

Note: This is a reference cited in *AP 42, Compilation of Air Pollutant Emission Factors, Volume I Stationary Point and Area Sources*. AP42 is located on the EPA web site at [www.epa.gov/ttn/chief/ap42/](http://www.epa.gov/ttn/chief/ap42/)

The file name refers to the reference number, the AP42 chapter and section. The file name "ref02\_c01s02.pdf" would mean the reference is from AP42 chapter 1 section 2. The reference may be from a previous version of the section and no longer cited. The primary source should always be checked.

MANUFACTURING OR PROCESSING OPERATIONS

AIRCO CARBIDE  
SEPTEMBER 1975

1. Normal Schedule of Operation  
 A. Hours per day 24, B. Days per week 7 C. Weeks per year 52  
 D. Peak production season (circle one) / (1) steady year round (2) summer (3) fall (4) winter. (5) spring
2. Equipment used in each process or operation

CALCIUM CARBIDE  
MANUFACTURING  
AP-42 Section 8.4  
Reference Number  
2

<u>Item (Number)</u>	<u>Type of Equipment</u>	<u>Make</u>	<u>Model Number</u>	<u>Rated Capacity</u>	<u>Date Installed</u>
1569 01 <del>554-75</del> 1	Electric Arc Furnace	Elkem	N.A.	50,000 KW	1968
02 <del>555-75</del> 2	Furnace Tap Holes (3)	Elkem	N.A.	N.A.	1968
16-69 2a	Tap Fume Hoods Baghouse	9-Compartment Wheelabrator	42 RW	45,000 CFM	1968
17-69 03 <del>566-75</del> 3	Coke Dryer	Link-Belt	Roto-Louver	260 TPD	1968
3a	Coke Dryer Baghouse	7-Compartment Wheelabrator	42 RS	22,180 CFM	1970
04 4	Hammermill Primary Crusher	2 Units Jeffrey	54" x 30"	400 TPD ea.	1941
4a	Baghouse	2-Compartment Pangborn	Type CH3	33,000 CFM	1952
05 5	Hammermill Secondary Crusher	3 Units Jeffrey	36" x 48"	200 TPD ea.	1966
5a	Baghouse	3-Compartment American Air Filter	56-3	10,000 CFM	1966
07 6	Acetylene Generator	2 Systems Airco	Dry Type	170 TPD Carbide Input	1966

MANUFACTURING OR PROCESSING OPERATIONS

AIRCO CARBIDE  
SEPTEMBER 1975

1. Normal Schedule of Operation

A. Hours per day \_\_\_\_\_, B. Days per week \_\_\_\_\_ C. Weeks per year \_\_\_\_\_  
 D. Peak production season (circle one) (1) steady year round (2) summer (3) fall (4) winter (5) spring

2. Equipment used in each process or operation C O N T I N U E D

<u>Item (Number)</u>	<u>Type of Equipment</u>	<u>Make</u>	<u>Model Number</u>	<u>Rated Capacity</u>	<u>Date Installed</u>
10 8	Furnace Building Baghouse	8-Compartment Wheelabrator	360	87,000 CFM	1975*
- 9	1-3% Furnace Operating Time Emergency Flare Stack	N.A.	N.A.	N.A.	1968
12 10	Hydrate Truck Loading	N.A.	N.A.	N.A.	----
	*This baghouse originally installed in 1966 as part of #2 lime recovery system. After lime recovery plant ceased operations, it was connected to furnace building, being completed in 1975.				

MANUFACTURING OR PROCESSING OPERATIONS (cont'd)

3. Manufacturing or Processing Units (list all processes or operations)

<u>Item (Number)</u>	<u>Process or Operation</u>	<u>Is Process Continuous or Batch</u>	<u>Type Input or Raw Materials Used</u>	<u>Quantity Input per-Hour (specify units)</u>	<u>Products</u>	<u>Quantity Output per Hour (specify units)</u>
1	Arc Furnace	Cont.	Lime-Coke	350 TPD Lime 260 TPD Coke	Calcium Carbide	400 TPD
2	Furnace Tap-Holes	Cont.	N.A.	N.A.	Calcium Carbide	400 TPD
3	Coke Dryer	Interm. 16-20 HPD	Wet Coke	260 TPD	Dry Coke	260 TPD
4	2-54" x 30" Primary Mills	Interm. 20-24 HPD	Calcium Carbide	400 TPD	Calcium Carbide	400 TPD
5	3-36" x 48" Secondary Mills	Interm. 8-16 HPD	Calcium Carbide	120 TPD	Calcium Carbide	120 TPD
6	2 Systems Acetylene Generator	Interm.	Calcium Carbide	Calcium Carbide 30-40 TPD	Acetylene Gas Lime Hydrate	270-360 MMCFD 30-40 TPD
10	Truck Loading	Interm.	Calcium Hydroxide	30-40 TPD	Calcium Hydroxide	30-40 TPD

MANUFACTURING OR PROCESSING OPERATIONS (cont'd)

4. Pollutants emitted

Item (Number)	Pollutant Name	Temp. °F	Chemical Composition	Inlet Loading grs./SCF	Outlet Loading grs./SCF	% Collection Efficiency	Emission lbs./hr.	Emission lbs./yr.	Basis of Estimate
1	Furnace Off Gas	1200 to 1400	CO, MgO, CaO, Al <sub>2</sub> O <sub>3</sub> , FeO, SiO <sub>2</sub> , C	13.5	.2 ✓	98.5	2	17,500	(1) Test Data
2-2a	Tap Holes Hoods Baghouse	Amb	C, CaO, MgO, SiO <sub>2</sub> , FeO, SiO <sub>2</sub>	1.5	.015 ✓	99+	4	30,000	Oper. Data
3-3A	Coke	200	C	6.0	.06 ✓	99	1	8,750	(2) Oper. Data
4A	Primary Crusher	Amb	CaC <sub>2</sub>	3.5	.01 ✓	98+	6 <i>No. 12 allowed</i>	41,300	Oper. Data
5 A	Secondary Crusher	Amb	CaC <sub>2</sub>	6.0	.02 ✓	99	1.5	4,500	Oper. Data
6	Acetylene Generator	200	Ca(OH) <sub>2</sub>	Unknown	Unknown	None	Unknown	Unknown	
8	Furnace Building	Amb	C, CaO, MgO, SiO <sub>2</sub> , FeO, SiO <sub>2</sub>	.25	.003 ✓	99	3.25	28,400	Test Data
10	Truck Loading	Amb	Ca(OH) <sub>2</sub>	Unknown	Unknown	None	Unknown	Unknown	
(1)	Furnace off-gas normally burned to CO <sub>2</sub> at point of discharge. Flare Stack Burner permit #478-74.					See Venturi Scrubber permit #477-74 and			

(2) Coke Dryer uses natural gas fuel - no undesirable air contaminants.

MANUFACTURING OR PROCESSING OPERATIONS (cont'd)

AIRCO CARBIDE  
SEPTEMBER 1975

5. Emissions to the atmosphere (each point of emission to the atmosphere should be noted separately, i.e., stack, vent, and other points of discharge to atmosphere)

Item (Number)	Height of Release (feet)	Diameter of Stack or Vent (feet)	Quantity of Gases Discharged (scfm)	Type of Air Pollution Control Equipment	Date Installed	Control Efficiency by Percent Weight and Basis for Estimate	
						DESIGN	ACTUAL
1-Arc Furnace Off-Gas	Flare Stack 112"	16"	<del>87,000</del> 4,000	Venturi Scrubber Flare Stack #477-74, #478-74	1974	99+	98+
2-Furnace Tap Holes	15'	35" x 43"	45,000	Baghouse	1969	99+	99
3-Coke Dryer	25'	35" x 43"	22,180	Baghouse	1970	99+	99
4-Prim. Crusher	40'	36" x 48"	33,000	Baghouse	1952	97	98
5-Sec. Crusher	30'	16" x 24"	10,000	Baghouse	1967	97	97
6-C <sub>2</sub> H <sub>2</sub> Gen.	N.A.	N.A.	None	N.A.	N.A.	N.A.	N.A.
8-Furnace Building	68'	66"	87,000	Baghouse	1975*	99	99
9-Furnace Emergency Dump Stack	140'	36"		None	N.A.	N.A.	N.A.
10-Truck Loading	8'-10'	N.A.	N.A.	None	N.A.	N.A.	N.A.

\*Baghouse erected 1965 as part of lime recovery, converted to furnace building service in 1975.

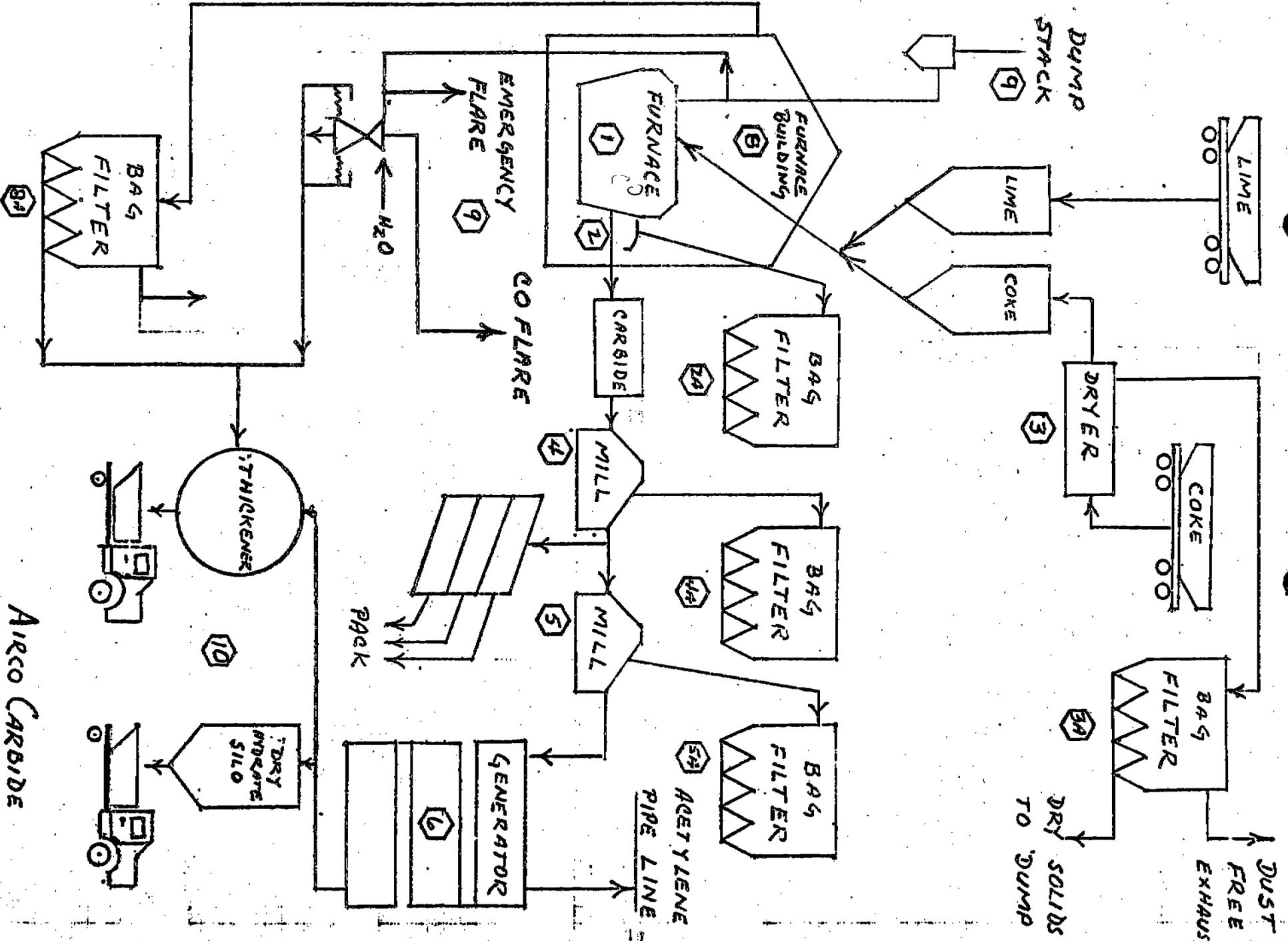
MANUFACTURING OR PROCESSING OPERATIONS (cont'd)

6. Fuel use and equipment for process heat excluding heat supplied by indirect heat exchanges. See Form APCDJC-201A for indirect heat exchangers.

<u>Item (Number)</u>	<u>Fuel</u>	<u>Quantity/Hour (specify units)</u>	<u>Percent Sulfur</u>	<u>Percent Ash</u>	<u>Air Pollution Control Equipment</u>	<u>Rated Capacity</u>	<u>Date Installed</u>
3	Natural Gas	Maximum, 24,000 CFH, 16-20 HPD	----	---	None	N.A.	1968

## MANUFACTURING OR PROCESSING OPERATIONS (cont'd)

7. Process flow diagram—using a flow diagram: (1) illustrate input of raw materials, (2) label production processes, process fuel combustion, process equipment and air pollution control equipment, and (3) illustrate all locations of air contaminant release (and type and quantity of air contaminant emissions, if known). Attach extra pages as needed.
8. Describe storage and transportation of processed materials and raw materials.
- (1) Coke received in open gondola rail cars, inventory stockpiled on ground. Dry coke held in closed storage bin.
  - (2) Lime received in closed hopper cars and stored in closed storage bins.
  - (3) All calcium carbide after crushing stored in closed containers.
- Products shipped via rail, truck, or pipeline.
9. Describe disposal, re-use, storage, and transportation of contaminants collected by air pollution control devices. Indicate the weight of each contaminant collected and the weight of each contaminant disposed, re-used stored, and transported.
- (1) Coke fines from baghouse discharged into covered truck from which it is put into Airco owned land fill.
  - (2) Dusts collected from various baghouses used for calcium carbide related processes is recycled into thickener and sold.
  - (3)
    - #2a, 6-12 Tons/Day - resturried and sold
    - #3a, 10-16 Tons/Day - landfill
    - #4a, 8-12 Tons/Day - resturried and sold
    - #5a, 1-2 Tons/Day - recycled and sold
    - #8, 1-3 Tons/Day - resturried and sold



AIRCO CARBIDE  
LOUISVILLE

594-75