CO2 emissions from ASEC Algeria, Djelfa Clinker production (base data)		
	Value and unit	Data source:
Calcinations process	525 kg/t clinker	The Cement CO2 Protocol, CO2 Accounting and Reporting Standard for the Cement Industry, WBCSD, June 2005, p 6.
Fuel firing	745 kcal/kg clinker = 3.119 GJ/t clinker	Guaranteed design specifications for Djelfa plant with no bypass running (100% natural gas)
Electricity consumption	0.097 MWh/t cement	Design specification for Djelfa plant
Natural gas as fuel	56.1 t CO2/ 1000 GJ	2006 IPCC Guidelines for National Greenhouse Gas Inventories
Electricity production	671 kg CO2 / MWh	WBCSD, Indirect CO2 emissions from Purchased Electricity, Heat, or Steam, March 2008. Algeria national data for 2005
CO2 emission from electricity production	671 kg CO2/MWh * 0.097 MWh/t cement = 65 kg CO2/ tons cement	
Clinker percentage in cement (base data)		
	Value and unit	Data source:
Cement blend average	88.5% clinker	ASEC operational assumption: 85% of cement with 90% clinker and 15% of cement with 80% clinker

Fuel caused CO2 emissions at ASEC Algeria, Djelfa (clinker based):		
Natural gas	56.1 * 3.119 =	175 kg CO2 / t clinker
Combined calcinations and fuel caused CO2 emissions (clinker based):		
	175 + 525 =	700 kg CO2 / t clinker
Final emissions per unit cement, including electricity caused emission:		
Natural gas based, cement blend average	0.885 * 700 + 65 =	684.5 kg CO2 / t cement

Total CO2 emissions based on 85% OPC production (90% clinker) + 15% blended cement (80% clinker) and a total production of 3.02 M tons of cement per year:		
Natural gas based, cement blend average	3.02 * 0.6845 =	**2.07 M tons CO2 / year**