



USE CASES

DEFINITION OF USE CASES

In these analysis obviously Setec staff considered only costs related to the use of the kiln, like raw materials and methane consumptions based on Eurostat Data.

Refiring sanitaryware in Italy			
	ECONOMICK	Conventional shuttle kiln	improved
Pieces refired	125	125	
Methane consumed (Nm3)	373	704	-47%
Methane costs (euro)	100	190	-47%
Raw materials consumed (kg)	2301	2557	-10%
Raw materials costs (euro)	690	767	-10%
Total costs (euro)	790	957	-17.5 %

Business case based on refiring in Italy

The table above shows that in a plant like Kerasan refiring in an ECONOMICK shuttle kiln allows to save money up to -17.5 % of total refiring costs.

Refiring sanitaryware in Romania			
	ECONOMICK	Conventional shuttle kiln	improved
Pieces refired	1000	1000	
Methane consumed (Nm3)	2980	5622	-47%
Methane costs euro	745	1406	-47%
Raw materials consumed (kg)	18410	20456	-10%
Raw materials costs (euro)	5523	6137	-10%
Total costs (euro)	6268	7543	-16.9 %

Business case based on refiring in Romania

It is important to underline that it would be possible to save less money with respect to Italy. Indeed, fixed products and refiring cycle, kiln performances are the same; so the difference is only due to the methane cost that is higher in Italy than in Romania (0.27 euro/nm3 vs 0.25 Eurostat Data).

Firing sanitaryware in Romania			
	ECONOMICK	Conventional shuttle kiln	improved
Pieces refired	1000	1000	
Methane consumed (Nm3)	2913	5827	-50%
Methane costs (euro)	728	1457	-50%
Raw materials consumed (kg)	18410	20456	-10%
Raw materials costs (euro)	5523	6137	-10%
Total costs (euro)	6251	7594	-17.7%

Business case based on firing at Bianca Romania

This simulation was made using final ECONOMICK consumptions obtained in Kerasan. The improvement with respect to the refiring in Romania, depends on the lower methane consumptions; indeed, in according with Kerasan trials, we have considered 12 hours for firing curve and 24 hours for refiring. To resume, ECONOMICK kiln saving is even more appreciable with very short cycles.

Tableware firing in Italy			
	ECONOMICK	Conventional shuttle kiln	improved
Pieces refired	30800	30800	
Methane consumed (Nm3)	7349	14698	-50%
Methane costs euro	1984	3968	-50%
Raw materials consumed (kg)	20020	20533	-2.5%
Raw materials costs (euro)	6006	6160	-2.5%
Total costs (euro)	7990	10128	-21.1%

Business case based on Tableware firing in Italy

Data obtained during Ceramica Cuore production demonstrate that it is possible to save money up to 21,1%; This is easily explained because tableware production is more energy consuming due to refractory supports.

Obviously improvement strongly depends by methane cost. To have an idea we add 3 other use cases for tableware in Portugal, Poland and France. Also in these cases we used Eurostat data.

Tableware firing in Portugal (methane cost: 0,26 euro/nm3)			
	ECONOMICK	Conventional shuttle kiln	improved
Pieces refired	30800	30800	
Methane consumed (Nm3)	7349	14698	-50%
Methane costs euro	1911	3822	-50%
Raw materials consumed (kg)	20020	20533	-2.5%
Raw materials costs (euro)	6006	6160	-2.5%
Total costs (euro)	7917	9982	-20.7%

Business case based on Tableware firing in Portugal

Tableware firing in Poland (methane cost: 0,29 euro/nm3)			
	ECONOMICK	Conventional shuttle kiln	improved
Pieces refired	30800	30800	
Methane consumed (Nm3)	7349	14698	-50%
Methane costs euro	2131	4262	-50%
Raw materials consumed (kg)	20020	20533	-2.5%
Raw materials costs (euro)	6006	6160	-2.5%
Total costs (euro)	8137	10422	-21.9%

Business case based on Tableware firing in Poland

Tableware firing in France (methane cost: 0,34 euro/nm3)			
	ECONOMICK	Conventional shuttle kiln	improved
Pieces refired	30800	30800	
Methane consumed (Nm3)	7349	14698	-50%
Methane costs euro	2514	5028	-50%
Raw materials consumed (kg)	20020	20533	-2.5%
Raw materials costs (euro)	6006	6160	-2.5%
Total costs (euro)	8520	11188	-23.8%

Business case based on Tableware firing in France