



## Summary of Commonwealth of Pennsylvania Regulations for Coke Oven Facilities

The Pennsylvania Department of Environmental Protection (“DEP”) has adopted regulations for coke oven operations, which apply throughout the Commonwealth.

The DEP administers and enforces these regulations throughout the state, with the exception of the City of Philadelphia (where they are administered by the City of Philadelphia Department of Public Health, Air Management Services) and Allegheny County (where they are administered by the Allegheny County Health Department).

The state regulations apply to the U.S. Steel facility in Clairton (Allegheny County) and the ArcelorMittal facility in Monessen (Westmoreland County).

### **1. Particulate Matter Emission Rate for Coke Pushing**

#### a. Byproduct coke production: pushing operation

Allowable emissions in lb/hr =  $(0.76) [(1 \text{ lb/unit}) (x \text{ units/hr})]^{0.42}$   
(where x = units)

or 0.02 grains per dry square cubic foot, whichever is greater

#### b. Sole treated nonrecovery coke oven

Allowable emissions in lb/hr =  $(0.76) [(20 \text{ lb/unit}) (x \text{ units/hr})]^{0.42}$   
(where x = units)

or 0.02 grains per dry standard cubic foot, whichever is greater

#### c. Coke Oven Battery Waste Heat Stacks

Effluent gas volume < 150,000 dry standard cubic feet per minute  
Allowable emissions = 0.04 grain per dry standard cubic foot

Effluent gas volume < 300,000 dry standard cubic feet per minute

Allowable emissions = (6,000/effluent gas volume in dry standard cubic feet per minute), in grains per dry standard cubic foot

Effluent gas volume > 300,000 dry standard cubic feet per minute

Allowable emissions = 0.02 grain per dry standard cubic foot

Source: 25 Pa. Code § 123.13, (Processes),

<http://www.pacode.com/secure/data/025/chapter123/s123.13.html>

## **2. Requirements relating to burning of a coke oven byproduct gas**

- a. Any byproduct coke oven gas emitted into the outdoor atmosphere must first be burned.
- b. Concentrations of sulfur compounds, expressed as equivalent hydrogen sulfide, may not exceed 50 grains per 100 dry standard cubic feet.
- c. Sulfur compounds emitted into the outdoor atmosphere from any tail gas sulfur recovery equipment utilized in a coke oven gas desulfurization system approved by the Department shall be included in the determination of these concentrations.
- d. These requirements do not apply to emissions of coke oven gas from an oven which is dampered off prior to and during the pushing operation, or because of some malfunction associated with the oven, or unavoidable oven leakage occurring during the coking cycle.

25 Pa. Code § 123.23 (Byproduct coke oven gas),

<http://www.pacode.com/secure/data/025/chapter123/s123.23.html>

### **3. Visible Emissions**

- a. The opacity of visible air contaminants may not be equal to or greater than 20% for any 3 minute period in any hour.
- b. The opacity of visible air contaminants may not be equal to or greater than 60% at any time.

25 Pa. Code § 123.41 (Limitations),

<http://www.pacode.com/secure/data/025/chapter123/s123.41.html>

### **4. Visible Fugitive Air Contaminants**

- a. For open charging, the aggregated times of visible open charging emissions during any four consecutive charges may not exceed 75 seconds.
- b. For closed charging, at no time may there be closed charging emissions during more than one charge out of any ten consecutive charges.
- c. Door area emissions from any coke oven may not exceed 40% opacity for 15 minutes or longer after the last charge to that oven.
- d. Visible door area emissions may not exceed 10% of the door area of operating coke ovens, excluding the two-door area representing the last oven charged on any battery and any door areas obstructed from view.
- e. Visible topside emissions may not exceed 2.0% of the charging port seals on operating coke ovens in any battery, excluding visible emissions from no more than three ovens which may be dampered off.

- f. Topside emissions may not exceed 5.0% of the offtake piping on operating coke ovens in any battery, excluding visible emissions from open standpipe caps on no more than three ovens which may be dampered off.
- g. There may not be topside emissions from any point on the topside other than allowed emissions from charging port seals and offtake piping.
- h. There may not be any visible emissions from the coke oven gas collector main.

Source: 25 Pa. Code § 123.44 (Limitations of visible fugitive air contaminants from operation of any coke oven battery),  
<http://www.pacode.com/secure/data/025/chapter123/s123.44.html>

## **5. Enclosure During Pushing Operations**

- a. Any pushing operation must be enclosed during the removal of coke from a coke oven and pushing emissions are contained.
- b. A device for the enclosure of pushing operations is subject to requirements relating to construction, modification, reactivation and operation of sources, as well as the requirement of a plan approval.
- c. For a new air cleaning device to be installed, it must be designed to reduce fugitive emissions from pushing operations to the minimum attainable through the use of the best available technology (BAT).
- d. Visible fugitive air contaminants may not exceed 20% opacity from an air cleaning device installed for the control of pushing emissions under a plan approval from the Department, unless the Department finds that the emissions are of minor significance, the emissions will not prevent or interfere with the attainment or maintenance of any ambient air quality standard.

- e. Visible fugitive air contaminants from coke transported in the open atmosphere during the pushing operation may not exceed 10% opacity.

25 Pa. Code § 129.15 (Coke Pushing Operations),

<http://www.pacode.com/secure/data/025/chapter129/s129.15.html>

## **6. Door maintenance, adjustment, and replacement practices**

The following requirements apply when a coke oven battery fails to comply with either of the requirements in Section 4 above: (1) Door area emissions from any coke oven may not exceed 40% opacity for 15 minutes or longer after the last charge to that oven, or (2) visible door area emissions may not exceed 10% of the door area of operating coke ovens, excluding the two-door area representing the last oven charged on any battery and any door areas obstructed from view.

- a. Self-sealing coke oven doors.
  - i. The facility must inspect oven doors for visible emissions within one hour after the charge of each oven, and shall record the doors leaking.
  - ii. The facility must adjust doors leaking one hour after the charge, prior to the end of the second hour after the charge.
  - iii. The facility must reinspect for visible emissions each oven door leaking one hour after the charge, two hours after the charge, and make a record of a door leaking two hours after a charge.
  - iv. The facility must replace a door leaking two hours after each of two successive charges, with a repaired, rebuilt, or new door, prior to the next charge to that oven.

- v. The facility must maintain an adequate supply of repaired, rebuilt and new doors onsite, to allow the frequency of replacement necessary to comply with t.
- vi. The facility must inspect the door and jamb of a newly installed, repaired, rebuilt or new door that leaks more than two hours after charge, when the door is next removed from the oven. If the door is found to be defective, the facility must replace it with a repaired, rebuilt or new door prior to the next charge to that oven. If the facility finds the door is not defective, it must replace the jamb prior to the next charge to that oven.

b. Luted doors.

- i. The facility must immediately lute any luted doors leaking 15 minutes after the charge.
- ii. The facility must record any doors which fail to seal after the first reluting.
- iii. The facility must immediately allute any leaks appearing after the first reluting.

c. Chuck doors.

- i. The facility must inspect the chuck door within one hour after the charge of each oven.
- ii. The facility must gasket any chuck door leaking one hour after the charge, prior to the next charge to that oven.
- iii. The facility must replace any freshly gasketed door that is leaking one hour after the charge, or replace the oven door itself, prior to the next charge to that oven.

d. Cleaning.

- i. The facility must completely clean the doors and jambs prior to each charge.
- e. Records.
  - i. The facility must keep and maintain records of these inspections.
- f. Work Practice and Maintenance Manual.
  - i. The facility must submit a work practice and maintenance manual to the Department.

Source: 25 Pa. Code § 129.16 (Door Maintenance, Adjustment, and Replacement Practices), <http://www.pacode.com/secure/data/025/chapter129/s129.15.html>