South Coast
Air Quality Management District
21865 Copley Drive, Diamond Bar, CA 91765-4182
(909) 396-2000 • www.aqmd.gov

Summary of Refinery Emission Factors for VOC Emissions
(Based on FY 02-03 Data As Reported)

Form	Fuel Type	Equipment / Process	# of Ref. Rprtd	# of Ref. using Default EF	VOC Default EF (lb/mmcf)	EF Ranges (lb/mmcf)
R2	Natural Gas	Boiler	0	0	5.5	0
		Portable ICE	0	0	30 - 122	0
		Stationary ICE	1	0	30 - 122	5.5
		Turbine	2	1	2.14	2 - 5.5
		Process Heater	4	1	7	2 - 7
		Incinerator	2	1	7	6 - 7
		Co-Generator	0	0	S/T	0

Form	Fuel Type	Equipment / Process	# of Ref. Rprtd	# of Ref. using Default EF	VOC Default EF (lb/Mgal)	EF Ranges Used (lb/mmcf)
R2	Diesel Fuel	Boiler	0	0	1.32	0
		Portable ICE	2	2	37.5	37.5
		Stationary ICE	4	3	37.5	12 - 37.5
		Turbine	0	0	0.057	0
		Process Heater	1	1	1.32	1.32
		Incinerator	0	0	1.32	0
		Co-Generator	0	0	S/T	0

Form	Fuel Type	Equipment / Process	# of Ref. Rprtd	# of Ref. using Default EF	VOC * Default EF (lb/mmcf)	EF Ranges (lb/mmcf)
R2	Refinery Gas	Boiler	6	2	*	2 - 11
		Portable ICE	0	0	*	0
		Stationary ICE	0	0	*	0
		Turbine	2	0	*	7 - 11
		Process Heater	7	3	*	0.89 - 11
		Incinerator	4	2	*	7 - 11
		Co-Generator	1	0	*	0.87

***** Equipment or fuel specific factors developed by fuel analysis or source test

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R4	FCCU Regenerator	4	1	7	0.49 - 7 *
	Sulfur Plant Tail Gas Vent	2	2	7	7

***** The emission factors are expressed in terms of lb/total # of hours (3 out 4 fac) and lb/mmcf (1 fac)

Form	Equipment / Process	# of Ref. Rprtd	# of Ref. using Default EF	VOC/*PM* * Default EF	EF Ranges
R5	Oil-Water Separator System	7	1	73 lb/Mgal	0.47 - 11 lb/Mgal
	Cooling Towers	5	5	256 lb/MMgal	256 lb/MMgal
	Open pound/Ditches	1	1	2.6 lb/ft^2	2.6 lb/ft^2
	Clean-out sumps	3	3	1.8 lb/ft^2	1.8 lb/ft^2
	Coke handling system	6	2	*200 lb/Mtons*	*1 - 200 lb/Mtons*
	FCC Catalyst handling system	6	6	*1.81 lb/tons*	*1.81 lb/tons*
	FCC control system	5	1	*25 lb/hours*	*2 - 25 lb/hours*
	Surface acid plants	2	0	*0.25 lb/tons*	*0.07 - 42 lb/tons*

* PM Emission factors are shown in italic

Form	Equipment / Process	# of Ref. Rprtd	# of Ref. using Default EF	VOC * Default EF (lb/Mbbls)	EF Ranges (lb/mmcf)
R6	Flare Process Upsets	7	7	0.8	0.8