

## EMISSIONS ACTIVITY CATEGORY FORM COKE MANUFACTURING

*This form is to be completed for each coke manufacturing operation. State/Federal regulations which may apply to coke manufacturing are listed in the instructions. Note that there may be other regulations which apply to this emissions unit which are not included in this list.*

Note: This emissions activity category (EAC) form does not include roadways and parking areas, storage piles, and material handling operations which may also be associated with a coke manufacturing facility. Therefore, additional EAC forms for those emissions units may need to be submitted.

1. Reason this form is being submitted (Check one)

New Permit       Renewal or Modification of Air Permit Number(s) (e.g. F001)\_\_\_\_\_

2. Maximum Operating Schedule: \_\_\_\_\_ hours per day; \_\_\_\_\_ days per year

If the schedule is less than 24 hours/day or 365 days/year, what limits the schedule to less than maximum? See instructions for examples. \_\_\_\_\_

3. Identification of fugitive dust emissions units:

<u>Check Those Emissions Units Present</u>	<u>Fugitive Dust Emissions Units</u>	<u>How many?</u>
<input type="checkbox"/>	Coal pulverizing and screening	_____
<input type="checkbox"/>	Charging	_____
<input type="checkbox"/>	Coking	_____
<input type="checkbox"/>	Pushing	_____
<input type="checkbox"/>	Coke grinding and screening	_____
<input type="checkbox"/>	Other (describe):	_____
	_____	_____
	_____	_____

4. General coke-oven battery data:

a.	Battery number	_____	_____	_____	_____
b.	No. of ovens per battery	_____	_____	_____	_____
c.	Battery manufacturer	_____	_____	_____	_____
d.	Type of battery	_____	_____	_____	_____
e.	Oven height (meters)	_____	_____	_____	_____
f.	Maximum oven temp. (°F)	_____	_____	_____	_____

5. Coal pulverizing and screening process data:

- a. Manufacturer of pulverizing and screening equipment \_\_\_\_\_
- b. Make or model number \_\_\_\_\_
- c. Maximum capacity of pulverizing and screening equipment \_\_\_\_\_ pounds coal/hour
- d. Maximum hourly production rate for the pulverizing and screening equipment \_\_\_\_\_ tons coal/hour
- e. Maximum annual production for the pulverizing and screening equipment \_\_\_\_\_ tons coal/year

6. Charging process data:

- |    |   |       |       |       |       |
|----|---|-------|-------|-------|-------|
| a. | Battery number  | _____ | _____ | _____ | _____ |
| b. | Type of charging equipment  | _____ | _____ | _____ | _____ |
| c. | No. of charging ports per oven  | _____ | _____ | _____ | _____ |
| d. | No. of gas collector mains  | _____ | _____ | _____ | _____ |
| e. | Maximum capacity of charging equipment (tons coal/charge)                                   | _____ | _____ | _____ | _____ |
| f. | Maximum no. of charges per battery per hour   | _____ | _____ | _____ | _____ |
| g. | Maximum no. of charges per battery per day  | _____ | _____ | _____ | _____ |
| h. | Maximum no. of charges per battery per year   | _____ | _____ | _____ | _____ |
| i. | Average charging cycle time per oven (minutes)*   | _____ | _____ | _____ | _____ |
| j. | Average quantity of coal per charge (tons/charge)   | _____ | _____ | _____ | _____ |
| k. | Maximum quantity of coal charged per battery per hour (tons/hour)                           | _____ | _____ | _____ | _____ |
| l. | Maximum quantity of coal charged per battery per year (tons/year)                           | _____ | _____ | _____ | _____ |
| m. | Is coal preheating used prior to charging? (yes/no)<br>If yes, what type of control device? | _____ | _____ | _____ | _____ |
| n. | Operating steam vacuum in collection main (inches water)                                    | _____ | _____ | _____ | _____ |

\*The charging cycle time begins when the coal from the charging system starts to enter the oven and ends when the last charge port lid is replaced.

7. Coking (doors, offtake piping and lids) process data:

- a. Battery number \_\_\_\_\_
- b. No. of doors per battery \_\_\_\_\_
- c. No. of offtake pipes \_\_\_\_\_  
per battery \_\_\_\_\_
- d. No. of jumper pipes \_\_\_\_\_  
connecting two ovens \_\_\_\_\_  
per battery \_\_\_\_\_
- e. No. of charging hole \_\_\_\_\_  
lids per oven per battery \_\_\_\_\_
- f. Average coking time per \_\_\_\_\_  
battery (hours) \_\_\_\_\_

8. Pushing process data:

- a. Battery number \_\_\_\_\_
- b. Maximum no. of pushes \_\_\_\_\_  
per battery per hour \_\_\_\_\_
- c. Maximum no. of pushes \_\_\_\_\_  
per battery per day \_\_\_\_\_
- d. Maximum no. of pushes \_\_\_\_\_  
per battery per year \_\_\_\_\_
- e. Average pushing cycle \_\_\_\_\_  
time per oven (minutes)\* \_\_\_\_\_
- f. Average quantity of coke \_\_\_\_\_  
produced per push per \_\_\_\_\_  
oven (tons) \_\_\_\_\_
- g. Maximum quantity of coke \_\_\_\_\_  
produced per battery \_\_\_\_\_  
per hour (tons/hour) \_\_\_\_\_
- h. Maximum quantity of coke \_\_\_\_\_  
produced per battery \_\_\_\_\_  
per year (tons/year) \_\_\_\_\_
- i. Percentage by weight of \_\_\_\_\_  
each type of coke produced:  
Green coke \_\_\_\_\_  
Moderately green \_\_\_\_\_  
Clean coke \_\_\_\_\_

\*The pushing cycle time commences with the moving of the coke mass from an oven and concludes when the quench car enters the quench tower.

9. Coke grinding and screening process data:

- a. Manufacturer of grinding and screening equipment \_\_\_\_\_
- b. Make or model number \_\_\_\_\_
- c. Maximum capacity of grinding and screening equipment \_\_\_\_\_ tons coal/hour
- d. Maximum hourly production rate for the grinding and screening equipment \_\_\_\_\_ tons coal/hour
- e. Maximum annual production for the grinding and screening equipment \_\_\_\_\_ tons coal/hour

10. Control methods to be used for fugitive dust emissions from coke manufacturing:

(List the methods to be used to control fugitive dust emissions from each of the specific activities shown below. Use the control method codes listed below, (A) through (R), to identify them.)

Control Method Codes

<u>Fugitive Dust Emissions Units</u>	<u>Coke-Oven Battery Number</u>			
Coal pulverizing and screening	_____	_____	_____	_____
Charging	_____	_____	_____	_____
Coking	_____	_____	_____	_____
Pushing	_____	_____	_____	_____
Coke grinding and screening	_____	_____	_____	_____
Other (describe):	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____

The various control methods and their respective code letters are given in the following sections. Please complete the requested information for any control method(s) cited above.

Coal Pulverizing and Screening

(A) Watering:

Year installed \_\_\_\_\_  
 Source of water \_\_\_\_\_  
 Method of application \_\_\_\_\_  
 Frequency of application \_\_\_\_\_  
 Application rate \_\_\_\_\_ gallons sprayed/ton processed  
 Application points \_\_\_\_\_  
 Estimated control efficiency \_\_\_\_\_ %

(B) Wet suppression (chemical):

Year installed \_\_\_\_\_  
 Source of chemical(s) \_\_\_\_\_

Type of chemical(s) used \_\_\_\_\_  
Method of application \_\_\_\_\_  
Frequency of application \_\_\_\_\_  
Dilution \_\_\_\_\_ gallons chemical/1,000 gallons water  
Application rate \_\_\_\_\_ gallons sprayed/ton processed  
Application points \_\_\_\_\_  
Estimated control efficiency \_\_\_\_\_ %

(C) Enclosure

Year installed \_\_\_\_\_  
Describe enclosure \_\_\_\_\_  
Estimated enclosure capture efficiency \_\_\_\_\_ %

(D) Enclosure, vent to fabric filter:

Describe enclosure \_\_\_\_\_  
Estimated enclosure capture efficiency \_\_\_\_\_ %

(E) Other (describe):

\_\_\_\_\_  
Year installed \_\_\_\_\_

Charging

(F) Charging on-the-main/staged charging:

Year implemented \_\_\_\_\_  
Describe (or attach) the staged charging operating procedure:  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Estimated control efficiency (assuming the uncontrolled emission rate is that occurring with conventional charging) \_\_\_\_\_ %

(G) Closed pipeline charging:

Year installed \_\_\_\_\_  
Describe the pipeline charging system \_\_\_\_\_  
\_\_\_\_\_



\_\_\_\_\_  
\_\_\_\_\_  
Year installed \_\_\_\_\_

Pushing

(M) Capture to wet scrubber:

Type of capture system

- shed, wet scrubber
- enclosed hot coke car, wet scrubber
- hood, mobile wet scrubber
- hood, stationary wet scrubber
- other (describe) \_\_\_\_\_

Is fugitive dust from the hot coke car captured and controlled during car movement to the quench tower?       yes       no

Describe capture system (shed, enclosure, hood) \_\_\_\_\_  
\_\_\_\_\_

Estimated capture efficiency (include fugitive dust emissions occurring during hot coke car movement to quench tower) \_\_\_\_\_ %

(N) Capture to baghouse:

Type of capture system

- hood ducted to baghouse
- other (describe) \_\_\_\_\_

Is fugitive dust from the hot coke car captured and controlled during car movement to the quench tower?       yes       no

Describe capture system (shed, enclosure, hood) \_\_\_\_\_  
\_\_\_\_\_

Estimated capture efficiency (include fugitive dust emissions occurring during hot coke car movement to quench tower) \_\_\_\_\_ %

(O) Shed, wet electrostatic precipitator:

Describe shed capture system \_\_\_\_\_  
\_\_\_\_\_

Estimated shed capture efficiency (include fugitive dust emissions occurring during hot coke car movement to quench tower) \_\_\_\_\_ %

Coke Grinding and Screening

(P) Enclosure:

Year installed \_\_\_\_\_

Describe enclosure: \_\_\_\_\_  
\_\_\_\_\_

Estimated enclosure capture efficiency \_\_\_\_\_ %

(Q) Enclosure, vent to fabric filter:

Describe enclosure: \_\_\_\_\_

Estimated enclosure capture efficiency \_\_\_\_\_ %

(R) Other (describe):

\_\_\_\_\_

Year installed: \_\_\_\_\_

# INSTRUCTIONS FOR COMPLETION OF THE EMISSIONS ACTIVITY CATEGORY FORM FOR COKE MANUFACTURING

## **GENERAL INSTRUCTIONS:**

Provide complete responses to all applicable questions. If an item does not apply to the emissions unit, write in "Not Applicable" or "NA." If the answer is not known, write in "Not Known" or "NK." If you need assistance in understanding a question after reading the instructions below, contact your Ohio EPA District Office or Local Air Agency for assistance. Submittal of an incomplete application will delay application review and processing. In addition, the application may be returned as incomplete if all applicable questions are not answered appropriately.

## **APPLICABLE REGULATIONS:**

*The following State and Federal Regulations may be applicable to coke manufacturing. Note that there may be other regulations which apply to this emissions unit which are not included in this list.*

Federal: 40 CFR 63, (MACT) Subparts A and L (Coke Plants)

State: Ohio Administrative Code (OAC) 3745-31-02 (Permit to Install)  
3745-35-02 (Permit to Operate)  
3745-17-07, -08, -11 (particulate emissions)  
3745-18-06 (sulfur dioxide emissions)

If you would like a copy of these regulations, contact your Ohio EPA District Office or Local Air Agency. State regulations may also be viewed and downloaded from the Ohio EPA website at <http://www.epa.state.oh.us/dapc/regs/regs.html>. Federal regulations may be viewed and downloaded at <http://www.epa.gov/docs/epacfr40/chapt-I.info/subch-C.htm>.

## **CALCULATING EMISSIONS:**

Manufacturers of some types of emissions units and most types of control equipment develop emissions estimates or have stack test data which you can request. Stack testing of the emissions may be done. Emissions unit sampling test data may be either for this emissions unit or a similar one located at the facility or elsewhere. You may develop your own emission factors by mass balance or other knowledge of your process, if you can quantify inputs and outputs accurately. You may be able to do this on a small scale or over a short period of time, if it is not practical during regular production. If you have control equipment, you may be able to quantify the amount of pollutants collected over a known time period or production amount. Any emission factor calculation should include a reference to the origin of the emission factor or control efficiency.

USEPA has developed emission factors for many types of emissions units and published them in a document titled "Compilation of Air Pollutant Emission Factors, AP-42", available from the following website: <http://www.epa.gov/ttn/chief/ap42/index.html> See Chapter 12.2. (Coke Production)

## **SPECIFIC INSTRUCTIONS:**

This emissions activity category form is to be used for certain operations at coke manufacturing facilities which emit fugitive dust. Typical emissions units to be included on this form are listed in item #3. Other EAC forms may need to be completed for other emissions units at coke manufacturing facilities. For

example, the following EAC forms must be completed for the following emissions units:

<u>EAC Form</u>	<u>Emissions Units</u>
roadways and parking areas	all roadways and parking areas
storage piles	all open coal and coke storage piles
material handling	coal unloading
	coal conveying and transfer
	coke grinding and screening

Any other fugitive dust emissions unit at a coke manufacturing facility that is not specifically listed in item #3 and does not have an EAC form prepared for it should be entered on this form.

Paragraph (B)(6) of OAC Rule 3745-17-01 defines "fugitive dust" as "...particulate matter which is, or was prior to the installation of control equipment, emitted from any source by means other than a stack." Several emissions units at coke manufacturing facilities emit particulate matter in such fashion, and the requirements of OAC Rules 3745-17-07(B) (Visible particulate emission limitations for fugitive dust) and 3745-17-08 (Restriction of emissions of fugitive dust) may be applicable.

#### Item

1. Indicate whether this is an application for a new permit or an application for permit renewal. If applying for a permit renewal, provide the 4-character OEPA emissions unit identification number.
2. Provide the maximum number of hours per day and days per year the coke manufacturing facility is expected to operate. The following are examples of why the maximum number of hours per day may be less than 24 or the maximum number of days per year may be less than 365 (this list is not all-inclusive):
  - The facility can only operate during daylight hours.
  - The process can only operate within a certain range of ambient temperatures.
  - The process is limited by another operation (i.e., a bottleneck).
3. Identify the fugitive dust emissions units at the facility by placing a check mark in the appropriate block adjacent to the respective emissions unit type. If there are other fugitive dust emissions units at the facility which are not specifically listed in item #3 and do not have other applicable EAC forms prepared for them, please identify such emissions units in the section marked "Other (describe)". The "OEPA Emissions Unit ID" column may be left blank if such information is not known.
4. Complete the requested general process data in items (a) through (f). Indicate the battery number or identification code of each battery in the spaces provided. If there are more than four batteries at the facility, please make a duplicate copy of this form or obtain an additional form from the OEPA. For each battery, also indicate the number of ovens per battery, the manufacturer, type of battery (slot, underjet, gun-flue, etc.), oven height in meters, and maximum oven temperature in degrees Fahrenheit.
5. Complete items (a) through (e) in the coal pulverizing and screening process data section.
6. Complete the requested data in items (a) through (n) of the charging process data section. Please specify the data for each battery in column form.

7. Please complete items (a) through (f) of the coking process data section in a manner similar to that in Section 6.
8. Please complete items (a) through (i) of the pushing process data section in a manner similar to that in Section 6. In item (i) of this section, please roughly estimate the percentage of each type of coke pushed. The percentage should be based on the total annual coke production per battery.
9. Complete items (a) through (e) in the coke grinding and screening process data section.
10. List all of the control measures to be employed for each type of fugitive dust emissions units identified. Use the control method codes listed in this section for this purpose.

For those control methods listed in item #10, complete the data requested in the control method code section.