DARM-BAR copy

Department of Environmental Protection

Division of Air Resource Management

DUPLICATE

APPLICATION FOR AIR PERMIT - LONG FORM

I. APPLICATION INFORMATION

Air Construction Permit – Use this form to apply for any air construction permit at a facility operating under a federally enforceable state air operation permit (FESOP) or Title V air permit. Also use this form to apply for an air construction permit:

- For a proposed project subject to prevention of significant deterioration (PSD) review, nonattainment area (NAA) new source review, or maximum achievable control technology (MACT) review; or
- Where the applicant proposes to assume a restriction on the potential emissions of one or more pollutants to escape a federal program requirement such as PSD review, NAA new source review, Title V, or MACT; or
- Where the applicant proposes to establish, revise, or renew a plantwide applicability limit (PAL).

Air Operation Permit – Use this form to apply for:

- An initial federally enforceable state air operation permit (FESOP); or
- An initial/revised/renewal Title V air operation permit.

Air Construction Permit & Title V Air Operation Permit (Concurrent Processing Option) – Use this form to apply for both an air construction permit and a revised or renewal Title V air operation permit incorporating the proposed project.

To ensure accuracy, please see form instructions.

Dept. of Environmental Protection

MAR 20 2007

Southwest District

Identification of Facility

1. Facility Owner/Company Name: **CEMEX Cement, Inc.**
2. Site Name: **Brooksville Cement Plant**
3. Facility Identification Number: **0530010**
4. Facility Location...
   Street Address or Other Locator: **1630 Ponce de Leon Blvd.**
   City: **Brooksville** County: **Hernando** Zip Code: **34601**
5. Relocatable Facility? ☐ Yes ☒ No
6. Existing Title V Permitted Facility? ☒ Yes ☐ No

Application Contact

1. Application Contact Name: **Fawn Bergen, PE, Project Engineer**
2. Application Contact Mailing Address...
   Organization/Firm: **Koogler & Associates, Inc. (Cert. Of Authorization No. 6570)**
   Street Address: **4014 NW 13th Street**
   City: **Gainesville** State: **Florida** Zip Code: **32643**
3. Application Contact Telephone Numbers...
   Telephone: **(352) 377 - 5822** ext.**29** Fax: **(352) 377 - 7158**
4. Application Contact Email Address: **FBergen@kooglerassociates.com**

Application Processing Information (DEP Use)

1. Date of Receipt of Application: 03/20/07
2. Project Number(s): 0530010-032-AC
3. PSD Number (if applicable):
4. Siting Number (if applicable):

KOOGLER & ASSOCIATES, INC.
ENVIRONMENTAL SERVICES
4014 NW 13th STREET
GAINESVILLE, FL 32609-1923
352/377-5822 ▪ FAX/377-7158

KA 521-07-06
March 19, 2007

Dept. of Environmental Protection

MAR 20 2007

Southwest District

Mr. David Zell
Air Permitting Engineer
Florida Department of Environmental Protection
Southwest District
13051 N. Telecom Parkway
Temple Terrace, Florida 33637-0926

RE: ***Air Construction Permit Application for Trial Period to Saw Dust as an Alternative Fuel in the Cement Kilns***
CEMEX Cement, Inc.; Brooksville Facility

Dear Mr. Zell:

Enclosed please find four (4) copies of an air construction permit application for a trial period to use saw dust as an alternative fuel in the cement kilns at CEMEX Cement, Inc.'s (CEMEX's) Brooksville Cement Plant. If you have any questions, please contact me at (352) 377-5822 or FBergen@kooglerassociates.com, or Mr. Charles Walz, CEMEX, at (352) 799-2011.

Very truly yours,

KOOGLER & ASSOCIATES, INC.

Fawn W. Bergen, P.E.
Project Engineer

FB

Enclosure: 4 copies—AC Permit Application

cc: C. Walz, CEMEX Brooksville

APPLICATION INFORMATION

Purpose of Application

This application for air permit is submitted to obtain: (Check one)

Air Construction Permit

[X] Air construction permit.

[ ] Air construction permit to establish, revise, or renew a plantwide applicability limit (PAL).

[ ] Air construction permit to establish, revise, or renew a plantwide applicability limit (PAL), and separate air construction permit to authorize construction or modification of one or more emissions units covered by the PAL.

Air Operation Permit

[ ] Initial Title V air operation permit.

[ ] Title V air operation permit revision.

[ ] Title V air operation permit renewal.

[ ] Initial federally enforceable state air operation permit (FESOP) where professional engineer (PE) certification is required.

[ ] Initial federally enforceable state air operation permit (FESOP) where professional engineer (PE) certification is not required.

Air Construction Permit and Revised/Renewal Title V Air Operation Permit (Concurrent Processing)

[ ] Air construction permit and Title V permit revision, incorporating the proposed project.

[ ] Air construction permit and Title V permit renewal, incorporating the proposed project.

Note: By checking one of the above two boxes, you, the applicant, are requesting concurrent processing pursuant to Rule 62-213.405, F.A.C. In such case, you must also check the following box:

[ ] I hereby request that the department waive the processing time requirements of the air construction permit to accommodate the processing time frames of the Title V air operation permit.

Application Comment

Application is for a 15-day trial period to burn saw dust in Cement Kiln Nos. 1 and 2 as an alternative fuel. CEMEX does not expect an increase in emissions due to the use of saw dust as a fuel. However, CEMEX plans to conduct the 15-day trial and compliance testing to determine the effect on emissions.

APPLICATION INFORMATION

Scope of Application

Emissions Unit ID Number	Description of Emissions Unit	Air Permit Type	Air Permit Proc. Fee
003	Cement Kiln No. 1	AC1B	N/A
014	Cement Kiln No. 2	AC1B	N/A

Application Processing Fee

Check one: ☐ Attached - Amount: $_____ ☒ Not Applicable

APPLICATION INFORMATION

Owner/Authorized Representative Statement

Complete if applying for an air construction permit or an initial FESOP.

1. Owner/Authorized Representative Name :
   Michael A. Gonzales, Plant Manager

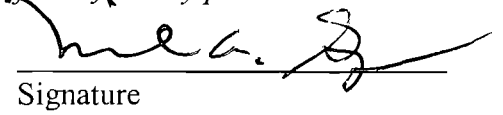
2. Owner/Authorized Representative Mailing Address...
   Organization/Firm: **CEMEX Cement, Inc.**
   Street Address: **16301 Ponce De Leon Blvd**
   City: **Brooksville** State: **Florida** Zip Code: **34614**

3. Owner/Authorized Representative Telephone Numbers...
   Telephone: **(352) 799-2057** ext. Fax: **(352) 754-9836**

4. Owner/Authorized Representative Email Address:
   Michaelanthony.gonzales@cemexusa.com

5. Owner/Authorized Representative Statement:

   I, the undersigned, am the owner or authorized representative of the facility addressed in this air permit application. I hereby certify, based on information and belief formed after reasonable inquiry, that the statements made in this application are true, accurate and complete and that, to the best of my knowledge, any estimates of emissions reported in this application are based upon reasonable techniques for calculating emissions. The air pollutant emissions units and air pollution control equipment described in this application will be operated and maintained so as to comply with all applicable standards for control of air pollutant emissions found in the statutes of the State of Florida and rules of the Department of Environmental Protection and revisions thereof and all other requirements identified in this application to which the facility is subject. I understand that a permit, if granted by the department, cannot be transferred without authorization from the department, and I will promptly notify the department upon sale or legal transfer of the facility or any permitted emissions unit.



Signature

3/16/07

Date

APPLICATION INFORMATION

Application Responsible Official Certification

Complete if applying for an initial/revised/renewal Title V permit or concurrent processing of an air construction permit and a revised/renewal Title V permit. If there are multiple responsible officials, the "application responsible official" need not be the "primary responsible official."

1. Application Responsible Official Name:

2. Application Responsible Official Qualification (Check one or more of the following options, as applicable):

   ☐ For a corporation, the president, secretary, treasurer, or vice-president of the corporation in charge of a principal business function, or any other person who performs similar policy or decision-making functions for the corporation, or a duly authorized representative of such person if the representative is responsible for the overall operation of one or more manufacturing, production, or operating facilities applying for or subject to a permit under Chapter 62-213, F.A.C.

   ☐ For a partnership or sole proprietorship, a general partner or the proprietor, respectively.

   ☐ For a municipality, county, state, federal, or other public agency, either a principal executive officer or ranking elected official.

   ☐ The designated representative at an Acid Rain source.

3. Application Responsible Official Mailing Address...
   Organization/Firm:
   Street Address:
   City: State: Zip Code:

4. Application Responsible Official Telephone Numbers...
   Telephone: ( ) - ext. Fax: ( ) -

5. Application Responsible Official Email Address:

6. Application Responsible Official Certification:

   I, the undersigned, am a responsible official of the Title V source addressed in this air permit application. I hereby certify, based on information and belief formed after reasonable inquiry, that the statements made in this application are true, accurate and complete and that, to the best of my knowledge, any estimates of emissions reported in this application are based upon reasonable techniques for calculating emissions. The air pollutant emissions units and air pollution control equipment described in this application will be operated and maintained so as to comply with all applicable standards for control of air pollutant emissions found in the statutes of the State of Florida and rules of the Department of Environmental Protection and revisions thereof and all other applicable requirements identified in this application to which the Title V source is subject. I understand that a permit, if granted by the department, cannot be transferred without authorization from the department, and I will promptly notify the department upon sale or legal transfer of the facility or any permitted emissions unit. Finally, I certify that the facility and each emissions unit are in compliance with all applicable requirements to which they are subject, except as identified in compliance plan(s) submitted with this application.

   _____ _____
   Signature Date

APPLICATION INFORMATION

Professional Engineer Certification

1. Professional Engineer Name: **Fawn Bergen, PE**
   Registration Number: **61614**
2. Professional Engineer Mailing Address...
   Organization/Firm: **Koogler & Associates, Inc.**
   Street Address: **4014 NW 13th Street**
   City: **Gainesville** State: **Florida** Zip Code: **32609**
3. Professional Engineer Telephone Numbers...
   Telephone: **(352) 377-5822** ext.**29** Fax: **(352) 377-7158**
4. Professional Engineer Email Address: **FBergen@kooglerassociates.com**
5. Professional Engineer Statement:

I, the undersigned, hereby certify, except as particularly noted herein, that:*

(1) To the best of my knowledge, there is reasonable assurance that the air pollutant emissions unit(s) and the air pollution control equipment described in this application for air permit, when properly operated and maintained, will comply with all applicable standards for control of air pollutant emissions found in the Florida Statutes and rules of the Department of Environmental Protection; and

(2) To the best of my knowledge, any emission estimates reported or relied on in this application are true, accurate, and complete and are either based upon reasonable techniques available for calculating emissions or, for emission estimates of hazardous air pollutants not regulated for an emissions unit addressed in this application, based solely upon the materials, information and calculations submitted with this application.

(3) If the purpose of this application is to obtain a Title V air operation permit (check here ☐, if so), I further certify that each emissions unit described in this application for air permit, when properly operated and maintained, will comply with the applicable requirements identified in this application to which the unit is subject, except those emissions units for which a compliance plan and schedule is submitted with this application.

(4) If the purpose of this application is to obtain an air construction permit (check here ☒, if so) or concurrently process and obtain an air construction permit and a Title V air operation permit revision or renewal for one or more proposed new or modified emissions units (check here ☐, if so), I further certify that the engineering features of each such emissions unit described in this application have been designed or examined by me or individuals under my direct supervision and found to be in conformity with sound engineering principles applicable to the control of emissions of the air pollutants characterized in this application.

(5) If the purpose of this application is to obtain an initial air operation permit or operation permit revision or renewal for one or more newly constructed or modified emissions units (check here ☐, if so), I further certify that, with the exception of any changes detailed as part of this application, each such emissions unit has been constructed or modified in substantial accordance with the information given in the corresponding application for air construction permit and with all provisions contained in such permit.

Fawn Bergen
Signature

3/19/07
Date

(seal)

* Attach any exception to certification statement.

II. FACILITY INFORMATION

A. GENERAL FACILITY INFORMATION

Facility Location and Type

1. Facility UTM Coordinates... Zone **17** East (km) **356.9** North (km) **3169.0**		2. Facility Latitude/Longitude... Latitude (DD/MM/SS) **28/38/34** Longitude (DD/MM/SS) **82/28/25**	
3. Governmental Facility Code: **0**	4. Facility Status Code: **A**	5. Facility Major Group SIC Code: **32**	6. Facility SIC(s): **3241**
7. Facility Comment :			

Facility Contact

1. Facility Contact Name: **Charles E. Walz, Environmental Manager**
2. Facility Contact Mailing Address... Organization/Firm: **CEMEX Cement, Inc.** Street Address: **16301 Ponce De Leon Blvd** City: **Brooksville** State: **Florida** Zip Code: **34614**
3. Facility Contact Telephone Numbers: Telephone: **(352) 796-7241** ext. Fax: **(352) 754-9836**
4. Facility Contact Email Address: **charles.walz@cemexusa.com**

Facility Primary Responsible Official

Complete if an "application responsible official" is identified in Section I. that is not the facility "primary responsible official."

1. Facility Primary Responsible Official Name:
2. Facility Primary Responsible Official Mailing Address... Organization/Firm: Street Address: City: State: Zip Code:
3. Facility Primary Responsible Official Telephone Numbers... Telephone: ( ) - ext. Fax: ( ) -
4. Facility Primary Responsible Official Email Address:

FACILITY INFORMATION

Facility Regulatory Classifications

Check all that would apply *following* completion of all projects and implementation of all other changes proposed in this application for air permit. Refer to instructions to distinguish between a "major source" and a "synthetic minor source."

1. ☐ Small Business Stationary Source	☐ Unknown
2. ☐ Synthetic Non-Title V Source	
3. ☒ Title V Source	
4. ☒ Major Source of Air Pollutants, Other than Hazardous Air Pollutants (HAPs)	
5. ☐ Synthetic Minor Source of Air Pollutants, Other than HAPs	
6. ☒ Major Source of Hazardous Air Pollutants (HAPs)	
7. ☐ Synthetic Minor Source of HAPs	
8. ☒ One or More Emissions Units Subject to NSPS (40 CFR Part 60)	
9. ☐ One or More Emissions Units Subject to Emission Guidelines (40 CFR Part 60)	
10. ☒ One or More Emissions Units Subject to NESHAP (40 CFR Part 61 or Part 63)	
11. ☐ Title V Source Solely by EPA Designation (40 CFR 70.3(a)(5))	
12. Facility Regulatory Classifications Comment:	

FACILITY INFORMATION

List of Pollutants Emitted by Facility

1. Pollutant Emitted	2. Pollutant Classification	3. Emissions Cap [Y or N]?
PM	**A**	**N**
PM_{10}	**A**	**N**
NO_X	**A**	**N**
SO_2	**A**	**N**
CO	**A**	**N**
VOC	**A**	**N**
HCl	**A**	**N**
HAPS	**A**	**N**

B. EMISSIONS CAPS

Facility-Wide or Multi-Unit Emissions Caps

1. Pollutant Subject to Emissions Cap	2. Facility Wide Cap [Y or N]? (all units)	3. Emissions Unit ID No.s Under Cap (if not all units)	4. Hourly Cap (lb/hr)	5. Annual Cap (ton/yr)	6. Basis for Emissions Cap

7. Facility-Wide or Multi-Unit Emissions Cap Comment:

C. FACILITY ADDITIONAL INFORMATION

Additional Requirements for All Applications, Except as Otherwise Stated

1. Facility Plot Plan: (Required for all permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought)
   ☐ Attached, Document ID:_____ ☒ Previously Submitted, Date: **10/05**
2. Process Flow Diagram(s): (Required for all permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought)
   ☐ Attached, Document ID:_____ ☒ Previously Submitted, Date: **10/05**
3. Precautions to Prevent Emissions of Unconfined Particulate Matter: (Required for all permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought)
   ☐ Attached, Document ID:_____ ☒ Previously Submitted, Date: **10/05**

Additional Requirements for Air Construction Permit Applications

1. Area Map Showing Facility Location:
   ☐ Attached, Document ID:_____ ☒ Not Applicable (existing permitted facility)
2. Description of Proposed Construction, Modification, or Plantwide Applicability Limit (PAL):
   ☒ Attached, Document ID: **Attachment A**
3. Rule Applicability Analysis:
   ☒ Attached, Document ID: **Attachment A**
4. List of Exempt Emissions Units (Rule 62-210.300(3), F.A.C.):
   ☐ Attached, Document ID:_____ ☒ Not Applicable (no exempt units at facility)
5. Fugitive Emissions Identification:
   ☐ Attached, Document ID:_____ ☒ Not Applicable
6. Air Quality Analysis (Rule 62-212.400(7), F.A.C.):
   ☐ Attached, Document ID:_____ ☒ Not Applicable
7. Source Impact Analysis (Rule 62-212.400(5), F.A.C.):
   ☐ Attached, Document ID:_____ ☒ Not Applicable
8. Air Quality Impact since 1977 (Rule 62-212.400(4)(e), F.A.C.):
   ☐ Attached, Document ID:_____ ☒ Not Applicable
9. Additional Impact Analyses (Rules 62-212.400(8) and 62-212.500(4)(e), F.A.C.):
   ☐ Attached, Document ID:_____ ☒ Not Applicable
10. Alternative Analysis Requirement (Rule 62-212.500(4)(g), F.A.C.):
    ☐ Attached, Document ID:_____ ☒ Not Applicable

Additional Requirements for FESOP Applications

1. List of Exempt Emissions Units (Rule 62-210.300(3)(a) or (b)1., F.A.C.):
   ☐ Attached, Document ID:_____ ☐ Not Applicable (no exempt units at facility)

Additional Requirements for Title V Air Operation Permit Applications

1. List of Insignificant Activities (Required for initial/renewal applications only):
   ☐ Attached, Document ID:_____ ☒ Not Applicable (revision application)

2. Identification of Applicable Requirements (Required for initial/renewal applications, and for revision applications if this information would be changed as a result of the revision being sought):
   ☐ Attached, Document ID:_____
   ☒ Not Applicable (revision application with no change in applicable requirements)

3. Compliance Report and Plan (Required for all initial/revision/renewal applications):
   ☐ Attached, Document ID:_____
   Note: A compliance plan must be submitted for each emissions unit that is not in compliance with all applicable requirements at the time of application and/or at any time during application processing. The department must be notified of any changes in compliance status during application processing.

4. List of Equipment/Activities Regulated under Title VI (If applicable, required for initial/renewal applications only):
   ☐ Attached, Document ID:_____
   ☐ Equipment/Activities On site but Not Required to be Individually Listed
   ☒ Not Applicable

5. Verification of Risk Management Plan Submission to EPA (If applicable, required for initial/renewal applications only) :
   ☐ Attached, Document ID:_____ ☒ Not Applicable

6. Requested Changes to Current Title V Air Operation Permit:
   ☐ Attached, Document ID:_____ ☒ Not Applicable

Additional Requirements Comment

III. EMISSIONS UNIT INFORMATION

Title V Air Operation Permit Application - For Title V air operation permitting only, emissions units are classified as regulated, unregulated, or insignificant. If this is an application for Title V air operation permit, a separate Emissions Unit Information Section (including subsections A through I as required) must be completed for each regulated and unregulated emissions unit addressed in this application for air permit. Some of the subsections comprising the Emissions Unit Information Section of the form are optional for unregulated emissions units. Each such subsection is appropriately marked. Insignificant emissions units are required to be listed at Section II, Subsection C.

Air Construction Permit or FESOP Application - For air construction permitting or federally enforceable state air operation permitting, emissions units are classified as either subject to air permitting or exempt from air permitting. The concept of an "unregulated emissions unit" does not apply. If this is an application for air construction permit or FESOP, a separate Emissions Unit Information Section (including subsections A through I as required) must be completed for each emissions unit subject to air permitting addressed in this application for air permit. Emissions units exempt from air permitting are required to be listed at Section II, Subsection C.

Air Construction Permit and Revised/Renewal Title V Air Operation Permit Application – Where this application is used to apply for both an air construction permit and a revised/renewal Title V air operation permit, each emissions unit is classified as either subject to air permitting or exempt from air permitting for air construction permitting purposes and as regulated, unregulated, or insignificant for Title V air operation permitting purposes. **The air construction permitting classification must be used to complete the Emissions Unit Information Section of this application for air permit.** A separate Emissions Unit Information Section (including subsections A through I as required) must be completed for each emissions unit subject to air permitting addressed in this application for air permit. Emissions units exempt from air construction permitting and insignificant emissions units are required to be listed at Section II, Subsection C.

If submitting the application form in hard copy, the number of this Emissions Unit Information Section and the total number of Emissions Unit Information Sections submitted as part of this application must be indicated in the space provided at the top of each page.

A. GENERAL EMISSIONS UNIT INFORMATION

Title V Air Operation Permit Emissions Unit Classification

1. Regulated or Unregulated Emissions Unit? (Check one, if applying for an initial, revised or renewal Title V air operation permit. Skip this item if applying for an air construction permit or FESOP only.)

☐ The emissions unit addressed in this Emissions Unit Information Section is a regulated emissions unit.

☐ The emissions unit addressed in this Emissions Unit Information Section is an unregulated emissions unit.

Emissions Unit Description and Status

1. Type of Emissions Unit Addressed in this Section: (Check one)

☒ This Emissions Unit Information Section addresses, as a single emissions unit, a single process or production unit, or activity, which produces one or more air pollutants and which has at least one definable emission point (stack or vent).

☐ This Emissions Unit Information Section addresses, as a single emissions unit, a group of process or production units and activities which has at least one definable emission point (stack or vent) but may also produce fugitive emissions.

☐ This Emissions Unit Information Section addresses, as a single emissions unit, one or more process or production units and activities which produce fugitive emissions only.

2. Description of Emissions Unit Addressed in this Section:
Cement Kiln No. 1

3. Emissions Unit Identification Number: **003**

4. Emissions Unit Status Code:	5. Commence Construction Date:	6. Initial Startup Date:	7. Emissions Unit Major Group SIC Code:	8. Acid Rain Unit?
A			**32**	☐ Yes ☒ No

9. Package Unit:
Manufacturer: Model Number:

10. Generator Nameplate Rating: MW

11. Emissions Unit Comment: **CEMEX does not expect an increase in emissions due to the use of saw dust as a fuel. However, CEMEX plans to conduct the 15-day trial and compliance testing to determine the effect on emissions.**

Heron, Teresa

From: Linero, Alvaro
Sent: Monday, November 06, 2006 7:00 AM
To: Heron, Teresa
Subject: Bartow and CEMEX

I worked a bit on Bartow Notice, Cover, etc.

I also found some things about CEMEX. See "research".

Please see what you can get from: Kentucky-Kosmosdale (CEMEX KHD kiln)

@California Also Victorville. Call district to get test results. (also KHD).

Also LaFarge Calera/Roberta. Get tests. (also KHD).

Please finalize Titan. Looks like no CAM for now.

See if I took one of your documents (like CEMEX or Bartow).

Copies are on my desk.

Thanks.

Al.

Alabama
334-271-7861
Jeff Ketchum

Kentucky
502-573-3382
John

Fuel Selection and Feed Mix Composition

Reducing the temperature required to clinker the raw feed and/or changes in fuels have an effect on NOx emissions. Varying the feed mix or fuel, however, may not be practical because of the fact most cement plants have a captive quarry and hence, are limited in the general chemistry of the mix. Additionally, the availability of suitable fuels limits the practicality of pursuing alternative fuels.

With feed mix composition, it is known that raw materials with a higher alkali content clinker at higher temperatures and thus have the potential for generating higher NOx emissions. The alkali content of raw materials typically found in Florida are quite low and further measures to reduce the alkali content of raw feed is not practical.

The addition of slag to the raw feed (a process known as the CemStar® process) will reduce the heat required for clinkering. This is because the slag is very similar to clinker and has a low melting temperature because many of the reactions required to convert slag to clinker have already taken place in the processes producing the slag. Because less heat is required to calcine the slag, there is a reduced heat requirement for overall clinkering and a potential for the reduction of thermal NOx emissions.

Burning fuels with the highest possible heating value and lowest possible fuel nitrogen content also has the potential for reducing NOx emissions. As the availability of fuels (and solid fuels in particular) is driven by economics and regional availability, fuel switching is of limited practical value. Theoretically, replacing of coal with petroleum coke (which has a higher heating value than coal) would appear to have the potential for reducing NOx emissions. Reportedly, some operators have found that the combustion of petroleum coke actually increases NOx emissions.

Design Consideration Summary

The KHD Humboldt Wedag (KHD) kiln considered by CEMEX incorporates all of the features just discussed. The KHD pyroprocessing system includes a kiln fired with the proprietary KHD PYRO-JET multi-channel kiln burner followed by a PYRO-CLON calciner and a PYROTOP calciner extension. The overall system offers high on-line availability, energy efficiency

(approximately 2.6 mmBTU per ton of clinker), minimized NOx and CO emissions, and flexibility in raw materials and fuel selection. The kiln size is minimized due to the fact that the calcinations of the raw mill effectively carried out in the calciner. The PYRO-JET kiln burner operates with approximately seven percent primary air and with optimized flame shaping and combustion as previously described for multi-channel burners in this report. The KHD kilns typically operate with a kiln inlet oxygen concentration in the range of 1.5-2.5 percent.

The gas stream exiting the kiln enters the PYRO-CLON calciner; an in-line calciner designed for both the calcination of raw meal and the reduction of NOx formed in the kiln. The NOx reduction is achieved in a reducing zone created by firing calciner fuel under fuel-rich conditions. This is followed by the introduction of tertiary combustion air to provide for fuel burnout and the combustion of CO. To achieve the efficient utilization of both coal and petcoke in the calciner, the KHD calciner is extended vertically to increase the residence time to 5-7 seconds. At the top of the extended calciner, KHD uses a PYROTOP. This is a device to create turbulent mixing prior to the gas stream entering the bottom stage cyclone of the preheater, thus assuring the maximum burnout of both fuel and carbon monoxide.

POST-COMBUSTION CONTROLS

The two add-on NOx control technologies that have been proven effective by full scale application on cement plants are SNCR and SCR.

Both technologies are based on the injection of an ammonia based compound into a hot gas stream and the subsequent reduction of NOx to elemental nitrogen by the ammonia. SNCR is effective in a temperature range of 850-1150°C and operates without a catalyst. SCR on the other hand, operates in a temperature range of 300-500°C and employs a catalyst to facilitate the reaction between ammonia and NOx.

Both technologies have been described in detail in several publications and reports. Therefore, only an overview of each technology will be provided herein along with an assessment of each.

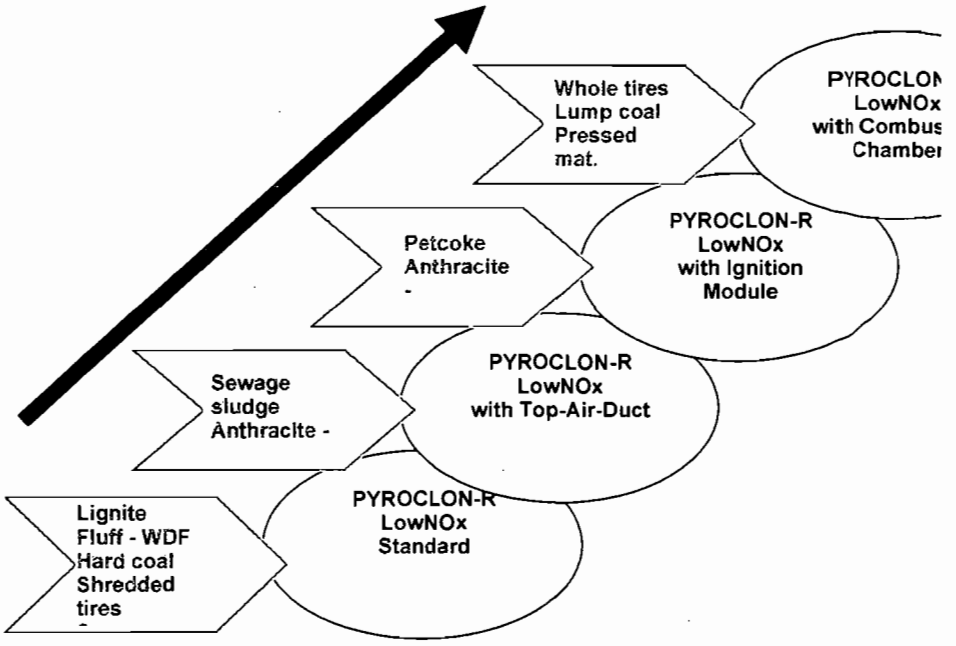
- Home
- About Us
- Company News
- Cement Profile
- Cement Product List
- Publications
- Minerals Profile
- Contact Us
- Employee Directory
- Related Links

PYROCLON® Calciners

< Return to Pro

Types of KHD PYROCLON® Calciners

Low NOx Calciners—Different Calciners for different Fue

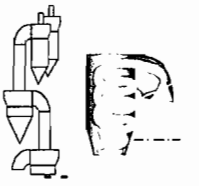


PYROCLON® - R LowNOx

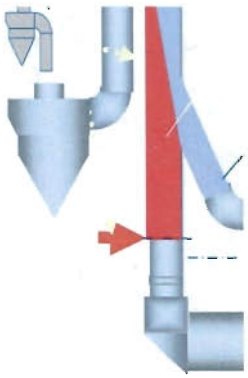
PYROTOP compact

Features:

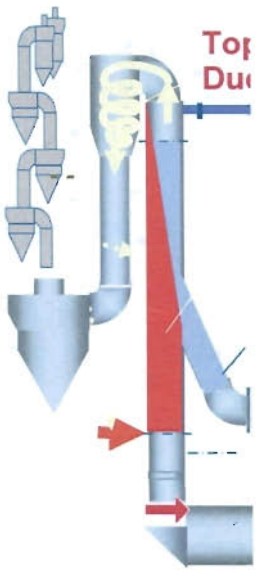
- **In-Line Calciner**
- **Staged Combustion**
- **Low cost NOx Reduction**
- **No Additives (SNCR process)**



- **High Efficiency and Flexibility**
- **> 20 References**
- **Best Available Technology**
- **Emission Levels:**
  < 500 mgNO_2/Nm3 (10 % O_2)



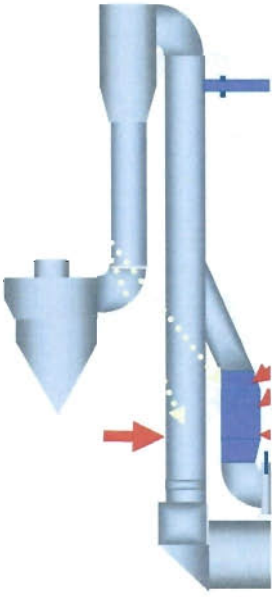
PYROCLON® - R LowNOx with Top Air Duct



Features:

- **Utilization of fine/fluffy fuels with high nitrogen portions (fuel-NOx)**
- **Extending of the reducing zone**
- **Optimization of staged combustion**
- **High efficiency and flexibility**
- **New plants and retrofit**
- **NOx reduction: 400 mgNO_2/Nm3 (10 % O_2)**

PYROCLON® - R LowNOx with Top Air Duct and Ignition Module

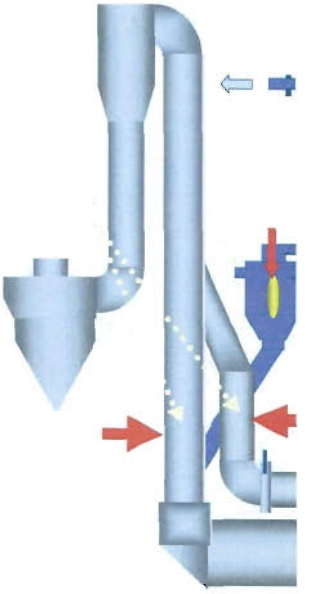


Features:

- **Utilization of fuels with poor ignition and burning properties**
- **"Hot Spot" (1100 - 1200°C)**
- **Extended calciner length**
- **Retention time: t > 5 sec.**
- **High efficiency and flexibility**
- **New plants and retrofit**
- **NOx reduction: < 500 mgNO_2/Nm3 (10 % O_2)**

Pyroclon-RP
- Such A: tube type Calciner
- For hard to burn fuels

PYROCLON® - R LowNOx with Top Air Duct and Combustion Chamber



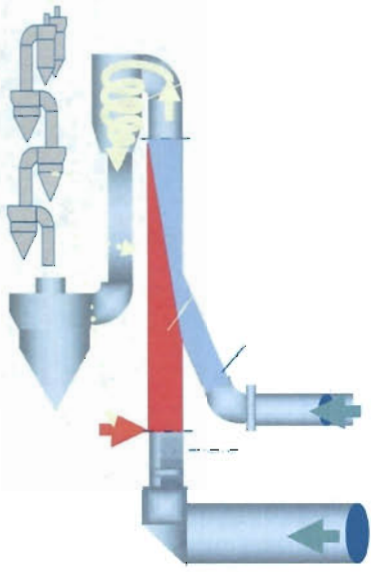
Features:

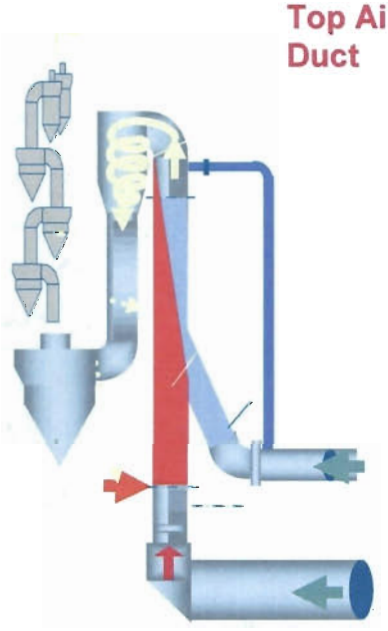
- **Utilization of lumpy fuels with extremely poor ignition and burning properties**
- **Start of combustion t > 1200°C**
- **Retention time: t > 6 sec.**
- **High efficiency and flexibility - but high degree of loop control**

Home | About Us | Company News | Cement Profile | Cement Product List | Publications | M Profile | Contact Us | Employee Directory | Related Links | Legal

)N® Calciners

erent Calciners for different Fuels





h

% O_2)

)x

Okefenokee NWR

Bradwell Bay NWR

St. Marks NWR

Suwannee American

Florida Rock

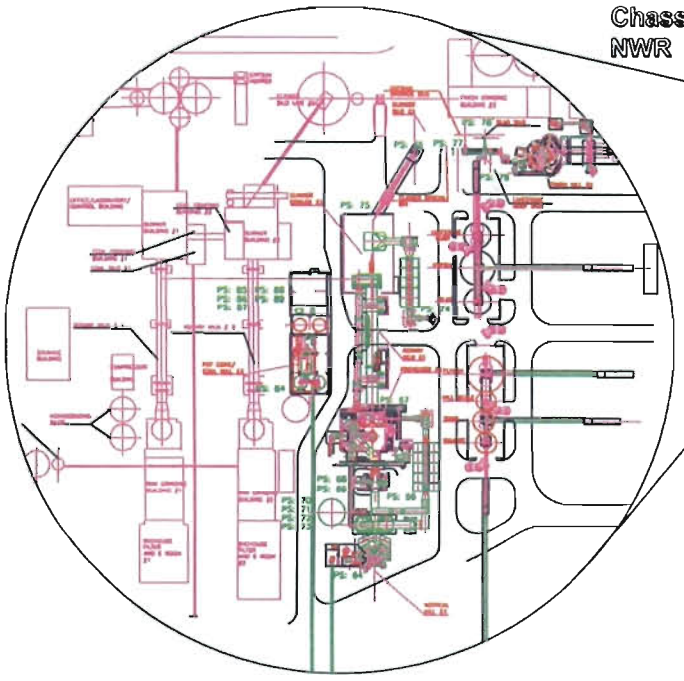
Chassahowitzka NWR

American Cement

CEMEX

Sumter Cement

Rinker/FCS



Titan America

Rinker

Everglades NP

CEMEX

Emissions Unit Control Equipment

1. Control Equipment/Method(s) Description:

016 – Baghouse – High Temperature (Fuller Draco Custom ID No. E-55)
205 – Low NO_x Burners
032 – Ammonia Injection (SNCR)

2. Control Device or Method Code(s): **016, 205, 032**

B. EMISSIONS UNIT CAPACITY INFORMATION

(Optional for unregulated emissions units.)

Emissions Unit Operating Capacity and Schedule

1. Maximum Process or Throughput Rate: **165 TPH; 1,300,000 TPY preheater feed (consecutive 12-month period)**	
2. Maximum Production Rate:	
3. Maximum Heat Input Rate: **300** million Btu/hr	
4. Maximum Incineration Rate: pounds/hr tons/day	
5. Requested Maximum Operating Schedule:	
24 hours/day	**7** days/week
52 weeks/year	**8,760** hours/year
6. Operating Capacity/Schedule Comment:	

C. EMISSION POINT (STACK/VENT) INFORMATION
(Optional for unregulated emissions units.)

Emission Point Description and Type

1. Identification of Point on Plot Plan or Flow Diagram: **No. 1 Kiln Stack**	2. Emission Point Type Code: **1**	
3. Descriptions of Emission Points Comprising this Emissions Unit for VE Tracking: **Kiln No. 1 Stack**		
4. ID Numbers or Descriptions of Emission Units with this Emission Point in Common:		
5. Discharge Type Code: **V**	6. Stack Height: **150** feet	7. Exit Diameter: **13.0** feet
8. Exit Temperature: **220**°F	9. Actual Volumetric Flow Rate: **286,200** acfm	10. Water Vapor: **10** %
11. Maximum Dry Standard Flow Rate: **200,000** dscfm	12. Nonstack Emission Point Height: feet	
13. Emission Point UTM Coordinates... Zone: East (km): North (km):	14. Emission Point Latitude/Longitude... Latitude (DD/MM/SS) Longitude (DD/MM/SS)	
15. Emission Point Comment: **Stack parameters based on recent stack test data.**		

D. SEGMENT (PROCESS/FUEL) INFORMATION

Segment Description and Rate: Segment **1** of **11**

1. Segment Description (Process/Fuel Type): **Industrial Processes; Mineral Products; Cement Manufacturing (Dry Process); Preheater Kiln**		
2. Source Classification Code (SCC): **3-05-006-22**	3. SCC Units: **Tons Processed**	
4. Maximum Hourly Rate: **165**	5. Maximum Annual Rate: **1,300,000**	6. Estimated Annual Activity Factor:
7. Maximum % Sulfur:	8. Maximum % Ash:	9. Million Btu per SCC Unit:
10. Segment Comment: **Segment represents preheater feed rate. Annual rate based on 150 TPH and 8,760 hr/yr and an operating factor of 99%. Based on Permit No. 0530010-002-AV.**		

Segment Description and Rate: Segment **2** of **11**

1. Segment Description (Process/Fuel Type): **Industrial Processes; Mineral Products; Cement Manufacturing (Dry Process); Preheater Kiln**		
2. Source Classification Code (SCC): **3-05-006-22**	3. SCC Units: **Tons Clinker Produced**	
4. Maximum Hourly Rate: **99.0**	5. Maximum Annual Rate: **780,000**	6. Estimated Annual Activity Factor:
7. Maximum % Sulfur:	8. Maximum % Ash:	9. Million Btu per SCC Unit:
10. Segment Comment: **The maximum rates are based on the maximum preheater rates times 0.60:** **Maximum hourly rate = 165 TPH x 0.60 = 99.0 TPH** **Maximum annual rate = 1,300,000 TPY x 0.60 = 780,000 TPY**		

D. SEGMENT (PROCESS/FUEL) INFORMATION (CONTINUED)

Segment Description and Rate: Segment **3** of **11**

1. Segment Description (Process/Fuel Type): **Industrial Processes; In-Process Fuel Use; Distillate Oil (No. 2); Cement Kiln**		
2. Source Classification Code (SCC): **3-90-005-02**	3. SCC Units: **1,000 Gallons Burned**	
4. Maximum Hourly Rate: **2.116**	5. Maximum Annual Rate: **18,536.2**	6. Estimated Annual Activity Factor:
7. Maximum % Sulfur:	8. Maximum % Ash:	9. Million Btu per SCC Unit: **141.3**
10. Segment Comment: **Maximum rates based on Permit No. 0530010-002-AV. Maximum annual rate based on the hourly rate and 8,760 hr/yr.**		

Segment Description and Rate: Segment **4** of **11**

1. Segment Description (Process/Fuel Type): **Industrial Processes; In-Process Fuel Use; Distillate Oil (No. 4); Cement Kiln**		
2. Source Classification Code (SCC): **3-90-005-02**	3. SCC Units: **1,000 Gallons Burned**	
4. Maximum Hourly Rate: **2.06**	5. Maximum Annual Rate: **18,045.6**	6. Estimated Annual Activity Factor:
7. Maximum % Sulfur:	8. Maximum % Ash:	9. Million Btu per SCC Unit: **145.6**
10. Segment Comment: **Maximum rates based on Permit No. 0530010-002-AV. Maximum annual rate based on the hourly rate and 8,760 hr/yr.**		

D. SEGMENT (PROCESS/FUEL) INFORMATION (CONTINUED)

Segment Description and Rate: Segment **5** of **11**

1. Segment Description (Process/Fuel Type): **Industrial Processes; In-Process Fuel Use; Residual Oil (No. 5); Cement Kiln**		
2. Source Classification Code (SCC): **3-90-004-02**	3. SCC Units: **1,000 Gallons Burned**	
4. Maximum Hourly Rate: **2.016**	5. Maximum Annual Rate: **17,660.16**	6. Estimated Annual Activity Factor:
7. Maximum % Sulfur:	8. Maximum % Ash:	9. Million Btu per SCC Unit: **148.8**
10. Segment Comment: **Maximum rates based on Permit No. 0530010-002-AV. Maximum annual rate based on the hourly rate and 8,760 hr/yr.**		

Segment Description and Rate: Segment **6** of **11**

1. Segment Description (Process/Fuel Type): **Industrial Processes; In-Process Fuel Use; Residual Oil (No. 6); Cement Kiln**		
2. Source Classification Code (SCC): **3-90-004-02**	3. SCC Units: **1,000 Gallons Burned**	
4. Maximum Hourly Rate: **1.982**	5. Maximum Annual Rate: **17,362.32**	6. Estimated Annual Activity Factor:
7. Maximum % Sulfur:	8. Maximum % Ash:	9. Million Btu per SCC Unit: **151.3**
10. Segment Comment: **Maximum rates based on Permit No. 0530010-002-AV. Maximum annual rate based on the hourly rate and 8,760 hr/yr.**		

D. SEGMENT (PROCESS/FUEL) INFORMATION (CONTINUED)

Segment Description and Rate: Segment 7 of 11

1. Segment Description (Process/Fuel Type): **Industrial Processes; In-Process Fuel Use; Natural Gas; Cement Kiln**		
2. Source Classification Code (SCC): **3-90-006-02**	3. SCC Units: **Million Cubic Feet Burned**	
4. Maximum Hourly Rate: **0.293**	5. Maximum Annual Rate: **2,563.9**	6. Estimated Annual Activity Factor:
7. Maximum % Sulfur:	8. Maximum % Ash:	9. Million Btu per SCC Unit: **1,025**
10. Segment Comment: **Maximum rates based on Permit No. 0530010-002-AV. Maximum annual rate based on the hourly rate and 8,760 hr/yr.**		

Segment Description and Rate: Segment 8 of 11

1. Segment Description (Process/Fuel Type): **Industrial Processes; In-Process Fuel Use; Bituminous Coal; Cement Kiln**		
2. Source Classification Code (SCC): **3-90-002-01**	3. SCC Units: **Tons Burned**	
4. Maximum Hourly Rate: **12.0**	5. Maximum Annual Rate: **105,120**	6. Estimated Annual Activity Factor:
7. Maximum % Sulfur:	8. Maximum % Ash:	9. Million Btu per SCC Unit: **25**
10. Segment Comment: **Maximum rates based on Permit No. 0530010-002-AV. Maximum annual rate based on the hourly rate and 8,760 hr/yr.**		

D. SEGMENT (PROCESS/FUEL) INFORMATION (CONTINUED)

Segment Description and Rate: Segment 9 of 11

1. Segment Description (Process/Fuel Type): **Industrial Processes; In-Process Fuel Use; Solid Waste; Tires [Whole Tire-Derived Fuel (WTDF)]**		
2. Source Classification Code (SCC): **3-90-012-99**	3. SCC Units: **Tons Burned**	
4. Maximum Hourly Rate: **2.14**	5. Maximum Annual Rate: **18,746.4**	6. Estimated Annual Activity Factor:
7. Maximum % Sulfur:	8. Maximum % Ash:	9. Million Btu per SCC Unit: **28**
10. Segment Comment: **Maximum rates based on Permit No. 0530010-002-AV. Maximum annual rate based on the hourly rate and 8,760 hr/yr. The maximum utilization/firing rate of WTDF shall not exceed 20% of the total Btu heat input, or 2.14 TPH (daily average).**		

Segment Description and Rate: Segment 10 of 11

1. Segment Description (Process/Fuel Type): **Industrial Processes; In-Process Fuel Use; Liquid Waste – On-Site Generated Non-Hazardous Waste Used Oil and Grease**		
2. Source Classification Code (SCC): **3-90-013-89**	3. SCC Units: **1,000 Gallons Burned**	
4. Maximum Hourly Rate:	5. Maximum Annual Rate: **5.0 (rolling-monthly basis)**	6. Estimated Annual Activity Factor:
7. Maximum % Sulfur:	8. Maximum % Ash:	9. Million Btu per SCC Unit:
10. Segment Comment: **Maximum rates based on Permit No. 0530010-002-AV.**		

D. SEGMENT (PROCESS/FUEL) INFORMATION (CONTINUED)

Segment Description and Rate: Segment **11** of **11**

1. Segment Description (Process/Fuel Type): **Industrial Processes; In-Process Fuel Use; Solid Waste; Wood**		
2. Source Classification Code (SCC): **3-90-009-89**	3. SCC Units: **Tons Burned**	
4. Maximum Hourly Rate: *	5. Maximum Annual Rate: *	6. Estimated Annual Activity Factor:
7. Maximum % Sulfur:	8. Maximum % Ash:	9. Million Btu per SCC Unit: **18.4**
10. Segment Comment: ***The maximum hourly and annual rates of saw dust will be determined during the 15-day trial period. The expected total saw dust heat substitution of the kiln is 20%. The trial is expected to use a total of up to 1500 tons of saw dust for the 15 day trial per kiln. The heat content is approximately 9,200 Btu/lb.**		

Segment Description and Rate: Segment ___ of ___

1. Segment Description (Process/Fuel Type):		
2. Source Classification Code (SCC):	3. SCC Units:	
4. Maximum Hourly Rate:	5. Maximum Annual Rate:	6. Estimated Annual Activity Factor:
7. Maximum % Sulfur:	8. Maximum % Ash:	9. Million Btu per SCC Unit:
10. Segment Comment:		

I. EMISSIONS UNIT ADDITIONAL INFORMATION

Additional Requirements for All Applications, Except as Otherwise Stated

1. Process Flow Diagram (Required for all permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought)
   ☐ Attached, Document ID: _____ ☒ Previously Submitted, Date **March 2005**

2. Fuel Analysis or Specification (Required for all permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought)
   ☒ Attached, Document ID: **Attachment A** ☐ Previously Submitted, Date _____

3. Detailed Description of Control Equipment (Required for all permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought)
   ☐ Attached, Document ID: _____ ☒ Previously Submitted, Date **March 2005**

4. Procedures for Startup and Shutdown (Required for all operation permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought)
   ☐ Attached, Document ID: _____ ☐ Previously Submitted, Date _____
   ☒ Not Applicable (construction application)

5. Operation and Maintenance Plan (Required for all permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought)
   ☐ Attached, Document ID: _____ ☒ Previously Submitted, Date **March 2005**
   ☐ Not Applicable

6. Compliance Demonstration Reports/Records
   ☐ Attached, Document ID: _____
   Test Date(s)/Pollutant(s) Tested: _____
   _____
   ☐ Previously Submitted, Date: _____
   Test Date(s)/Pollutant(s) Tested: _____
   _____
   ☐ To be Submitted, Date (if known): _____
   Test Date(s)/Pollutant(s) Tested: _____
   _____
   ☒ Not Applicable

   Note: For FESOP applications, all required compliance demonstration records/reports must be submitted at the time of application. For Title V air operation permit applications, all required compliance demonstration reports/records must be submitted at the time of application, or a compliance plan must be submitted at the time of application.

7. Other Information Required by Rule or Statute
   ☐ Attached, Document ID: _____ ☒ Not Applicable

Additional Requirements for Air Construction Permit Applications

1. Control Technology Review and Analysis (Rules 62-212.400(10) and 62-212.500(7), F.A.C.; 40 CFR 63.43(d) and (e))
   ☐ Attached, Document ID: _____ ☒ Not Applicable
2. Good Engineering Practice Stack Height Analysis (Rule 62-212.400(4)(d), F.A.C., and Rule 62-212.500(4)(f), F.A.C.)
   ☐ Attached, Document ID: _____ ☒ Not Applicable
3. Description of Stack Sampling Facilities (Required for proposed new stack sampling facilities only)
   ☐ Attached, Document ID: _____ ☒ Not Applicable

Additional Requirements for Title V Air Operation Permit Applications **N/A**

1. Identification of Applicable Requirements
   ☐ Attached, Document ID: _____
2. Compliance Assurance Monitoring
   ☐ Attached, Document ID: _____ ☒ Not Applicable
3. Alternative Methods of Operation
   ☐ Attached, Document ID: _____ ☒ Not Applicable
4. Alternative Modes of Operation (Emissions Trading)
   ☐ Attached, Document ID: _____ ☒ Not Applicable
5. Acid Rain Part Application
   ☐ Certificate of Representation (EPA Form No. 7610-1)
   ☐ Copy Attached, Document ID:_
   ☐ Acid Rain Part (Form No. 62-210.900(1)(a))
   ☐ Attached, Document ID:_____ ☐ Previously Submitted, Date:_____
   ☐ Repowering Extension Plan (Form No. 62-210.900(1)(a)1.)
   ☐ Attached, Document ID:_____ ☐ Previously Submitted, Date:_____
   ☐ New Unit Exemption (Form No. 62-210.900(1)(a)2.)
   ☐ Attached, Document ID:_____ ☐ Previously Submitted, Date:_____
   ☐ Retired Unit Exemption (Form No. 62-210.900(1)(a)3.)
   ☐ Attached, Document ID:_____ ☐ Previously Submitted, Date:_____
   ☐ Phase II NOx Compliance Plan (Form No. 62-210.900(1)(a)4.)
   ☐ Attached, Document ID:_____ ☐ Previously Submitted, Date:_____
   ☐ Phase II NOx Averaging Plan (Form No. 62-210.900(1)(a)5.)
   ☐ Attached, Document ID:_____ ☐ Previously Submitted, Date:_____
   ☒ Not Applicable

Additional Requirements Comment

III. EMISSIONS UNIT INFORMATION

Title V Air Operation Permit Application - For Title V air operation permitting only, emissions units are classified as regulated, unregulated, or insignificant. If this is an application for Title V air operation permit, a separate Emissions Unit Information Section (including subsections A through I as required) must be completed for each regulated and unregulated emissions unit addressed in this application for air permit. Some of the subsections comprising the Emissions Unit Information Section of the form are optional for unregulated emissions units. Each such subsection is appropriately marked. Insignificant emissions units are required to be listed at Section II, Subsection C.

Air Construction Permit or FESOP Application - For air construction permitting or federally enforceable state air operation permitting, emissions units are classified as either subject to air permitting or exempt from air permitting. The concept of an "unregulated emissions unit" does not apply. If this is an application for air construction permit or FESOP, a separate Emissions Unit Information Section (including subsections A through I as required) must be completed for each emissions unit subject to air permitting addressed in this application for air permit. Emissions units exempt from air permitting are required to be listed at Section II, Subsection C.

Air Construction Permit and Revised/Renewal Title V Air Operation Permit Application – Where this application is used to apply for both an air construction permit and a revised/renewal Title V air operation permit, each emissions unit is classified as either subject to air permitting or exempt from air permitting for air construction permitting purposes and as regulated, unregulated, or insignificant for Title V air operation permitting purposes. **The air construction permitting classification must be used to complete the Emissions Unit Information Section of this application for air permit.** A separate Emissions Unit Information Section (including subsections A through I as required) must be completed for each emissions unit subject to air permitting addressed in this application for air permit. Emissions units exempt from air construction permitting and insignificant emissions units are required to be listed at Section II, Subsection C.

If submitting the application form in hard copy, the number of this Emissions Unit Information Section and the total number of Emissions Unit Information Sections submitted as part of this application must be indicated in the space provided at the top of each page.

A. GENERAL EMISSIONS UNIT INFORMATION

Title V Air Operation Permit Emissions Unit Classification

1. Regulated or Unregulated Emissions Unit? (Check one, if applying for an initial, revised or renewal Title V air operation permit. Skip this item if applying for an air construction permit or FESOP only.)

☐ The emissions unit addressed in this Emissions Unit Information Section is a regulated emissions unit.

☐ The emissions unit addressed in this Emissions Unit Information Section is an unregulated emissions unit.

Emissions Unit Description and Status

1. Type of Emissions Unit Addressed in this Section: (Check one)

☒ This Emissions Unit Information Section addresses, as a single emissions unit, a single process or production unit, or activity, which produces one or more air pollutants and which has at least one definable emission point (stack or vent).

☐ This Emissions Unit Information Section addresses, as a single emissions unit, a group of process or production units and activities which has at least one definable emission point (stack or vent) but may also produce fugitive emissions.

☐ This Emissions Unit Information Section addresses, as a single emissions unit, one or more process or production units and activities which produce fugitive emissions only.

2. Description of Emissions Unit Addressed in this Section:
Cement Kiln No. 2

3. Emissions Unit Identification Number: **014**

4. Emissions Unit Status Code:	5. Commence Construction Date:	6. Initial Startup Date:	7. Emissions Unit Major Group SIC Code:	8. Acid Rain Unit?
A			**32**	☐ Yes ☒ No

9. Package Unit:
Manufacturer: Model Number:

10. Generator Nameplate Rating: MW

11. Emissions Unit Comment: **CEMEX does not expect an increase in emissions due to the use of saw dust as a fuel. However, CEMEX plans to conduct the 15-day trial and compliance testing to determine the effect on emissions.**

Emissions Unit Control Equipment

1. Control Equipment/Method(s) Description:

016 – Baghouse – High Temperature (Fuller Draco Custom ID No. E-55)
205 – Low NO_x Burners
032 – Ammonia Injection (SNCR)

2. Control Device or Method Code(s): **016, 205, 032**

B. EMISSIONS UNIT CAPACITY INFORMATION

(Optional for unregulated emissions units.)

Emissions Unit Operating Capacity and Schedule

1. Maximum Process or Throughput Rate: **165 TPH; 1,300,000 TPY preheater feed (consecutive 12-month period)**	
2. Maximum Production Rate:	
3. Maximum Heat Input Rate: **300** million Btu/hr	
4. Maximum Incineration Rate: pounds/hr tons/day	
5. Requested Maximum Operating Schedule:	
24 hours/day	**7** days/week
52 weeks/year	**8,760** hours/year
6. Operating Capacity/Schedule Comment:	

C. EMISSION POINT (STACK/VENT) INFORMATION
(Optional for unregulated emissions units.)

Emission Point Description and Type

1. Identification of Point on Plot Plan or Flow Diagram: **No. 2 Kiln Stack**	2. Emission Point Type Code: **1**	
3. Descriptions of Emission Points Comprising this Emissions Unit for VE Tracking: **Kiln No. 2 Stack**		
4. ID Numbers or Descriptions of Emission Units with this Emission Point in Common:		
5. Discharge Type Code: **V**	6. Stack Height: **105 feet**	7. Exit Diameter: **14.0 feet**
8. Exit Temperature: **250°F**	9. Actual Volumetric Flow Rate: **315,000 acfm**	10. Water Vapor: %
11. Maximum Dry Standard Flow Rate: dscfm	12. Nonstack Emission Point Height: feet	
13. Emission Point UTM Coordinates... Zone: East (km): North (km):	14. Emission Point Latitude/Longitude... Latitude (DD/MM/SS) Longitude (DD/MM/SS)	
15. Emission Point Comment:		

D. SEGMENT (PROCESS/FUEL) INFORMATION

Segment Description and Rate: Segment 1 of 10

1. Segment Description (Process/Fuel Type): **Industrial Processes; Mineral Products; Cement Manufacturing (Dry Process); Preheater Kiln**		
2. Source Classification Code (SCC): **3-05-006-22**	3. SCC Units: **Tons Processed**	
4. Maximum Hourly Rate: **165**	5. Maximum Annual Rate: **1,300,000**	6. Estimated Annual Activity Factor:
7. Maximum % Sulfur:	8. Maximum % Ash:	9. Million Btu per SCC Unit:
10. Segment Comment: **Segment represents preheater feed rate. Annual rate based on 150 TPH and 8,760 hr/yr and an operating factor of 99%. Based on Permit No. 0530010-002-AV.**		

Segment Description and Rate: Segment 2 of 10

1. Segment Description (Process/Fuel Type): **Industrial Processes; Mineral Products; Cement Manufacturing (Dry Process); Preheater Kiln**		
2. Source Classification Code (SCC): **3-05-006-22**	3. SCC Units: **Tons Clinker Produced**	
4. Maximum Hourly Rate: **99.0**	5. Maximum Annual Rate: **780,000**	6. Estimated Annual Activity Factor:
7. Maximum % Sulfur:	8. Maximum % Ash:	9. Million Btu per SCC Unit:
10. Segment Comment: **The maximum rates are based on the maximum preheater rates times 0.60:** **Maximum hourly rate = 165 TPH x 0.60 = 99.0 TPH** **Maximum annual rate = 1,300,000 TPY x 0.60 = 780,000 TPY**		

D. SEGMENT (PROCESS/FUEL) INFORMATION (CONTINUED)

Segment Description and Rate: Segment 3 of 10

1. Segment Description (Process/Fuel Type): **Industrial Processes; In-Process Fuel Use; Distillate Oil (No. 2); Cement Kiln**		
2. Source Classification Code (SCC): **3-90-005-02**	3. SCC Units: **1,000 Gallons Burned**	
4. Maximum Hourly Rate: **2.116**	5. Maximum Annual Rate: **18,536.2**	6. Estimated Annual Activity Factor:
7. Maximum % Sulfur:	8. Maximum % Ash:	9. Million Btu per SCC Unit: **141.3**
10. Segment Comment: **Maximum rates based on Permit No. 0530010-002-AV. Maximum annual rate based on the hourly rate and 8,760 hr/yr.**		

Segment Description and Rate: Segment 4 of 10

1. Segment Description (Process/Fuel Type): **Industrial Processes; In-Process Fuel Use; Distillate Oil (No. 4); Cement Kiln**		
2. Source Classification Code (SCC): **3-90-005-02**	3. SCC Units: **1,000 Gallons Burned**	
4. Maximum Hourly Rate: **2.06**	5. Maximum Annual Rate: **18,045.6**	6. Estimated Annual Activity Factor:
7. Maximum % Sulfur:	8. Maximum % Ash:	9. Million Btu per SCC Unit: **145.6**
10. Segment Comment: **Maximum rates based on Permit No. 0530010-002-AV. Maximum annual rate based on the hourly rate and 8,760 hr/yr.**		

D. SEGMENT (PROCESS/FUEL) INFORMATION (CONTINUED)

Segment Description and Rate: Segment **5** of **10**

1. Segment Description (Process/Fuel Type): **Industrial Processes; In-Process Fuel Use; Residual Oil (No. 5); Cement Kiln**		
2. Source Classification Code (SCC): **3-90-004-02**	3. SCC Units: **1,000 Gallons Burned**	
4. Maximum Hourly Rate: **2.016**	5. Maximum Annual Rate: **17,660.16**	6. Estimated Annual Activity Factor:
7. Maximum % Sulfur:	8. Maximum % Ash:	9. Million Btu per SCC Unit: **148.8**
10. Segment Comment: **Maximum rates based on Permit No. 0530010-002-AV. Maximum annual rate based on the hourly rate and 8,760 hr/yr.**		

Segment Description and Rate: Segment **6** of **10**

1. Segment Description (Process/Fuel Type): **Industrial Processes; In-Process Fuel Use; Residual Oil (No. 6); Cement Kiln**		
2. Source Classification Code (SCC): **3-90-004-02**	3. SCC Units: **1,000 Gallons Burned**	
4. Maximum Hourly Rate: **1.982**	5. Maximum Annual Rate: **17,362.32**	6. Estimated Annual Activity Factor:
7. Maximum % Sulfur:	8. Maximum % Ash:	9. Million Btu per SCC Unit: **151.3**
10. Segment Comment: **Maximum rates based on Permit No. 0530010-002-AV. Maximum annual rate based on the hourly rate and 8,760 hr/yr.**		

D. SEGMENT (PROCESS/FUEL) INFORMATION (CONTINUED)

Segment Description and Rate: Segment 7 of 10

1. Segment Description (Process/Fuel Type): **Industrial Processes; In-Process Fuel Use; Natural Gas; Cement Kiln**		
2. Source Classification Code (SCC): **3-90-006-02**	3. SCC Units: **Million Cubic Feet Burned**	
4. Maximum Hourly Rate: **0.293**	5. Maximum Annual Rate: **2,563.9**	6. Estimated Annual Activity Factor:
7. Maximum % Sulfur:	8. Maximum % Ash:	9. Million Btu per SCC Unit: **1,025**
10. Segment Comment: **Maximum rates based on Permit No. 0530010-002-AV. Maximum annual rate based on the hourly rate and 8,760 hr/yr.**		

Segment Description and Rate: Segment 8 of 10

1. Segment Description (Process/Fuel Type): **Industrial Processes; In-Process Fuel Use; Bituminous Coal; Cement Kiln**		
2. Source Classification Code (SCC): **3-90-002-01**	3. SCC Units: **Tons Burned**	
4. Maximum Hourly Rate: **12.0**	5. Maximum Annual Rate: **105,120**	6. Estimated Annual Activity Factor:
7. Maximum % Sulfur:	8. Maximum % Ash:	9. Million Btu per SCC Unit: **25**
10. Segment Comment: **Maximum rates based on Permit No. 0530010-002-AV. Maximum annual rate based on the hourly rate and 8,760 hr/yr.**		

D. SEGMENT (PROCESS/FUEL) INFORMATION (CONTINUED)

Segment Description and Rate: Segment **9** of **10**

1. Segment Description (Process/Fuel Type): **Industrial Processes; In-Process Fuel Use; Liquid Waste – On-Site Generated Non-Hazardous Waste Used Oil and Grease**		
2. Source Classification Code (SCC): **3-90-013-89**	3. SCC Units: **1,000 Gallons Burned**	
4. Maximum Hourly Rate:	5. Maximum Annual Rate: **5.0 (rolling-monthly basis)**	6. Estimated Annual Activity Factor:
7. Maximum % Sulfur:	8. Maximum % Ash:	9. Million Btu per SCC Unit:
10. Segment Comment: **Maximum rates based on Permit No. 0530010-002-AV.**		

Segment Description and Rate: Segment **10** of **10**

1. Segment Description (Process/Fuel Type): **Industrial Processes; In-Process Fuel Use; Solid Waste; Wood**		
2. Source Classification Code (SCC): **3-90-009-89**	3. SCC Units: **Tons Burned**	
4. Maximum Hourly Rate: *	5. Maximum Annual Rate: *	6. Estimated Annual Activity Factor:
7. Maximum % Sulfur:	8. Maximum % Ash:	9. Million Btu per SCC Unit: **18.4**
10. Segment Comment: ***The maximum hourly and annual rates of saw dust will be determined during the 15-day trial period. The expected total saw dust heat substitution of the kiln is 20%. The trial is expected to use a total of up to 1500 tons of saw dust for the 15 day trial per kiln. The heat content is approximately 9,200 Btu/lb.**		

I. EMISSIONS UNIT ADDITIONAL INFORMATION

Additional Requirements for All Applications, Except as Otherwise Stated

1. Process Flow Diagram (Required for all permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought)
☐ Attached, Document ID: _____ ☒ Previously Submitted, Date **March 2005**

2. Fuel Analysis or Specification (Required for all permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought)
☒ Attached, Document ID: **Attachment A** ☐ Previously Submitted, Date _____

3. Detailed Description of Control Equipment (Required for all permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought)
☐ Attached, Document ID: _____ ☒ Previously Submitted, Date **March 2005**

4. Procedures for Startup and Shutdown (Required for all operation permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought)
☐ Attached, Document ID: _____ ☐ Previously Submitted, Date _____
☒ Not Applicable (construction application)

5. Operation and Maintenance Plan (Required for all permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought)
☐ Attached, Document ID: _____ ☒ Previously Submitted, Date **March 2005**
☐ Not Applicable

6. Compliance Demonstration Reports/Records
☐ Attached, Document ID: _____
Test Date(s)/Pollutant(s) Tested: _____
☐ Previously Submitted, Date: _____
Test Date(s)/Pollutant(s) Tested: _____
☐ To be Submitted, Date (if known): _____
Test Date(s)/Pollutant(s) Tested: _____
☒ Not Applicable

Note: For FESOP applications, all required compliance demonstration records/reports must be submitted at the time of application. For Title V air operation permit applications, all required compliance demonstration reports/records must be submitted at the time of application, or a compliance plan must be submitted at the time of application.

7. Other Information Required by Rule or Statute
☐ Attached, Document ID: _____ ☒ Not Applicable

Additional Requirements for Air Construction Permit Applications

1. Control Technology Review and Analysis (Rules 62-212.400(10) and 62-212.500(7), F.A.C.; 40 CFR 63.43(d) and (e))
   ☐ Attached, Document ID: _____ ☒ Not Applicable
2. Good Engineering Practice Stack Height Analysis (Rule 62-212.400(4)(d), F.A.C., and Rule 62-212.500(4)(f), F.A.C.)
   ☐ Attached, Document ID: _____ ☒ Not Applicable
3. Description of Stack Sampling Facilities (Required for proposed new stack sampling facilities only)
   ☐ Attached, Document ID: _____ ☒ Not Applicable

Additional Requirements for Title V Air Operation Permit Applications **N/A**

1. Identification of Applicable Requirements
   ☐ Attached, Document ID: _____
2. Compliance Assurance Monitoring
   ☐ Attached, Document ID: _____ ☒ Not Applicable
3. Alternative Methods of Operation
   ☐ Attached, Document ID: _____ ☒ Not Applicable
4. Alternative Modes of Operation (Emissions Trading)
   ☐ Attached, Document ID: _____ ☒ Not Applicable
5. Acid Rain Part Application
   ☐ Certificate of Representation (EPA Form No. 7610-1)
   ☐ Copy Attached, Document ID:
   ☐ Acid Rain Part (Form No. 62-210.900(1)(a))
   ☐ Attached, Document ID:_____ ☐ Previously Submitted, Date:_____
   ☐ Repowering Extension Plan (Form No. 62-210.900(1)(a)1.)
   ☐ Attached, Document ID:_____ ☐ Previously Submitted, Date:_____
   ☐ New Unit Exemption (Form No. 62-210.900(1)(a)2.)
   ☐ Attached, Document ID:_____ ☐ Previously Submitted, Date:_____
   ☐ Retired Unit Exemption (Form No. 62-210.900(1)(a)3.)
   ☐ Attached, Document ID:_____ ☐ Previously Submitted, Date:_____
   ☐ Phase II NOx Compliance Plan (Form No. 62-210.900(1)(a)4.)
   ☐ Attached, Document ID:_____ ☐ Previously Submitted, Date:_____
   ☐ Phase II NOx Averaging Plan (Form No. 62-210.900(1)(a)5.)
   ☐ Attached, Document ID:_____ ☐ Previously Submitted, Date:_____
   ☒ Not Applicable

Additional Requirements Comment

ATTACHMENT A

DESCRIPTION OF PROPOSED PROJECT

ATTACHMENT A
DESCRIPTION OF PROPOSED PROJECT
TRIAL PERIOD—SAW DUST AS AN ALTERNATIVE FUEL

CEMEX Cement, Inc., operates a Portland cement manufacturing plant in Brooksville, Florida. The Cement Kilns Nos. 1 (EU 003) and 2 (EU 014) are currently permitted to burn coal, Nos. 2, 4, 5, and 6 fuel oil, natural gas, used oil and grease, and waste tires (Kiln No. 1 only). CEMEX is requesting a 15-day trial period to evaluate the use of saw dust (essentially small wood chips) as an alternative fuel for the kilns. CEMEX will conduct performance testing during the trial period to determine the effect of burning saw dust on emissions.

An estimated 1500 tons of saw dust will be needed for the 15 day test period for each kiln. The expected heat substitution of the saw dust in each kiln is 20% of the total heat input. The saw dust will be added to the cement kilns through the burner pipe at a rate up to 5.2 tons per hour (TPH) per kiln During the trial period, CEMEX will determine the amount of saw dust that will be needed to obtain the desired kiln fuel mix.

As shown in the attached presentation, the saw dust will be from the processing of whole logs at lumber mills and possibly shredded mulch from public landfills. There will not be any saw dust or mulch used in the cement kilns from chemically treated woods. Refer to the attached presentation and the material safety data sheet (MSDS) for more details about the saw dust.

The saw dust will be delivered to the facility by open-bed trucks and will be stored in three possible storage areas (refer to attached presentation). A front-end loader truck will transport the saw dust from the storage areas to the saw dust conveying system. The conveying system will weigh the saw dust, and then blow the saw dust to the cement kilns. The saw dust will be fed into the kilns through the 4-inch port located on the burner pipe. The saw dust particles should have a constant flow and a high enough velocity (approximately 26 meters per second) to prevent the saw dust from settling.

The saw dust will arrive at the CEMEX facility very moist, with an approximate moisture content of 25% to 50%. Due to the size of the saw dust (small wood chips with some fine dust particles) and the moisture content of the material, it is not expected to generate fugitive dust emissions from the transport, unloading, loading, or conveying of the material.

There will not be any change in kiln production rate as a result of this project. It is not expected that the emission rates will increase due to the use of saw dust as a fuel in the kilns. In fact, it is expected that greenhouse gas emissions will be reduced by substituting the fossil fuels (expected 20% total heat input substitution) that are currently used as kiln fuel with an alternative fuel. In addition, saw dust is a renewable source of fuel for the kiln, and is a way to reuse a waste product from another industrial process (lumber milling). During the 15-day trial, CEMEX will conduct stack tests to determine the effect on emissions. Therefore, emission calculations have not been submitted with this application and this project is not subject to PSD review.

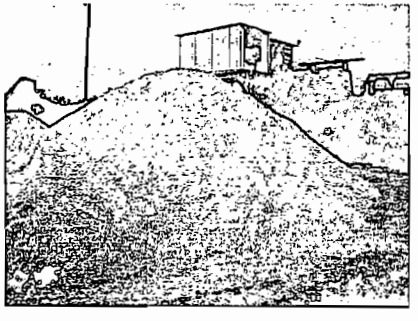
USA Cement Operations

Saw Dust Trial

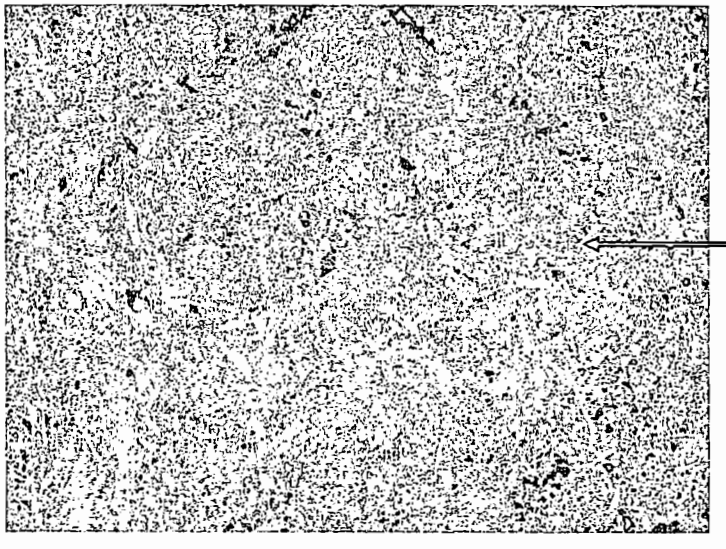
CEMEX USA Brooksville Plant

Florida Dept of Environmental Protection Meeting January 2007

Saw Dust Trial

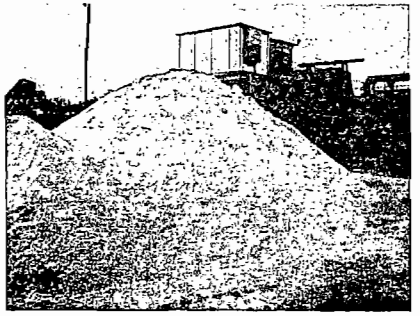


- **Saw Dust Consumption**: Expected total heat substitution of 20% in the kiln.
- **Trial Duration**: A trial of 15 days will be conducted.
- **Source of saw dust:** Robbins Wood Processing
  Jarrett Stephens – Sales
  13904 SR. 471, Tarrytown, FL 33597



Picture taken at wood processing facility of a pile of saw dust.

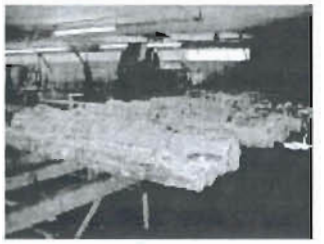
Origin of saw



- **Lumber**: Whole logs are received at processing facility.
- **Milling**: The saw dust is created from the processing of logs.
- **Collection:** The dust is collected for the use as an alternative fuel and for animal bedding.

Flow Diagram

Whole Logs: Supplier of saw dust receives whole logs.



Processing: Logs are processed with various milling equipment.

Saw Dust: The dust is collected for further use as a fuel or animal bedding.

Transport: Saw dust is transported to the cement plant.

Inventory and Storage: Dust is stored for the use as an alternative fuel at cement plant.

Feed: Dust is fed to conveying equipment using a bobcat.

Conveying Equipment: Saw dust is conveyed through metering system.

Burner Pipe: Saw dust is conveyed through a port specially designed for alternative fuels.

Kiln: Saw dust is burned in the kiln with the pulverized coal.

Note: Images are intended just as an illustration, there are not of the actual equipment.

General information of saw dust

Information of Saw Dust

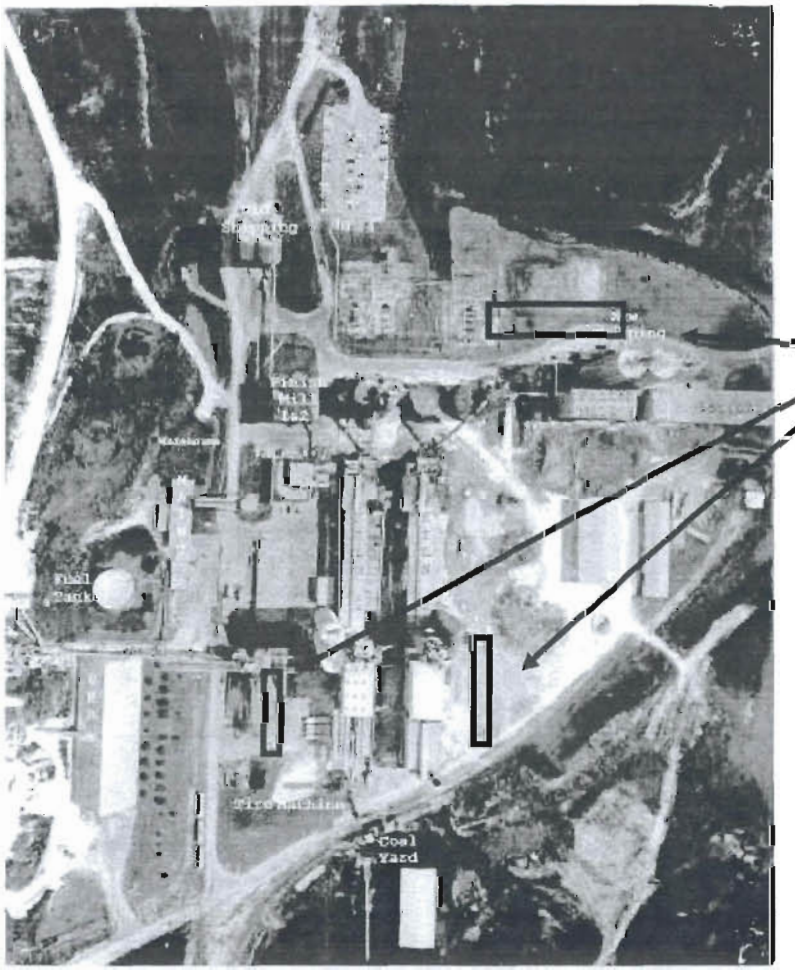
- **MSDS** Adobe Acrobat 7.0 Document
- **Size**: 94% passing the ½" Mesh
- **Calorific Value**: ~9,200 BTU/lb Dry Basis
- **Moisture Content**: ~45%
- **Source**: Wood processing facility. No sawdust from chemically treated wood will be accepted.

Inventory required for normal operation utilizing saw dust.

Inventory: A total of 300 tons of saw dust will be needed in inventory for one week of production in one kiln.

Storage of Materials: For the trial, we have three possible storage areas.

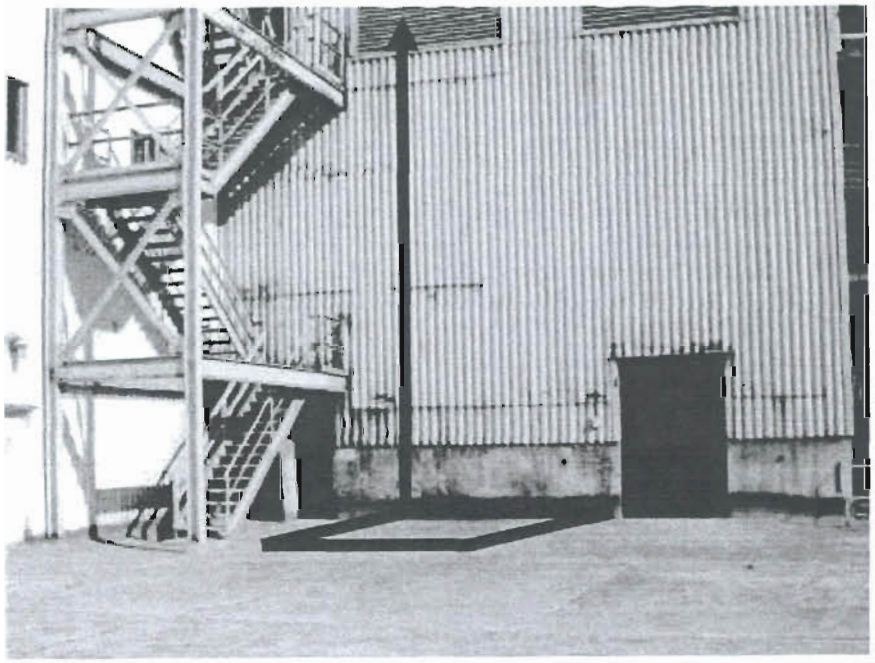
Inventory and storage



Possible storage areas for saw dust

Equipment Area: Possible location for the saw dust conveying system.

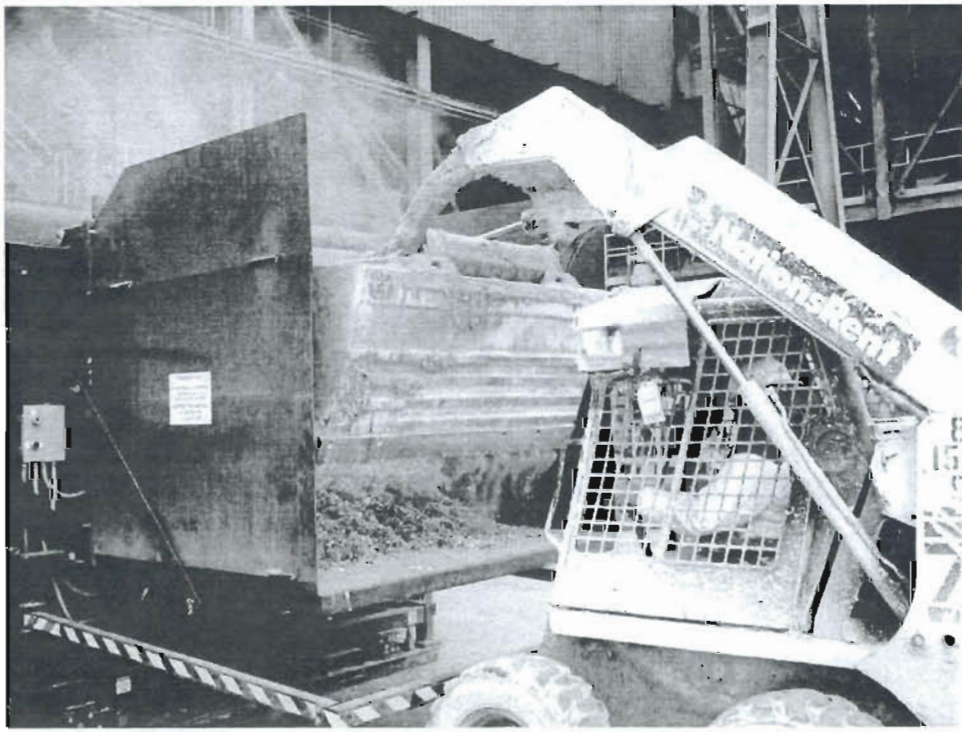
Equipment Area



The conveying system will be located next to the kilns.

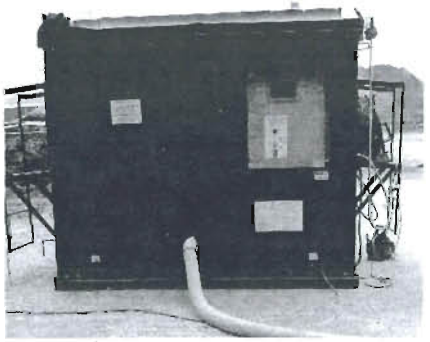
Feeding area

- **Feeding Area:** A Bobcat will be needed to transport and feed the saw dust to the conveying system.

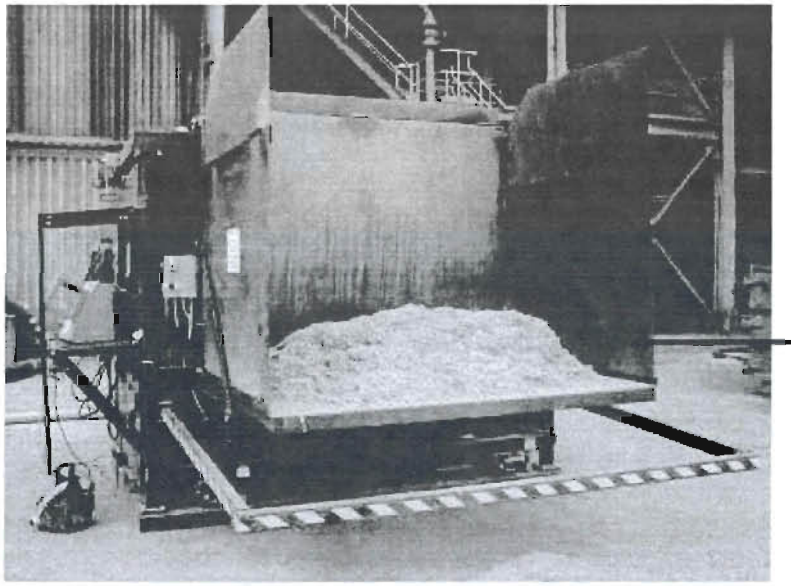


Capacity of conveying equipment.

Saw Dust Feed



- **Feed**: 1.25 TPH of Wood(30 TPD) will be added through the burner pipe
- **Feed Rate Capacity**: 3.3 TPH (~13% heat input). It can be upgraded with a bigger blower to increase capacity.



Saw dust is placed on this part of the equipment.

Adobe Acrobat 7.0 Document

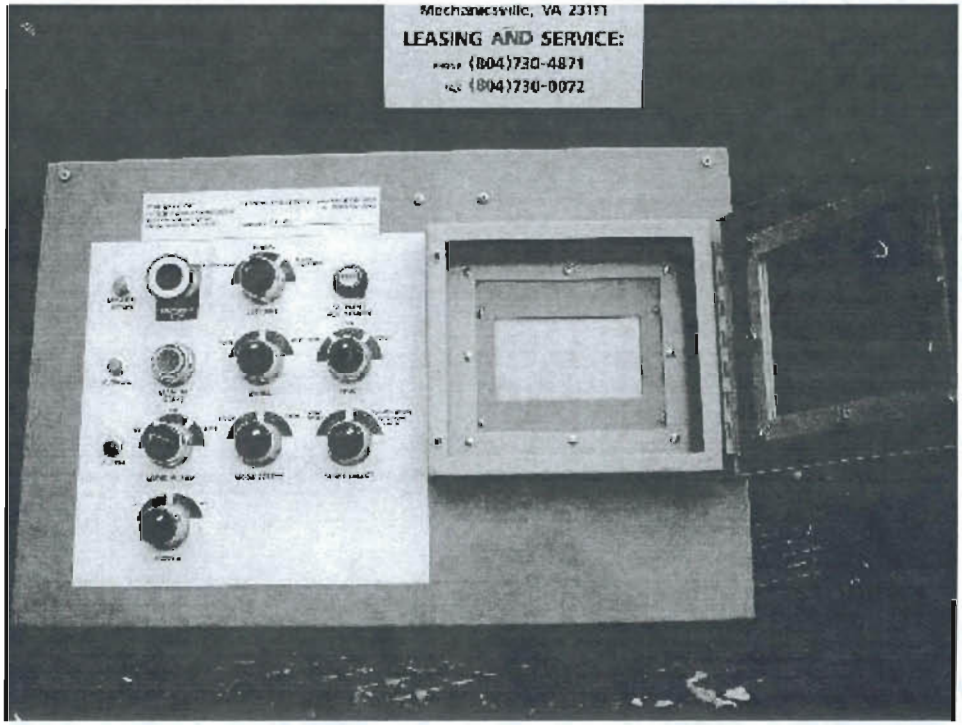
Microsoft PowerPoint Presentati

Additional Information on Equipment

The feed rate can be controlled on the system using this device.

Saw Dust Feed

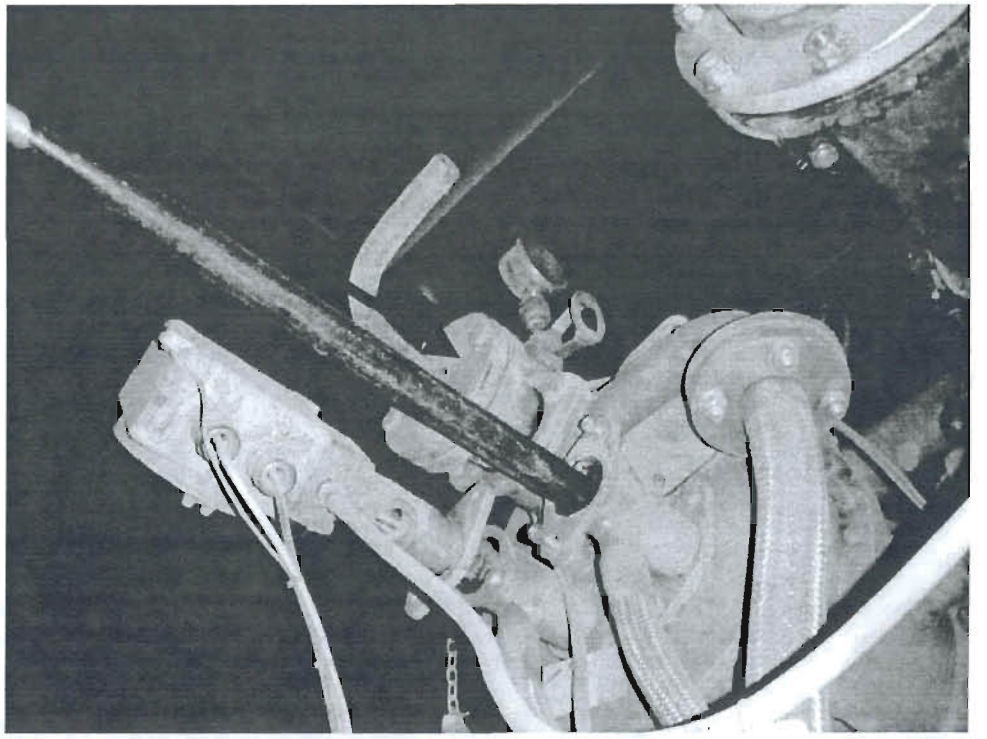
- Control System



The saw dust will be put into the kiln through the 4 inch port located on the burner pipe.

Burner Pipe

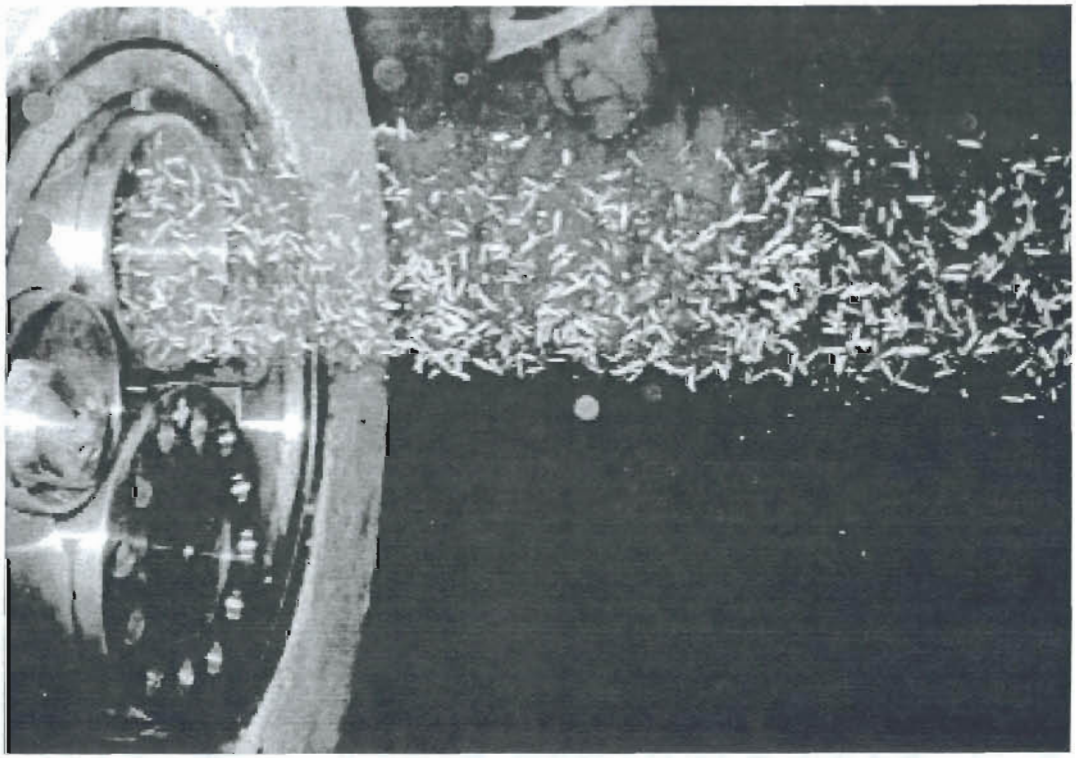
- **Inventory**: A total of 300 tons of saw dust will be needed in inventory(1 week of production at 10% heat input).



Dust particles should have a constant flow and enough velocity to prevent the dust from settling.

Burner Pipe and Air Velocity

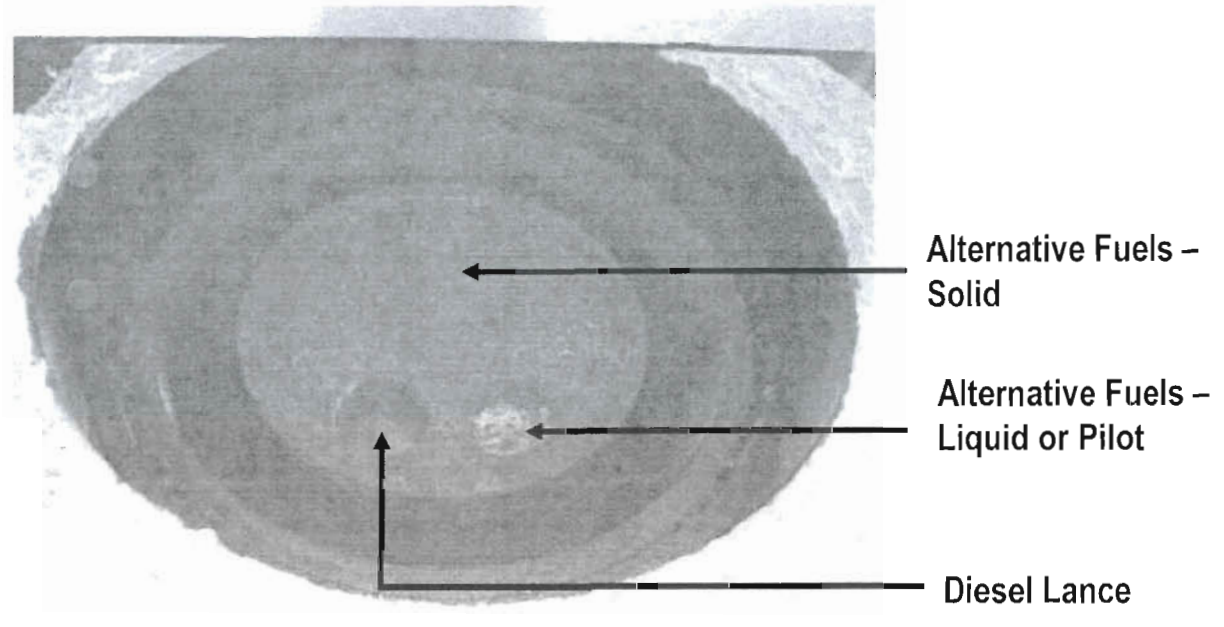
- **Air Velocity**: The particles should be small (aprox 1/2 inch) and have a velocity of approximately 26 m/s.



Example from a Flsmidth Burner Pipe(www.flsmidth.com) blowing wood chips. Ideal particulate size is ½"

This is a view of the Multi Channel Burner from Pillard (Rotoflam)

Multi Channel Burner Pipe



MATERIAL SAFETY DATA SHEET
Wood Dust

Collins Pine Particleboard

1 Product Identification

Manufacturer Name and Address:

Collins Products LLC
P.O. Box 16 • 6410 Highway 66
Klamath Falls, OR 97601
Emergency Phone: 541.885.3216
Phone for Additional Information: 541.885.3309

Product Name: Wood Dust (unlreated)
Synonyms(s): Wood Flour, Saw Dust, Sander Dust
Prepared By: Environmental, Safety & Health Services
Date Prepared: 9/1/96
Date Revised: 6/2/05
MSDS#: CPKF-0003

2 Hazardous Ingredient & Identity Information

Name/CAS#	%	OSHA Current Exposure Limits		
Wood	100	OSHA PEL-TWA	15 mg/m^3	(a)
CAS# - None		OSHA PEL-TWA	5 mg/m^3	(b)
		ACGIH TLV-TWA	1 mg/m^3	(b)
		ACGIH TLV-STEL	10 mg/m^3	(c)
		ACGIH TLV-TWA	1 mg/m^3	(d)
		Recommended Exposure Limits'		
		PEL-TWA	5 mg/m^3	(e)
		PEL-STEL	10 mg/m^3	(e)
		PEL-TWA	2.5 mg/m^3	(f)

(a) total dust
(b) respirable dust
(c) softwood total dust
(d) selected hardwood total dust (beech, oak, other)
(e) softwood or hardwood total dust
(f) Western red cedar total dust

' Recommended exposure limits based on 1989 OSHA PELs.

In 1992, the U.S. Court of Appeals for the Eleventh Circuit Court overturned OSHA's 1989 Air Contaminant Rule, which included specific PELs for wood dust established by OSHA at the time. Wood dust is now officially regulated as an organic dust in a category known as "Particulate Not Otherwise Regulated" (PNOR), or Nuisance Dust. However, a number of states have incorporated the OSHA PELs from the 1989 standard in their state plans. Additionally, OSHA has announced that it may cite companies under the OHSA Act general duty clause under appropriate circumstances for noncompliance with the 1989 PELs.

Appearance and odor:

Light to dark color granular solid. Wood dust may have a slight aromatic odor. Color and odor depend on the wood species and time since dust was generated. The wood component may consist of alder, aspen, beech, birch, cottonwood, fir, gum, hemlock, hickory, maple, oak, pecan, pine, poplar, spruce, walnut, and or Western Red Cedar.

3 Physical/Chemical Characteristics

BOILING POINT (@ 760 MM Hg):	N/A
VAPOR PRESSURE (mm Hg):	N/A
VAPOR DENSITY (Air=1; 1 atm):	N/A
SPECIFIC GRAVITY (H2O=1):	Variable, depends on wood species and moisture
MELTING POINT:	N/A
EVAPORATION RATE (Butyl Acetate=1):	N/A
SOLUBILITY IN WATER (% by Weight):	Insoluble
% VOLATILE BY WEIGHT @ 70°F (21°C)	N/A
pH:	N/A

4 Fire and Explosion Hazard Data

FLASH POINT
(METHOD USED) N/A

FLAMMABLE LIMITS:
LEL: See Below under "Unusual Fire and Explosion Hazards"
UEL: N/A

EXTINGUISHING MEDIA: Water, carbon dioxide, sand

AUTOIGNITION TEMPERATURE: Variable: typically 400°- 500°F (204°- 260°C)

SPECIAL FIRE FIGHTING PROCEDURES: Use water to wet down wood dust to reduce the likelihood of ignition or dispersion of dust into the air. Remove burned, charred or wet dust to open, secure area after fire is extinguished.

UNUSUAL FIRE AND EXPLOSION HAZARDS: Depending on moisture content and more importantly, particle diameter, wood dust may explode in the presence of an ignition source. An airborne concentration of 40 grams (40,000 mg) of dust per cubic meter of air is often used as the LEL for wood dust.

MSDS: Wood Dust

5 Reactivity Data

Stability:	( ) Unstable (x) Stable
Conditions to Avoid:	Avoid open flame. Product may ignite at temperatures in excess of 400°F (204°C).
Incompatibility (Material to avoid):	Avoid contact with oxidizing agents and drying oils.
Hazardous decomposition or by-products:	Thermal decomposition products include carbon dioxide, aliphatic aldehydes, rosin acids, terpenes, and polycyclic aromatic hydrocarbons.
Hazardous Polymerization:	( ) May occur (x) Will Not Occur

6 Precautions for Safe Handling and Use

Steps to be Taken in Case Material is Released or Spilled:

Wood dust may be vacuumed or shoveled for recovery or disposal. Avoid dusty conditions and provide good ventilation. Use NIOSH/MSHA approved respirator and goggles where ventilation is not possible.

Waste Disposal Method:

Landfill or incinerate in accordance with federal, state or local regulations. It is however, the user's responsibility to determine at the time of disposal whether your product meets RCRA criteria for hazardous waste.

Precautions to be Taken in Handling and Storage:

Avoid repeated or prolonged breathing of wood dust. Avoid eye contact and repeated or prolonged contact with skin. Keep in cool, dry place away from open flames.

Other Precautions:

Avoid open flame and contact with oxidizing agents and drying oils. A NIOSH/MSHA approved respirator and goggles should be worn when the allowable exposure limits may be exceeded.

7 Health Hazard Data

Primary Health Hazard:

The primary health hazard posed by this product is thought to be due to inhaling wood dust.

Primary Route(s) of Exposure:

( ) Ingestion:
(x) Skin: Dust
(x) Inhalation: Dust

Acute Health Hazards—Signs and Symptoms of Exposure/Emergency and First Aid Procedures:

INGESTION: Not applicable under normal use.

EYE CONTACT: Wood dust may cause mechanical irritation. Treat dust in eye as foreign object. Flush with water to remove dust particles. Get medical help if irritation persists.

SKIN CONTACT: Wood dust of certain species can elicit allergic contact dermatitis in sensitized individuals, as well as mechanical irritation resulting in erythema and hives. Get medical help if rash, irritation or dermatitis persists.

SKIN ABSORPTION: Not known to occur under normal use.

INHALATION: Wood dust may cause obstruction in the nasal passages, resulting in dryness of the nose, dry cough, sneezing and headaches. Remove to fresh air. Get medical help if persistent irrilation, sever coughing or breathing difficulties occur.

Medical Conditions Generally Aggravated by Exposure:

Wood dust may aggravate pre-existing respiratory conditions or allergies.

Chronic Health Hazards:

Wood dust, depending on the species, may cause allergic contact dermatitis and respiratory sensitization with prolonged, repetitive contact or exposure to elevated dust levels. Prolonged exposure to dust levels has been reported by some observers to be associated with nasal cancer. Wood dust has been listed as a "known human carcinogen" in the NTP's tenth Report on Carcinogens.

Carcinogenicity Listing:

(x) NTP: Wood Dust
(x) IARC Monographs: Wood Dust
(x) OSHA Regulated:

IARC – GROUP 1: Carcinogenic to humans: Sufficient evidence of carcinogenicity. This classification is primarily based on studies showing an association between occupational exposure to wood dust and adenocarcinoma of the nasal cavity and paranasal sinuses. IARC did not find sufficient evidence of an association between occupational exposure to wood dust and cancer of the oropharynx, Hypopharynx, lung, lymphatic and hematopoietic systems, stomach, colon or rectum.

MSDS: Wood Dust

8 Control Measures

Personal Protective Equipment:

RESPIRATORY PROTECTION — A NIOSH/MSHA approved respirator is recommended when allowable exposure limits may be exceeded.

PROTECTIVE GLOVES — Not required. However, cloth, canvas, or leather gloves are recommended to minimize potential mechanical irritation from handling product.

EYE PROTECTION — Goggles or safety glasses are recommended in area with high dust levels.

OTHER PROTECTIVE CLOTHING OR EQUIPMENT — Outer garments may be desirable in extremely dusty areas.

WORK/HYGIENE PRACTICES — Follow good hygienic and housekeeping practices. Clean up areas where wood dust settles to avoid excessive accumulation of this combustible material. Minimize blow down or other practices that generate high airborne dust concentrations.

Ventilation:

LOCAL EXHAUST — Provide local exhaust as needed so that exposure limits are met.

MECHANICAL (GENERAL) — Provide general ventilation in processing or storage areas so that exposure limits are met.

SPECIAL — Self contained breathing apparatus (SCBA) recommended when fighting fire.

OTHER — N/A

9 Transportation Data

DOT Proper Shipping Name: Not Regulated
Hazard Class/Division Number:
ID Number:
Packing Group:
Label/Placard Required:
DOT Hazardous Substance:

10 User's Responsibility

The information contained in this Material Safety Data Sheet is based on the experience of the Environmental, Safety & Health professionals and comes from sources believed to be accurate or otherwise technically correct. It is the user's responsibility to determine if this information is suitable for their application and to follow safety precautions as may be necessary. The user has the responsibility to make sure this sheet is the most up to date issue.

11 Additional Information

Definition of Common Terms:

ACGIH = American Conference of Government Industrial Hygienists
C = Ceiling Limit
CAS # = Chemical Abstract System Number
IARC = International Agency for Research on Cancer
MSHA = Mine Safety and Health Administration
N/A = Not Applicable
NIOSH = National Institute of Occupational Safety and Health
NTP = National Toxicology Program
OSHA = Occupational Safety and Health Administration
PEL = Permissible Exposure Limit
STEL = Short Term Exposure Limit (15 minutes)
TLV = Threshold Limit Value
TWA = Time Weighted Average (8 hours)

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