarrhea.

**Carcinogenicity:**

No Carcinogenic substances as defined by IARC, NTP and/or OSHA.

**3. Composition/Information on Ingredients**

**Hazardous Components**

<u>Weight %</u>	<u>Components</u>	<u>CAS-No.</u>
4%	Amorphous Silica	7631-86-9
1 - 5%	Proprietary ammonium salt	CAS# is a trade secret

**4. First Aid Measures**

**Eye Contact**

In case of contact, flush eyes with plenty of lukewarm water. Get medical attention if irritation develops.

**Skin Contact**

In case of skin contact, wash affected areas with soap and water.

**Inhalation**

If inhaled, remove to fresh air. Get medical attention if irritation develops.

**Ingestion**

If ingested, do not induce vomiting unless directed to do so by medical personnel. Get medical attention.

**5. Fire-Fighting Measures**

**Suitable Extinguishing Media:**

Material is not combustible. Use extinguishing media suitable for other combustible materials in the area.

**Special Fire Fighting Procedures**

Firefighters should be equipped with self-contained breathing apparatus to protect against potentially toxic and irritating fumes.

**6. Accidental release measures****Spill and Leak Procedures**

Spills should be swept up and placed in appropriate containers for disposal. Clean up promptly by scoop or vacuum. Avoid creating dusty conditions.

**7. Handling and Storage****Storage Period**

If stored under the correct conditions (no climatic influence, kept dry and no extreme fluctuations in temperature) we expect that our products would have a shelf life of 5 years provided, however, the material has been stored correctly and the packaging materials remain unchanged.

**Handling/Storage Precautions**

Do not store near sources of heat (furnaces, kilns, boilers, etc.). Exposure to excessive heat may cause this product to become unstable (slowly auto-oxidize) which generates additional heat. Under certain circumstances this heat generation may be sufficient to cause combustible materials to ignite. Do not store near strong oxidizers, sources of heat, or near flammable or combustible materials. Protect against weathering. Store in a dry place and avoid extreme fluctuations in temperature. Special conditions for opened packaging: Close bags after use to prevent the absorption of moisture and contamination.

**Further Info on Storage Conditions**

Material can be stored safely at ambient temperatures.

**8. Exposure Controls / Personal Protection****Amorphous Silica (7631-86-9)**

US. OSHA Table Z-3 (29 CFR 1910.1000)

Time Weighted Average (TWA): 20 millions of particles per cubic foot of air

US. OSHA Table Z-3 (29 CFR 1910.1000)

Time Weighted Average (TWA): 0.8 mg/m<sup>3</sup> The exposure limit is calculated from the equation, 80/(%SiO<sub>2</sub>), using a value of 100% SiO<sub>2</sub>. Lower values of % SiO<sub>2</sub> will give higher exposure limits.

**Industrial Hygiene/Ventilation Measures**

Under normal conditions of use, special ventilation is not required.

**Respiratory Protection**

Although no exposure limit has been established for this product, the OSHA PEL for Particulates Not Otherwise Regulated (PNOR) of 15 mg/m<sup>3</sup> - total dust, 5 mg/m<sup>3</sup> - respirable fraction is recommended. In addition, the ACGIH recommends 3 mg/m<sup>3</sup> - respirable particles and 10 mg/m<sup>3</sup> - inhalable particles for Particles (insoluble or poorly soluble) Not Otherwise Specified (PNOS). The following respirator is

recommended if airborne concentrations exceed the appropriate standard/guideline., NIOSH approved, air-purifying particulate respirator with N-95 filters.

**Eye Protection**  
safety glasses.

**Skin and body protection**  
No special skin protection requirements during normal handling and use.

**Additional Protective Measures**  
Employees should wash their hands and face before eating, drinking, or using tobacco products. Educate and train employees in the safe use and handling of this product.

## 9. Physical and chemical properties

<b>Form:</b>	solid
<b>Appearance:</b>	Powder
<b>Color:</b>	Black
<b>Odor:</b>	Odorless
<b>pH:</b>	4 - 8 @ 50 g/l
<b>Melting Point:</b>	Begins at 1,000 °C (1,832 °F)
<b>Flash Point:</b>	not applicable
<b>Lower Explosion Limit:</b>	Not Established
<b>Upper Explosion Limit:</b>	Not Established
<b>Vapor Pressure:</b>	not applicable
<b>Specific Gravity:</b>	4 - 5 @ 20 °C (68 °F)
<b>Solubility in Water:</b>	Insoluble
<b>Autoignition Temperature:</b>	Not Applicable
<b>Viscosity, Dynamic:</b>	not applicable
<b>Bulk Density:</b>	900 - 1,200 kg/m <sup>3</sup>

## 10. Stability and Reactivity

**Hazardous Reactions**  
Hazardous polymerization does not occur.

**Stability**  
Stable

**Materials to avoid**  
None known.

**Conditions to avoid**  
Excessive temperatures. At temperatures greater than 176 F (80 C), this product may become unstable and slowly auto-oxidize into Fe<sub>2</sub>O<sub>3</sub> which generates additional heat. Under certain conditions this heat may be sufficient to cause combustible materials to ignite.

**Hazardous decomposition products**  
None known.

## 11. Toxicological Information

**Toxicity Data for C.I. Pigment Black 11**

**Acute Oral Toxicity**

LD50: > 5,000 mg/kg (Rat)

**Skin Irritation**

rabbit, Acute Dermal Irritation, Non-irritating

**Eye Irritation**

rabbit, Acute Eye Irritation Study, Non-irritating

**Sensitization**

dermal: non-sensitizer (Guinea pig)

**Mutagenicity**

Genetic Toxicity in Vitro:

Ames: negative (Salmonella typhimurium, Metabolic Activation: with/without)

**Toxicity Data for Amorphous Silica**

**Acute Oral Toxicity**

LD50: > 5,000 mg/kg (Rat)

**Acute Inhalation Toxicity**

LC50: > 2.2 mg/l, 1 hrs (Rat)

LC0: >2080 mg/m3, 4 h (Rat, Male/Female)

**Acute dermal toxicity**

LD50: > 5,000 mg/kg (rabbit)

LD50: > 2,000 mg/kg (rabbit)

**Skin Irritation**

rabbit, Non-irritating

**Eye Irritation**

rabbit, Non-irritating

**Sensitization**

dermal: non-sensitizer (Guinea pig, Magnusson/Kligmann (Maximization Test))

**Repeated Dose Toxicity**

90 Days, inhalation: NOAEL: < 0.001 mg/l, (Rat)

oral: NOAEL: 8,980 mg/kg, (Rat)

inhalation: NOAEL: 5 mg/m3, (Rat, Male/Female, 6 hrs/day 5 days/week)

13 weeks, inhalation: NOAEL: 1.3 mg/m3, (Rat, )

**Mutagenicity**

Genetic Toxicity in Vitro:

Ames: negative (Salmonella typhimurium, Metabolic Activation: with/without)

Chromosome aberration test: negative (other bacteria, Metabolic Activation: with/without)

Chromosome aberration test: negative (other mammalian cell line, Metabolic Activation: with/without)

Genetic Toxicity in Vivo:

Cytogenetic assay: negative (Rat)

**Carcinogenicity**

Rat, Male/Female, oral, 2 Years, daily

negative

**Toxicity to Reproduction/Fertility**

Other method, oral, daily, (Rat)  
No effects on Reproductive parameters observed at doses tested.

**Toxicity Data for Polyethylene Glycol**

**Acute Oral Toxicity**

LD50: > 5,000 mg/kg (Rat)

**Acute Inhalation Toxicity**

LC0: 2516 mg/m<sup>3</sup>, 6 hrs (Rat)

**Acute dermal toxicity**

LD50: > 5,000 mg/kg (rabbit)

**Eye Irritation**

rabbit, No eye irritation

**Mutagenicity**

Genetic Toxicity in Vitro:

Ames: negative

Genetic Toxicity in Vivo:

negative (Drosophila melanogaster, )

**Developmental Toxicity/Teratogenicity**

rat, female, oral, gestation, NOAEL (teratogenicity): 10,000 mg/kg,

No Teratogenic effects observed at doses tested.

**Toxicity Data for Proprietary ammonium salt**

**Mutagenicity**

Genetic Toxicity in Vitro:

Ames: negative (Salmonella typhimurium)

**Toxicity Data for Cellulose Dervative**

**Acute Oral Toxicity**

LD50: 27,000 mg/kg (rat)

**Acute Inhalation Toxicity**

LC50: >5800 mg/m<sup>3</sup>, 4 hrs (rat)

**Acute dermal toxicity**

LD50: > 2,000 mg/kg (rabbit)

**Skin Irritation**

rabbit, Exposure Time: 4 hrs, No skin irritation

**Eye Irritation**

rabbit, Exposure Time: 24 hrs, Mild eye irritation

**Sensitization**

Did not cause sensitization on laboratory animals. (guinea pig)

**12. Ecological Information**

**Ecological Data for C.I. Pigment Black 11**

**Acute and Prolonged Toxicity to Fish**

LC0: > 1,000 mg/l (Golden orfe (*Leuciscus idus*), 48 hrs)

**Toxicity to Microorganisms**

EC0: > 1,000 mg/l, (*Pseudomonas fluorescens*, 24 hrs)

**Ecological Data for Amorphous Silica**

**Biodegradation**

The methods for determining the biological degradability are not applicable to inorganic substances.

**Bioaccumulation**

Not expected to bio-accumulate.

**Acute and Prolonged Toxicity to Fish**

LC50: 5,000 mg/l (Zebra fish (*Brachydanio rerio*), 96 hrs)

Calculated value

LC50: > 10,000 mg/l (Zebra barbel (*Danio rerio*), 96 h)

**Acute Toxicity to Aquatic Invertebrates**

EC0: 10,000 mg/l (Water flea (*Daphnia magna*), 24 hrs)

EC50: 7,600 mg/l (*Ceriodaphnia* sp, 48 hrs)

Calculated value

**Toxicity to Aquatic Plants**

EC50: 440 mg/l, End Point: growth (Green algae (*Selenastrum capricornutum*), 72 hrs)

**Toxicity to Microorganisms**

EC50: 8,700 mg/l, (*Photobacterium phosphoreum*, 15 min)

**Ecological Data for Polyethylene Glycol**

**Biological Oxygen Demand (BOD)**

5 Days, 6 %

20 Days, 77 %

**Chemical Oxygen Demand (COD)**

1.84 mg/g

**Acute and Prolonged Toxicity to Fish**

LC50: > 10,000 mg/l (Fathead minnow (*Pimephales promelas*), 96 hrs)

**Acute Toxicity to Aquatic Invertebrates**

EC50: > 10,000 mg/l (Water flea (*Daphnia magna*), 48 hrs)

**Toxicity to Microorganisms**

> 5,000 mg/l, (16 hrs)

**Ecological Data for Cellulose Dervative**

**Acute and Prolonged Toxicity to Fish**

LC50: > 100 ppm (Rainbow (Donaldson) Trout (*Oncorhynchus mykiss*), 96 hrs)

LC50: > 100 ppm (Bluegill (*Lepomis macrochirus*), 96 hrs)

**Acute Toxicity to Aquatic Invertebrates**

330 - 1,000 mg/l (Common shrimp (*Crangon crangon*), 96 hrs)

### 13. Disposal considerations

#### **Waste Disposal Method**

Waste disposal should be in accordance with existing federal, state, provincial, and/or local environmental control laws.

#### **Empty Container Precautions**

Recondition or dispose of empty container in accordance with governmental regulations.

### 14. Transport information

#### **Land transport (DOT)**

Non-Regulated

#### **Sea transport (IMDG)**

Non-Regulated

#### **Air transport (ICAO/IATA)**

Non-Regulated

### 15. Regulatory Information

#### **United States Federal Regulations**

OSHA Hazcom Standard Rating: Hazardous

US. Toxic Substances Control Act: Listed on the TSCA Inventory.

US. EPA CERCLA Hazardous Substances (40 CFR 302):

#### **Components**

None

SARA Section 311/312 Hazard Categories:

Chronic Health Hazard

US. EPA Emergency Planning and Community Right-To-Know Act (EPCRA) SARA Title III  
Section 302 Extremely Hazardous Substance (40 CFR 355, Appendix A):

#### **Components**

None

US. EPA Emergency Planning and Community Right-To-Know Act (EPCRA) SARA Title III  
Section 313 Toxic Chemicals (40 CFR 372.65) - Supplier Notification Required:

#### **Components**

None

US. EPA Resource Conservation and Recovery Act (RCRA) Composite List of Hazardous Wastes  
and Appendix VIII Hazardous Constituents (40 CFR 261):

If discarded in its purchased form, this product would not be a hazardous waste either by listing or by

characteristic. However, under RCRA, it is the responsibility of the product user to determine at the time of disposal, whether a material containing the product or derived from the product should be classified as a hazardous waste. (40 CFR 261.20-24)

**State Right-To-Know Information**

The following chemicals are specifically listed by individual states; other product specific health and safety data in other sections of the MSDS may also be applicable for state requirements. For details on your regulatory requirements you should contact the appropriate agency in your state.

Potential exposure to some or all of the California Proposition 65 chemicals in this product have been determined to be below the No Significant Risk Level (NSRL)., The concentrations reported below in units of parts per million (ppm) or parts per billion (ppb) are maximum values.

**Massachusetts, New Jersey or Pennsylvania Right to Know Substance Lists:**

<u>Weight %</u>	<u>Components</u>	<u>CAS-No.</u>
>=1%	C.I. Pigment Black 11	1317-61-9
4%	Amorphous Silica	7631-86-9
>=1%	Polyethylene Glycol	CAS# is a trade secret
1 - 5%	Proprietary ammonium salt	CAS# is a trade secret
>=1%	Cellulose Dervative	CAS# is a trade secret

**MA Right to Know Extraordinarily Hazardous Substance List:**

<u>Weight %</u>	<u>Components</u>	<u>CAS-No.</u>
50 ppm	Arsenic	7440-38-2
800 ppm	Chromium	7440-47-3
300 ppm	Nickel (Ni)	7440-02-0

**California Prop. 65:**

To the best of our knowledge, this product does not contain any of the listed chemicals, which the state of California has found to cause cancer, birth defects or other reproductive harm.

**16. Other Information**

**NFPA 704M Rating**

Health	1
Flammability	0
Reactivity	0
Other	

0=Insignificant 1=Slight 2=Moderate 3=High 4=Extreme

**HMIS Rating**

Health	1*
Flammability	0
Physical Hazard	0

0=Minimal 1=Slight 2=Moderate 3=Serious 4=Severe

\* = Chronic Health Hazard

LANXESS Corporation's method of hazard communication is comprised of Product Labels and Material Safety Data Sheets. HMIS and NFPA ratings are provided by LANXESS Corporation as a customer service.

Contact Person: Product Safety Department

Telephone: (800) LANXESS  
MSDS Number: R305237  
Version Date: 08/14/2009  
Report Version: 3.5

This information is furnished without warranty, express or implied. This information is believed to be accurate to the best knowledge of LANXESS Corporation. The information in this MSDS relates only to the specific material designated herein. LANXESS Corporation assumes no legal responsibility for use of or reliance upon the information in this MSDS.

Changes since the last version will be highlighted in the margin. This version replaces all previous versions.

# MATERIAL SAFETY DATA SHEET

# LANXESS

Energizing Chemistry

**LANXESS Corporation**  
Product Safety & Regulatory Affairs  
111 RIDC Park West Drive  
Pittsburgh, PA 15275-1112  
USA

## TRANSPORTATION EMERGENCY

CALL CHEMTREC: (800) 424-9300  
INTERNATIONAL: (703) 527-3887

## NON-TRANSPORTATION

LANXESS Emergency Phone: (800) 410-3063  
LANXESS Information Phone: (800) LANXESS

### 1. Product and Company Identification

Product Name: BAYFERROX 920G  
Material Number: 525743  
Color Index Name: CI Pigment Yellow 42  
CAS-No.: 20344-49-4

### 2. Hazards Identification

#### Emergency Overview

**Color:** Yellow **Form:** Solid Granules **Odor:** Odorless.  
Product poses little or no hazard if spilled. May cause mechanical irritation (abrasion).

#### Potential Health Effects

**Primary Routes of Entry:** Inhalation, Skin Contact, Eye Contact, Ingestion

**Medical Conditions Aggravated by Exposure:** Respiratory disorders

#### HUMAN EFFECTS AND SYMPTOMS OF OVEREXPOSURE

##### Inhalation

##### Acute Inhalation

For Product: **BAYFERROX 920G**

Not expected to be irritating.

##### Skin

##### Acute Skin

For Product: **BAYFERROX 920G**

Not expected to be irritating.

##### Eye

**Acute Eye**

**For Product: BAYFERROX 920G**

Not expected to be irritating.

**Ingestion**

**Acute Ingestion**

**For Product: BAYFERROX 920G**

Expected to be essentially non-toxic.

**Carcinogenicity:**

No Carcinogenic substances as defined by IARC, NTP and/or OSHA.

**3. Composition/Information on Ingredients**

**Hazardous Components**

This material is not hazardous under the criteria of the Federal OSHA Hazard Communication Standard 29 CFR 1910.1200.

**4. First Aid Measures**

**Eye Contact**

In case of contact, flush eyes with plenty of lukewarm water. Get medical attention if irritation develops.

**Skin Contact**

In case of skin contact, wash affected areas with soap and water.

**Inhalation**

If inhaled, remove to fresh air. Get medical attention if irritation develops.

**Ingestion**

If ingested, do not induce vomiting unless directed to do so by medical personnel. Get medical attention.

**5. Fire-Fighting Measures**

**Suitable Extinguishing Media:**

Material is not combustible. Use extinguishing media suitable for other combustible materials in the area.

**Special Fire Fighting Procedures**

Firefighters should be equipped with self-contained breathing apparatus to protect against potentially toxic and irritating fumes.

**6. Accidental release measures**

**Spill and Leak Procedures**

Spills should be swept up and placed in appropriate containers for disposal. Clean up promptly by scoop or vacuum. Avoid creating dusty conditions.

## 7. Handling and Storage

### Storage Period

If stored under the correct conditions (no climatic influence, kept dry and no extreme fluctuations in temperature) we expect that our products would have a shelf life of 5 years provided, however, the material has been stored correctly and the packaging materials remain unchanged.

### Handling/Storage Precautions

Protect against weathering. Store in a dry place and avoid extreme fluctuations in temperature. Special conditions for opened packaging: Close bags after use to prevent the absorption of moisture and contamination. Avoid breathing dust.

### Further Info on Storage Conditions

Material can be stored safely at ambient temperatures.

## 8. Exposure Controls / Personal Protection

Country specific exposure limits have not been established or are not applicable

### Industrial Hygiene/Ventilation Measures

Under normal conditions of use, special ventilation is not required.

### Respiratory Protection

Although no exposure limit has been established for this product, the OSHA PEL for Particulates Not Otherwise Regulated (PNOR) of 15 mg/m<sup>3</sup> - total dust, 5 mg/m<sup>3</sup> - respirable fraction is recommended. In addition, the ACGIH recommends 3 mg/m<sup>3</sup> - respirable particles and 10 mg/m<sup>3</sup> - inhalable particles for Particles (insoluble or poorly soluble) Not Otherwise Specified (PNOS)., The following respirator is recommended if airborne concentrations exceed the appropriate standard/guideline., NIOSH approved, air-purifying particulate respirator with N-95 filters.

### Eye Protection

safety glasses.

### Skin and body protection

No special skin protection requirements during normal handling and use.

### Additional Protective Measures

Employees should wash their hands and face before eating, drinking, or using tobacco products. Educate and train employees in the safe use and handling of this product.

## 9. Physical and chemical properties

Form:	Solid
Appearance:	Granules
Color:	Yellow
Odor:	Odorless
pH:	4 - 8 @ 50 g/l
Melting Point:	Begins at 1,000 °C (1,832 °F)
Flash Point:	Not Applicable
Lower Explosion Limit:	Not Established
Upper Explosion Limit:	Not Established

**Vapor Pressure:** not applicable  
**Density:** not applicable  
**Specific Gravity:** 4 - 5 @ 20 °C (68 °F)  
**Solubility in Water:** Insoluble  
**Autoignition Temperature:** Not Applicable  
**Viscosity, Dynamic:** not applicable  
**Bulk Density:** 300 - 1,000 kg/m<sup>3</sup>

## 10. Stability and Reactivity

### Hazardous Reactions

Hazardous polymerization does not occur.

### Stability

Stable

### Conditions to avoid

At temperatures greater than 356 F (180 C) the product will be converted to Fe<sub>2</sub>O<sub>3</sub>.

## 11. Toxicological Information

### Toxicity Data for C.I. Pigment Yellow 42

#### Acute Oral Toxicity

LD50: > 5,000 mg/kg (Rat)

#### Skin Irritation

rabbit, Non-irritating

#### Eye Irritation

rabbit, Non-irritating

#### Carcinogenicity

Rat, Male/Female, intraperitoneal, 8 w,  
ambiguous

## 12. Ecological Information

### Ecological Data for C.I. Pigment Yellow 42

#### Acute and Prolonged Toxicity to Fish

EC50: > 1,000 mg/l (Golden orfe (*Leuciscus idus*), 48 h)

#### Toxicity to Microorganisms

> 10,000 mg/l, (*Pseudomonas putida*)

## 13. Disposal considerations

### Waste Disposal Method

Waste disposal should be in accordance with existing federal, state, provincial, and/or local environmental control laws.

**Empty Container Precautions**

Recondition or dispose of empty container in accordance with governmental regulations.

**14. Transport information**

**Land transport (DOT)**

Non-Regulated

**Sea transport (IMDG)**

Non-Regulated

**Air transport (ICAO/IATA)**

Non-Regulated

**15. Regulatory Information**

**United States Federal Regulations**

**OSHA Hazcom Standard Rating:** Non-Hazardous

**US. Toxic Substances Control Act:** Listed on the TSCA Inventory.

**US. EPA CERCLA Hazardous Substances (40 CFR 302):**

**Components**

None

**SARA Section 311/312 Hazard Categories:**

Non-hazardous under Section 311/312

**US. EPA Emergency Planning and Community Right-To-Know Act (EPCRA) SARA Title III Section 302 Extremely Hazardous Substance (40 CFR 355, Appendix A):**

**Components**

None

**US. EPA Emergency Planning and Community Right-To-Know Act (EPCRA) SARA Title III Section 313 Toxic Chemicals (40 CFR 372.65) - Supplier Notification Required:**

**Components**

None

**US. EPA Resource Conservation and Recovery Act (RCRA) Composite List of Hazardous Wastes and Appendix VIII Hazardous Constituents (40 CFR 261):**

This product was tested and based upon random TCLP analyses, it did not exhibit the characteristic of toxicity under RCRA.

**State Right-To-Know Information**

The following chemicals are specifically listed by individual states; other product specific health and safety data in other sections of the MSDS may also be applicable for state requirements. For details on your regulatory requirements you should contact the appropriate agency in your state.

Potential exposure to some or all of the California Proposition 65 chemicals in this product have been determined to be below the No Significant Risk Level (NSRL). The concentrations reported below in units of parts per million (ppm) or parts per billion (ppb) are maximum values.

**Massachusetts, New Jersey or Pennsylvania Right to Know Substance Lists:**

<u>Weight %</u>	<u>Components</u>	<u>CAS-No.</u>
1 - 100%	C.I. Pigment Yellow 42	20344-49-4

**MA Right to Know Extraordinarily Hazardous Substance List:**

<u>Weight %</u>	<u>Components</u>	<u>CAS-No.</u>
25 ppm	Arsenic	7440-38-2
350 ppm	Chromium	7440-47-3
200 ppm	Nickel (Ni)	7440-02-0

**California Prop. 65:**

To the best of our knowledge, this product does not contain any of the listed chemicals, which the state of California has found to cause cancer, birth defects or other reproductive harm.

**16. Other Information**

**NFPA 704M Rating**

Health	1
Flammability	0
Reactivity	0
Other	

0=Insignificant 1=Slight 2=Moderate 3=High 4=Extreme

**HMIS Rating**

Health	1
Flammability	0
Physical Hazard	0

0=Minimal 1=Slight 2=Moderate 3=Serious 4=Severe

\* = Chronic Health Hazard

LANXESS Corporation's method of hazard communication is comprised of Product Labels and Material Safety Data Sheets. HMIS and NFPA ratings are provided by LANXESS Corporation as a customer service.

Contact Person: Product Safety Department  
Telephone: (800) LANXESS  
MSDS Number: 00000005060  
Version Date: 03/25/2009  
Report Version: 4.0

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the specific material designated herein. LANXESS Corporation assumes no legal responsibility for use of or reliance upon the information in this MSDS.

Changes since the last version will be highlighted in the margin. This version replaces all previous versions.



# Material Safety Data Sheet

**LANXESS**  
Energizing Chemistry

## 1. Product and company identification

**Product name** : BAYFERROX 110 C  
**Supplier/Manufacturer** : LANXESS Corporation  
Product Safety & Regulatory Affairs  
111 RIDC Park West Drive  
Pittsburgh, PA 15275-1112  
USA  
  
For information: US/Canada (800) LANXESS  
International +1 412 809 1000  
**In case of emergency** : Chemtrec (800) 424-9300  
International (703) 527-3887  
Lanxess Emergency Phone (800) 410-3063.  
**Material Number** : 04987942

## 2. Hazards identification

**Physical state** : Solid. [powder]  
**Odor** : Odorless.  
**Color** : Red.  
**Emergency overview** : CONTAINS MATERIAL THAT MAY CAUSE TARGET ORGAN DAMAGE, BASED ON ANIMAL DATA. MAY CAUSE MECHANICAL IRRITATION (ABRASION).  
**Medical conditions aggravated by over-exposure** : Pre-existing disorders involving any target organs mentioned in this MSDS as being at risk may be aggravated by over-exposure to this product.

### Potential acute health effects / Over-exposure signs/symptoms

**Inhalation** : Exposure to airborne concentrations above statutory or recommended exposure limits may cause irritation of the nose, throat and lungs. May cause mechanical irritation (abrasion).  
**Ingestion** : No known significant effects or critical hazards.  
**Skin** : May cause mechanical irritation (abrasion).  
**Eyes** : May cause mechanical irritation (abrasion). Exposure to airborne concentrations above statutory or recommended exposure limits may cause irritation of the eyes.

### Potential chronic health effects

**Chronic effects** : Contains material that may cause target organ damage, based on animal data. Repeated or prolonged inhalation of dust may lead to chronic respiratory irritation. Prolonged inhalation (6 to 10 years) of iron oxide fume has been reported to produce changes in lung x-rays of exposed individuals. This condition, siderosis, is considered to be a benign pneumoconiosis that exhibits no adverse health effects. Siderosis has been observed among occupations such as arc-welders where iron oxide fumes are present. To the best of our knowledge, this condition has not been observed after prolonged exposure to iron oxide pigments.  
**Carcinogenicity** : No carcinogenetic substances as defined by IARC, NTP and/or OSHA.  
**Target organs** : Contains material which may cause damage to the following organs: lungs.

### 3. Composition/information on ingredients

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section.

<u>Name</u>	<u>CAS number</u>	<u>%</u>
Iron (III) Oxide	1309-37-1	60 - 100

### 4. First aid measures

<b>Eye contact</b>	: Check for and remove any contact lenses. In case of contact flush eyes with plenty of luke warm water. Get medical attention if symptoms occur.
<b>Skin contact</b>	: Wash with plenty of soap and water. Get medical attention if symptoms occur. Wash clothing before reuse. Clean shoes thoroughly before reuse.
<b>Inhalation</b>	: If inhaled, remove to fresh air. Get medical attention if symptoms occur.
<b>Ingestion</b>	: Wash out mouth with water. Do not induce vomiting unless directed to do so by medical personnel. Get medical attention if symptoms occur.
<b>Notes to physician</b>	: No specific treatment. Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.

### 5. Fire-fighting measures

#### Extinguishing media

<b>Suitable</b>	: Use an extinguishing agent suitable for the surrounding fire.
<b>Not suitable</b>	: None known.
<b>Special exposure hazards</b>	: Toxic and irritating gases/fumes may be given off during burning or thermal decomposition.
<b>Hazardous thermal decomposition products</b>	: Decomposition products may include the following materials: metal oxide/oxides
<b>Special protective equipment for fire-fighters</b>	: Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

### 6. Accidental release measures

<b>Personal precautions</b>	: No action shall be taken involving any personal risk or without suitable training. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate.
<b>Spill and Leak Procedures.</b>	: Move containers from spill area. Approach release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Vacuum or sweep up material and place in a designated, labeled waste container. Avoid creating dusty conditions and prevent wind dispersal.

### 7. Handling and storage

<b>Handling</b>	: Put on appropriate personal protection equipment. Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Do not ingest. Avoid contact with eyes, skin and clothing. Avoid breathing dust. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Empty containers retain product residue and can be hazardous. Do not reuse container.
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## 7. Handling and storage

**Storage** : Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see section 10) and food and drink. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination.

## 8. Exposure controls/personal protection

Ingredient	Exposure limits
Iron (III) Oxide	ACGIH TLV (United States, 2/2010). TWA: 5 mg/m <sup>3</sup> 8 hour(s). Form: Respirable fraction; see Appendix C OSHA PEL (United States, 6/2010). TWA: 10 mg/m <sup>3</sup> 8 hour(s).

**Recommended monitoring procedures** : If this product contains ingredients with exposure limits, personal, workplace atmosphere or biological monitoring may be required to determine the effectiveness of the ventilation or other control measures and/or the necessity to use respiratory protective equipment.

**Engineering measures** : Use only with adequate ventilation. If user operations generate dust, fumes, gas, vapor or mist, use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits.

**Hygiene measures** : General dilution and local exhaust as necessary to control airborne vapors, mists, dusts, and thermal decomposition products below appropriate airborne concentration standards/guidelines.

### Personal protection

**Respiratory** : The following respirator is recommended if airborne concentrations exceed the appropriate standard/guideline. NIOSH approved, air-purifying particulate respirator with N-95 filters.

**Hands** : No special measures are required.

**Eyes** : Safety glasses with side shields.

**Skin** : No special skin protection requirements during normal handling and use.

## 9. Physical and chemical properties

**Physical state** : Solid. [powder]  
**Color** : Red.  
**Odor** : Odorless.  
**pH** : 5 [Conc. (% w/w): 5%]  
**Melting/freezing point** : >1000°C (>1832°F)  
**Density** : 5 g/cm<sup>3</sup>

## 10. Stability and reactivity

- Chemical stability** : The product is stable.  
**Conditions to avoid** : No specific data.  
**Materials to avoid** : No specific data.  
**Hazardous decomposition products** : Under normal conditions of storage and use, hazardous decomposition products should not be produced.  
**Possibility of hazardous reactions** : Under normal conditions of storage and use, hazardous reactions will not occur.

## 11. Toxicological information

### Acute toxicity

Product/ingredient name	Result	Species	Dose	Exposure
BAYFERROX 110 C	LD50 Oral	Rat	>5000 mg/kg	-

### Irritation/Corrosion

- Skin** : Non-irritating \*Test results on an analogous product  
**Eyes** : Non-irritating \*Test results on an analogous product

### Sensitizer

Product/ingredient name	Route of exposure	Species	Result
Iron (III) Oxide	skin	Guinea pig	Not sensitizing

### Carcinogenicity

Product/ingredient name	CAS #	IARC	NTP	OSHA
Iron (III) Oxide	1309-37-1	Not classified.	Not classified.	Not classified.

### Mutagenicity

Product/ingredient name	Test	Experiment	Result
Iron (III) Oxide	Ames test	Experiment: In vitro Subject: Bacteria	Negative

## 12. Ecological information

### Aquatic ecotoxicity

Product/ingredient name	Result	Species	Exposure
Iron (III) Oxide	Acute EC50 >10000 mg/l	Micro-organism - activated sludge	3 hours
	Acute EC50 >100 mg/l	Daphnia - Daphnia magna	48 hours
	Acute LC0 >50000 mg/L	Fish - Danio rerio	96 hours

## 13. Disposal considerations

- Waste disposal** : Waste disposal should be in accordance with existing federal, state, provincial and/or local environmental controls. The generation of waste should be avoided or minimized wherever possible. Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe way.
- Empty Container Precautions.** : Recondition or dispose of empty container in accordance with governmental regulations. Do not reuse container. Observe label precautions.

### 13. Disposal considerations

**RCRA classification** : If discarded in its purchased form, this product would not be a hazardous waste either by listing or by characteristic. However, under RCRA, it is the responsibility of the product user to determine at the time of disposal, whether a material containing the product or derived from the product should be classified as a hazardous waste. (40 CFR 261.20-24)

### 14. Transport information

Regulatory information	UN number	Proper shipping name	Classes	PG*	Label	Additional information
DOT Classification	-	-	-	-		Not regulated.
IMDG Class	-	-	-	-		Not regulated.
IATA-DGR Class	-	-	-	-		Not regulated.

PG\* : Packing group

RQ : 0 lbs

### 15. Regulatory information

**HAZCOM Standard Status** : This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).

**SARA Section 311/312 Hazard Categories** : Delayed (Chronic) Health Hazard

	<u>Ingredient name</u>	<u>CAS number</u>	<u>Concentration (%)</u>
<b>SARA Title III Section 302 Extremely Hazardous Substances</b>	: None		

	<u>Ingredient name</u>	<u>CAS number</u>	<u>Concentration (%)</u>
<b>SARA Title III Section 313 Toxic Chemicals</b>	: None		

	<u>Ingredient name</u>	<u>CAS number</u>	<u>RQ</u>
<b>US EPA CERCLA Hazardous Substances (40 CFR 403)</b>	: None		

**State regulations**

The following chemicals are specifically listed by individual states; other product specific health and safety data in other sections on the MSDS may also be applicable for state requirements. For details on your regulatory requirements you should contact the appropriate agency in your state.

<u>Ingredient name</u>	<u>CAS number</u>	<u>State Code</u>	<u>Concentration (%)</u>
Iron (III) Oxide	1309-37-1	MA - S, NJ - HS, PA - RTK HS	60 - 100
Impurities			1 - 5
Proprietary ammonium salt	Trade secret.		1 - 5

Massachusetts Substances: MA - S

Massachusetts Extraordinary Hazardous Substances: MA - Extra HS

New Jersey Hazardous Substances: NJ - HS

Pennsylvania RTK Hazardous Substances: PA - RTK HS

Pennsylvania Special Hazardous Substances: PA - Special HS

## 15. Regulatory information

### California Prop. 65

Potential exposure to some or all of the California Proposition 65 chemicals in this product have been determined to be below the No Significant Risk Level (NSRL)

<u>Ingredient name</u>	<u>CAS #</u>	<u>Concentration (%)</u>	<u>Cancer</u>	<u>Reproductive</u>
------------------------	--------------	--------------------------	---------------	---------------------

To the best of our knowledge, this product does not contain any of the listed chemicals, which the state of California has found to cause cancer, birth defects or other reproductive harm.

U.S. Toxic Substances Control Act : Listed on the TSCA Inventory.

## 16. Other information

Hazardous Material Information System

Health	1
Flammability	0
Physical hazards	0

0=Insignificant 1=Slight 2=Moderate 3=High 4=Extreme  
\*=Chronic

The customer is responsible for determining the PPE code for this material.

National Fire Protection Association (U.S.A.)



0= Minimal 1=Slight 2=Moderate 3=Serious 4=Severe

LANXESS' method of hazard communication is comprised of Product Labels and Material Safety Data Sheets. HMIS and NFPA ratings are provided by LANXESS as a customer service.

Contact person : Product Safety and Regulatory Affairs

Date of issue : 04-04-2011

Date of previous issue : 04.04.2011.

Version : 1

Indicates information that has changed from previously issued version.

### Notice to reader

This information is furnished without warranty, express or implied. This information is believed to be accurate to the best knowledge of LANXESS Corporation. The information in this MSDS relates only to the specific material designated herein. LANXESS Corporation. assumes no legal responsibility for use of or reliance upon the information in this MSDS.

# MATERIAL SAFETY DATA SHEET

# LANXESS

Energizing Chemistry

**LANXESS Corporation**  
Product Safety & Regulatory Affairs  
111 RIDC Park West Drive  
Pittsburgh, PA 15275-1112  
USA

## TRANSPORTATION EMERGENCY

CALL CHEMTREC: (800) 424-9300  
INTERNATIONAL: (703) 527-3887

## NON-TRANSPORTATION

LANXESS Emergency Phone: (800) 410-3063  
LANXESS Information Phone: (800) LANXESS

### 1. Product and Company Identification

Product Name: BAYFERROX 130C  
Material Number: 1093995  
Chemical Family: Inorganic Metal Oxide  
Color Index Name: Pigment Red 101  
Color Index-No.: 77491  
Chemical Name: Iron Oxide  
Synonyms: Iron (III) Oxide  
Formula: Fe<sub>2</sub>O<sub>3</sub>

### 2. Hazards Identification

#### Emergency Overview

**Color:** Red **Form:** solid Powder **Odor:** Odorless.  
Product poses little or no hazard if spilled. May cause mechanical irritation (abrasion).  
May cause lung damage.

#### Potential Health Effects

**Primary Routes of Entry:** Inhalation, Skin Contact, Eye Contact, Ingestion

**Medical Conditions Aggravated by Exposure:** Respiratory disorders

#### HUMAN EFFECTS AND SYMPTOMS OF OVEREXPOSURE

##### Inhalation

##### Acute Inhalation

**For Component: Iron (III) Oxide**  
May cause mechanical irritation.

**For Component: Amorphous Silica**

Material Name: BAYFERROX 130C

Article Number: 1093995

May cause mechanical irritation.

**For Component: Dispersant**

May cause mechanical irritation.

**Chronic Inhalation**

**For Component: Amorphous Silica**

Prolonged inhalation of amorphous silica may produce x-ray changes in the lungs without disability.

**Skin**

**Acute Skin**

**For Component: Iron (III) Oxide**

May cause mechanical irritation.

**For Component: Dispersant**

May cause mechanical irritation.

**Eye**

**Acute Eye**

**For Component: Iron (III) Oxide**

May cause mechanical irritation.

**For Component: Amorphous Silica**

May cause mechanical irritation.

**For Component: Dispersant**

May cause mechanical irritation.

**Ingestion**

**Acute Ingestion**

**For Component: Dispersant**

Symptoms of ingestion may include abdominal pain, nausea, vomiting, and diarrhea.

**Other Effects of Exposure**

**For Component: Iron (III) Oxide**

Prolonged inhalation (6 to 10 years) of iron oxide fume has been reported to produce changes in lung x-rays of exposed individuals. This condition, siderosis, is considered to be a benign pneumoconiosis that exhibits no adverse health effects. Siderosis has been observed among occupations such as arc-welders where iron oxide fumes are present. To the best of our knowledge, this condition has not been observed after prolonged exposure to iron oxide pigments.

**Carcinogenicity:**

No Carcinogenic substances as defined by IARC, NTP and/or OSHA.

**3. Composition/Information on Ingredients**

**Hazardous Components**

<u>Weight %</u>	<u>Components</u>	<u>CAS-No.</u>
60 - 100%	Iron (III) Oxide	1309-37-1
1 - 5%	Amorphous Silica	7631-86-9
1 - 5%	Dispersant	CAS# is a trade secret

#### 4. First Aid Measures

##### Eye Contact

In case of contact, flush eyes with plenty of lukewarm water. Get medical attention if irritation develops.

##### Skin Contact

In case of skin contact, wash affected areas with soap and water.

##### Inhalation

If inhaled, remove to fresh air. Get medical attention if irritation develops.

##### Ingestion

If ingested, do not induce vomiting unless directed to do so by medical personnel. Get medical attention.

#### 5. Fire-Fighting Measures

**Suitable Extinguishing Media:** Material is not combustible. Use extinguishing media suitable for other combustible materials in the area.

##### Special Fire Fighting Procedures

Firefighters should be equipped with self-contained breathing apparatus to protect against potentially toxic and irritating fumes.

#### 6. Accidental release measures

##### Spill and Leak Procedures

Spills should be swept up and placed in appropriate containers for disposal. Clean up promptly by scoop or vacuum. Avoid creating dusty conditions.

#### 7. Handling and Storage

##### Storage Period

If stored under the correct conditions (no climatic influence, kept dry and no extreme fluctuations in temperature) we expect that our products would have a shelf life of 5 years provided, however, the material has been stored correctly and the packaging materials remain unchanged.

##### Handling/Storage Precautions

Protect against weathering. Store in a dry place and avoid extreme fluctuations in temperature. Special conditions for opened packaging: Close bags after use to prevent the absorption of moisture and contamination.

##### Further Info on Storage Conditions

Material can be stored safely at ambient temperatures.

#### 8. Exposure Controls / Personal Protection

**Iron (III) Oxide (1309-37-1)**

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

PEL: 10 mg/m<sup>3</sup> (Fume.)

US. ACGIH Threshold Limit Values

Time Weighted Average (TWA): 5 mg/m<sup>3</sup> (Respirable fraction.)

US. ACGIH Threshold Limit Values

Hazard Designation: Group A4 Not classifiable as a human carcinogen.

**Amorphous Silica (7631-86-9)**

US. OSHA Table Z-3 (29 CFR 1910.1000)

Time Weighted Average (TWA): 20 millions of particles per cubic foot of air

US. OSHA Table Z-3 (29 CFR 1910.1000)

Time Weighted Average (TWA): 0.8 mg/m<sup>3</sup> The value is calculated from a specified equation using a value of 100%. Lower values of % will give higher exposure limits.

See regulation for specific equation.

**Industrial Hygiene/Ventilation Measures**

Under normal conditions of use, special ventilation is not required.

**Respiratory Protection**

The following respirator is recommended if airborne concentrations exceed the appropriate standard/guideline., NIOSH approved, air-purifying particulate respirator with N-95 filters.

**Eye Protection**

safety glasses.

**Skin and body protection**

No special skin protection requirements during normal handling and use.

**Additional Protective Measures**

Employees should wash their hands and face before eating, drinking, or using tobacco products. Educate and train employees in the safe use and handling of this product.

**9. Physical and chemical properties**

<b>Form:</b>	solid
<b>Appearance:</b>	Powder
<b>Color:</b>	Red
<b>Odor:</b>	Odorless
<b>pH:</b>	4 - 8 @ 50 g/l
<b>Melting Point:</b>	Begins at 1,000 °C (1,832 °F)
<b>Flash Point:</b>	not applicable
<b>Lower Explosion Limit:</b>	Not Established
<b>Upper Explosion Limit:</b>	Not Established
<b>Vapor Pressure:</b>	not applicable
<b>Specific Gravity:</b>	4 - 5 @ 20 °C (68 °F)
<b>Solubility in Water:</b>	< 30 g/l
<b>Autoignition Temperature:</b>	Not Applicable
<b>Viscosity, Dynamic:</b>	not applicable
<b>Bulk Density:</b>	300 - 1,000 kg/m <sup>3</sup>

**10. Stability and Reactivity**

**Hazardous Reactions**

Hazardous polymerization does not occur.

**Stability**

Stable

**Materials to avoid**

None known.

**Hazardous decomposition products**

None known.

**11. Toxicological Information****Toxicity Data for Iron (III) Oxide****Acute Oral Toxicity**

LD50: > 5,000 mg/kg (Rat)

**Acute dermal toxicity**

LD50: 5,500 mg/kg (Rat)

**Skin Irritation**

rabbit, Acute Dermal Irritation, Exposure Time: 24 hrs, Non-irritating

**Eye Irritation**

rabbit, Acute Eye Irritation Study, Non-irritating

**Toxicity Data for Amorphous Silica****Acute Oral Toxicity**

LD50: > 5,000 mg/kg (Rat)

**Acute Inhalation Toxicity**

LC50: > 2.2 mg/l, 1 hrs (Rat)

**Acute dermal toxicity**

LD50: > 5,000 mg/kg (rabbit)

**Skin Irritation**

rabbit, Non-irritating

**Eye Irritation**

rabbit, Non-irritating

**Sensitization**

dermal: non-sensitizer (Guinea pig, Magnusson/Kligmann (Maximization Test))

**Repeated Dose Toxicity**

90 Days, inhalation: NOAEL: < 0.001 mg/l, (Rat)

**Mutagenicity**

Genetic Toxicity in Vitro:

Ames: negative (Salmonella typhimurium, Metabolic Activation: with/without)

Genetic Toxicity in Vivo:

Cytogenetic assay: negative (Rat)

**Carcinogenicity**

Rat, Male/Female, oral, 2 Years, daily  
negative

**Toxicity Data for Polyethylene Glycol****Acute Oral Toxicity**

LD50: > 5,000 mg/kg (Rat)

**Acute Inhalation Toxicity**

LC0: 2516 mg/m<sup>3</sup>, 6 hrs (Rat)

**Acute dermal toxicity**

LD50: > 5,000 mg/kg (rabbit)

**Eye Irritation**

rabbit, No eye irritation

**Mutagenicity**

Genetic Toxicity in Vitro:

Ames: negative

Genetic Toxicity in Vivo:

negative (Drosophila melanogaster, )

**Developmental Toxicity/Teratogenicity**

rat, female, oral, gestation, NOAEL (teratogenicity): 10,000 mg/kg,  
No Teratogenic effects observed at doses tested.

**Toxicity Data for Dispersant****Mutagenicity**

Genetic Toxicity in Vitro:

Ames: negative (Salmonella typhimurium)

**Toxicity Data for Cellulose Derivative****Acute Oral Toxicity**

LD50: 27,000 mg/kg (rat)

**Acute Inhalation Toxicity**

LC50: >5800 mg/m<sup>3</sup>, 4 hrs (rat)

**Acute dermal toxicity**

LD50: > 2,000 mg/kg (rabbit)

**Skin Irritation**

rabbit, Exposure Time: 4 hrs, No skin irritation

**Eye Irritation**

rabbit, Exposure Time: 24 hrs, Mild eye irritation

**Sensitization**

Did not cause sensitization on laboratory animals. (guinea pig)

**12. Ecological Information****Ecological Data for Iron (III) Oxide**

**Acute and Prolonged Toxicity to Fish**

LC0: > 1,000 mg/l (Golden orfe (*Leuciscus idus*), 48 hrs)

**Toxicity to Microorganisms**

EC0: > 5,000 mg/l, (*Pseudomonas fluorescens*, 24 hrs)

**Toxicity Other Non-Mammal Terrestrial Species**

No Harmful effects

**Ecological Data for Amorphous Silica****Biodegradation**

The methods for determining the biological degradability are not applicable to inorganic substances.

**Bioaccumulation**

Not expected to bio-accumulate.

**Acute and Prolonged Toxicity to Fish**

LC50: 5,000 mg/l (Zebra fish (*Brachydanio rerio*), 96 hrs)

Calculated value

**Acute Toxicity to Aquatic Invertebrates**

EC0: 10,000 mg/l (Water flea (*Daphnia magna*), 24 hrs)

EC50: 7,600 mg/l (*Ceriodaphnia* sp, 48 hrs)

Calculated value

**Toxicity to Aquatic Plants**

EC50: 440 mg/l, End Point: growth (Green algae (*Selenastrum capricornutum*), 72 hrs)

**Toxicity to Microorganisms**

EC50: 8,700 mg/l, (*Photobacterium phosphoreum*, 15 min)

**Ecological Data for Polyethylene Glycol****Biological Oxygen Demand (BOD)**

5 Days, 6 %

20 Days, 77 %

**Chemical Oxygen Demand (COD)**

1.84 mg/g

**Acute and Prolonged Toxicity to Fish**

LC50: > 10,000 mg/l (Fathead minnow (*Pimephales promelas*), 96 hrs)

**Acute Toxicity to Aquatic Invertebrates**

EC50: > 10,000 mg/l (Water flea (*Daphnia magna*), 48 hrs)

**Toxicity to Microorganisms**

> 5,000 mg/l, (16 hrs)

**Ecological Data for Cellulose Dervative****Acute and Prolonged Toxicity to Fish**

LC50: > 100 ppm (Rainbow (Donaldson) Trout (*Oncorhynchus mykiss*), 96 hrs)

LC50: > 100 ppm (Bluegill (*Lepomis macrochirus*), 96 hrs)

**Acute Toxicity to Aquatic Invertebrates**

330 - 1,000 mg/l (Common shrimp (*Crangon crangon*), 96 hrs)

### 13. Disposal considerations

#### Waste Disposal Method

Waste disposal should be in accordance with existing federal, state, provincial, and/or local environmental control laws.

#### Empty Container Precautions

Recondition or dispose of empty container in accordance with governmental regulations.

### 14. Transport information

#### Land transport (DOT)

Non-Regulated

#### Sea transport (IMDG)

Non-Regulated

#### Air transport (ICAO/IATA)

Non-Regulated

### 15. Regulatory Information

#### United States Federal Regulations

OSHA Hazcom Standard Rating: Hazardous

US. Toxic Substances Control Act: Listed on the TSCA Inventory.

US. EPA CERCLA Hazardous Substances (40 CFR 302):

#### Components

None

SARA Section 311/312 Hazard Categories:

Chronic Health Hazard

US. EPA Emergency Planning and Community Right-To-Know Act (EPCRA) SARA Title III Section 302 Extremely Hazardous Substance (40 CFR 355, Appendix A):

#### Components

None

US. EPA Emergency Planning and Community Right-To-Know Act (EPCRA) SARA Title III Section 313 Toxic Chemicals (40 CFR 372.65) - Supplier Notification Required:

#### Components

None

US. EPA Resource Conservation and Recovery Act (RCRA) Composite List of Hazardous Wastes and Appendix VIII Hazardous Constituents (40 CFR 261):

If discarded in its purchased form, this product would not be a hazardous waste either by listing or by

characteristic. However, under RCRA, it is the responsibility of the product user to determine at the time of disposal, whether a material containing the product or derived from the product should be classified as a hazardous waste. (40 CFR 261.20-24)

**State Right-To-Know Information**

The following chemicals are specifically listed by individual states; other product specific health and safety data in other sections of the MSDS may also be applicable for state requirements. For details on your regulatory requirements you should contact the appropriate agency in your state.

Potential exposure to some or all of the California Proposition 65 chemicals in this product have been determined to be below the No Significant Risk Level (NSRL). The concentrations reported below in units of parts per million (ppm) or parts per billion (ppb) are maximum values.

**Massachusetts, New Jersey or Pennsylvania Right to Know Substance Lists:**

<u>Weight %</u>	<u>Components</u>	<u>CAS-No.</u>
60 - 100%	Iron (III) Oxide	1309-37-1
4%	Amorphous Silica	7631-86-9
>=1%	Polyethylene Glycol	CAS# is a trade secret
1 - 5%	Dispersant	CAS# is a trade secret
>=1%	Cellulose Dervative	CAS# is a trade secret

**MA Right to Know Extraordinarily Hazardous Substance List:**

<u>Weight %</u>	<u>Components</u>	<u>CAS-No.</u>
50 ppm	Arsenic	7440-38-2
900 ppm	Chromium	7440-47-3
250 ppm	Nickel (Ni)	7440-02-0

**California Prop. 65:**

To the best of our knowledge, this product does not contain any of the listed chemicals, which the state of California has found to cause cancer, birth defects or other reproductive harm.

**16. Other Information**

**NEPA 704M Rating**

Health	1
Flammability	0
Reactivity	0
Other	

0=Insignificant 1=Slight 2=Moderate 3=High 4=Extreme

**HMIS Rating**

Health	1*
Flammability	0
Physical Hazard	0

0=Minimal 1=Slight 2=Moderate 3=Serious 4=Severe

\* = Chronic Health Hazard

LANXESS Corporation's method of hazard communication is comprised of Product Labels and Material Safety Data Sheets. HMIS and NFPA ratings are provided by LANXESS Corporation as a customer service.

Contact Person: Product Safety Department

Telephone: (800) LANXESS  
MSDS Number: R305236  
Version Date: 06/18/2008  
Report Version: 3.0

This information is furnished without warranty, express or implied. This information is believed to be accurate to the best knowledge of LANXESS Corporation. The information in this MSDS relates only to the specific material designated herein. LANXESS Corporation assumes no legal responsibility for use of or reliance upon the information in this MSDS.

Changes since the last version will be highlighted in the margin. This version replaces all previous versions.

**APPENDIX E**  
**EMISSIONS INVENTORY**

**IDEQ PTC Forms**

**Facility Wide Potential to Emit Emission Inventory**

Table 1. PRE PROJECT POTENTIAL TO EMIT FOR NSR REGULATED POLLUTANTS

\* Assumed to be Zero because this is the initial PTC for the facility.

Table 2. POST PROJECT PEC MAXIMUM POTENTIAL TO EMIT FOR NSR REGULATED POLLUTANTS

Description	Criteria Pollutant Emission Summary - FEC															
	NOx Emissions		CO Emissions		PM-10 Emissions		SOx Emissions		VOC Emissions		Lead Emissions		PM-2.5 Emissions		GHG Emissions	
	lb/hr	T/yr	lb/hr	T/yr	lb/hr	T/yr	lb/hr	T/yr	lb/hr	T/yr	lb/hr	T/yr	lb/hr	T/yr	lb/hr	T/yr
Vaporizer #1	0.144	0.450	0.121	0.378	0.011	0.034	0.001	0.003	0.008	0.025	7.21E-07	2.25E-06	0.011	0.034		
Vaporizer #2	0.144	0.450	0.121	0.378	0.011	0.034	0.001	0.003	0.008	0.025	7.21E-07	2.25E-06	0.011	0.034		
Cement Silo - Line A	N/A	N/A	N/A	N/A	1.70E-03	5.30E-03	N/A	N/A	N/A	N/A	5.45E-08	1.70E-07	6.75E-04	2.11E-03		
Cement Silo - Line B	N/A	N/A	N/A	N/A	1.70E-03	5.30E-03	N/A	N/A	N/A	N/A	5.45E-08	1.70E-07	6.75E-04	2.11E-03		
Supplement Silo - Line A & B	N/A	N/A	N/A	N/A	0.025	0.076	N/A	N/A	N/A	N/A	2.60E-06	8.11E-06	6.68E-03	2.08E-02		
Roll Crusher	N/A	N/A	N/A	N/A	7.20E-04	1.78E-04	N/A	N/A	N/A	N/A	N/A	N/A	1.78E-04	1.78E-04		
Jaw Crusher	N/A	N/A	N/A	N/A	3.60E-04	1.78E-04	N/A	N/A	N/A	N/A	N/A	N/A	1.78E-04	1.78E-04		
Relief Emissions Routed to Baghouse	N/A	N/A	N/A	N/A	2.94E-03	6.94E-04	N/A	N/A	N/A	N/A	N/A	N/A	6.94E-04	6.94E-04		
<b>Proposed PTE Total (excluding fugitives)</b>	<b>0.288</b>	<b>0.900</b>	<b>0.242</b>	<b>0.756</b>	<b>0.054</b>	<b>0.156</b>	<b>0.002</b>	<b>0.005</b>	<b>0.016</b>	<b>0.050</b>	<b>4.15E-06</b>	<b>1.30E-05</b>	<b>0.031</b>	<b>0.094</b>		<b>1,971.46</b>
Fugitives	N/A	N/A	N/A	N/A	0.391	0.104	N/A	N/A	N/A	N/A	N/A	N/A	0.104	2.051		

NSR Regulated air pollutants are defined<sup>(1)</sup> as: Particulate Matter (PM-10, PM-2.5), Carbon Monoxide, Lead, Nitrogen Dioxide, Ozone (VOC), Sulfur Dioxide, all pollutants regulated by NSRS (40 CFR 60)(i.e. TRS, fluoride, sulfuric acid mist) & Class I & Class II Ozone Depleting Substances (40 CFR 82)(i.e. CFC, HCFC, Halon, etc.) The Gem State facility is not a source of any pollutants regulated by NSRS other than NSR regulated air pollutants, nor is the facility a source of Class I or Class II Ozone Depleting Substances

\*\* See spreadsheets prepared by JBR (included in Appendix E of the permit application for further information regarding emission factors and calculation assumptions.

## IDEQ PTC Forms

### Facility Wide Hazardous Air Pollutant Potential to Emit

#### HAP FEC MAXIMUM POTENTIAL TO EMIT EMISSIONS SUMMARY

HAP Pollutants	FEC PTE (T/yr)
Chromium	3.25E-05
Cobalt	7.56E-07
Lead	8.45E-06
Hexane*	1.62E-02
Manganese	1.11E-05
Mercury	2.34E-06
Naphthalene	5.49E-06
Phosphorous	4.23E-04
Toluene	3.06E-05
Arsenic	1.75E-05
Benzene	1.89E-05
Beryllium	1.53E-06
Cadmium	1.75E-05
Formaldehyde	6.75E-04
Nickel	5.58E-05
Total PAH	2.29E-05
<b>Total</b>	<b>1.75E-02</b>

\* Maximum Individual HAP

\*\* See spreadsheets prepared by JBR (included in Appendix E of the permit application for

**IDEQ PTC Forms**

**Toxic Air Pollutant Emissions Inventory**

**Part 1. PRE- AND POST PROJECT NON-CARCINOGENIC TAP EMISSIONS SUMMARY POTENTIAL TO EMIT**

NON-CARCINOGENS							
Pollutant	CAS #	TAP Emissions (lb/hr)	Pre-Project TAP Emissions (lb/hr)	Difference (lb/hr)	Screening Level (lb/hr)	Modeling? (Y/N)	TAP Emissions (tpy)
Barium	7440-39-3	1.27E-05	0.00E+00	1.27E-05	3.30E-02	No	3.96E-05
Chromium	7440-47-3	6.48E-06	0.00E+00	6.48E-06	3.30E-02	No	3.25E-05
Cobalt	7440-48-4	2.42E-07	0.00E+00	2.42E-07	3.30E-03	No	7.56E-07
Copper	7440-50-8	2.45E-06	0.00E+00	2.45E-06	6.70E-02	No	7.65E-06
Iron Oxide	1309-37-1	6.30E-05	0.00E+00	6.30E-05	3.33E-01	No	1.64E-05
Hexane	110-54-3	5.19E-03	0.00E+00	5.19E-03	1.20E+01	No	1.62E-02
Manganese	7439-96-5	3.55E-06	0.00E+00	3.55E-06	3.33E-01	No	1.11E-05
Molybdenum	7439-98-7	3.17E-06	0.00E+00	3.17E-06	3.33E-01	No	9.90E-06
Naphthalene	91-20-3	1.76E-06	0.00E+00	1.76E-06	2.00E-06	No	5.49E-06
Pentane	109-66-0	7.50E-03	0.00E+00	7.50E-03	1.18E+02	No	2.34E-02
Phosphorous	7723-14-0	1.36E-04	0.00E+00	1.36E-04	7.00E-03	No	4.23E-04
Selenium	7782-49-2	4.31E-07	0.00E+00	4.31E-07	1.30E-02	No	1.35E-06
Vanadium	71-43-2	6.63E-06	0.00E+00	6.63E-06	3.00E-03	No	2.07E-05
Toluene	108-88-3	9.81E-06	0.00E+00	9.81E-06	2.50E+01	No	3.06E-05
Zinc	7440-66-6	8.37E-05	0.00E+00	8.37E-05	6.67E-01	No	2.61E-04

**Part 2. PRE- AND POST PROJECT CARCINOGENIC TAP EMISSIONS SUMMARY POTENTIAL TO EMIT**

CARCINOGENS							
Pollutant	CAS #	TAP Emissions (lb/hr)	Pre-Project TAP Emissions (lb/hr)	Difference (lb/hr)	Screening Level (lb/hr)	Modeling? (Y/N)	TAP Emissions (tpy)
Arsenic	7440-38-2	4.00E-06	0.00E+00	4.00E-06	1.50E-06	Yes	1.75E-05
Benzene	71-43-2	4.32E-06	0.00E+00	4.32E-06	8.00E-04	No	1.89E-05
Beryllium	7440-41-7	3.50E-07	0.00E+00	3.50E-07	2.80E-05	No	1.53E-06
Cadmium	7440-43-9	4.00E-06	0.00E+00	4.00E-06	3.70E-06	Yes	1.75E-05
Chromium VI	7440-47-3	1.36E-06	0.00E+00	1.36E-06	5.60E-07	Yes	5.95E-06
Formaldehyde	50-00-0	1.54E-04	0.00E+00	1.54E-04	5.10E-04	No	6.75E-04
Naphthalene	91-20-3	1.25E-06	0.00E+00	1.25E-06	9.10E-05	No	5.49E-06
Nickel	7440-02-0	1.27E-05	0.00E+00	1.27E-05	2.70E-05	No	5.58E-05
POM (7-PAH)	50-32-8	2.34E-08	0.00E+00	2.34E-08	2.00E-06	No	1.03E-07
Total PAHs		5.23E-06	0.00E+00	5.23E-06	2.00E-06	Yes	2.29E-05

\*\* See spreadsheets prepared by JBR (included in Appendix E of the permit application for further information regarding emission factors and calculation assumptions.

Basalite Boise Plant  
Initial Permit to Construct - June 2012  
Emissions Inventory

**Material Throughputs**

Material	2011 Actuals Ton/yr	Projected Throughputs <sup>1</sup>	Delivery	Storage and Transfer
Gravel	8,572	21,430	Truck	Stockpile/Underground Bin
Red Cinder	140	350	Truck	Stockpile/Underground Bin
Black Cinder	140	350	Truck	Stockpile/Underground Bin
Gold Pumice	61	153	Truck	Stockpile/Underground Bin
White Pumice	3,476	8,690	Rail	Aggregate Silo
Sand	17,938	44,845	Truck	Stockpile/Underground Bin

1. The projected throughput is the 2011 actuals multiplied by 2.5.

**Material Transfer**

Material Process	Throughput <sup>1</sup>		Emission factor (lb/Ton)	Uncontrolled Emissions (lb/hr)	Uncontrolled Emissions	Emission factor (lb/Ton)	Uncontrolled Emissions (lb/hr)	Uncontrolled Emissions
	Ton/hr	Ton/yr <sup>2</sup>	PM <sub>10</sub> <sup>3</sup>	PM <sub>10</sub>	PM <sub>10</sub>	PM <sub>2.5</sub> <sup>4</sup>	PM <sub>2.5</sub>	PM <sub>2.5</sub>
Aggregate/Pumice Delivery to Underground	38	30,973	0.0033	0.13	0.51	1.04E-03	0.04	0.61
Sand Delivery to Underground Storage	38	44,845	0.00099	0.04	0.22	3.15E-04	0.01	0.27
Aggregate or Sand Transfer to Reverse Belt Conveyor	38	75,818	0.0033	0.13	1.25	1.04E-03	0.04	1.49
Aggregate or Sand Transfer to Aggregate Holding Hopper	38	75,818	0.0033	0.13	1.25	1.04E-03	0.04	1.49
Pumice Drop into Aggregate Silos	38	8,690	0.0033	0.13	0.14	1.04E-03	0.04	0.17
Material Process	Controlled Emissions (lb/hr) <sup>5</sup>	Controlled Emissions (Ton/yr) <sup>5</sup>	Controlled Emissions (lb/hr) <sup>5</sup>	Controlled Emissions (Ton/yr) <sup>5</sup>				
Aggregate/Pumice Delivery to Underground	0.06	0.26	0.02	0.30				
Sand Delivery to Underground Storage	0.02	0.11	0.01	0.13				
Aggregate or Sand Transfer to Reverse Belt Conveyor	0.06	0.63	0.02	0.75				
Aggregate or Sand Transfer to Aggregate Holding Hopper	0.06	0.63	0.02	0.75				
Pumice Drop into Aggregate Silos	0.06	0.07	0.02	0.09				

- The hourly throughput is based on the unloading capacity of the hopper grizzlies both for truck and railcar unloading.
- The aggregate annual throughput includes all material types with the exception of white pumice. Only white pumice is routed to the aggregate silos.
- All emission factors are derived from AP-42 Section 11.12 - Concrete Batching, Table 2
- The EFs were calculated using EFs in lb/ton of material handled from Table 11.12-2, and a percentage of PM that is considered to be PM<sub>2.5</sub>.
- The percentage used to establish the EFs were based on AP-42, Appendix B, Table B-2.2, Category 3. It was established that the fraction that is PM<sub>2.5</sub> is 15%.
- A control efficiency of 50% was applied because the conveyors themselves are fully enclosed but the transfer point is partially enclosed with a 1 ft drop and wind breaks.

**Coloring Agents**

Coloring Types	Throughput <sup>1</sup>		Emission factor (lb/Ton)	Uncontrolled Emissions (lb/hr)	Uncontrolled Emissions (T/yr)	Emission factor (lb/Ton) <sup>3</sup>	Uncontrolled Emissions (lb/hr)	Uncontrolled Emissions
	Ton/hr	Ton/yr	PM <sub>10</sub> <sup>2</sup>	PM <sub>10</sub>	PM <sub>10</sub>	PM <sub>2.5</sub> <sup>4</sup>	PM <sub>2.5</sub>	PM <sub>2.5</sub>
110-C Light Red	0.05	44	0.00099	4.95E-05	2.16E-05	3.15E-04	1.58E-05	6.87E-06
130-C Medium Red	0.05	9	0.00099	4.95E-05	4.22E-06	3.15E-04	1.58E-05	1.34E-06
330-C Black	0.05	64	0.00099	4.95E-05	3.16E-05	3.15E-04	1.58E-05	1.01E-05
920-G Yellow	0.05	130	0.00099	4.95E-05	6.44E-05	3.15E-04	1.58E-05	2.05E-05
Coloring Types	Controlled Emissions (lb/hr) <sup>4</sup>	Controlled Emissions (T/yr) <sup>4</sup>	Controlled Emissions (lb/hr) <sup>4</sup>	Controlled Emissions (Ton/yr) <sup>4</sup>				
110-C Light Red <sup>5</sup>	1.49E-05	6.48E-06	4.73E-06	2.06E-06				
130-C Medium Red <sup>5</sup>	1.49E-05	1.27E-06	4.73E-06	4.03E-07				
330-C Black <sup>5</sup>	1.49E-05	9.48E-06	4.73E-06	3.02E-06				
920-G Yellow <sup>5</sup>	1.49E-05	1.93E-05	4.73E-06	6.15E-06				

- The hourly throughput is a worst-case calculation based on a usage of 1000 lb during a minimum of a 10 hour day. Also, the annual throughput is based on a 2011 actual usages multiplied by 5.
- The coloring agents are in a powdered form that is very fine. Therefore, the use of Sand Transfer is appropriate.
- The EFs were calculated using EFs in lb/ton of material handled from Table 11.12-2, and a percentage of PM that is considered to be PM<sub>2.5</sub>.
- The percentage used to establish the EFs were based on AP-42, Appendix B, Table B-2.2, Category 3. It was established that the fraction that is PM<sub>2.5</sub> is 15%.
- The control efficiency is assumed to be 70% for the following reason: the batching process is fully enclosed in a building, there are water bars used to minimize dust within the structure, and there is a secondary filtration system to capture any excess particulate.
- The red coloring agent does have iron oxide within it, however based on the controls put in place as stated above in it's Impact is minimal. Based on the throughput, controls, transfer of the material during the process and the consistency being that of a particulate, the use of an emission factor of 0.0021 lb/ton for sand transfer is appropriate. Adding Light and Medium red together equates to 6.35E-06 lb/hr which is the 1-hr maximum

**Alternative Material feed from Stockpiles**

Alternative Material Feed	Throughput		Emission Factors (lb/ton)		Uncontrolled PM <sub>10</sub> Emissions		Uncontrolled PM <sub>2.5</sub> Emissions	
	Ton/hr <sup>1</sup>	Ton/yr <sup>2</sup>	PM <sub>10</sub> <sup>3</sup>	PM <sub>2.5</sub> <sup>3</sup>	lb/hr	Ton/yr	lb/hr	Ton/yr
Material Grab With Loader	38	10,069	1.11E-03	1.69E-05	4.23E-02	5.80E-03	6.40E-04	8.48E-05
Wind Erosion Sand Pile <sup>4</sup>	N/A	N/A	N/A	N/A	7.37E-02	2.30E-01	2.95E-02	9.20E-02
Wind Erosion Gravel Pile <sup>4</sup>	N/A	N/A	N/A	N/A	8.30E-02	2.59E-01	3.32E-02	1.04E-01
Wind Erosion Black Cinder Pile <sup>4</sup>	N/A	N/A	N/A	N/A	2.98E-03	9.29E-03	1.19E-03	3.72E-03
Wind Erosion Red Cinder Pile <sup>4</sup>	N/A	N/A	N/A	N/A	1.19E-02	3.72E-02	4.77E-03	1.49E-02
Wind Erosion Gold Pumice Pile <sup>4</sup>	N/A	N/A	N/A	N/A	1.08E-02	3.38E-02	4.34E-03	1.35E-02
Alternative Material Feed	Controlled PM <sub>10</sub> Emissions <sup>5</sup> lb/hr	Controlled PM <sub>2.5</sub> Emissions <sup>5</sup> Ton/yr	Controlled PM <sub>10</sub> Emissions <sup>5</sup> lb/hr	Controlled PM <sub>2.5</sub> Emissions <sup>5</sup> Ton/yr				
Material Grab With Loader	4.23E-02	5.80E-03	6.40E-04	8.48E-05				
Wind Erosion Sand Pile	7.37E-02	2.30E-02	2.95E-03	9.20E-03				
Wind Erosion Gravel Pile	8.30E-02	2.59E-02	3.32E-03	1.04E-02				
Wind Erosion Black Cinder Pile	1.49E-03	4.65E-03	5.96E-04	1.88E-03				
Wind Erosion Red Cinder Pile	5.96E-03	1.86E-02	2.38E-03	7.43E-03				
Wind Erosion Gold Pumice Pile	5.42E-03	1.69E-02	2.17E-03	6.77E-03				

- The hourly throughput is based on the unloading capacity of the hopper grizzlies both for truck and railcar unloading.
- The annual throughput for material grab is assumed to be 15% of the maximum total as this is only used as an alternative method when typical operations are not running, excludes the white pumice.
- The loader emission factors were derived from AP-42, Section 13.2.4 Aggregate Handling & Storage Piles - Equation 1, where k = 0.35 and 0.063 for PM<sub>10</sub> and PM<sub>2.5</sub>, respectively. U is the average mean speed (7.7 mph) and M is moisture content (3%). The 3% is based on the average of 4.17 % and 1.77%, the average percentages for sand and aggregate respectively. These values are based on EPA tests conducted at Cheney Enterprises Cement plant in Roanoke, VA (AP-42 11-12 0606).
- The average wind speed of 7.7 mph was based on the average speed observed at the Boise Airport from 1996-2006. <http://www.wrcc.dri.edu/hrfiles/westwind.html> IDAHO
- For wind erosion calculations from the stockpiles please refer to the "Stockpile Calcs" Tab of this worksheet.
- The control efficiencies are assumed to be 90% when the stockpiles are covered with tarps. This is the case when they are not in use. Only the sand and gravel are currently covered. The black, red and gold material are larger and up against a building. Therefore, a control efficiency of 50% was applied to them. Note that the material grab with loader assumes no control.

Basalite Boise Plant  
Initial Permit to Construct - June 2012  
Emissions Inventory

Railcar Crushing Enclosure Area Emissions

Emissions Source	Throughput		Emission Factors (lb/Ton)		Uncontrolled Emissions (lb/hr)		Uncontrolled Emissions (Ton/yr)	
	Ton/hr <sup>1</sup>	Ton/yr <sup>1</sup>	PM <sub>10</sub> <sup>2</sup>	PM <sub>2.5</sub> <sup>3</sup>	PM <sub>10</sub>	PM <sub>2.5</sub>	PM <sub>10</sub>	PM <sub>2.5</sub>
Jaw Crusher	15	14,850	0.0024	0.0024	0.036	0.036	0.018	0.018
Roll Crusher	30	14,850	0.0024	0.0024	0.072	0.072	0.018	0.018
Screening	30	14,850	0.0087	0.0087	0.261	0.261	0.065	0.065
Aggregate (pumice) Conveyor transfers to screening	30	8,690	0.0011	0.0011	0.033	0.033	0.005	0.005
Aggregate (pumice) Conveyor transfers from screening fines <sup>4</sup>	30	8,690	1.11E-03	1.69E-05	3.34E-02	5.06E-04	4.84E-03	7.32E-05
Aggregate (pumice) Conveyor transfers from screening coarse <sup>4</sup>	30	8,690	1.11E-03	1.69E-05	3.34E-02	5.06E-04	4.84E-03	7.32E-05
Aggregate (pumice) Delivery thru grizzly to ground storage <sup>4</sup>	30	8,690	1.11E-03	1.69E-05	3.34E-02	5.06E-04	4.84E-03	7.32E-05
Emissions Source	Controlled Emissions (lb/hr)		Controlled Emissions (Ton/yr)					
	PM <sub>10</sub>	PM <sub>2.5</sub>	PM <sub>10</sub>	PM <sub>2.5</sub>				
Jaw Crusher <sup>5</sup>	3.6E-04	3.6E-04	1.78E-04	1.78E-04				
Roll Crusher <sup>5</sup>	7.20E-04	7.20E-04	1.78E-04	1.78E-04				
Screening <sup>5</sup>	2.61E-03	2.61E-03	6.46E-04	6.46E-04				
Aggregate (pumice) Conveyor transfers to screening <sup>5</sup>	3.30E-04	3.30E-04	4.78E-05	4.78E-05				
Aggregate (pumice) Conveyor transfers from screening fines <sup>6</sup>	1.67E-02	2.53E-04	2.42E-03	3.66E-05				
Aggregate (pumice) Conveyor transfers from screening coarse <sup>6</sup>	1.67E-02	2.53E-04	2.42E-03	3.66E-05				
Aggregate (pumice) Delivery thru grizzly to ground storage <sup>6</sup>	1.67E-02	2.53E-04	2.42E-03	3.66E-05				

1. The Ton/hr throughput values are based on the capacity of the crusher and the transfers are maximized to represent the highest throughput. Only white pumice reclaim is crushed (14,850 T/yr).

2. The PM<sub>10</sub> emission factor is derived from AP-42 Section 11.19-2, Crushed Stone Processing & Pulverized Mineral Processing.

Also, footnote n indicates that tertiary crushing factors may be used.

3. For conservatism, it is assumed that PM<sub>2.5</sub> is equivalent to PM<sub>10</sub>.

4. The conveyor transfer from screening emission factors were derived from AP-42, Section 13.2.4 Aggregate Handling & Storage Piles - Equation 1, where k = 0.35 and 0.053 for PM<sub>10</sub> and PM<sub>2.5</sub>, respectively. U is the average mean speed (7.7 mph) and M is moisture content (3%). The 3% is based on the average of 4.17 % and 1.77%, the average percentages for sand and aggregate respectively.

These values are based on EPA tests conducted at Cheney Enterprises Cement plant in Roanoke, VA (AP-42 11-12 06/06).

The average wind speed of 7.7 mph was based on the average speed observed at the Boise Airport from 1996-2006. <http://www.wrcc.dri.edu/htmlfiles/westwind.final.html#DAHO>

5. Both crusher and screening operations are conducted within a building where all particulate emissions are routed to a baghouse. The baghouse is the Emtron 36-10 BR with a control efficiency of 99%.

6. The transfer of material via conveyance to the aggregate silos is partially enclosed. Typically, a "wall" assumes 25% control. A 50% assumption is conservative seeing as only the top of the conveyors are open.

Basaltite Boise Plant  
 Initial Permit to Construct - June 2012  
 Emissions Inventory

Storage Pile Calculations			
	Length (ft) <sup>1</sup>	Width (ft) <sup>1</sup>	Area (acres) <sup>1</sup>
Sand Pile Area	26	40	0.024
Gravel Pile Area	26	45	0.027
Gold Pumice Area	3.5	12	0.001
Black Cinder Area	6	28	0.004
Red Cinder Area	8.5	18	0.004

1. The length and width of each stockpile was determined by Basaltite on February 29, 2012 actual measurements.  
 2. The Worst case was determined to be three times that of the actual dimensions.

**Wind Erosion Calculations**

The following calculation was developed by the Mojave Desert Air Quality Management District for material handling, specifically wind erosion from stockpiles.  
 Emissions =  $E_f \cdot A$

$E_f = J \cdot 1.7 \cdot sL / 1.5 \cdot 365 / 235 \cdot 1 / 15 \cdot 365 / 2000$

J = particulate aerodynamic factor (0.5 for PM<sub>10</sub> and 0.2 for PM<sub>2.5</sub>).

sL = Silt loading % (30 used as default for conservatism).

l = % of days wind speed greater than 12 mph (10 was used).

Wind Erosion Emissions	Uncovered PM <sub>10</sub> (Ton/Yr)	Uncovered PM <sub>2.5</sub> (Ton/Yr)
Sand Pile Area	0.2301	0.0920
Gravel Pile Area	0.2589	0.1035
Gold Pumice Area	0.0093	0.0037
Black Cinder Area	0.0372	0.0149
Red Cinder Area	0.0339	0.0135

Basalite Boise Plant  
Initial Permit to Construct - June 2012  
Emissions Inventory

Cement and Flyash Silo Emissions

Emissions Source	Throughput <sup>1</sup>		Emission Factor (lb/Ton)		Controlled Emissions (lb/hr)		Controlled Emissions (Ton/yr)	
	T/hr	T/yr	PM <sub>10</sub> <sup>2</sup>	PM <sub>2.5</sub> <sup>2</sup>	PM <sub>10</sub>	PM <sub>2.5</sub>	PM <sub>10</sub>	PM <sub>2.5</sub>
Line A Cement Silo	5	31,200	3.40E-04	1.35E-04	1.70E-03	6.75E-04	5.30E-03	2.11E-03
Line B Cement Silo	5	31,200	3.40E-04	1.35E-04	1.70E-03	6.75E-04	5.30E-03	2.11E-03
Line A & B Supplement	5	31,200	4.90E-03	1.34E-03	2.45E-02	6.68E-03	7.64E-02	2.08E-02

1. The throughputs are based on expected operations and 6,240 operating hours.

2. The EFs were calculated using EFs in lb/ton of material handled from Table 11.12-2, and a percentage of PM that is considered to be PM<sub>2.5</sub>.

The percentage used to establish the EFs were based on AP-42, Appendix B, Table B-2.2, Category 3. It was established that the fraction that is PM<sub>2.5</sub> is 15%.

HAP/TAP Emissions from Silos

HAP/TAP Emission Factors from AP-42, Table 11.12-8 (Version 06/06)

Emission Source <sup>1</sup>	Arsenic	Beryllium	Cadmium	Chromium	Manganese	Nickel	Phosphorus	Selenium	Chromium VI <sup>2</sup>	Lead
Cement delivery to silo	4.24E-09	4.86E-10	2.34E-07	2.90E-08	1.17E-07	4.18E-08	1.18E-05	ND	20%	1.09E-08
Cement supplement delivery to Silo	1.00E-06	9.04E-08	1.98E-08	1.22E-06	2.56E-07	2.28E-06	3.54E-06	7.24E-08	30%	5.20E-07

1. All factors are in lb/ton and assume a fabric filter as control.

2. Assumed percentage of Chromium that is Cr+6. This a value that has been accepted by Idaho DEQ in the past and is representative here.

	Arsenic		Beryllium		Cadmium		Chromium	
	lb/hr max	T/yr						
Line A Cement Silo	2.12E-08	6.61E-08	2.43E-09	7.58E-09	1.17E-06	3.65E-06	1.45E-07	4.52E-07
Line B Cement Silo	2.12E-08	6.61E-08	2.43E-09	7.58E-09	1.17E-06	3.65E-06	1.45E-07	4.52E-07
Line A & B Supplement	5.00E-06	1.56E-05	4.52E-07	1.41E-06	9.90E-08	3.09E-07	6.10E-06	1.90E-05
<b>Total</b>	<b>5.04E-06</b>	<b>1.57E-05</b>	<b>4.57E-07</b>	<b>1.43E-06</b>	<b>2.44E-06</b>	<b>7.61E-06</b>	<b>6.39E-06</b>	<b>1.99E-05</b>
	Manganese		Nickel		Phosphorus		Selenium	
	lb/hr max	T/yr	lb/hr max	T/yr	lb/hr max	T/yr	lb/hr max	T/yr <sup>1</sup>
Line A Cement Silo	5.85E-07	1.83E-06	2.09E-07	6.52E-07	5.90E-05	1.84E-04	0.00E+00	0.00E+00
Line B Cement Silo	5.85E-07	1.83E-06	2.09E-07	6.52E-07	5.90E-05	1.84E-04	0.00E+00	0.00E+00
Line A & B Supplement	1.28E-06	3.99E-06	1.14E-05	3.56E-05	1.77E-05	5.52E-05	3.62E-07	1.13E-06
<b>Total</b>	<b>2.45E-06</b>	<b>7.64E-06</b>	<b>1.18E-05</b>	<b>3.69E-05</b>	<b>1.36E-04</b>	<b>4.23E-04</b>	<b>3.62E-07</b>	<b>1.13E-06</b>
	Chromium VI		Lead					
	lb/hr max	T/yr	lb/hr max	T/yr				
Line A Cement Silo	2.90E-08	9.05E-08	5.45E-08	1.70E-07				
Line B Cement Silo	2.90E-08	9.05E-08	5.45E-08	1.70E-07				
Line A & B Supplement	1.83E-06	5.71E-06	2.60E-06	8.11E-06				
<b>Total</b>	<b>1.89E-06</b>	<b>5.89E-06</b>	<b>2.71E-06</b>	<b>8.45E-06</b>				

1. Selenium is not detectable within the cement. Therefore it is assumed to be zero.



Basalite Boise Plant  
 Initial Permit to Construct - June 2012  
 Emissions Inventory

STEAM GENERATOR GREENHOUSE GAS EMISSIONS

Source	MMBtu/hr	MMscf/yr	Emission Factors (lb/MMscf) <sup>1</sup>		
			CO <sub>2</sub>	N <sub>2</sub> O	CH <sub>4</sub>
Vaporizer #1	5	18	120,000	2.2	2.3
Vaporizer #2	5		120,000	2.2	2.3

1. Emission factor reference all pollutants is AP-42 Section 1.4, Natural gas Combustion - Table 2.

Source	MMscf/yr	Emission Factors (lb/MMscf)			Global Warming Potentials <sup>1</sup>			CO <sub>2</sub> e Totals (metric tpy) <sup>2</sup>		
		CO <sub>2</sub>	N <sub>2</sub> O	CH <sub>4</sub>	CO <sub>2</sub>	N <sub>2</sub> O	CH <sub>4</sub>	CO <sub>2</sub>	N <sub>2</sub> O	CH <sub>4</sub>
Vaporizer #1	18	120,000	2.2	2.3	1	310	21	979.77	5.57	0.39
Vaporizer #2		120,000	2.2	2.3	1	310	21	979.77	5.57	0.39
<b>Total</b>								1959.54	11.14	0.79
<b>Total</b>								<b>1971.46</b>		

1. The Global Warming Potentials are derived from 40 CFR Part 96, Subpart A, Table A-1

2. The carbon dioxide equivalent is provided in metric tons whereby 2,204.6 pounds equal a ton.

Basaltic Boise Plant  
Initial Permit to Construct - June 2012  
Emissions Inventory

Description	Criteria Pollutant Emission Summary - PTE														
	NO <sub>x</sub> Emissions lb/hr	NO <sub>x</sub> Emissions T/yr	CO Emissions lb/hr	CO Emissions T/yr	PM <sub>10</sub> Emissions lb/hr	PM <sub>10</sub> Emissions T/yr	SO <sub>2</sub> Emissions lb/hr	SO <sub>2</sub> Emissions T/yr	VOC Emissions lb/hr	VOC Emissions T/yr	Lead Emissions lb/hr	Lead Emissions T/yr	PM <sub>2.5</sub> Emissions lb/hr	PM <sub>2.5</sub> Emissions T/yr	GHG Emissions T/yr
Vaporizer #1	0.144	0.450	0.121	0.378	0.011	0.034	0.003	0.008	0.025	0.025	7.21E-07	2.25E-06	0.011	0.034	1971.46
Vaporizer #2	0.144	0.450	0.121	0.378	0.011	0.034	0.003	0.008	0.025	0.025	7.21E-07	2.25E-06	0.011	0.034	
Cement Silo - Line A	N/A	N/A	N/A	N/A	1.70E-03	5.30E-03	N/A	N/A	N/A	N/A	5.48E-08	1.70E-07	6.75E-04	2.11E-03	
Cement Silo - Line B	N/A	N/A	N/A	N/A	1.70E-03	5.30E-03	N/A	N/A	N/A	N/A	5.48E-08	1.70E-07	6.75E-04	2.11E-03	
Supplement Silo - Line A & B	N/A	N/A	N/A	N/A	0.025	0.076	N/A	N/A	N/A	N/A	2.80E-06	8.11E-06	6.75E-03	2.08E-02	
Roll Crusher	N/A	N/A	N/A	N/A	7.20E-04	1.78E-04	N/A	N/A	N/A	N/A	N/A	N/A	1.78E-04	1.78E-04	
Jaw Crusher	N/A	N/A	N/A	N/A	3.60E-04	1.78E-04	N/A	N/A	N/A	N/A	N/A	N/A	1.78E-04	1.78E-04	
Railcar Emissions Routed to Baghouse <sup>1</sup>	N/A	N/A	N/A	N/A	2.94E-03	6.94E-04	N/A	N/A	N/A	N/A	N/A	N/A	6.94E-04	6.94E-04	
Total Point Source Emissions	0.288	0.242	0.242	0.756	0.051	0.166	0.002	0.016	0.050	0.050	4.18E-06	1.30E-05	0.031	0.094	
Fugitives <sup>2</sup>	N/A	N/A	N/A	N/A	0.381	0.104	N/A	N/A	N/A	N/A	N/A	N/A	0.104	0.251	
Total w/ Fugitives included	0.288	0.242	0.242	0.756	0.438	0.417	0.002	0.016	0.050	0.050	4.18E-06	1.30E-05	0.166	2.240	

1. The railcar emissions that are routed to the point source baghouse that have not already been accounted for are as follows: screening operations and conveyance transfer to the screening.  
2. The fugitive emissions are determined from all processes outlined in the 'Material Inflow' and from screening and to grizzly hopper transfer/loading.

FACILITY POTENTIAL TO EMIT - TAPS

Pollutant	CAS #	TAP Emissions	Pre-Project	Screening	Modeling	TAP Emissions
		(lb/hr)	Emissions (lb/hr)			
Banum	7440-39-3	1.27E-05	0.00E+00	3.3E-02	No	3.98E-05
Chromium	7440-47-3	6.48E-06	0.00E+00	3.3E-02	No	3.28E-05
Cobalt	7440-48-4	2.42E-07	0.00E+00	3.3E-03	No	7.58E-07
Copper	7440-50-8	2.45E-06	0.00E+00	6.7E-02	No	7.89E-06
Hexane	110-54-3	5.19E-03	0.00E+00	1.2E+01	No	1.62E-02
Iron Oxide	1309-37-1	6.30E-06	0.00E+00	3.3E-01	No	1.64E-05
Manganese	7439-96-5	3.55E-06	0.00E+00	3.33E-01	No	1.11E-05
Molybdenum	7439-98-7	3.17E-06	0.00E+00	3.33E-01	No	9.90E-06
Naphthalene	91-20-3	1.76E-06	0.00E+00	2.00E-06	No	5.49E-06
Pentane	109-66-0	7.50E-03	0.00E+00	1.18E+02	No	2.34E-02
Phosphorus	7723-14-0	1.36E-04	0.00E+00	7.5E-03	No	4.23E-04
Selenium	7782-49-2	4.31E-07	0.00E+00	4.31E-07	No	1.35E-06
Vanadium	7440-62-2	6.63E-06	0.00E+00	3.0E-03	No	2.07E-05
Toluene	108-88-3	9.81E-06	0.00E+00	2.8E+01	No	3.06E-05
Zinc	7440-66-6	8.37E-05	0.00E+00	6.87E-01	No	2.61E-04

CARCINOGENS

Pollutant	CAS #	TAP Emissions	Pre-Project	Screening	Modeling	TAP Emissions
		(lb/hr) <sup>1</sup>	Emissions (lb/hr)			
Arsenic	7440-38-2	4.00E-06	0.00E+00	1.5E-06	Yes	1.75E-05
Benzene	71-43-2	4.32E-06	0.00E+00	4.32E-06	No	1.89E-05
Beryllium	7440-41-7	3.00E-07	0.00E+00	8.0E-04	No	1.53E-06
Cadmium	7440-43-9	4.00E-06	0.00E+00	3.7E-06	Yes	1.75E-05
Chromium VI	7440-47-3	1.36E-06	0.00E+00	5.6E-07	Yes	5.95E-06
Formaldehyde	50-00-0	1.54E-04	0.00E+00	1.54E-04	No	6.75E-04
Naphthalene	91-20-3	1.25E-06	0.00E+00	9.1E-05	No	5.49E-06
Nickel	7440-52-0	1.27E-05	0.00E+00	2.7E-05	No	5.58E-05
POH (7,PAH)	50-32-8	2.34E-08	0.00E+00	2.0E-06	No	1.03E-07
Total PAHs		5.23E-08	0.00E+00	5.23E-06	Yes	2.29E-05

1. The lb/hr is based on an annual average

FACILITY POTENTIAL TO EMIT - HAPS

Individual HAP	PTE	
	lb/hr	T/yr
Aggregate HAPs	1.62E-02	1.75E-02

<b>Grain Loading Standard Verification</b>	
Unit	Combined Vaporizers
Fuel	Natural Gas
Rated Heat Input (MM Btu/hr)	10.00
PM Emission Rate (lb/hr) <sup>1</sup>	0.08
<b>Exit/Flue Gas Flowrate Calculation</b>	
F <sub>d</sub> (Table 19-2, EPA Method 19) (dscf/MM Btu) <sup>2,3</sup>	8,710
Exit flowrate @ 0% O <sub>2</sub> : (dscfm)	1,452
Exit flowrate @ 3% O <sub>2</sub> : (dscfm) <sup>4</sup>	1,695
Calculated Grain Loading (gr/dscf @ 3% O <sub>2</sub> ) <sup>5</sup>	0.005
PM Loading Standard (IDAPA 58.01.01.677) (gr/dscf @ 3% O <sub>2</sub> )	0.015
Compliance w/ PM Loading Standard	<b>Yes</b>

1 The emission rate is calculated based on 10 MMBtu/hr / 1,020 MMscf/MMBtu \* 7.6 lb/MMscf

2 Appendix A-7 to 40 CFR part 60, Method 19—Determination of sulfur dioxide removal

3 F<sub>d</sub>, Volumes of combustion components per unit of heat content (scf/million Btu). F<sub>d</sub> for natural gas and biogas is 8,710 dscf/10<sup>6</sup> Btu

4 (Flow<sub>3%</sub>) = (Flow<sub>0%</sub>) x (20.9/(20.9 - 3)), where 20.9 = Oxygen concentration in ambient air

5 (Flow (dscfm) x (7,000 gr/lb) x (PM lb/hr) x (60 min/ hr) = gr/dscf

**APPENDIX F**  
**MODELING ANALYSIS**

# **Basalite Concrete Products**

## **Air Quality Modeling Report**

**Prepared for:**

Basalite Concrete Products  
1300 E. Franklin Rd  
Meridian, ID 83642

**Prepared by:**

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## Table of Contents

1.0	PURPOSE.....	1
2.0	MODEL DESCRIPTION / JUSTIFICATION.....	2
3.0	EMISSION AND SOURCE DATA.....	3
4.0	RECEPTOR NETWORK / MODEL DOMAIN.....	5
5.0	AERMAP INPUT AND ELEVATION DATA.....	6
6.0	METEOROLOGICAL DATA.....	7
7.0	LAND USE CLASSIFICATION.....	7
8.0	EVALUATION OF COMPLIANCE WITH IMPACT STANDARDS.....	7
10.0	ELECTRONIC COPIES OF MODELING FILES.....	8

## Table of Tables

Table 1	Proposed Model Source Data.....	4
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## **1.0 PURPOSE**

This air quality modeling report describes modeling conducted in support of a modification to the air quality permit to Construct (PTC) for Basalite Concrete Products (Basalite).

This modeling analysis has been developed to ensure that the modification will not result in the violation of any National Ambient Air Quality Standards (NAAQS) or Idaho Toxic Air Pollutant (TAP) thresholds.

The modification as proposed at the facility is to use crushed reclaimed product as aggregate for future product batches. This will introduce additional crushing and screening emissions. The Basalite facility is located in Meridian, Id at 1300 East Franklin Road. Figure 1 on the following page depicts a local aerial photograph that includes the facility location.

**Figure 1. Basalite Facility Location**



## **2.0 MODEL DESCRIPTION / JUSTIFICATION**

The model used for this application is AERMOD (version 12060), the USEPA–approved model for near-field new source review. Based on EPA guidance AERMOD is the most appropriate of the EPA-approved models given the site’s physical characteristics and the facility emission sources. AERMOD was applied as recommended in EPA’s Guideline on Air Quality Models and consistent with guidance in IDEQ’s Dispersion Modeling Guidelines. The Prime building downwash algorithm was applied for the facility. Terrain data from the National Elevation Dataset (NED) and onsite base heights were used to determine source and building elevations. The NED data was processed consistent with the IDEQ guidance and EPA guidance for AERMAP. Meteorological data recommended for this application by Kevin Schilling of the IDEQ Monitoring, Modeling, and Emission Inventory program was supplied by IDEQ. The data represented variables collected at the Boise airport from 2005 through 2009. The data was pre-processed and supplied by IDEQ.

IDEQ requires modeling of criteria pollutants if emissions from the proposed source exceed the modeling thresholds set forth in the IDEQ Dispersion Modeling Guidelines. No criteria pollutants exceeded the required modeling thresholds for this project. However, several

pollutants exceed the TAPs screening emission levels (ELs) in IDAPA 58.01.01.586. These pollutants included Arsenic, Cadmium, Chromium (VI) and total PAH.

### **3.0 EMISSION AND SOURCE DATA**

Model sources were developed based on an assessment of all onsite emissions sources. This included sources associated with the proposed crusher modification as well as those for existing operations. Emissions for each source were developed using AP-42 emissions factors or manufacturer's emissions data where available.

Emission rates for each pollutant used in the modeling analysis are the maximum emissions under proposed operations over the duration of the standard for that pollutant. Given that all TAPs that triggered modeling are regulated under 58.01.01.586 annualized emissions rates were used to determine modeled impacts.

Onsite TAPs emissions sources were associated with natural gas combustion from the product curing kilns and from the cement and fly ash emitted during loading of the cement and fly ash storage silos. The curing kilns are fired with two 5MMBTU natural gas fired steam vaporizers that are located inside the facility's Batch Plant building. Those emissions are held with steam in steam pipes for an average of 10+ hours, and then released when the molded cement products are cured through 16 roof stacks with "squirrel vent" caps. The combustion exhaust were modeled as sixteen model point sources, with exit velocities set down to 0.001 meters per second for the capped stacks per IDEQ Modeling Guidance.

The TAPs emissions for the cement and fly ash silos were estimated by their composition. The ambient emissions are released from silo top vents during loading. The vents were modeled as point sources with ambient temperature and initial vertical velocity of 0.001 meters per second.

Table 1 on the following page summarizes the model source data consistent with the facility emissions sources as constructed.

Table 1 Proposed Model Source Data

Source ID	Northing (m)	Easting (m)	Base Elevation (m)	Stack Height (m)	Temperature (K)	Exit Velocity (m/s)	Stack Diameter (m)	Arsenic (tpy)	Cadmium (tpy)	Chromium VI (tpy)	PAH (tpy)
SQVENT1	550112.66	4828444.63	794.83	7.01	327.59	0.00	0.08	1.13E-07	6.19E-07	3.79E-09	1.43E-06
SQVENT2	550114.66	4828444.63	794.83	7.01	327.59	0.00	0.08	1.13E-07	6.19E-07	3.79E-09	1.43E-06
SQVENT3	550112.83	4828448.38	794.83	7.01	327.59	0.00	0.08	1.13E-07	6.19E-07	3.79E-09	1.43E-06
SQVENT4	550114.83	4828448.38	794.83	7.01	327.59	0.00	0.08	1.13E-07	6.19E-07	3.79E-09	1.43E-06
SQVENT5	550112.49	4828451.79	794.83	7.01	327.59	0.00	0.08	1.13E-07	6.19E-07	3.79E-09	1.43E-06
SQVENT6	550114.49	4828451.79	794.83	7.01	327.59	0.00	0.08	1.13E-07	6.19E-07	3.79E-09	1.43E-06
SQVENT7	550112.66	4828454.35	794.83	7.01	327.59	0.00	0.08	1.13E-07	6.19E-07	3.79E-09	1.43E-06
SQVENT8	550114.66	4828454.35	794.83	7.01	327.59	0.00	0.08	1.13E-07	6.19E-07	3.79E-09	1.43E-06
SQVENT9	550170.6	4828444.8	794.83	7.01	327.59	0.00	0.08	1.13E-07	6.19E-07	3.79E-09	1.43E-06
SQVENT10	550172.6	4828444.8	794.83	7.01	327.59	0.00	0.08	1.13E-07	6.19E-07	3.79E-09	1.43E-06
SQVENT11	550170.6	4828448.55	794.83	7.01	327.59	0.00	0.08	1.13E-07	6.19E-07	3.79E-09	1.43E-06
SQVENT12	550172.6	4828448.55	794.83	7.01	327.59	0.00	0.08	1.13E-07	6.19E-07	3.79E-09	1.43E-06
SQVENT13	550170.42	4828451.79	794.83	7.01	327.59	0.00	0.08	1.13E-07	6.19E-07	3.79E-09	1.43E-06
SQVENT14	550172.42	4828451.79	794.83	7.01	327.59	0.00	0.08	1.13E-07	6.19E-07	3.79E-09	1.43E-06
SQVENT15	550170.6	4828454.69	794.83	7.01	327.59	0.00	0.08	1.13E-07	6.19E-07	3.79E-09	1.43E-06
SQVENT16	550172.6	4828454.69	794.83	7.01	327.59	0.00	0.08	1.13E-07	6.19E-07	3.79E-09	1.43E-06
CEMENTA	550141.41	4828467.99	794.83	11.89	0.00	0.00	1.00	6.61E-08	3.65E-06	9.05E-08	1.43E-06
CEMENTB	550154.12	4828469.43	794.83	12.80	0.00	0.00	1.00	6.61E-08	3.65E-06	9.05E-08	
FLYASH	550148.04	4828467.77	794.83	10.97	0.00	0.00	1.00	1.56E-05	3.09E-07	5.71E-06	

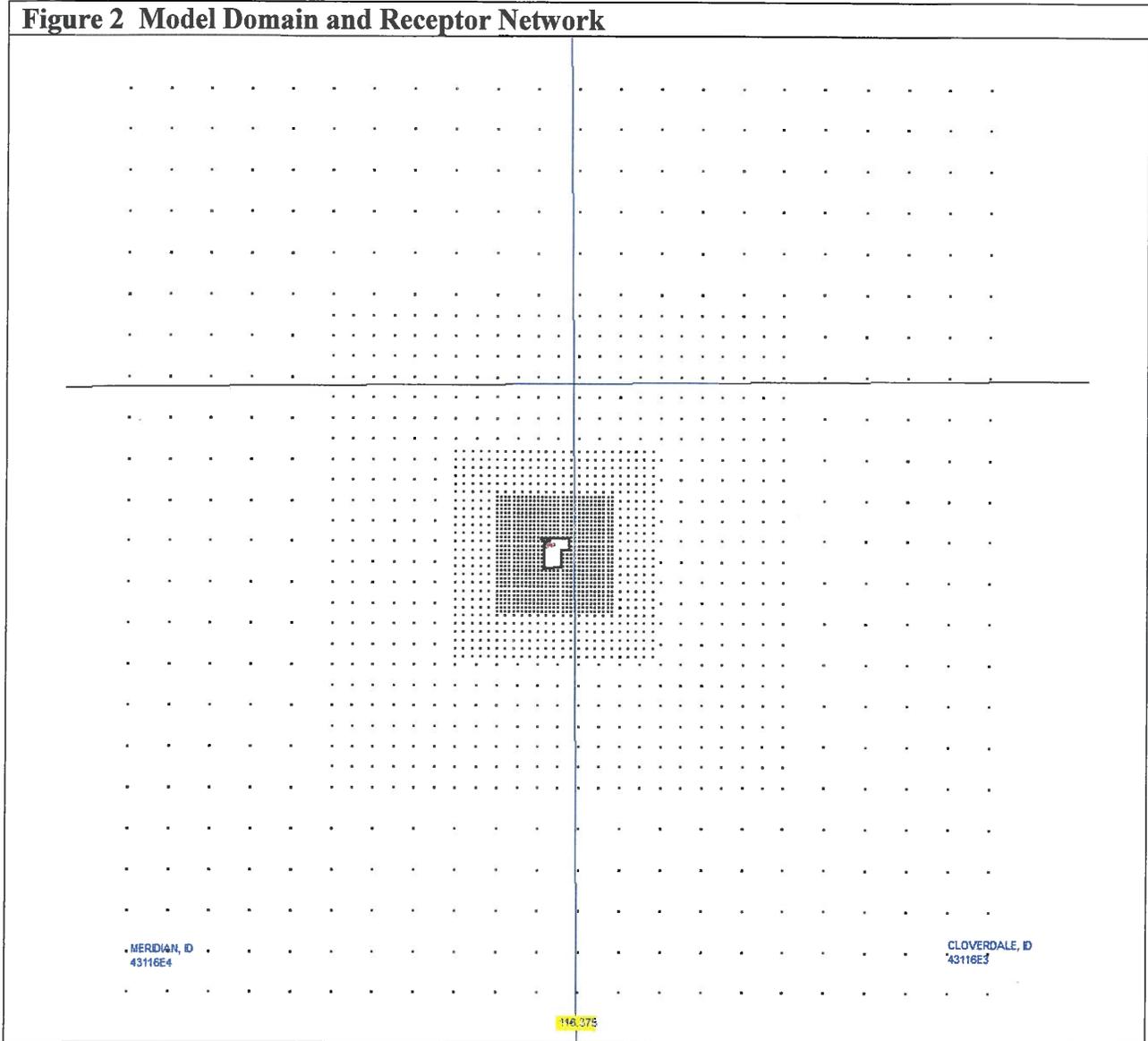
#### **4.0 RECEPTOR NETWORK / MODEL DOMAIN**

The fenced property boundary / public access limit was used as the ambient air boundary for this analysis. Model receptors were placed from the public access limit out at least 5 kilometers in every direction.

The receptor density used included the following: 25 meters spacing along the ambient air boundary, 50 meters for at least the first 500 meters, then 100 meters out to 1000 meters away from the property boundary, 250 meters out to 2,500 meters from the ambient air boundary, 500 meters out to 5 kilometers.

Figure 2 shows the facility and its ambient air boundary (the white spot in the middle of dense inner receptor network that show up as black in the center), the receptor network (the black dots around the denser inner model receptors), the latitude and longitude grids in the vicinity, and the USGS quad maps that cover the model domain.

**Figure 2 Model Domain and Receptor Network**



The receptor networks employed ensure that the analysis meets or exceeds IDEQ receptor network requirements and captures the maximum impact from the facility. Therefore, no supplemental receptor network or expansion of the model domain will be required or included.

## 5.0 AERMAP INPUT AND ELEVATION DATA

All building, source base and receptor elevations were calculated using AERMAP from USGS 1/3 arc second horizontal resolution NED data (UTM NAD 83) downloaded from the USGS website, as recommended by IDEQ.

Electronic data files sufficient to review or duplicate the AERMAP model application are included with the model report.

## **6.0 METEOROLOGICAL DATA**

Five years of meteorological data from 2005 – 2009 representative of the Boise, Idaho area were provided by IDEQ in model ready form by Cheryl Robinson of IDEQ. That data was used in this modeling analysis. The data was collected at the Boise Airport and represented a concatenated 5 year data period.

## **7.0 LAND USE CLASSIFICATION**

The region surrounding the facility is primarily Urban in nature with mixed heavy and light industrial activities as well as some residential buildings. As a result, the Urban mode for a single area was selected for use in AERMOD. The urban option requires a population variable and a surface roughness variable. The population for Median, ID from the 2010 US Census was selected for use. This value, 75,092, was used in the analysis. Additionally, a default surface roughness of 1 meter was also selected for the analysis.

## **8.0 EVALUATION OF COMPLIANCE WITH IMPACT STANDARDS**

The impact limit standard applicable to this permit application are IDAPA 58.01.01.586 limits for Carcinogenic TAPs listed in Table 2. Predicted total concentrations reported are the model predicted maximum period ambient impacts for the five year concatenated meteorological period for each pollutant.

**Table 2 Ambient Impact Limits and Method of Comparison with Ambient Quality Standards**

Pollutant	Averaging Period	Background Concentration ( $\mu\text{g}/\text{m}^3$ )	Modeled Maximum Impact ( $\mu\text{g}/\text{m}^3$ )	Total Concentration ( $\mu\text{g}/\text{m}^3$ )	IDEQ AACC ( $\mu\text{g}/\text{m}^3$ )	Total Conc as % of Applicable Impact Limit
Arsenic	Annual	-	5.0E-05	5.0E-05	2.30E-04	21.74%
Cadmium	Annual	-	8.0E-05	8.0E-05	5.60E-04	14.29%
Chromium (VI)	Annual	-	2.0E-05	2.0E-05	8.3E-05	24.10%
PAHs	Annual	-	1.8E-04	1.8E-04	1.4E-02	1.29%

**10.0 ELECTRONIC COPIES OF MODELING FILES**

Electronic copies of all input, output, and support modeling files necessary to duplicate the model results accompany this submittal to IDEQ.