

Explanatory notes

- 1) The data for 2006, 2012-2015 is not available as explained in the PDD reason being that the PDD was developed in 2006 using the 2003-2005 baseline figures and LMCB does not have the market forecast yet for the production of cement from 2012-2014
- 2) The cells with the value 0 and #Div/0 are cells which does not have any relevance in the calculation due to no available data for 2006 and 2012-2015

Detailed Questionnaire EcoSecurities - Cement project (ACM0005)

Fill in one sheet for each type of cement produced in the plant

Please fill in the yellow boxes

*For the estimation of the project data: fill in the last box "Future (project)" in column F (blue cells)

1. If unknown: write "unknown"
2. If expected to be the same as 2004 (or as the average 2002-3-4), write "same as 2004" (or "same as average")
3. If x % increase/decrease compared to the current situation (or compared to the previous year), write "x % decrease/increase compared to now (or yearly)"
4. If the estimations of one parameter are detailed for each future year of operation, please start a new line at the bottom of the page for each parameter
5. In any other case, please describe the relevant situation in column G

LMCB - Rawang Works (RW)

Historical data (measured/calculated)

Project estimations

Data specific to each cement type

Amount of clinker used			
	849,075	927,627	894,574
	431,237	396,250	449,233
	202,165	169,858	151,214
TOTAL	1,482,477	1,493,736	1,495,022

LMCB - Rawang Works (RW)

GENERAL PURPOSE CEMENT PRODUCTION		2003	2004	2005	2006	2007	2008	2009	2010	2011
OPC										
Quantity of OPC produced	tonnes/yr	919,809	999,900	964,497		576,068	0	0	0	0
% clinker per ton of OPC produced	ton clinker/ton cement	92.31%	92.77%	92.75%		95.00%	95.00%	95.00%	95.00%	95.00%
PPC										
Quantity of PPC produced	tonnes/yr	543,161	528,621	615,972		1,281,582	1,432,008	1,999,685	2,045,727	2,080,499
% clinker per ton of PPC produced	ton clinker/ton cement	79.39%	74.96%	72.93%		74.41%	74.85%	76.48%	76.44%	76.43%
Masonry										
Quantity of Masonary produced	tonnes/yr	292,993	246,171	219,151		290,000	298,700	307,661	316,891	326,398
% clinker per ton of Masonary produced	ton clinker/ton cement	69.00%	69.00%	69.00%		69.00%	69.00%	69.00%	69.00%	69.00%
Output										
Quantity of raw material used for clinker production	tonnes/yr	2,609,229	2,679,115	2,442,334		2,828,324	2,125,072	2,895,832	2,963,633	3,018,513
CaO content of raw material	%	0.00%	0.00%	0.00%		0.00%	0.00%	0.00%	0.00%	0.00%
MgO content of raw material	%	0.00%	0.00%	0.00%		0.00%	0.00%	0.00%	0.00%	0.00%
Output										
Quantity of clinker produced	tonnes/yr	1,531,200	1,634,845	1,484,245		1,700,973	1,278,033	1,741,573	1,782,349	1,815,353
CaO content of clinker	%	66.45%	66.40%	66.42%		64.66%	64.66%	64.66%	64.66%	64.66%
MgO content of clinker	%	0.71%	0.61%	0.67%		0.6-0.7 %	0.6-0.7 %	0.6-0.7 %	0.6-0.7 %	0.6-0.7 %

	2003	2004	2005
Masc	225400	392581	208358
Slagcrete	0	11724	2114
Walcrete	3267	245509	198245
PFA Addn	19%	19%	23%
L/stone Addn	32%		
PBFS			
1.70404193	Raw material to clinker ratio		
	2003	2004	2005 Average
	1.704042	1.6387578	1.64550596 1.66276856
1.6387578			
1.64550596			

FOSSIL FUEL USE FOR CLINKER PRODUCTION (KILN)

Petrol coke	tons/yr	5,108	0	0
Heavy oil	tons/yr	5,235	1,914	3,602
Solvents	tons/yr	0	0	0
Diesoline	tons/yr	173	0	36
Coal	tons/yr	177,573	209,044	193,509
Palm Kernel Shell	tons/yr	42,470	25,713	36,442

ELECTRICITY USE

Grid electricity for clinker production	MWh/year	148,572	152,384	143,512
Self generated electricity for clinker production	MWh/year	0	0	0
Grid electricity for grinding for OPC	MWh/year	40,223	42,206	42,882
Self-generated electricity for grinding for OPC	MWh/year	0	0	0
Grid electricity for grinding for PPC	MWh/year	23,752	23,117	26,936
Self-generated electricity for grinding for PPC	MWh/year	0	0	0
Grid electricity for grinding for Masonary	MWh/year	12,813	10,765	8,296
Self-generated electricity for grinding for Masonary	MWh/year	0	0	0
Grid electricity for preparing additives for General Purpose Cement	MWh/year	0	0	0
Self generated electricity for grinding additives for General Purpose	MWh/year	0	0	0

92.2	86.65	94.66
46.1	46.1	46.1
46.61	46.61	46.61
46.61	46.61	46.61

TRANSPORT OF ADDITIVES (if all additives are on-site: leave blank)

Fuel consumption for the vehicle	kg fuel/km	0.213	
Distance between the source of additives and the plant	km/vehicle trip	600	These 4 parameters are constant over the years
Emission factor of the vehicle fuel	kg CO2/kg fuel		
Amount of additives carried per trip	ton/vehicle trip	25	
Electricity consumption of the conveyor system for additives	MWh/yr	4,412	

0.32

PROJECT ESTIMATION FOR EACH FUTURE YEAR OF OPERATION (IF ANY SUCH DETAILED PROJECTION IS AVAILABLE)

Parameter	Unit	2006	2007	2008	2009	2010	2011
Clinker Production	Tons/ yr		1,700,973	1,278,033	1,741,573	1,782,349	1,815,353
General Purpose Cement Produced							
OPC Production	Tons/ yr		576,068	0	0	0	0
PPC Production	Tons/ yr		1,281,582	1,432,008	1,999,685	2,045,727	2,080,499
Masonary Cement Production	Tons/ yr		290,000	298,700	307,661	316,891	326,398
Total General Purpose Cement Produced	Tons/ yr		2,147,650	1,730,708	2,307,346	2,362,618	2,406,896

Parameter		Unit	Figure for BSL	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
GENERAL PARAMETERS							Fuel emission factors							COLOR CODE	
Parameter	Value	Unit	Source	Parameter	Value	Unit	Source								
Length of crediting period	7	years		Fuels used for transport of additives:											
Starting date of the project	2006			Gasoline	3.0736	IC02/t fuel	IPCC								
Year Y taken for baseline calculations (the average of Y, Y+1 and Y+2 will be taken)	2003			Diesel	3.185	IC02/t fuel	IPCC								
Annual additive share increase in the baseline	2.00%		ACM0005	Fuels used for kiln:											
Grid CEF	0.622	IC02/MWh		Petrol coke	3.170	IC02/t fuel	IPCC								
Self generated electricity EF	0.000	IC02/MWh		Heavy oil	3.126	IC02/t fuel	IPCC								
Stoichiometric EF CaO	0.785	IC02/ICaO	ACM0005	Solvents	0	IC02/t fuel	IPCC								
Stoichiometric EF MgO	1.092	IC02/ICaO	ACM0005	Desolene	3.185	IC02/t fuel	IPCC								
general purpose cement	+PPC + Masonry			Coal	2.668	IC02/t fuel	IPCC								
				Shell	0	IC02/t fuel	IPCC								
				-	0	IC02/t fuel	IPCC								
				-	0	IC02/t fuel	IPCC								
				-	0	IC02/t fuel	IPCC								
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Parameter	Unit	Average	2003	2004	2005	1 2006	2 2007	3 2008	4 2009	5 2010	6 2011	7 2012	8 2013	9 2014
Baseline CO2 emissions from calcination process - Summary														
BE - calcin	tCO2/tonne clinker f	0.52866677	0.5293857	0.5279012	0.5287134	#DIV/0!	0.52866677	0.52866677	0.52866677	0.52866677	0.52866677	#DIV/0!	#DIV/0!	#DIV/0!
Main assumptions and input														
Stoichiometric EF CaO	tCO2/tCaO	0.785												
Stoichiometric EF MgO	tCO2/tCaO	1.092												
Details of calculations:														
Input of raw materials														
Quantity of raw material used for clinker production	tonnes/yr	2,576,893	2,609,229	2,679,115	2,442,334	0	2,828,324	2,125,072	2,895,832	2,963,633	3,018,513	0	0	0
CaO content of raw material	%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
MgO content of raw material	%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
InCaO	tonnes CaO	0	0	0	0	0	0	0	0	0	0	0	0	0
InMgO	tonnes MgO	0	0	0	0	0	0	0	0	0	0	0	0	0
Output of clinker														
Quantity of clinker produced	tonnes/yr	1,550,097	1,531,200	1,634,845	1,484,245	0	1,700,973	1,278,033	1,741,573	1,782,349	1,815,353	0	0	0
CaO content of clinker	%	66.42%	66.45%	66.40%	66.42%	0.00%	66.42%	66.42%	66.42%	66.42%	66.42%	66.42%	66.42%	66.42%
MgO content of clinker	%	0.66%	0.71%	0.61%	0.67%	0.00%	0.66%	0.66%	0.66%	0.66%	0.66%	0.66%	0.66%	0.66%
OutCaO	tonnes CaO	1,029,618	1,017,482	1,085,537	985,836	0	1,129,843	848,912	1,156,811	1,183,895	1,205,818	0	0	0
OutMgO	tonnes MgO	10,263	10,872	9,973	9,944	0	11,283	8,478	11,552	11,823	12,042	0	0	0
Baseline CO2 emissions from calcination process														
BE - calcin	tCO2/tonne clinker f	0.52866677	0.5293857	0.5279012	0.5287134	#DIV/0!	0.52866677	0.52866677	0.52866677	0.52866677	0.52866677	#DIV/0!	#DIV/0!	#DIV/0!

Parameter	Unit	Average	2003	2004	2005	1 2006	2 2007	3 2008	4 2009	5 2010	6 2011	7 2012	8 2013	9 2014
CO2 emissions due to fossil fuel use (total per tonne of clinker) - Summary														
BE - fossil_fuel	tCO2/tonne clinker	0.344	0.331	0.345	0.356	0.000	0.344	0.344	0.344	0.344	0.344	#DIV/0!	#DIV/0!	#DIV/0!
Main assumptions and input														
CLNK - BSL production of t tons/yr		1,550,097	1,531,200	1,634,845	1,484,245	1,550,097	1,550,097	1,550,097	1,550,097	1,550,097	1,550,097	0	0	0
Emission factors of:														
Petrol coke	tCO2/t fuel	3.17												
Heavy oil	tCO2/t fuel	3.126												
Solvents	tCO2/t fuel	0												
Diesoline	tCO2/t fuel	3.185												
Coal	tCO2/t fuel	2.668												
Palm Kernel Shell	tCO2/t fuel	0												
0 tCO2/t fuel		0												
0 tCO2/t fuel		0												
Details of caculations:														
Type/quantity of fuel used in kiln (per year)														
Petrol coke	tons/yr	1,703	5,108	0	0	0	1,703	1,703	1,703	1,703	1,703			
Heavy oil	tons/yr	3,584	5,235	1,914	3,602	0	3,584	3,584	3,584	3,584	3,584			
Solvents	tons/yr	0	0	0	0	0	0	0	0	0	0			
Diesoline	tons/yr	70	173	0	36	0	70	70	70	70	70			
Coal	tons/yr	193,375	177,573	209,044	193,509	0	193,375	193,375	193,375	193,375	193,375			
Palm Kernel Shell	tons/yr	34,875	42,470	25,713	36,442	0	34,875	34,875	34,875	34,875	34,875			
CO2 emissions due to fossil fuel use (total per year for each fuel)														
Petrol coke	tCO2/yr	5,397	16,192	0	0	0	5,397	5,397	5,397	5,397	5,397	0	0	0
Heavy oil	tCO2/yr	11,203	16,365	5,983	11,260	0	11,203	11,203	11,203	11,203	11,203	0	0	0
Solvents	tCO2/yr	0	0	0	0	0	0	0	0	0	0	0	0	0
Diesoline	tCO2/yr	222	551	0	115	0	222	222	222	222	222	0	0	0
Coal	tCO2/yr	515,925	473,765	557,729	516,282	0	515,925	515,925	515,925	515,925	515,925	0	0	0
Palm Kernel Shell	tCO2/yr	0	0	0	0	0	0	0	0	0	0	0	0	0
CO2 emissions due to fossil fuel use (total per tonne of clinker)														
BE - fossil_fuel	tCO2/tonne clinker	0.344	0.331	0.345	0.356	0.000	0.344	0.344	0.344	0.344	0.344	#DIV/0!	#DIV/0!	#DIV/0!

Parameter	Unit	Average	2003	2004	2005	1 2006	2 2007	3 2008	4 2009	5 2010	6 2011	7 2012	8 2013	9 2014
CO2 emissions from electricity use - Summary														
BE/PE - ele_grid_CLNK	tCO2/tonne clinker	0.059	0.060	0.058	0.060	#DIV/0!	0.059	0.059	0.059	0.059	0.059	#DIV/0!	#DIV/0!	#DIV/0!
BE/PE - ele_sg_CLNK	tCO2/tonne clinker	0.000	0.000	0.000	0.000	#DIV/0!	0.000	0.000	0.000	0.000	0.000	#DIV/0!	#DIV/0!	#DIV/0!
Baseline/project emissions due to elec for clinker	tCO2/tonne clinker	0.059	0.060	0.058	0.060	#DIV/0!	0.059	0.059	0.059	0.059	0.059	#DIV/0!	#DIV/0!	#DIV/0!
BE/PE - ele_grid_BC [general purpose cement]	tCO2/tonne BC	0.027	0.027	0.027	0.027	#DIV/0!	0.027	0.027	0.027	0.027	0.027	#DIV/0!	#DIV/0!	#DIV/0!
BE/PE - ele_sg_BC [general purpose cement]	tCO2/tonne BC	0.000	0.000	0.000	0.000	#DIV/0!	0.000	0.000	0.000	0.000	0.000	#DIV/0!	#DIV/0!	#DIV/0!
Baseline/project emissions due to elec for grinding [general purpose cement]	tCO2/tonne BC	0.027	0.027	0.027	0.027	#DIV/0!	0.027	0.027	0.027	0.027	0.027	#DIV/0!	#DIV/0!	#DIV/0!
BE/PE - ele_grid_ADD [general purpose cement]	tCO2/tonne BC	0.000	0.000	0.000	0.000	#DIV/0!	0.000	0.000	0.000	0.000	0.000	#DIV/0!	#DIV/0!	#DIV/0!
BE/PE - ele_sg_ADD [general purpose cement]	tCO2/tonne BC	0.000	0.000	0.000	0.000	#DIV/0!	0.000	0.000	0.000	0.000	0.000	#DIV/0!	#DIV/0!	#DIV/0!
Baseline/project emissions due to elec for additives [general purpose cement]	tCO2/tonne BC	0.000	0.000	0.000	0.000	#DIV/0!	0.000	0.000	0.000	0.000	0.000	#DIV/0!	#DIV/0!	#DIV/0!
Main assumptions and input														
CLNK - BSL / CLNK - y	tonne clinker/yr	1,550,097	1,531,200	1,634,845	1,484,245	0	1,700,973	1,278,033	1,741,573	1,782,349	1,815,353	0	0	0
BC - BSL / BCy for general purpose cement	tonne BC/yr	1,776,759	1,755,963	1,774,692	1,799,620	0	2,147,650	1,730,708	2,307,346	2,362,618	2,406,896	0	0	0
Grid electricity EF	tCO2/MWh	0.622												
Self generated electricity EF	tCO2/MWh	0												
Details of calculations:														
Grid electricity for clinker production														
BELE/PELE - grid_CLNK	MWh/year	148,156	148,572	152,384	143,512	0	162,687	122,235	166,570	170,470	173,626	0	0	0
BE/PE - ele_grid_CLNK	tCO2/tonne clinker	0.059	0.060	0.058	0.060	#DIV/0!	0.059	0.059	0.059	0.059	0.059	#DIV/0!	#DIV/0!	#DIV/0!
Self generated electricity for clinker production														
BELE/PELE - sg_CLNK	MWh/year	0	0	0	0	0	0	0	0	0	0	0	0	0
BE/PE - ele_sg_CLNK	tCO2/tonne clinker	0.000	0.000	0.000	0.000	#DIV/0!	0.000	0.000	0.000	0.000	0.000	#DIV/0!	#DIV/0!	#DIV/0!
Grid electricity for BC grinding														
BELE/PELE - grid_BC for general purpose cement	MWh/year	76,997	76,789	76,087	78,114	0	93,069	75,001	99,990	102,385	104,304	0	0	0
BE/PE - ele_grid_BC for general purpose cement	tCO2/tonne BC	0.027	0.027	0.027	0.027	#DIV/0!	0.027	0.027	0.027	0.027	0.027	#DIV/0!	#DIV/0!	#DIV/0!
Self generated electricity for BC grinding														
BELE/PELE - sg_BC for general purpose cement	MWh/year	0	0	0	0	0	0	0	0	0	0	0	0	0
BE/PE - ele_sg_BC for general purpose cement	tCO2/tonne BC	0.000	0.000	0.000	0.000	#DIV/0!	0.000	0.000	0.000	0.000	0.000	#DIV/0!	#DIV/0!	#DIV/0!
Grid electricity for preparing additives														
BELE/PELE - grid_ADD for general purpose cement	MWh/year	0	0	0	0	0	0	0	0	0	0	0	0	0
BE/PE - ele_grid_ADD for general purpose cement	tCO2/tonne BC	0.000	0.000	0.000	0.000	#DIV/0!	0.000	0.000	0.000	0.000	0.000	#DIV/0!	#DIV/0!	#DIV/0!
Self generated electricity for preparing additives														
BELE/PELE - sg_ADD for general purpose cement	MWh/year	0	0	0	0	0	0	0	0	0	0	0	0	0
BE/PE - ele_sg_ADD for general purpose cement	tCO2/tonne BC	0.000	0.000	0.000	0.000	#DIV/0!	0.000	0.000	0.000	0.000	0.000	#DIV/0!	#DIV/0!	#DIV/0!

Parameter	Unit	Average	2003	2004	2005	1 2006	2 2007	3 2008	4 2009	5 2010	6 2011	7 2012	8 2013	9 2014
Leakage factor - summary (for yearly leakage: see Emission Reductions)														
L - add_trans	tCO2/tonne additive		0.026	0.025	0.025	#DIV/0!	0.022	0.022	0.021	0.021	0.021	#DIV/0!	#DIV/0!	#DIV/0!
Main assumptions and input														
TF - cons	kg fuel/km	0.213	Possible fuels: Gasoline Diesel											
D - add_source	km/vehicle trip	600												
Fuel used	type of fuel	Diesel												
EF - gasoline	tCO2/t fuel	3.074												
EF - diesel	tCO2/t fuel	3.185												
Q - add	tonne additive/vehicle trip	25												
ELE - conveyor_ADD	MWh/yr	4,412												
ADD - y [general purpose cement type	tonne additive/year	301,805	276,189	326,585	302,642	#DIV/0!	446,677	452,676	565,773	580,269	591,543	0	0	0
EF - grid	tCO2/MWh	0.622												
Details of calculations:														
Vehicle emissions														
TEF	kg CO2/kg fuel	3.185												
TF - cons * D - add_source * TEF / Q - tCO2 / tonne additive		0.016												
Conveyor emissions														
ELE - conveyor_ADD * EF - grid / ADf tCO2 / tonne additive			0.010	0.008	0.009	#DIV/0!	0.006	0.006	0.005	0.005	0.005	#DIV/0!	#DIV/0!	#DIV/0!

Parameter	Symbol	Unit	Average	1 2006	2 2007	3 2008	4 2009	5 2010	6 2011	7 2012	8 2013	9 2014	9 2015
Emission reductions - summary													
Annual emission reductions [general purpose cement]	ER - y	CER/yr		#DIV/0!	134,199	188,261	211,226	211,298	209,657	203,534	197,411	191,288	185,165
Annual emission reductions [Total]	ER - y	CER/yr		#DIV/0!	134,199	188,261	211,226	211,298	209,657	203,534	197,411	191,288	185,165
Main assumptions and input													
Annual Increase in baseline blend		%	2.0%										
Baseline benchmark share of clinker [general purpose cement]	B - Blend	tonne clinker/tonne BC	86.35%										
Annual production of blended cement [general purpose cement]	BC - y	tonne BC/yr		0	2,147,650	1,730,708	2,307,346	2,362,618	2,406,896	2,406,896	2,406,896	2,406,896	2,406,896
Results common to general purpose cement type													
BSL benchmark emissions due to clinker production		tCO2/tonne clinker	0.932										
Project emissions due to clinker production per tonne clinker	PE - clinker.y	tCO2/tonne clinker		#DIV/0!	0.932	0.932	0.932	0.932	0.932	0.932	0.932	0.932	0.932
Adjusted BSL emissions due to clinker production per tonne clinker	BE - clinker	tCO2/tonne clinker		#DIV/0!	0.932	0.932	0.932	0.932	0.932	0.932	0.932	0.932	0.932
Results for general purpose cement													
Blends (baseline and project)													
Project share of additives	1 - P - Blend.y	tonne additives/tonne BC		#DIV/0!	20.80%	26.16%	24.52%	24.56%	24.58%	24.58%	24.58%	24.58%	24.58%
Baseline updated share of additives	A - Blend	tonne additive/tonne BC		13.65%	13.92%	14.20%	14.47%	14.74%	15.02%	15.29%	15.56%	15.83%	16.11%
Additional share of additives in project	P - Blend.y - A - Bler	tonne additive/tonne BC		#DIV/0!	6.88%	11.96%	10.05%	9.82%	9.56%	9.29%	9.02%	8.74%	8.47%
Project share of clinker	P - Blend.y	tonne clinker/tonne BC		#DIV/0!	79.20%	73.84%	75.48%	75.44%	75.42%	75.42%	75.42%	75.42%	75.42%
Baseline updated share of clinker	B - Blend.y	tonne clinker/tonne BC		86.35%	86.08%	85.80%	85.53%	85.26%	84.99%	84.71%	84.44%	84.17%	83.89%
Baseline CO2 emissions per tonne of blended cement BC													
Total BSL emissions due to clinker production per tonne BC	(BE - clinker)*(B - Bl	tCO2/tonne BC		#DIV/0!	0.802	0.800	0.797	0.794	0.792	0.789	0.787	0.784	0.782
BSL emissions due to elec for grinding		tCO2/tonne BC	0.027										
BSL emissions due to elec for additives		tCO2/tonne BC	0.000										
Total BSL emissions due to grinding and additives	BE - ele_ADD_BC	tCO2/tonne BC	0.027										
Total BSL CO2 emissions per tonne BC	BE - BC.y	tCO2/tonne BC		#DIV/0!	0.829	0.827	0.824	0.821	0.819	0.816	0.814	0.811	0.809
Total Baseline Emissions		tCO2/year	12965777.71		1780526.672	1430454.99	1901184.509	1940716.538	1970964.999	1964842.017	1958719.036	1952596.054	1946473.072
Project CO2 emissions per tonne of blended cement BC													
Total Project emissions due to clinker production per tonne BC	(PE - clinker)*(1 - P	tCO2/tonne BC		#DIV/0!	0.738	0.688	0.703	0.703	0.703	0.703	0.703	0.703	0.703
Project emissions due to elec for grinding		tCO2/tonne BC		#DIV/0!	0.027	0.027	0.027	0.027	0.027	0.027	0.027	0.027	0.027
Project emissions due to elec for additives		tCO2/tonne BC		#DIV/0!	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total Project emissions due to grinding and additives	PE - ele_ADD_BC.y	tCO2/tonne BC		#DIV/0!	0.027	0.027	0.027	0.027	0.027	0.027	0.027	0.027	0.027
Total Project CO2 emissions per tonne BC	PE - BC.y	tCO2/tonne BC		#DIV/0!	0.765	0.715	0.730	0.730	0.730	0.730	0.730	0.730	0.730
Total Project CO2 emissions		tCO2/year	11559632.5		1642929.445	1237576.74	1685066.681	1724553.302	1756502.11	1756502.11	1756502.11	1756502.11	1756502.11
Emission reductions													
Emission reductions from change in blend		tCO2/yr		#DIV/0!	137,596	192,877	216,116	216,162	214,461	208,338	202,215	196,092	189,969
Emission reductions from change in elec use for grinding		tCO2/yr		#DIV/0!	0	0	-0	-0	-0	-0	-0	-0	-0
Emission reductions from change in elec use for additives		tCO2/yr		#DIV/0!	0	0	0	0	0	0	0	0	0
Total emission reductions before leakage and α adjustment)	[(BE - BC.y)-(PE - Bl	tCO2/yr		#DIV/0!	137,450	192,878	216,118	216,163	214,463	208,340	202,217	196,094	189,9