Ohio EPA

Division of Air Pollution Control

Engineering Section

Engineering Guide #66

Question:

When should an emissions unit be required to employ a continuous parametric monitoring system (CPMS)? (This question was originated by the Engineering Section of the Division of Air Pollution Control to fulfill a federal grant commitment.)

Answer:

There are several categories of emissions units which are required by federal and State regulations to install, operate and maintain a CPMS. These are identified in the following tables along with the required parametric monitoring. Monitoring systems may be required to measure and record parameters such as gas flowrate, temperature, pH and specific gravity. The specific parameters and measurement locations are determined by the type of emissions unit and/or control device employed. Please check the appropriate appendix or subpart for specific emissions unit requirements.

CPMS INSTALLATIONS REQUIRED BY FEDERAL REGULATIONS

(A) Emissions units subject to the New Source Performance Standards under 40 CFR Part 60:

EMISSIONS UNIT CATEGORY	40 CFR PART 60 SUBPART/SECTION	CONTROL DEVICE	REQUIRED MONITORING
Municipal waste combustors	Ea 60.58a(h)(6)(i)	type not specified	steam flow

	Ea 60.58a(h)(7)	type not specified	temperature
Volatile organic liquid storage vessels	Kb 60.112b(a)(3)(ii)	flare	heat sensing device
Basic oxygen process furnaces	N 60.143(a)	type not specified	time and duration of steel production cycles and any diversion of exhaust gases
	N 60.143(b)(1)	venturi scrubber	pressure loss at venturi constriction
EMISSIONS UNIT CATEGORY	40 CFR PART 60 SUBPART/SECTION	CONTROL DEVICE	REQUIRED MONITORING
Basic oxygen process furnaces	N 60.143(b)(2)	venturi scrubber	water supply pressure
Basic oxygen process steelmaking facilities	Na 60.143a(a)	secondary emission capture system	rates of exhaust ventilation
Sewage treatment plants	O 60.153(a)(1)	type not specified	sludge flow (mass or volume)
	O 60.153(a)(3)	type not specified	mass of any municipal solid waste
	O 60.153(b)(1)	wet scrubber	pressure drop
	O 60.153(b)(3)	type not specified	temperature
	O 60.153(b)(4)	type not specified	fuel flow
	O 60.153(e)	control device other than wet scrubber	monitor per approved plan
Primary aluminum reduction plants	S 60.194(a)	type not specified	weight of aluminum and anode produced
Wet-process phosphoric acid plants	T 60.203(a)	type not specified	mass flow
	T 60.203(c)	process scrubbing system	total pressure drop
Superphosphoric acid plants	U 60.213(a)	type not specified	mass flow
	U 60.213(c)	process scrubbing system	total pressure drop
Diammonium phosphate plants	V 60.223(a)	type not specified	mass flow
	V 60.223(c)	process scrubbing system	total pressure drop

Triple superphosphate plants	W 60.233(a)	type not specified	mass flow
	W 60.233(c)	process scrubbing system	total pressure drop
Granular triple superphosphate storage facilities	X 60.243(c)	process scrubbing system	total pressure drop
Coal preparation plants	Y 60.253(a)(1)	thermal dryer	temperature
	Y 60.253(a)(2)(i)	venturi scrubber	pressure loss
	Y 60.253(a)(2)(ii)	venturi scrubber	water supply pressure
EMISSIONS UNIT CATEGORY	40 CFR PART 60 SUBPART/SECTION	CONTROL DEVICE	REQUIRED MONITORING
Ferroalloy production facilities	Z 60.265(b)	type not specified	furnace power input
	Z 60.265(c)	type not specified	volumetric flow rate
	Z 60.265(e)	type not specified	power consumption of the fan motor and pressure drop across the fan as an alternative to measuring the volumetric flow rate
Steel plants: electric arc furnaces	AA 60.274(b)	type not specified	volumetric flow rate (recordkeeping and approved alternatives options available)
	AA 60.274(f)	direct shell evacuation	pressure
Steel plants: electric arc furnaces and argon-oxygen decarburization vessels	AAa 60.274a(b)	type not specified	volumetric flow rate (recordkeeping option available)
	AAa 60.274a(f)	DEC system	pressure
Kraft pulp mills	BB 60.284(b)(1)	incinerator	combustion temperature
	BB 60.284(b)(2)(i)	scrubber	pressure loss of the gas stream
	BB 60.284(b)(2)(ii)	scrubber	scrubbing liquid supply pressure

Glass manufacturing plants (with modified processes)	CC 60.293(d)(1)	type not specified	parameters as approved by the Administrator for soda-lime recipe melting furnaces (emission monitoring option available)
Surface coating of metal furniture	EE 60.314(a)(1)	thermal incinerator	firebox temperature
	EE 60.314(a)(1)	catalytic incinerator	temperature before and after the catalyst bed
	EE 60.314(b)	solvent recovery system	total volume of VOC-solvent recovered daily
Stationary gas turbines	GG 60.334(a)	water injection	fuel consumption and ratio of water to fuel being fired

EMISSIONS UNIT CATEGORY	40 CFR PART 60 SUBPART/SECTION	CONTROL DEVICE	REQUIRED MONITORING
Lime manufacturing plants	HH 60.343(c)(1)	wet scrubber	pressure loss of the gas stream
	HH 60.343(c)(2)	wet scrubber	scrubbing liquid supply pressure
	HH 60.343(d)	type not specified	mass rate of stone feed for the purpose of conducting performance tests
Lead-acid battery manufacturing plants	KK 60.373	scrubber	pressure drop
Metallic mineral processing plants	LL 60.384(a)	wet scrubber	change in pressure of the gas stream
	LL 60.384(b)	wet scrubber	scrubbing liquid flow rate
Automobile and light duty truck surface coating operations	MM 60.394	thermal incinerator	firebox temperature
	MM 60.394	catalytic incinerator	temperature before and after the catalyst bed
Phosphate rock plants	NN 60.403(c)(1)	wet scrubber	pressure loss of the gas stream
	NN 60.403(c)(2)	wet scrubber	scrubbing liquid supply pressure
	NN 60.403(d)	type not specified	phosphate rock feed for the purpose of conducting performance tests

Ammonium sulfate manufacture	PP 60.423(a)	type not specified	flow devices to determine the mass flow of ammonium sulfate feed material streams (weigh scale option available)
	PP 60.423(b)	type not specified	total pressure drop across the control device
Graphic arts industry: publication rotogravure printing	QQ 60.434(a)(4)	solvent recovery systems	option available to measure temperature instead of using data from most recent performance test
Pressure sensitive tape and label surface coating operations	RR 60.445(c)	solvent recovery device	cumulative amount of the solvent recovered
	RR 60.445(e)	thermal incinerator	temperature of exhaust gases
EMISSIONS UNIT CATEGORY	40 CFR PART 60 SUBPART/SECTION	CONTROL DEVICE	REQUIRED MONITORING
Pressure sensitive tape and label surface coating operations	RR 60.445(f)	catalytic incinerator	temperature before and after the catalyst bed
	RR 60.445(g)	solvent destruction device using a hood or enclosure	indication that the hood or enclosure is in continuous operation
Industrial surface coating: large appliances	SS 60.454(a)(1)	thermal incinerator	firebox temperature
	SS 60.454(a)(1)	catalytic incinerator	temperature before and after the catalyst bed
Metal coil surface coating	TT 60.464(c)	thermal incinerator	firebox temperature
	TT 60.464(c)	catalytic incinerator	temperature before and after the catalyst bed
Asphalt processing and asphalt roofing manufacture	UU 60.473(a)	ESP or high velocity air filter	inlet temperature
	UU 60.473(b)	afterburner	combustion zone temperature
	UU 60.473(c)	control device other than ESP, high velocity air filter or afterburner	Administrator approved parameter monitoring based on facility supplied information

Equipment leaks of VOC in the synthetic organic chemicals manufacturing industry: pumps in light liquid service	VV 60.482-2(d)(3)	dual mechanical seal system that includes a barrier fluid system	sensor to detect failure of the seal system and/or barrier fluid system
Equipment leaks of VOC in the synthetic organic chemicals manufacturing industry: compressors	VV 60.482-3(d)	seal system that includes a barrier fluid system	sensor to detect failure of the seal system and/or barrier fluid system
Equipment leaks of VOC in the synthetic organic chemicals manufacturing industry: closed vent systems and control devices	VV 60.482-10(d) 60.485(g)(2)	flares	heat sensing device
	VV 60.482-10(e)	type not specified	adequate monitoring to ensure that control devices are operated and maintained in conformance with their designs
Beverage can surface coating industry	WW 60.494(a)	thermal incinerator	firebox temperature

EMISSIONS UNIT CATEGORY	40 CFR PART 60 SUBPART/SECTION	CONTROL DEVICE	REQUIRED MONITORING
Beverage can surface coating industry	WW 60.494(a)	catalytic incinerator	temperature before and after the catalyst bed
Bulk gasoline terminals	XX 60.503(d)(1)	vapor collection system	pressure
Rubber tire manufacturing industry	BBB 60.544(a)(1)	thermal incinerator	combustion temperature
	BBB 60.544(a)(2)	catalytic incinerator	temperature before and after the catalyst bed
	BBB 60.544(b)	VOC recovery device other than a carbon adsorber	Administrator approved parameter monitoring based on facility supplied information
	DDD 60.563(b)(1)(i)	noncatalytic incinerator	firebox temperature
	DDD 60.563(b)(1)(ii)	catalytic incinerator	temperature before and after the catalyst bed
	DDD 60.563(b)(2)(i)	flare or pilot light	flame monitoring device
	DDD 60.563(b)(2)(ii)	pilot light	thermocouple or equivalent device
	DDD 60.563(b)(3)(i)	boiler or process heater <150 MMBtu/hr	temperature

Volatile organic compound emissions from the polymer manufacturing industry	DDD 60.563(b)(4)(i)	absorber	temperature and specific gravity (emission monitoring option available)
	DDD 60.563(b)(5)(i)	condenser	temperature (emission monitoring option available)
	DDD 60.563(d)(1)	type not specified	flow after each bypass valve
	DDD 60.563(e)	type other than those previously mentioned	Administrator approved parameter monitoring based on facility supplied information
Flexible vinyl and urethane coating and printing	FFF 60.584(b)	thermal incinerator	temperature of exhaust gases
	FFF 60.584(c)	catalytic incinerator	temperature before and after the catalyst bed

EMISSIONS UNIT CATEGORY	40 CFR PART 60 SUBPART/SECTION	CONTROL DEVICE	REQUIRED MONITORING
Equipment leaks of VOC in petroleum refineries	GGG 60.592(a) VV 60.482-2(d)(3)	dual mechanical seal system that includes a barrier fluid system	sensor to detect failure of the seal system and/or barrier fluid system
	GGG 60.592(a) VV 60.482-3(d)	seal system that includes a barrier fluid system	sensor to detect failure of the seal system and/or barrier fluid system
	GGG 60.592(a) 60.592(d) VV 60.482-10(d) 60.485(g)(2)	flares	heat sensing device
	GGG 60.592(a) VV 60.482-10(e)	type not specified	adequate monitoring to ensure that control devices are operated and maintained in conformance with their designs
Synthetic fiber production facilities	HHH 60.603(b)(1)	type not specified	amount of makeup solvent and solvent feed
	HHH 60.603(b)(1)(i) 60.603(b)(1)(ii)	type not specified	alternatives to measuring solvent feed

Volatile organic compound emissions from the synthetic organic chemical manufacturing industry air oxidation unit processes	III 60.613(a)(1)(i)	noncatalytic incinerator	firebox temperature
	III 60.613(a)(1)(ii)	catalytic incinerator	temperature before and after the catalyst bed
	III 60.613(a)(2)	incinerator	vent stream flow
	III 60.613(b)(1)	flares	heat sensing device
	III 60.613(b)(2)	flares	vent stream flow
	III 60.613(c)(1)	boilers or process heaters	vent stream flow
	III 60.613(c)(2)	boilers or process heaters <150 MMBtu/hr	firebox temperature
EMISSIONS UNIT CATEGORY	40 CFR PART 60 SUBPART/SECTION	CONTROL DEVICE	REQUIRED MONITORING
Volatile organic compound emissions from the synthetic organic chemical manufacturing industry air oxidation unit processes	III 60.613(d)(1)(i)	absorber	scrubbing liquid temperature and specific gravity (emission monitoring required)
	III 60.613(d)(2)(i)	condenser	exit temperature (emission monitoring required)
	III 60.613(d)(3)(i)	carbon adsorber	integrating steam flow and carbon bed temperature (emission monitoring required)
	III 60.613(e)	type other than those previously mentioned	Administrator approved parameter monitoring based on facility supplied information
	KKK 60.632(a) VV 60.482-2(d)(3)	dual mechanical seal system that includes a barrier fluid system	sensor to detect failure of the seal system and/or barrier fluid system

Equipment leaks of VOC from onshore natural gas processing plants	KKK 60.632(a) VV 60.482-3(d)	seal system that includes a barrier fluid system	sensor to detect failure of the seal system and/or barrier fluid system
	KKK 60.632(a) 60.632(d) VV 60.482-10(d) 60.485(g)(2)	flares	heat sensing device
	KKK 60.632(a) VV 60.482-10(e)	type not specified	adequate monitoring to ensure that control devices are operated and maintained in conformance with their designs
Onshore natural gas processing: SO_2 emissions	LLL 60.646(a)(3)	sulfur recovery unit	acid gas flow
	LLL 60.646(b)(2)	oxidation control or reduction control system followed by an incinerator	combustion zone exit temperature (emission monitoring also required)

EMISSIONS UNIT CATEGORY	40 CFR PART 60 SUBPART/SECTION	CONTROL DEVICE	REQUIRED MONITORING
Volatile organic compound emissions from synthetic organic chemical manufacturing industry distillation operations	NNN 60.663(a)(1)(i)	noncatalytic incinerator	firebox temperature
	NNN 60.663(a)(1)(ii)	catalytic incinerator	temperature before and after the catalyst bed
	NNN 60.663(a)(2)	incinerator	vent stream flow
	NNN 60.663(b)(1)	flare	heat sensing device
	NNN 60.663(b)(2)	flare	vent stream flow
	NNN 60.663(c)(1)	boiler or process heater	vent stream flow
	NNN 60.663(c)(2)	boiler or process heater <150 MMBtu/hr	firebox temperature
	NNN 60.663(d)(1)(i)	absorber	scrubbing liquid temperature and specific gravity (emission monitoring required)

	NNN 60.663(d)(2)(i)	condenser	exit temperature (emission monitoring required)
	NNN 60.663(d)(3)(i)	carbon adsorber	integrating steam flow and carbon bed temperature (emission monitoring required)
	NNN 60.663(e)	type other than those previously mentioned	Administrator approved parameter monitoring based on facility supplied information
Nonmetallic mineral processing plants	OOO 60.674(a)	wet scrubber	pressure loss
	OOO 60.674(b)	wet scrubber	scrubbing liquid flow rate
Wool fiberglass insulation manufacturing plants	PPP 60.683(a)	wet scrubber	pressure drop and scrubbing liquid flow rate
	PPP 60.683(b)	wet electrostatic precipitator	primary and secondary current and voltages, inlet water flow rate

EMISSIONS UNIT CATEGORY	40 CFR PART 60 SUBPART/SECTION	CONTROL DEVICE	REQUIRED MONITORING
VOC emissions from petroleum refinery wastewater systems	QQQ 60.692-5(e)(3)	type not specified	vent stream flow
	QQQ 60.695(a)(1)	thermal incinerator	combustion temperature
	QQQ 60.695(a)(2)	catalytic incinerator	temperature before and after the catalyst bed
	QQQ 60.692-5(c) 60.695(a)(4)	flare	heat sensing device
	QQQ 60.695(b)	VOC recovery device other than a carbon adsorber	Administrator approved parameter monitoring based on facility supplied information
	QQQ 60.695(c)	type not specified	alternative operational or process parameter
	RRR 60.703(a)(1)(i)	noncatalytic incinerator	firebox temperature
	RRR 60.703(a)(1)(ii)	catalytic incinerator	temperature before and after the catalyst bed

Volatile organic compound emissions from synthetic organic chemical manufacturing industry reactor processes	RRR 60.703(a)(2)(i)	incinerator	vent stream flow
	RRR 60.703(b)(1)	flare	heat sensing device
	RRR 60.703(b)(2)	flare	vent stream flow
	RRR 60.703(c)(1)(i)	boiler or process heater	vent stream flow
	RRR 60.703(c)(2)	boiler or process heater <150 MMBtu/hr	firebox temperature
	RRR 60.703(d)(1)(i)	absorber	scrubbing liquid temperature and specific gravity (emission monitoring required)
	RRR 60.703(d)(2)(i)	condenser	exit temperature (emission monitoring required)
	RRR 60.703(d)(3)(i)	carbon adsorber	integrating steam flow and carbon bed temperature (emission monitoring required)

EMISSIONS UNIT CATEGORY	40 CFR PART 60 SUBPART/SECTION	CONTROL DEVICE	REQUIRED MONITORING
Volatile organic compound emissions from synthetic organic chemical manufacturing industry reactor processes	RRR 60.703(e)	type other than those previously mentioned	Administrator approved parameter monitoring based on facility supplied information
Magnetic tape coating facilities	SSS 60.714(d)	condenser	exit gas temperature
	SSS 60.714(e)	thermal incinerator	combustion temperature
	SSS 60.714(f)	catalytic incinerator	temperature before and after the catalyst bed
	SSS 60.714(g)	type not specified	parameter(s) identified in an Administrator approved monitoring plan
	SSS 60.714(h)	type not specified	parameter(s) identified in an Administrator approved monitoring plan

Calciners and dryers in mineral industries	UUU 60.734(d)	wet scrubber	pressure loss and scrubbing liquid flow rate (emission monitoring also required)
Polymeric coating of supporting substrates facilities	VVV 60.744(d)	condenser	exit gas temperature
	VVV 60.744(e)	thermal incinerator	combustion temperature
	VVV 60.744(f)	catalytic incinerator	temperature before and after the catalyst bed
	VVV 60.744(g)	type not specified	parameter(s) identified in an Administrator approved monitoring plan
	VVV 60.744(h)	type not specified	parameter(s) identified in an Administrator approved monitoring plan

(B) Emissions Units subject to the National Emission Standards for Hazardous Air Pollutants under 40 CFR Part 61:

EMISSIONS UNIT CATEGORY	40 CFR PART 61 SUBPART/SECTION	CONTROL DEVICE	REQUIRED MONITORING
Mercury cell chlor-alkali plants	E 61.55(b)(2)(i)	uncontrolled	exit gas temperature
	E 61.55(b)(2)(ii)	uncontrolled other than coolers and demisters	outlet temperature of the final cooling system
	E 61.55(b)(2)(iii)	molecular sieve or carbon adsorber	outlet temperature of the final cooling system
	E 61.55(b)(2)(iv)	chlorinated brine or hypochlorite scrubbers	outlet chlorine concentration, pH, liquid flow rate, inlet gas temperature

	E 61.55(b)(2)(v)	water scrubber	liquid flow rate, exit gas temperature
	E 61.55(b)(2)(vi)	carbon adsorbtion	inlet gas temperature
	E 61.55(b)(2)(vii)	carbon adsorbers or molecular sieves	heating phase temperature of the regeneration cycle
Elemental phosphorus plants	K 61.126(a)	wet scrubber	pressure drop, fluid flow rate
	K 61.126(b)	electrostatic precipitator	primary and secondary current, voltage in each electric field
Inorganic arsenic emissions from glass manufacturing plants	N 61.163(a)(2)	type not specified	inlet temperature of the control device (alternative CPMS option available)
Inorganic arsenic emissions from primary copper smelters	O 61.175(f)	type not specified	airflow on each secondary hood system for copper converters
Benzene transfer operations	BB 61.303(a)(1)	incinerators other than catalytic type	firebox temperature
	BB 61.303(a)(2)	catalytic incinerator	temperature before and after the catalyst bed
	BB 61.303(b)	flare	heat sensing device
	BB 61.303(c)(1)	steam generating unit or process heater < 44 MW	firebox temperature
EMISSIONS UNIT CATEGORY	40 CFR PART 61 SUBPART/SECTION	CONTROL DEVICE	REQUIRED MONITORING
Benzene transfer operations (continued)	BB 61.303(c)(2)	steam generating unit or process heater > 44 MW	monitor and record the periods of operation of the control evices
	BB 61.303(e)	all other control devices	submit information for approval by the Administrator
	BB 61.303(f)	all systems	pressure measurement device, audible and visible alarm system

	BB 61.303(g)(1) and 61.303(g)(2)	vent system that contains valves to divert a vent stream	flow indicator downstream of each valve or monitor position of valves and condition of car seals
Benzene waste operations	FF 61.354(a)(1) and 61.354 (a)(2)	all systems not complying with 61.348(d)	process parameter (or paramters) that indicates proper operation (emission monitoring option available)
	FF 61.354(b)	all systems complying with 61.348(b)	flow rate of each wastewater stream exiting the system
	FF 61.354(c)	system subject to 61.349	monitor a parameter that indicates correct control device operation as follows:
	FF 61.354(c)(1)	thermal vapor incinerator	temperature in the combustion chamber
	FF 61.354(c)(2)	catalytic vapor incinerator	temperature at the inlet and outlet of the catalyst bed
	FF 61.354(c)(3)	flare	heat sensing device
	FF 61.354(c)(4)	boiler or process heater < 44 MW	temperature in the combustion chamber
	FF 61.354(c)(5)	boiler or process heater $\geq$ 44 MW	any parameter that indicates good combustion operating practices

EMISSIONS UNIT CATEGORY	40 CFR PART 61 SUBPART/SECTION	CONTROL DEVICE	REQUIRED MONITORING
	FF 61.354(c)(6)(ii)	condenser	temperature before and after the condenser (emission monitoring option available)

Benzene waste operations (continued)	FF 61.354(c)(7)(ii)	fixed-bed carbon adsorption	any parameter that indicates a regular regeneration cycle (emission monitoring option available)
	FF 61.354(c)(9)	control device subject to 61.349(a)(2)(iv)	parameter(s) as specified in 61.349(a)(2)(iv)(C)
	FF 61.354(e)	type not specified	alternative CPMS option
	FF 61.354(g)	control device maintained at a pressure less than atmospheric	internal pressure

(C) Emissions Units subject to the National Emission Standards for Hazardous Air Pollutants under 40 CFR Part 63:

EMISSIONS UNIT CATEGORY	40 CFR PART 63 SUBPART/SECTION	CONTROL DEVICE	REQUIRED MONITORING
General provisions	A 63.11(b)	flare	heat sensing device
Synthetic organic chemical manufacturing industry process vent provisions (compliance using combustion device)	G 63.114(a)(1)(i)	incinerators other than catalytic type	temperature in the firebox or ductwork downstream of the firebox
	G 63.114(a)(1)(ii)	catalytic incinerator	temperature before and after the catalyst bed
	G 63.114(a)(2)	flare	heat sensing device
	G 63.114(a)(3)	boiler or process heater < 44 MW	temperature in the firebox
	G 63.114(a)(4)	scrubber with incinerator, boiler or process heater	pH of scrubber effluent and a flow meter at the inlet to the scrubber
EMISSIONS UNIT CATEGORY	40 CFR PART 63 SUBPART/SECTION	CONTROL DEVICE	REQUIRED MONITORING
Synthetic organic chemical manufacturing industry process vent provisions	G 63.114(b) 63.114(b)(1)	absorber	temperature of scrubbing liquid and specific gravity (emission monitoring option available)

(TRE index value > 1.0 with product recovery devices)	G 63.114(b) 63.114(b)(2)	condenser	temperature at the condenser exit (emission monitoring option available)
	G 63.114(b) 63.114(b)(3)	carbon adsorber	regeneration stream flow and carbon bed temperature (emission monitoring option available)
Synthetic organic chemical manufacturing industry process vent provisions (alternative parameter monitoring requests)	G 63.114(c)(1)	control device other than an incinerator, boiler, process heater or flare	CPMS for alternative parameters per the requirements of 63.151(f) or 63.152(e)
	G 63.114(c)(2)	TRE > 1 but ≤ 4 without a recovery device or with a different recovery device	CPMS for alternative parameters per the requirements of 63.151(f) or 63.152(e)
	G 63.114(c)(3)	same control or recovery device but seeks to monitor a different parameter	CPMS for alternative parameters per the requirements of 63.151(f) or 63.152(e)
Synthetic organic chemical manufacturing industry process vent provisions (system with bypass lines)	G 63.114(d)(1)	type not specified	vent stream flow indicator; or
	G 63.114(d)(2)	type not specified	secure the bypass valve in the closed position with a car-seal or a lock and key type configuration
Synthetic organic chemical manufacturing industry transfer operations provisions (compliance using combustion device)	G 63.127(a)(1)(i)	incinerator other than catalytic type	temperature in the firebox or ductwork downstream of the firebox
	G 63.127(a)(1)(ii)	catalytic incinerator	temperature before and after the catalyst bed
	G 63.127(a)(2)	flare	heat sensing device
	G 63.127(a)(3)	boiler or process heater < 44 MW	temperature in the firebox

EMISSIONS UNIT CATEGORY	40 CFR PART 63 SUBPART/SECTION	CONTROL DEVICE	REQUIRED MONITORING

Synthetic organic chemical manufacturing industry transfer operations provisions (compliance using combustion device)	G 63.127(a)(4)	scrubber with incinerator, boiler, or process heater	pH of scrubber effluent and flow meters at the scrubber influent for liquid flow and at the scrubber inlet for gas stream flow
Synthetic organic chemical manufacturing industry transfer operations provisions (compliance using product recovery devices)	G 63.127(b)(1)	absorber	temperature of scrubbing liquid and specific gravity (emission monitoring option available)
	G 63.127(b)(2)	condenser	temperature at the condenser exit (emission monitoring option available)
	G 63.127(b)(3)	carbon adsorber	regeneration stream flow and carbon bed temperature (emission monitoring option available)
	G 63.127(c)(1)	control device other than an incinerator, boiler, process heater, flare, absorber, condenser, or carbon adsorber	CPMS for alternative parameters per the requirements of 63.151(f) or 63.152(e)
	G 63.127(c)(2)	same control device but seeks to monitor a different parameter	CPMS for alternative parameters per the requirements of 63.151(f) or 63.152(e)
Synthetic organic chemical manufacturing industry transfer operations provisions (system with bypass lines)	G 63.127(d)(1)	type not specified	vent stream flow indicator at the entrance to any bypass line; or
	G 63.127(d)(2)	type not specified	secure the bypass valve in the closed position with a car-seal or a lock and key type configuration
Synthetic organic chemical manufacturing industry process wastewater provisions	G 63.139(e) 63.143(b) 63.143(c)	biological treatment unit	appropriate parameters upon approval per 63.146(a)(3) (Table 12,items 1&2)

EMISSIONS UNIT CATEGORY	40 CFR PART 63 SUBPART/SECTION	CONTROL DEVICE	REQUIRED MONITORING
Synthetic organic chemical manufacturing industry process wastewater provisions	G 63.139(e) 63.143(b) 63.143(d)	design steam stripper	steam flow rate & wastewater feed mass flow rate and temperature (alternative parameter option available) (Table 12,items 3or4)
	G 63.139(e) 63.143(e)(1)	control devices used to comply with 63.133 through 63.139	CPMS for the parameters listed in Table 13 (emission monitoring option available per 63.143(e)(2)) <u>or</u>:
	G 63.139(e) 63.143(e)(3)	control devices used to comply with 63.133 through 63.139	request approval for alternative parameters per 63.146(a)(3) (emission monitoring option available per 63.143(e)(2))
Closed-vent systems and control devices	H 63.172(d)	flare	heat sensing device per 63.11(b)(5)
	H section 63.172(e)	any control devices used to comply with 63.172	appropriate parameters to ensure operation in conformance with their design
	H 63.172(j)(1)	type not specified	vent stream flow indicator at the entrance to any bypass line; <u>or</u>
	H 63.172(j)(2)	type not specified	secure the bypass valve in the closed position with a car-seal or a lock and key type configuration
Coke oven batteries (nonrecovery)	L 63.303(a)(1)(ii)	specific device not specified	oven pressure (once per day)
	L 63.303(b)(1)(ii)	specific device not specified	oven pressure (once per day)
Coke oven batteries	L 63.305(d)(3)(iii)	specific device not specified	parameters necessary to demonstrate the exhaust flow rate as measured during test

(oven doors equipped with sheds)	L 63.305(f)(7)	specific device not specified	parameters affecting shed exhaust flow rate after approval of an alternative standard

EMISSIONS UNIT CATEGORY	40 CFR PART 63 SUBPART/SECTION	CONTROL DEVICE	REQUIRED MONITORING
Dry cleaning facilities	M 63.322(e)(2) 63.323(a)(1)	refrigerated condenser used to comply with 63.322(a)or(b) and installed on a dryer	temperature of the condenser outlet gas vapor stream
	M 63.322(f)(2) 63.323(a)(2)	refrigerated condenser used to comply with 63.322(a) and installed on a washer	temperature of the condenser inlet and outlet gas vapor stream
Chromium electroplating and anodizing tanks	N 63.343(c)(1)	composite mesh-pad system	pressure drop across the system
	N 63.343(c)(2)	packed-bed scrubber system	pressure drop across the system and the velocity pressure at the common inlet
	N 63.343(c)(3)	packed-bed scrubber/mesh-pad system	pressure drop across the system
	N 63.343(c)(4)	fiber-bed mist eliminator	pressure drop across the fiber-bed mist eliminator and the pressure drop across the control device installed upstream of the fiber bed
	N 63.343(c)(5)	wetting agent type or combination wetting agent type/foam blanket fume suppressants	surface tension of the bath
	N 63.343(c)(6)	foam blanket-type fume suppressants	minimum foam blanket thickness
	N 63.343(c)(7)	fume suppressant/ add-on control device	monitoring requirements as identified in 63.343(c)(1) through 63.343(c)(6) as appropriate

	N 63.343(c)(8)	alternative monitoring method	approved alternative monitoring requirements and sampling locations and appropriate operating parameters for control devices not listed in (c)(1) through (c)(7)
	N 63.343(d)	control device not previously listed	appropriate operating parameters after approval

EMISSIONS UNIT CATEGORY	40 CFR PART 63 SUBPART/SECTION	CONTROL DEVICE	REQUIRED MONITORING
Ethylene oxide commercial sterilization and fumigation operations	O 63.364(a) 63.364(b)(1)	acid-water scrubber	ethylene glycol concentration of the scrubber liquor: or
	O 63.364(a) 63.364(b)(2)	acid-water scrubber	level of the scrubber liquor in the recirculation tank using a liquid level indicator
	O 63.364(a) 63.364(c)	catalytic or thermal oxidation	oxidation temperature at the outlet to the catalyst bed or at the exhaust point from the thermal combustion chamber
	O 63.364(a) 63.364(d)	control devices other than acid water scrubbers or catalytic or thermal oxidizers	parameters as approved by the Administrator
	O 63.364(f)	manifolding emissions from the chamber exhaust vent to a control device for another vent type	appropriate parameters per 63.364(a) through 63.364(d) (emission monitoring option available)
Gasoline distribution (stage I)	R 63.427(a)(2) 63.427(b)	refrigeration condenser system	temperature immediately downstream from the condenser outlet (emission monitoring option available)
	R 63.427(a)(3) 63.427(b)	thermal oxidation system	temperature in the firebox or immediately downstream from the firebox
	R 63.427(a)(4) 63.427(b)	flare	heat sensing device

	R 63.427(a)(5) 63.427(b)	control devices listed in 63.427(a)(2) through (a)(4) and vapor processing systems not previously listed	alternative parameters upon approval for vapor processing systems in 63.427(a)(2) through (a)(4) and parameters upon approval for vapor processing systems not listed
Halogenated solvent cleaning	T 63.466(a)(1) (equipment standards)	freeboard refrigeration device	temperature at the center of the air blanket

EMISSIONS UNIT CATEGORY	40 CFR PART 63 SUBPART/SECTION	CONTROL DEVICE	REQUIRED MONITORING
Halogenated solvent cleaning	T 63.466(a)(2) (equipment standards)	superheated vapor system	temperature at the center of the superheated solvent vapor zone
	T 63.466(b)(1) (equipment standards)	cover	visual inspection for correct operation, adequacy and condition
	T 63.466(b)(2) (equipment standards)	dwell	actual dwell time
	T 63.466(c)	type not specified	hoist speed
	T 63.466(d)(1) (equipment standards)	reduced room draft maintained by controlling room parameters	windspeed and room parameters established during the initial compliance test
	T 63.466(d)(2) (equipment standards)	reduced room draft achieved by full or partial enclosure	windspeed and a monthly visual inspection of the enclosure
	T 63.466(e)	carbon adsorber	alternative monitoring procedures per 63.466(g) (emission monitoring option available)
	T 63.466(f)(1) (idling emission limit standards)	controls listed in paragraphs (a) through (e)	monitoring requirements in paragraphs (a) through (e)
	T 63.466(f)(2) (idling emission limit standards)	controls not previously listed	monitoring frequency as approved by the Administrator

	T 63.466(g)	controls listed in paragraphs (a) through (e)	alternative monitoring procedures approved by the Administrator
Epoxy resins and non-nylon polyamides production Basic liquid resins manufacturing	W 63.525(a)(1)	water scrubber	scrubber water flow rate
	W 63.525(a)(2)	condenser	condenser outlet temperature
	W 63.525(a)(4)	flare	heat sensing device
Epoxy resins and non-nylon polyamides production	W 63.525(b)(1)	condenser on process vent	condenser outlet temperature

EMISSIONS UNIT CATEGORY	40 CFR PART 63 SUBPART/SECTION	CONTROL DEVICE	REQUIRED MONITORING
Wet strength resins manufacturing	W 63.525(b)(2)	water scrubber	water scrubber flow rate
Secondary lead smelters	X 63.548(c) 63.548(e)	baghouse	Daily: pressure drop baghouse discharge hopper operation compressed air isolation dampers cleaning cycle Weekly: bag cleaning mech. bag tension Monthly: air leaks bag connections fan operation Continuous: bag leak detection
Secondary lead smelters (wet scrubber)	X 63.548(g)	wet scrubber	pressure drop and water flow rate
Secondary lead smelters (blast furnace)	X 63.548(h)(1)	type not specified	temperature of afterburner or combined furnace exhaust gas streams (emission monitoring option available)
	Y 63.564(a) 63.564(b)(1)	vapor collection system with valves that could divert a vent stream from a control device	vent stream flowrate of each by-pass line immediately downstream of any valve that could divert to the atmosphere or:

Marine tank vessel loading operations	Y 63.564(a) 63.564(b)(2)	vapor collection system with valves that could divert a vent stream from a control device	vent stream flowrate indicator with either an audio or visual alarm immediately downstream of any valve that could divert to the atmosphere or:
	Y 63.564(a) 63.564(b)(3)	vapor collection system with valves that could divert a vent stream from a control device	inspect valves during loading operations and monthly; secure all bypass valves in the closed position with a car-seal or a lock and key type configuration
	Y 63.564(a) 63.564(c)	vapor collection equipment	operating pressure during loading
	Y 63.564(a) 63.564(d)	loading at negative pressure	loading pressure with an audible and visible alarm

EMISSIONS UNIT CATEGORY	40 CFR PART 63 SUBPART/SECTION	CONTROL DEVICE	REQUIRED MONITORING
Marine tank vessel loading operations	Y 63.564(a) 63.564(e)(2) 63.564(e)(4)	combustion device except flare	exhaust temperature averages based on performance test cycle (emission monitoring option available) or:
	Y 63.564(a) 63.564(e)(3) 63.564(e)(4)	combustion device except flare	exhaust temperature hourly averages and 3-hour block averages (emission monitoring option available)
	Y 63.564(a) 63.564(f)	flare	heat sensing device
	Y 63.564(a) 63.564(g)(2)	carbon adsorber with vacuum regeneration	carbon bed regeneration cycle time and vacuum pressure (emission monitoring option available) or:
	Y 63.564(a) 63.564(g)(3)	carbon adsorber with steam regeneration	total stream mass flow for each carbon bed regeneration cycle and the carbon bed temperature within 15 minutes of regeneration (emission monitoring option available)

	Y 63.564(a) 63.564(h)(1)	condenser/ refrigeration unit	outlet temperature (emission monitoring option available)
	Y 63.564(a) 63.564(i)(2)	absorber	inlet liquid and gas flowrate; record the calculated L/V ratio (emission monitoring option available)
	Y 63.564(a) 63.564(j)	type not specified	alternative monitoring procedures approved by the Administrator
Petroleum refineries (miscellaneous process vents)	CC 63.644(a)(1)(i) 63.653(a)	noncatalytic incinerator	temperature in the firebox or ductwork immediately downstream of the firebox
	CC 63.644(a)(1)(ii) 63.653(a)	catalytic incinerator	temperature before and after the catalyst bed
	CC 63.644(a)(2) 63.653(a)	flare	heat sensing device

EMISSIONS UNIT CATEGORY	40 CFR PART 63 SUBPART/SECTION	CONTROL DEVICE	REQUIRED MONITORING
Petroleum refineries (miscellaneous process vents)	CC 63.644(a)(3) 63.653(a)	boiler or process heater $\geq$ 44 MW or where vent streams are directed into the flame zone	exempt from monitoring
	CC 63.644(a)(4) 63.653(a)	boiler or process heater $\leq$ 44 MW where vent streams are not directed into the flame zone	firebox temperature
	CC 63.644(b)(1) 63.653(a)	control devices other than those listed in 63.644(a) above	approval of alternative parameters by the Administrator per 63.654(h)
	CC 63.644(b)(2) 63.653(a)	any control device listed in 63.644(a) above	approval of alternative parameters by the Administrator per 63.654(h)
	CC 63.644(c)(1) 63.653(a)	type not specified	vent stream flow indicator at the entrance to any bypass line; or

Petroleum refineries (miscellaneous process vents with by-pass lines)	CC 63.644(c)(2) 63.653(a)	type not specified	secure the bypass valve in the closed position with a car-seal or a lock and key type configuration and perform a monthly visual inspection
Petroleum refineries (wastewater provisions for process wastewater streams meeting the definition of 63.641)	CC 63.647 63.653(a) in accordance with FF 61.354(a)(1) and 61.354 (a)(2)	all systems not complying with 61.348(d)	process parameter (or paramters) that indicates proper operation (emission monitoring option available)
	CC 63.647 63.653(a) in accordance with FF 61.354(b)	all systems complying with 61.348(b)	flow rate of each wastewater stream exiting the system
	CC 63.647 63.653(a) in accordance with FF 61.354(c)	system subject to 61.349	monitor a parameter that indicates correct control device operation as follows:
EMISSIONS UNIT CATEGORY	40 CFR PART 63 SUBPART/SECTION	CONTROL DEVICE	REQUIRED MONITORING
	CC 63.647 63.653(a) in accordance with FF 61.354(c)(1)	thermal vapor incinerator	temperature in the combustion chamber
	CC 63.647 63.653(a) in accordance with FF 61.354(c)(2)	catalytic vapor incinerator	temperature at the inlet and outlet of the catalyst bed
	CC 63.647 63.653(a) in accordance with FF 61.354(c)(3)	flare	heat sensing device
	CC 63.647 63.653(a) in accordance with FF 61.354(c)(4)	boiler or process heater < 44 MW	temperature in the combustion chamber

Petroleum refineries (wastewater provisions for process wastewater streams meeting the definition of 63.641)	CC 63.647 63.653(a) in accordance with FF 61.354(c)(5)	boiler or process heater ≥ 44 MW	any parameter that indicates good combustion operating practices
	CC 63.647 63.653(a) in accordance with FF 61.354(c)(6)	condenser	temperature before and after the condenser (emission monitoring option available)
	CC 63.647 63.653(a) in accordance with FF 61.354(c)(7)	fixed-bed carbon adsorption	any parameter that indicates a regular regeneration cycle (emission monitoring option available)
	CC 63.647 63.653(a) in accordance with FF 61.354(c)(9)	control device subject to 61.349(a)(2)(iv)	parameter(s) as specified in 61.349(a)(2)(iv)(C)
	CC 63.647 63.653(a) in accordance with FF 61.354(e)	type not specified	alternative CPMS option
EMISSIONS UNIT CATEGORY	40 CFR PART 63 SUBPART/SECTION	CONTROL DEVICE	REQUIRED MONITORING
Petroleum refineries (wastewater provisions for process wastewater streams meeting the definition of 63.641)	CC 63.647 63.653(a) in accordance with FF 61.354(g)	control device maintained at a pressure less than atmospheric	internal pressure
Petroleum refineries (equipment leak standards)	CC 63.648(c)	type not specified	requirements of Subpart H section 63.172(e) and(j) as detailed above may be part of a compliance option
		refrigeration condenser system	temperature immediately downstream from the condenser outlet (emission monitoring option available)

Petroleum refineries (gasoline loading rack provisions)	CC 63.650(a) 63.653(a)	thermal oxidation system	temperature in the firebox or immediately downstream from the firebox
		flare	heat sensing device
		control devices listed in 63.427(a)(2) through (a)(4) and vapor processing systems not previously listed	alternative parameters upon approval for vapor processing systems in 63.427(a)(2) through (a)(4) and parameters upon approval for vapor processing systems not listed
Petroleum refineries (marine tank vessel loading operation provisions)	CC 63.651(a) 63.653(a) 63.564	vapor collection system with valves that could divert a vent stream from a control device	vent stream flowrate of each by-pass line immediately downstream of any valve that could divert to the atmosphere or:
		vapor collection system with valves that could divert a vent stream from a control device	vent stream flowrate indicator with either an audio or visual alarm immediately downstream of any valve that could divert to the atmosphere or:

EMISSIONS UNIT CATEGORY	40 CFR PART 63 SUBPART/SECTION	CONTROL DEVICE	REQUIRED MONITORING
		vapor collection system with valves that could divert a vent stream from a control device	inspect valves during loading operations and monthly; secure all bypass valves in the closed position with a car-seal or a lock and key type configuration
		vapor collection equipment	operating pressure during loading
		loading at negative pressure	loading pressure with an audible and visible alarm

Petroleum refineries (marine tank vessel loading operation provisions)	CC 63.651(a) 63.653(a) 63.564	combustion device except flare	exhaust temperature averages based on performance test cycle (emission monitoring option available) or:
		combustion device except flare	exhaust temperature hourly averages and 3-hour block averages (emission monitoring option available)
		flare	heat sensing device
		carbon adsorber with vacuum regeneration	carbon bed regeneration cycle time and vacuum pressure (emission monitoring option available) or:
		carbon adsorber with steam regeneration	total stream mass flow for each carbon bed regeneration cycle and the carbon bed temperature within 15 minutes of regeneration (emission monitoring option available)
		condenser/ refrigeration unit	outlet temperature (emission monitoring option available)
		absorber	inlet liquid and gas flowrate; record the calculated L/V ratio (emission monitoring option available)
		type not specified	alternative monitoring procedures approved by the Administrator
EMISSIONS UNIT CATEGORY	40 CFR PART 63 SUBPART/SECTION	CONTROL DEVICE	REQUIRED MONITORING
	EE 63.704(a) 63.704(b)(1)(ii) 63.704(b)(8) 63.704(b)(11)	add-on control device used to control solvent HAP emissions	control device efficiency (emission monitoring option available)

Magnetic tape manufacturing operations	EE 63.704(a) 63.704(b)(1)(iii) 63.704(b)(8) 63.704(b)(11)	nonregenerative carbon adsorber	parameter may be established as part of the design evaluation or during the initial performance test
	EE 63.704(a) 63.704(b)(2) 63.704(b)(8) 63.704(b)(11)	condenser	vapor exhaust stream temperature in lieu of 63.704(b)(1)
	EE 63.704(a) 63.704(b)(3) 63.704(b)(8) 63.704(b)(11)	thermal incinerator	combustion temperature in lieu of 63.704(b)(1)
	EE 63.704(a) 63.704(b)(4) 63.704(b)(8) 63.704(b)(11)	catalytic incinerator	temperature before and after the catalyst bed in lieu of 63.704(b)(1)
	EE 63.704(a) 63.704(b)(5) 63.704(b)(8) 63.704(b)(11)	nonregenerative carbon adsorber	carbon replacement time interval in lieu of 63.704(b)(1)
	EE 63.704(a) 63.704(b)(6) 63.704(b)(8) 63.704(b)(11)	venting solvent HAP emissions through a room, enclosure, or hood to a control device	appropriate operating parameter to ensure established capture efficiency
	EE 63.704(a) 63.704(b)(7) 63.704(b)(8) 63.704(b)(11)	baghouse or fabric filter used to control particulate HAP emissions	ventilation air flow rate through the inlet duct
	EE 63.704(a) 63.704(b)(9) 63.704(b)(11)	solvent recovery device used to comply with 63.703(c)	results of the material balance calculation in lieu of 63.704(b)(1)
	EE 63.704(a) 63.704(b)(10)(i) 63.704(b)(11)	steam stripper used to comply with 63.703(g)	steam-to-feed ratio (emission monitoring option available)

(D) Emissions units subject to the Standards for Owners and Operators of Hazardous Waste Treatment, Storage and Disposal Facilities under 40 CFR Part 264:

EMISSIONS UNIT CATEGORY	40 CFR PART 264* SUBPART/SECTION	REQUIRED MONITORING
Hazardous waste incinerators	O 264.347	combustion temperature, waste feed rate and combustion gas velocity (emission monitoring also required)

* The Ohio EPA has not been delegated authority for this federal rule.

(E) Emission units subject to the Interim Status Standards for Owners and Operators of Hazardous Waste Treatment, Storage and Disposal Facilities under 40 CFR Part 265:

EMISSION UNIT CATEGORY	40 CFR PART 265* SUBPART/SECTION	REQUIRED MONITORING
Hazardous waste incinerators	O 265.347	waste feed, auxiliary fuel feed, air flow, incinerator temp., scrubber flow, scrubber pH, and relevant level controls, as a minimum, when incinerating hazardous waste

* The Ohio EPA has not been delegated authority for this federal rule.

(F) Emissions units subject to the Standards for the Management of Specific Hazardous Wastes and Specific Types of Hazardous Waste Management Facilities under 40 CFR Part 266:

EMISSIONS UNIT CATEGORY	40 CFR PART 266* SUBPART/SECTION APPENDIX/SECTION	REQUIRED MONITORING
Hazardous waste burned in boilers and industrial furnaces (BIF regulations) Certain exemptions apply per 266.100	H 266.102(e)(8)	<u>feed rates and composition of</u>: a. hazardous waste b. other fuels c. furnace feedstocks <u>feed rates of</u>: a. ash b. metals c. total chloride d. chlorine (emission monitoring also required)

EMISSIONS UNIT CATEGORY	40 CFR PART 266* SUBPART/SECTION APPENDIX/SECTION	REQUIRED MONITORING
Hazardous waste burned in boilers and industrial furnaces (BIF regulations) Certain exemptions apply per 266.100	H 266.103(b)(3) 266.103(b)(5) 266.103(b)(7) 266.103(c) 266.103(j) 266.106(b)(8) 266.106(c)(3) 266.106(c)(6)	<u>feed rates of</u>: a. hazardous waste b. pumpable hazardous waste c. metals d. total chloride e. chlorine f. ash g. maximum production rate (emission monitoring also required)

* The Ohio EPA has not been delegated authority for this federal rule.

(G) Emissions units subject to the Standards for the Use or Disposal of Sewage Sludge under 40 CFR Part 503:

EMISSIONS UNIT CATEGORY	40 CFR PART 503* SUBPART/SECTION	REQUIRED MONITORING
Sewage sludge incinerator	E 503.45(d) 503.45(e) 503.46(b)	combustion temperatures (emission monitoring also required)
	E 503.45(f) 503.46(c)	values for the control device operating parameters will be specified by the permitting authority

* 40 CFR Part 503 is under a proposed revision which will affect monitoring requirements. The Ohio EPA has not been delegated authority for this federal rule.

CPMS INSTALLATIONS REQUIRED BY STATE REGULATIONS

(A) Emissions units subject to OAC Chapter 3745-21:

EMISSIONS UNIT CATEGORY	OAC CHAPTER 3745-21 SECTION	CONTROL DEVICE	REQUIRED MONITORING
Processing of liquid organic materials	3745-21-07(G)(7)	incinerator, adsorber or other as approved by the Director	temperatures, pressures or rate of flow as appropriate, or other parameters as specified by the director to determine the effectiveness of control devices
Grey iron cupola, blast furnace or basic oxygen steel furnace	3745-21-08(D)	BACT	temperature
Catalyst regeneration of a petroleum cracking system, petroleum fluid coker or other petroleum process	3745-21-08(E)	BACT	temperature
Coating line complying with a pounds of VOC per gallon of solids limitation	3745-21-09 (B)(3)(j)(vi) (B)(3)(n)	thermal incinerator	temperature
Coating line complying with a pounds of VOC per gallon of solids limitation	3745-21-09 (B)(3)(j)(vii) (B)(3)(n)	catalytic incinerator	temperature before and after the catalyst bed
Coating or printing line which complies with the applicable capture and control efficiency requirements or overall control efficiency requirements of 21-09(B)(6),(H),(Y), (NN),(PP), or (XX)	3745-21-09 (B)(l)(ii) (B)(3)(n)	thermal incinerator	temperature
Coating or printing line which complies with the applicable capture and control efficiency requirements or overall control efficiency requirements of 21-09(B)(6),(H),(Y), (NN),(PP), or (XX)	3745-21-09 (B)(l)(iii) (B)(3)(n)	catalytic incinerator	temperature before and after the catalyst bed
An emissions unit, other than a coating or printing line that employs control equipment and is subject to	3745-21-09 (B)(4)(b)(ii) (B)(4)(d)	thermal incinerator	combustion temperature

3745-21-09(O), (W),(X),(CC),(EE),(KK), (LL),(MM),(SS),(TT), (UU),(VV),(YY),(ZZ), (AAA) or (BBB)	3745-21-09 (B)(4)(b)(iii) (B)(4)(d)	catalytic incinerator	temperature before and after the catalyst bed
EMISSIONS UNIT CATEGORY	OAC CHAPTER 3745-21 SECTION	CONTROL DEVICE	REQUIRED MONITORING
An emissions unit, other than a coating or printing line that employs control equipment and is subject to 3745-21-09(O), (W),(X),(CC),(EE),(KK), (LL),(MM),(SS),(TT), (UU),(VV),(YY),(ZZ), (AAA) or (BBB)	3745-21-09 (B)(4)(b)(v) (B)(4)(d)	absorber	absorbing liquid temperature <u>or</u> absorbing liquid specific gravity <u>or</u> the degree of absorbing liquid saturation as an approved alternative (emission monitoring option available)
	3745-21-09 (B)(4)(b)(vii) (B)(4)(d)	carbon adsorber	total mass steam flow rate <u>or</u> carbon bed temperature (emission monitoring option available)
	3745-21-09 (B)(4)(b)(ix) (B)(4)(d)	condenser	condenser exit temperature (emission monitoring option available)
	3745-21-09 (B)(4)(b)(x) (B)(4)(d)	flare	arcing of an electric arc ignition system <u>or</u> heat sensing device
Process units that produce organic chemicals	3745-21-09 (DD)(10)(d)(ii)	flare	arcing of an electric arc ignition system <u>or</u> heat sensing device
Process units that produce organic chemicals	3745-21-09 (DD)(10)(e)	vapor recovery system, enclosed combustion device or flare	appropriate parameter(s) to ensure operation in conformance with design
International Paper Co. (Sheet-fed offset lithographic printing press)	3745-21-09 (II)(2)	cooling unit	temperature and VOC content of the fountain solution on a daily basis and VOC emission calculations on a monthly basis
The Goodyear Tire and Rubber Company (butadiene recovery operation)	3745-21-09 (JJ)(1) and (2)	flare	arcing of an electric arc ignition system <u>or</u> heat sensing device

The Lubrizol Corporation (reactor processes)	3745-21-09 (LL)(1)(b)	flare	arcing of an electric arc ignition system or heat sensing device
PPG Industries, Inc. (paint manufacturing and laboratory operations)	3745-21-09 (MM)(6)	incineration	temperature

EMISSIONS UNIT CATEGORY	OAC CHAPTER 3745-21 SECTION	CONTROL DEVICE	REQUIRED MONITORING
ICI Americas, Inc. (tetra-hydro-phthalimide production process)	3745-21-09 (TT)(1)	flare	arcing of an electric arc ignition system or heat sensing device
British Petroleum Co. Toledo Refinery (various processes)	3745-21-09 (UU)(1-4)	flare	arcing of an electric arc ignition system or heat sensing device
Ashland Petroleum Co. (FCC unit regenerator)	3745-21-09 (VV)(1)(e)	catalyst cooler and regenerator	temperature (emission monitoring also required)
Firestone Synthetic Rubber & Latex Co. (reactor processes)	3745-21-09 (ZZ)(1)(b)	flare	arcing of an electric arc ignition system or heat sensing device

(B) Emissions units subject to OAC Chapter 3745-57 (Incinerators):

EMISSIONS UNIT CATEGORY	OAC CHAPTER 3745-57 SECTION	CONTROL DEVICE	REQUIRED MONITORING
Hazardous waste incinerator	3745-57-47(A)(1)	type not specified	combustion temperature, waste feed rate and combustion gas velocity (emission monitoring also required)

(C) Emissions units subject to OAC Chapter 3745-74 (Acrylonitrile):

EMISSION UNIT CATEGORY	OAC CHAPTER 3745-74 SECTION	CONTROL DEVICE	REQUIRED MONITORING
Acrylonitrile monomer plant, ABS plant, or polymer plant	3745-74-06(A)	flare	arcing of an electric arc ignition system or heat sensing device

(D) Emissions units subject to OAC Chapter 3745-75 (Infectious Waste Incinerator Limitations):

EMISSIONS UNIT CATEGORY	OAC CHAPTER 3745-75 SECTION	CONTROL DEVICE	REQUIRED MONITORING

Infectious waste incinerator	3745-75-04(A)	type not specified	primary and secondary combustion temperature (emission monitoring also required)
Infectious waste incinerator	3745-75-04(D)	type not specified	bypass stack temperature (if applicable)
Infectious waste incinerator	3745-75-04(E)	type not specified	charging rate (scale or approved alternative)

Authority to require a facility to install a CPMS is provided in Ohio Revised Code (ORC) 3704.03(I), ORC 3704.031 and Ohio Administrative Code (OAC) rule 3745-35-02(C)(2). These sections of the ORC and OAC, among other things, give the Director of the Ohio EPA the authority to require the person(s) responsible for any emissions unit to install, employ, maintain and operate any equipment, instrumentation or sensing devices that are reasonable and necessary to determine the amount and content of emissions and other information about the operation of the emissions unit or any violation or potential violation of Chapter 3704. of the Revised Code, or the regulations or orders promulgated thereunder.

Whenever a CPMS is required to be installed, permit language should require that installation, calibration, maintenance and operation be performed in accordance with the manufacturer's instructions. When a regulation requires CPMS design or performance specifications (e.g., temperature accuracy within $\pm$ 1.0^{o} C), the manufacturer must certify that the design or accuracy capability of the parameter monitoring device meets or exceeds the requirement. A CPMS which is intended for compliance purposes must be operated with sufficient quality assurance/quality control (QA/QC) procedures to ensure the measuring and recording of accurate and precise data, with minimal downtime. Recordkeeping and reporting requirements should be effective upon installation of a CPMS and should include all exceedances of the predetermined parameter limits.

JO/BW/TH/DM

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