

## 1996 Air Emission Calculations

| Pollutant             | Allowable Rate<br>Tons per Year | Annual Emission<br>Tons per Year |
|-----------------------|---------------------------------|----------------------------------|
| Particulate Matter    | 198.69                          | 42.23                            |
| SO <sub>2</sub>       | 5.36                            | 0.28                             |
| NO <sub>x</sub>       | 198.72                          | 63.82                            |
| CO                    | 147.09                          | 15.84                            |
| VOC                   | 189.42                          | 57.07                            |
| TRS                   | 0                               | 0                                |
| LEAD                  | 0.56                            | 0.56                             |
| CFCs/HCFCs            | 0                               | 0                                |
| Other                 | 0                               | 0                                |
| Total HAP's (VOC)     | 139.16                          | 14.42                            |
| Total HAP's (Non-VOC) | 4.38                            | 4.2                              |

1994 Natural Gas Usage = 931642 MMBTU

This number is obtained from Gas bills for the calendar year. Look under Cash Out Volume and

## TSP/PM10 Calculation

AP-42 factor = 0.005 LB/MMBTU

|              |         |          |   |           |
|--------------|---------|----------|---|-----------|
| 931642 MMBTU | 0.005LB | 1 TON    | = | 2.329 TPY |
| YEAR         | MMBTU   | 2000 LBS |   |           |

use the number in the Allocated Volumes DTH column. Total these for the 12 months of the year.

From Fluid Bed &amp; Rotary Dryers (Based on Stack testing)

Emission rate = 6.4 # / hr \* 8760 hr / yr \* 1 ton / 2000 # = 28.1 TPY

From New Cyclone Dryer (Start up 6/96) (Based on Stack Testing)

Emission rate = 2.06 #/hr \* 8760 hr / yr \* (7/12) \* 1 ton / 2000# = 5.26 TPY

From Vinyl Silos (Based on Stack testing)

Emission rate = 0.608 # / hr \* 8760 hr / yr \* 1 ton / 2000 # = 2.66 TPY

From compd silos (Based on Stack testing)

Emission rate = 0.9 # / hr \* 8760 hr / yr \* 1 ton / 2000 # = 3.94 TPY

**Total = 42.2 TPY**SO<sub>2</sub> Calculation

AP-42 factor = 0.0006 LB/MMBTU

|              |          |          |   |            |
|--------------|----------|----------|---|------------|
| 931642 MMBTU | 0.0006LB | 1 TON    | = | 0.2795 TPY |
| YEAR         | MMBTU    | 2000 LBS |   |            |

NO<sub>x</sub> Calculation

AP-42 factor = 0.137 LB/MMBTU

|              |         |          |   |            |
|--------------|---------|----------|---|------------|
| 931642 MMBTU | 0.137LB | 1 TON    | = | 63.817 TPY |
| YEAR         | MMBTU   | 2000 LBS |   |            |

## CO Calculation

AP-42 factor = 0.034 LB/MMBTU

|              |         |          |   |             |
|--------------|---------|----------|---|-------------|
| 931642 MMBTU | 0.034LB | 1 TON    | = | 15.8379 TPY |
| YEAR         | MMBTU   | 2000 LBS |   |             |

**VOC Calculation**

AP-42 factor = 0.0057 LB/MMBTU

|              |          |          |   |            |
|--------------|----------|----------|---|------------|
| 931642 MMBTU | 0.0057LB | 1 TON    | = | 2.6552 TPY |
| YEAR         | MMBTU    | 2000 LBS |   |            |

**Total VOC from Plasticizer = 40 TPY****Fugative VCM = 0.3229 TPY** (Obtained from Environmental Coordinator)**VCM Stack Emissions = 13.844 TPY** (EPA Method 107)**Total VCM Emissions = 14.1669 TPY****Fugative Methanol Stack Emissions = 0.2525 TPY** (Best Engineering Judgement)**Total VOC Emissions = 2.6552 + 40 + 14.1669 + 0.2525 = 57.0746****Total HAP's (Voc) = 14.4194** ← **Total VCM Emissions + Fugative MeOH stack****Total HAP's (Non-Voc)****Lead Calculation**

Assume Actual Lead Emissions = Permitted Emissions

**Total Lead Emissions = 0.56 TPY****HCL Calculation**

Assume Actual HCL Emissions from Incinerator = Permitted Emissions

**Total HCL Emissions = 0.38 TPY****Chlorine Calculation**

Assume Actual Chlorine Emissions from Incinerator = Permitted Emissions

**Total Chlorine Emissions = 0.37 TPY****Fugitive Emissions:**

1996 Average Well Water Flow = 1184 GPM

Assume 0.5ppm Residual Chlorine in Water from Water Plant

|                       |          |                         |          |         |                   |
|-----------------------|----------|-------------------------|----------|---------|-------------------|
| 0.5 # Cl <sub>2</sub> | 1184 Gal | 8.33 # H <sub>2</sub> O | 1440 Min | 365 Day | 1 Ton             |
| MM# H <sub>2</sub> O  | Min      | Gal                     | Day      | Year    | 2000 #            |
| =                     |          |                         |          |         | <b>1.2960 TPY</b> |

**Emissions from Cooling Towers**Assume: 1) 25% of Cl<sub>2</sub> fed to cooling towers is unreacted and emitted

2) That 6 2000# cylinders and 5 150# cylinders were used at the cooling towers

6 x 2000# = 12,000# Cl<sub>2</sub>5 x 150# = 750# Cl<sub>2</sub>(12000 + 750) x 0.25 = 3187.5# Cl<sub>2</sub>

|                          |        |   |            |
|--------------------------|--------|---|------------|
| 3187.5 # Cl <sub>2</sub> | 1 ton  | = | 1.5938 TPY |
| yr                       | 2000 # |   |            |

**Total Fugative Chlorine Emissions = 1.2960 + 1.5938 = 2.8898 TPY****Total Chlorine Emitted = 0.37 + 2.8898 = 3.2598 TPY****Total HAP's (Non-VOC) Emitted = 0.56 + 0.38 + 3.2598 = 4.198 TPY**

\*  
ONLY  
INCLUDE  
INCINERATOR  
STACK  
EMISSIONS  
IN THE  
ANNUAL  
EMISSIONS  
REPORT!

INCLUDE  
ALL  
CHLORINE  
IN SARA.