Trinity Consultants

trinityconsultants.com / 800.229.6655

Proposed Boiler MACT Emission Limit Changes for New Units

Subcategory	Pollutant*	Current Emission Limit	Proposed Emission Limit	Emission Limit Units (3-hour Average)	Percent Change in Limit
Units in all subcategories designed to burn solid fuel	HCl	2.2E-02	3.0E-04	lb/MMBtu of Heat Input	-99%
		2.5E-02	4.1E-04	lb/MMBtu of Steam Output	-98%
		0.28	3.9E-03	lb/MWh	-99%
Stokers/sloped grate/others designed to burn wet biomass fuel	CO	620	590	ppmvd, 3% Oxygen	-5%
		0.58	0.61	lb/MMBtu of Steam Output	5%
		6.8	6.5	lb/MWh	-4%
	PM	3.0E-02	1.3E-02	lb/MMBtu of Heat Input	-57%
		3.5E-02	1.4E-02	lb/MMBtu of Steam Output	-60%
		0.42	0.19	lb/MWh	-55%
Stokers/sloped grate/others designed to burn kiln-dried biomass fuel	TSM	4.0E-03	5.0E-03	lb/MMBtu of Heat Input	25%
		4.2E-03	5.2E-03	lb/MMBtu of Steam Output	24%
		5.6E-02	7.0E-02	lb/MWh	25%
Fluidized bed units designed to burn biomass/bio-based solids	CO	230	130	ppmvd, 3% Oxygen	-43%
		0.22	0.13	lb/MMBtu of Steam Output	-41%
		2.6	1.5	lb/MWh	-42%
	PM	9.8E-03	4.1E-03	lb/MMBtu of Heat Input	-58%
		1.2E-02	5.0E-03	lb/MMBtu of Steam Output	-58%
		0.14	5.8E-02	lb/MWh	-59%
	TSM	8.3E-05	8.4E-06	lb/MMBtu of Heat Input	-90%
		1.1E-04	1.1E-05	lb/MMBtu of Steam Output	-90%
		1.2E-03	1.2E-04	lb/MWh	-90%
Suspension burners designed to burn biomass/bio-based solids	CO	2,400	220	ppmvd, 3% Oxygen	-91%
		1.9	0.18	lb/MMBtu of Steam Output	-91%
		27	2.5	lb/MWh	-91%
	TSM	6.5E-03	8.0E-03	lb/MMBtu of Heat Input	23%
		6.6E-03	8.1E-03	lb/MMBtu of Steam Output	23%
		9.1E-02	0.12	lb/MWh	32%
Dutch Ovens/Pile burners designed to burn biomass/bio-based solids	PM	3.2E-03	2.5E-03	lb/MMBtu of Heat Input	-22%
		4.3E-03	3.4E-03	lb/MMBtu of Steam Output	-21%
		4.5E-02	3.5E-02	lb/MWh	-22%
Fuel cell units designed to burn biomass/bio-based solids	PM	2.0E-02	1.1E-02	lb/MMBtu of Heat Input	-45%
		3.0E-02	2.0E-02	lb/MMBtu of Steam Output	-33%
		0.28	0.16	lb/MWh	-43%
Hybrid suspension grate boiler designed to burn biomass/bio-based solids	CO	1,100	180	ppmvd, 3% Oxygen	-84%
		1.4	0.22	lb/MMBtu of Steam Output	-84%
		12	2.0	lb/MWh	-83%
Units designed to burn liquid fuel	HCl	4.4E-04	7.0E-05	lb/MMBtu of Heat Input	-84%
		4.8E-04	7.7E-05	lb/MMBtu of Steam Output	-84%
		6.1E-03	9.7E-04	lb/MWh	-84%
Units designed to burn heavy liquid fuel	PM	1.3E-02	1.9E-03	lb/MMBtu of Heat Input	-85%
		1.5E-02	2.1E-03	lb/MMBtu of Steam Output	-86%
		0.18	2.7E-02	lb/MWh	-85%
	TSM	7.5E-05	6.1E-06	lb/MMBtu of Heat Input	-91%
		8.2E-05	6.7E-06	lb/MMBtu of Steam Output	-92%
		1.1E-03	8.5E-05	lb/MWh	-92%
Units designed to burn gas 2 (other) gases	PM	6.7E-03	7.3E-03	lb/MMBtu of Heat Input	9%
		1.2E-02	1.3E-02	lb/MMBtu of Steam Output	8%
		7.0E-02	7.6E-02	lb/MWh	9%

* Facilities have the option of complying with the heat input based limits (lb/MMBtu of Heat Input) or the alternative output based limits (lb/MMBtu of Steam Output or lb/MWh). TSM standard is an alternative standard to the PM standard.

Proposed Boiler MACT Emission Limit Changes for Existing Units

Subcategory	Pollutant*	Current Emission Limit	Proposed Emission Limit	Emission Limit Units (3-hour Average)	Percent Change in Limit
Units in all subcategories designed to burn solid fuel	HCl	2.2E-02	2.0E-02	lb/MMBtu of Heat Input	-9%
		2.5E-02	2.3E-02	lb/MMBtu of Steam Output	-8%
		0.27	0.26	lb/MWh	-4%
	Hg	5.7E-06	5.4E-06	lb/MMBtu of Heat Input	-5%
		6.4E-06	6.2E-06	lb/MMBtu of Steam Output	-3%
		7.3E-05	6.9E-05	lb/MWh	-5%
Units design to burn coal/solid fossil fuel	PM	4.0E-02	3.9E-02	lb/MMBtu of Heat Input	-3%
		4.2E-02	4.1E-02	lb/MMBtu of Steam Output	-2%
		0.49	0.48	lb/MWh	-2%
Stokers/others designed to burn coal/solid fossil fuel	CO	160	150	ppmvd, 3% Oxygen	-6%
		0.14	0.14	lb/MMBtu of Steam Output	0%
		1.7	1.6	lb/MWh	-6%
Stokers/sloped grate/others designed to burn wet biomass fuel	CO	1,500	1,100	ppmvd, 3% Oxygen	-27%
		1.4	1.1	lb/MMBtu of Steam Output	-21%
		17	13	lb/MWh	-24%
	PM	3.7E-02	3.4E-02	lb/MMBtu of Heat Input	-8%
		4.3E-02	4.0E-2	lb/MMBtu of Steam Output	-7%
		0.52	0.48	lb/MWh	-8%
	TSM	2.4E-04	2.0E-04	lb/MMBtu of Heat Input	-17%
		2.8E-04	2.4E-04	lb/MMBtu of Steam Output	-14%
		3.4E-04	2.8E-03	lb/MWh	724%**
Stokers/sloped grate/others designed to burn kiln-dried biomass fuel	TSM	4.0E-03	5.0E-03	lb/MMBtu of Heat Input	25%
		4.6E-03	5.9E-03	lb/MMBtu of Steam Output	28%
		5.6E-02	7.0E-02	lb/MWh	25%
Fluidized bed units designed to burn biomass/bio-based solid	CO	470	210	ppmvd, 3% Oxygen	-55%
		0.46	0.21	lb/MMBtu of Steam Output	-54%
		5.2	2.3	lb/MWh	-56%
	PM	0.11	2.1E-02	lb/MMBtu of Heat Input	-81%
		0.14	2.6E-02	lb/MMBtu of Steam Output	-81%
		1.6	0.30	lb/MWh	-81%
	TSM	1.2E-03	6.4E-05	lb/MMBtu of Heat Input	-95%
		1.5E-03	8.0E-05	lb/MMBtu of Steam Output	-95%
		1.7E-02	9.0E-04	lb/MWh	-95%
Suspension burners designed to burn biomass/bio-based solid	PM	5.1E-02	4.1E-02	lb/MMBtu of Heat Input	-20%
		5.2E-02	4.2E-02	lb/MMBtu of Steam Output	-19%
		0.71	0.58	lb/MWh	-18%
	TSM	6.5E-03	8.0E-03	lb/MMBtu of Heat Input	23%
		6.6E-03	8.1E-03	lb/MMBtu of Steam Output	23%
		9.1E-02	0.12	lb/MWh	32%
Dutch Ovens/Pile burners designed to burn biomass/bio-based solid	PM	0.28	0.18	lb/MMBtu of Heat Input	-36%
		0.39	0.25	lb/MMBtu of Steam Output	-36%
		3.9	2.6	lb/MWh	-33%
Units designed to burn liquid fuel	Hg	2.0E-06	7.3E-07	lb/MMBtu of Heat Input	-64%
		2.5E-06	8.8E-07	lb/MMBtu of Steam Output	-65%
		2.8E-05	1.1E-05	lb/MWh	-61%
Units designed to burn heavy liquid fuel	PM	6.2E-02	5.9E-02	lb/MMBtu of Heat Input	-5%
		7.5E-02	7.2E-02	lb/MMBtu of Steam Output	-4%
		0.86	0.82	lb/MWh	-5%
Units designed to burn liquid fuel that are non-continental units	PM	0.27	0.22	lb/MMBtu of Heat Input	-19%
		0.33	0.27	lb/MMBtu of Steam Output	-18%
		3.8	3.1	lb/MWh	-18%
Units designed to burn gas 2 (other) gases	PM	6.7E-03	7.3E-03	lb/MMBtu of Heat Input	9%
		1.2E-02	1.3E-02	lb/MMBtu of Steam Output	8%
		7.0E-02	7.6E-02	lb/MWh	9%

* Facilities have the option of complying with the heat input based limits (lb/MMBtu of Heat Input) or the alternative output based limits (lb/MMBtu of Steam Output or lb/MWh). TSM standard is an alternative standard to the PM standard.

** Trinity believes that there may be a calculation error in the TSM emission limit (lb/MWh) for Stokers/sloped grate/others designed to burn wet biomass fuel.