Emissions Calculations: EMWD - MORENO VALLEY Appl.No.473542

Toxic Air Contaminant Emissions Calculations:

Data		
Inlet Flow Rate	300	CFM
Inlet Flow Rate	18000	CuFt/hr
Temperature	68	deg.F
Control Eff.	0.95	
Molecular Weight	lb/lbmole	
Concentration	ppm	
Operating Schedule		
	24	hr/day
	7	day/week
	52	weeks/year

By the ideal Gas Law:

Molar Volume = $\frac{0.73 \text{ atm*ft^3}}{1 \text{ lbmol*R}} \Big| \frac{520 \text{ Rankine}}{1 \text{ atm}}$

= 379.6 dscf/lbmole

@ 60 F

Inlet Concentration and Moleular Weights (Fuel Specification)

TAC	Conc ppmv	MW lb/lbmole	mg/dscf	ug/l
Benzene	0.110	78.11	1.01E-02	3.57E-01
Chlorobenzene	0.007	112.56	9.21E-04	3.25E-02
Dichlorobenzene	0.294	98.96	3.43E-02	1.21E+00
Perchloroethylene	0.007	165.83	1.28E-03	4.52E-02
Ethyl benzene	0.045	106.16	5.64E-03	1.99E-01
Toluene	0.716	92.13	7.77E-02	2.75E+00
Trichloroethylene	0.003	130.4	5.24E-04	1.85E-02
Chloroform	0.038	119.38	5.30E-03	1.87E-01
Dichloroethylene	0.013	95.95	1.50E-03	5.30E-02
Xylenes	0.200	106.2	2.50E-02	8.83E-01

Equations for Calculations:

Volumetric Flow Rate = [Inlet Flow Rate]x[Conc]/[1,000,000]

Molar Flow Rate = [Volumetric Flow Rate] / [dscf/lbmole]

Mass Emiss.Rate = [Molar Flow Rate]x[Molecular Weight]

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Tabulated Emissions:

Material	Inlet Conc ppmv	MW lb/lbmo	Volumetric Flow Rate cu.ft. per hr	Molar Flow Rate Mol/hr	Mass Emiss.Rate lb/hr
Benzene	0.110	78.11	0.0020	0.000005	0.00041
Chlorobenzene	0.007	112.56	0.0001	0.0000003	0.00004
Dichlorobenzene	0.294	98.96	0.0053	0.000014	0.00138
Perchloroethylene	0.007	165.83	0.0001	0.0000003	0.00005
Ethyl benzene	0.045	106.16	0.0008	0.0000021	0.00023
Toluene	0.716	92.13	0.0129	0.000034	0.00313
Trichloroethylene	0.003	130.4	0.0001	0.000000	0.00002
Chloroform	0.038	119.38	0.0007	0.000002	0.00021
Dichloroethylene	0.013	95.95	0.0002	0.000001	0.00006
Xylenes	0.200	106.2	0.00360	0.000009	0.00101

TAC Controlled Emission Rate Calculations:

Controlled Emission Rates: = [Inlet Mass]x[1 - Control Eff]

Tabulated Emissions:

	Inlet Mass Emiss. Rate lb/hr	lb/day	lb/yr	Outlet Mass Emission Rate lb/hr	lb/day	lb/yr
Benzene	0.00041	0.010	3.5541	0.000020	0.00049	0.18
Chlorobenzene	0.00004	0.001	0.3241	0.000002	0.00004	0.02
Dichlorobenzene	0.00138	0.033	12.0698	0.000069	0.00166	0.60
Perchloroethylene	0.00005	0.001	0.4504	0.000003	0.00006	0.02
Ethyl benzene	0.00023	0.005	1.9847	0.000011	0.00027	0.10
Toluene	0.00313	0.075	27.3419	0.000156	0.00376	1.37
Trichloroethylene	0.00002	0.001	0.1844	0.000001	0.00003	0.01
Chloroform	0.00021	0.005	1.8650	0.000011	0.00026	0.09
Dichloroethylene	0.00006	0.001	0.5278	0.000003	0.00007	0.03
Xylenes	0.00101	0.024	8.7973	0.0000504	0.00121	0.440
Total TOC	0.00654	0.1569	57.0994	0.0003	0.0078	2.8550

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Carbon Replacement Frequency VOC

	A/N	lbCarbo	VOC Absorption Capacity @0.05 lbVOC/lbCarbon	Days to VOC Saturation
DGDS	473542	25000	1250	7969