

Table C-1: EPA 2005 Methane Emissions

Factor	Value	Units	Source/Comments
Septic Systems			
% BOD Directed to Septic Systems	21	%	American Housing Survey - U.S. Census Bureau
per Capita BOD Production Rate	0.09	kg/cap./day	Metcalf & Eddy 1991 & 2003
U. S. Population for 2005	300.0	millions	Table 8-8, EPA Inventory, 2005
Domestic Wastewater BOD Produced	9864.0	Gg	= (?) 300 million x 0.09 kg BOD/capita/day x 365.25 days
Default Max CH ₄ Producing Capacity	0.6	kg CH ₄ /kg BOD	IPCC Guidelines, Table 6.2
MCF-septic	0.5	unitless	IPCC Guidelines, Table 6.3, 1/2 of BOD settles in septic tank
Septic Systems Emissions	621.4	Gg CH₄	=21% x 9864 Gg BOD x 0.6 kg CH ₄ /kg BOD x 0.5
Centrally Treated "Aerobic" Systems			
% BOD Directed to Collection Systems	79	%	American Housing Survey - U.S. Census Bureau
per Capita BOD Production Rate	0.09	kg/cap./day	Metcalf & Eddy 1991 & 2003
U. S. Population for 2005	300.0	millions	Table 8-8, EPA Inventory, p. 8-9, 2005
Domestic Wastewater BOD Produced	9864.0	Gg	= (?) 300 million x 0.09 kg BOD/capita/day x 365.25 days
Default Max CH ₄ Producing Capacity	0.6	kg CH ₄ /kg BOD	IPCC Guidelines, Table 6.2
Flow to Aerobic / Total Collected Flow	0.95	unitless	Clean Watershed Needs Survey - EPA
% Operations NOT Well Managed	0	unitless	IPCC Guidelines, Table 6.3
MCF-Operations Not Well Managed	0.3	unitless	IPCC Guidelines, Table 6.3
Centrally Treated "Aerobic" Systems	0	Gg CH₄	=79% x 9864 Gg BOD x 0.6 kg CH ₄ /kg BOD x 0.95 x 0 x 0.3
Centrally Treated "Anaerobic" Systems			
% BOD Directed to Collection Systems	79	%	American Housing Survey - U.S. Census Bureau
per Capita BOD Production Rate	0.09	kg/cap./day	Metcalf & Eddy 1991 & 2003
U. S. Population for 2005	300.0	millions	Table 8-8, EPA Inventory, 2005
Domestic Wastewater BOD Produced	9864.0	Gg	= (?) 300 million x 0.09 kg BOD/capita/day x 365.25 days
Default Max CH ₄ Producing Capacity	0.6	kg CH ₄ /kg BOD	IPCC Guidelines, Table 6.2
Flow to An aerobic / Total Collected Flow	0.05	unitless	Clean Watershed Needs Survey - EPA
MCF-Anaerobic Systems	0.8	unitless	IPCC Guidelines, Table 6.3
Centrally Treated "Anaerobic" Systems	187.0	Gg CH₄	=79% x 9864 Gg BOD x 0.6 kg CH ₄ /kg BOD x 0.05 x 0.8

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Factor	Value	Units	Source/Comments	
Emissions from Anaerobic Digesters				
Methane Generated by Anaerobic Digesters	799	Gg	Footnote 7 in EPA Inventory, p. 8-8, 2005	
Assumed Destruction Efficiency	99	%	AP-42, Compilation of Air Pollutant Emission Factors, Chapter 2.4, EPA, 1998	
Emissions from Anaerobic Digesters	8.0	Gg CH₄	=799*(1-99/100)	
TOTAL METHANE EMISSIONS	816.4	Gg CH₄	= 816.4 Gg CH ₄ x 21 Gg CO ₂ equivalent / Gg CH ₄ x 1 Tg / 1000 Gg	
	17.1	Tg CO₂ eq.		
EPA 2005 Inventory "Wastewater Treatment" Percentage Breakdown for Methane				
Septic Systems Emissions	76.1%			
Centrally Treated "Aerobic" Systems	0.0%			
Centrally Treated "Anaerobic" Systems	22.9%			
Emissions from Anaerobic Digesters	1.0%			
Percentage of Wastewater Emissions Attributable to POTWs Without Lagoons	1.0%			
EPA 2005 Inventory ALL Methane Sources				
All Sources Combined	539.3	Tg CO₂ eq.	Table ES-2, EPA Inventory, p. ES-5, 2005	
Landfills	132		↓	
Enteric Fermentation	112.1			
Natural Gas Systems	111.1			
Coal Mining	52.4			
Manure Management	41.3			
Petroleum Systems	28.5			
Wastewater Treatment	25.4			Table ES-2, Includes 8.4 Tg CO ₂ eq. From Industrial Activity
Forest Land	11.6			↓
Everything Else	24.9			