

INITIAL COMPLIANCE DEMONSTRATION
(Asphalt Processing Operation)

Performance Test Stack Analysis Results

Particulate matter (PM) concentration = 0.2 grains PM/SCF
Stack exhaust flow rate = 17500 SCFM

Calculated Particulate Matter (PM) Emission Rate

Stack PM Emission Rate = 0.2 grains PM/SCF * (1 lb / 7000 grains) * 17500 SCFM * 60 Min/Hr
Stack PM Emission Rate = 0.2 grains PM/SCF * (0.000143 lb / grains) * 17500 SCFM * 60 Min/Hr
Stack PM Emission Rate = 30 lbs PM / Hour

Performance Test Blowing Still Operating Conditions

Temperature at the start of the blow (T_i) = 500 °F
Duration of the test run (t) = 2.0 hours
Volume of asphalt charged to the blowing still during the run (V) = 2,500 ft³

Constants

$K_1 = 66.6147 \text{ lbs/ft}^3$
 $K_2 = 0.02149 \text{ lbs/(ft}^3 \text{ °F)}$
 $K' = 2000 \text{ lbs/ton}$

From 16.5.8.3.2

$d = K_1 - K_2 * T_i$
 $d = 66.6147 \text{ lbs/ft}^3 - (0.02149 \text{ lbs/(ft}^3 \text{ °F)}) * 500 \text{ °F} = 66.6147 \text{ lbs/ft}^3 - 10.745 \text{ lbs/ft}^3$
 $d = 55.8697 \text{ lbs/ft}^3$

From 16.5.8.3.1

$P_p = (V * d) / (K' * t)$
 $P_p = (2,500 \text{ ft}^3 * 55.8697 \text{ lbs/ft}^3) / (2000 \text{ lbs/ton} * 2.0 \text{ hours})$
 $P_p = 139,674 \text{ lbs} / 4000 \text{ lbs - hour/ton}$
 $P_p = \underline{35 \text{ tons/hour}}$ of asphalt charged to the blowing still

Calculated Allowable Particulate Matter (PM) Emission

From 16.4.2.1.2

Emission limitation = 1.2 lbs PM per ton asphalt charged to the blowing still

Allowable PM emission = 35 tons/hour * 1.2 lbs PM / ton charged
Allowable PM emission = 42 lbs PM/hour

Compliance Comparison

Stack PM Emission Rate = 30 lbs PM / Hour
Is less than
Allowable PM emission = 42 lbs PM/hour