

CO2 EMISSIONS FROM REFINING ETHANOL

Devin Serpa - AfterOil EV

The emissions from one gallon of ethanol in the US can vary from type but 75% of corn ethanol is produced from the dry milling process. This requires heating the corn with CNG. The CO2 from this process is not sequestered, and enters the atmosphere. The following is a calculation of CO2 emitted from the production of one gallon of corn ethanol.

1.47	Units of Ethanol yielded per unit energy burned	1
0.6803 gal	Units of energy burned per unit energy Ethanol	
20263 Btu/lbs	* 1.07 lbs/gal = 21681 Btu/gal CNG	2
11585 Btu/lbs	* 6.61 lbs/gal = 76577 Btu/gal Ethanol	2
52093 Btu CNG	to produce 1 gal Ethanol	
2.4027 gal CNG	to produce 1 gal Ethanol	
2.9327 lbs CO2/gal	of CNG	3
7.0463 lbs CO2	to produce 1 gal Ethanol	

That's 7.0467 lbs CO2 emitted from refining one gallon of ethanol.

¹ <http://www.eere.energy.gov/afdc/pdfs/estreviewofethanolca.pdf>

² <http://www.eere.energy.gov/afdc/pdfs/fueltable.pdf>

³ http://www.afteroilEV.com/Pub/CO2_Emissions_from_Fuel_Combustion.pdf