13. Intangible assets and Goodwill

(all amounts in Euro thousands)

Group	Initial goodwill	Goodwill impairment	Total goodwill	Licences	Patents	Research and development costs	Trade-marks	Customer relation-ships	Other intangible assets	Total
Year ended 31 December 2011										
Opening balance	**436.077**	**-17.834**	**418.243**	**28.313**	**1.149**	**5.527**	**34.473**	**79.650**	**4.760**	**572.115**
Additions	-	-	-	235	-	1.122	102	-	458	1.917
Subsidiaries acquired (note 30)	150	-	150	-	-	-	-	-	-	150
Impairment (note 29)	-	-3.786	-3.786	-	-	-	-	-	-	-3.786
Amortization charge (note 29)	-	-	-	-1.203	-698	-934	-1.696	-13.546	-824	-18.901
Exchange differences	-5.222	-	-5.222	-325	-14	121	115	-168	109	-5.384
Ending balance	**431.005**	**-21.620**	**409.385**	**27.020**	**437**	**5.836**	**32.994**	**65.936**	**4.503**	**546.111**
Year ended 31 December 2012										
Opening balance	**431.005**	**-21.620**	**409.385**	**27.020**	**437**	**5.836**	**32.994**	**65.936**	**4.503**	**546.111**
Additions	-		-	339	-	680	-	-	13.214	14.233
Subsidiaries acquired (note 30)	108	-	108	-	-	-	-	-	42	150
Acquisition of business	-	-	-	-	-		-	-	2.364	2.364
Reclassification of assets to other categories	-	-	-	-15	-		-139	-	154	-
Impairment (note 29)	-	-1.973	-1.973	-3.143	-	-	-	-	-1.844	-6.960
Surrender of emission rights	-	-	-	-	-	-	-	-	-8.025	-8.025
Amortization charge (notes 29)	-	-	-	-822	-434	-1.081	-1.903	-14.352	-1.630	-20.222
Exchange differences	4.981	-	4.981	-510	-3	-100	-1.447	-2.624	-450	-153
Ending balance	**436.094**	**-23.593**	**412.501**	**22.869**	**-**	**5.335**	**29.505**	**48.960**	**8.328**	**527.498**

Company	Initial goodwill	Goodwill impairment	Total goodwill	Licences	Patents	Research and development costs	Trade-marks	Customer relation-ships	Other intangible assets	Total
Year ended 31 December 2011										
Opening balance	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**1.122**	**1.122**
Additions	-	-	-	-	-	-	81	-	58	139
Amortization charge (note 29)	-	-	-	-	-	-	-	-	-149	-149
Ending balance	**-**	**-**	**-**	**-**	**-**	**-**	**81**	**-**	**1.031**	**1.112**
Year ended 31 December 2012										
Opening balance	**-**	**-**	**-**	**-**	**-**	**-**	**81**	**-**	**1.031**	**1.112**
Additions	-	-	-	-	-	-	-	-	8.143	8.143
Amortization charge (note 29)	-	-	-	-	-	-	-	-	-308	-308
Impairment (note 29)	-	-	-	-	-	-	-	-	-1.358	-1.358
Surrender of emission rights	-	-	-	-	-	-	-	-	-6.426	-6.426
Provision of costs of the emission rights surrender	-	-	-	-	-	-	-	-	-64	-64
Ending balance	**-**	**-**	**-**	**-**	**-**	**-**	**81**	**-**	**1.018**	**1.099**

13. Intangible assets and Goodwill (continued)

During the second semester of 2012, the Group's subsidiary in USA, Separation Technologies LLC, acquired from a competitor the equipment and the rights of fly ash's processing held by the seller of a thermal power plant in Florida. Based on the agreement, the Separation Technologies LLC undertook the liability of the plant's site restoration. The Group posted the amount of €2.4 mil. at the account of other intangible assets, as the fair value of the site restoration (note 26).

The total amount of the intangible assets' impairment, excluding goodwill, stood at €5.0 mil. The amount of €3.1 mil. relates to the impairment of mining rights in Greece and the remaining amount of €1.9 mil. relates to the impairment arising from the revaluation in fair value of Carbon Emissions Rights (CER) that the Group possessed as at 31.12.2012.

Impairment testing of goodwill

Goodwill acquired through business combinations has been allocated to the following cash-generating units ("CGU's") per region of operation.

(all amounts in Euro thousands)

Carrying amount of goodwill (by geographical segment):	2012	2011
Greece and Western Europe	14.405	16.127
North America	166.019	169.290
South Eastern Europe	57.014	57.580
Eastern Mediterranean	175.063	166.388
	412.501	**409.385**

The provision of goodwill impairment is charged in the income statement.

Key assumptions

The recoverable amount of all CGUs has been determined based on value-in-use calculations. These calculations use pre-tax cash flow projections based on financial budgets approved by management covering a five-year period. Cash flows beyond the five-year period are extrapolated using the estimated growth rates stated below.

The calculation of value-in-use for the Group's evaluated CGUs is most sensitive to the following assumptions:

• Sales volumes;
• Selling prices;
• Gross margin;
• Growth rate used to extrapolate cash flows beyond the specific projection period; and
• Discount rates

Sales volumes:
Volume assumptions have been provided by local management and reflect their best estimates derived from sales forecasts for the development of which a combination of factors have been taken into consideration: past performance, local market growth estimates, infrastructural projects in which the company will participate (public investments), etc. In USA sales volume growth rates are also based on published industry research and take into account demographic trends including population growth, household formation, and economic output (among other factors) in the states where the Group operates. In addition to demographic trends, long-term growth rates take into account cement/concrete intensity in construction which has historically varied from state to state based on building codes, availability of raw materials, and other factors.
Selling prices:
Price assumptions have been provided by local management and reflect their best estimates. Factors they have taken into consideration involve inflation, brand loyalty, growth rate of the regional economy, competition, production cost increases, etc. The Group has assumed the following sales compound annual growth rates for the five year period.

Sales Growth	2012	2011
Greece and Western Europe	11,4% - 23,8%	17,9% - 30,3%
North America	8,1% - 12,3%	4,4% - 13,5%
South Eastern Europe	4,3% - 12,5%	10,5% - 17,1%
Eastern Mediterranean	3,2% - 11,8%	6,3% - 14,5%

13. Intangible assets and Goodwill (continued)

Gross margin :

Illustrates all cost of goods sold related factors and which incorporates among others, the evolution of energy cost. The Group has assumed the following gross margin compound annual growth rates for the five year period:

Gross margin Growth	2012	2011
Greece and Western Europe	24,3% - 30,6%	8,1% - 42,7%
North America	5,9% -59,5%	4,8% - 73,8%
South Eastern Europe	9,3% - 27,3%	11,1% - 25,4%
Eastern Mediterranean	12,6% - 20%	16,2% - 25,4%

Perpetual Growth rates:

Factors that have been taken into consideration are estimates from the local Central Banks in the countries where the Group operates as relates to the growth of the local economies over the next years along with the co-relation that exists between the economy growth and the construction sector growth.

In the USA, following the five year specific forecast period, management used a fading-growth-rate model in its value-in-use calculation. Under this approach, cash flows are assumed to increase at a higher rate following the specific projection period before settling into a long-term growth rate. The growth rates have been estimated by management as follows:

Perpetual Growth rates	2012	2011
Greece and Western Europe	0%-4%	0%-3%
North America	3%-4%	3%-4%
South Eastern Europe	2%	2%
Eastern Mediterranean	2%-5%	3%-5%

Discount rates:

Discount rates represent the current market assessment of the risks specific to each CGU, taking into consideration the time value of money and individual risks of the underlying assets that have not been incorporated in the cash flow estimates. The discount rate calculation is based on the specific circumstances of the Group and its operating segments and is derived from its weighted average cost of capital (WACC). The WACC takes into account both debt and equity. The cost of equity is derived from the expected return on investment by the Group's investors. The cost of debt is based on the interest bearing borrowings the Group is obliged to service. Country-specific risk is incorporated by applying individual beta factors. The beta factors are evaluated annually based on publicly available market data.

Discount rates	2012	2011
Greece and Western Europe	9,1% - 10,5%	10% - 17,2%
North America	8,1%	8,7%
South Eastern Europe	11,3%-14,2%	8,5%-17,2%
Eastern Mediterranean	12,5%-13,3%	13,7%-14,4%

Sensitivity of recoverable amounts

As at December 31, 2012, the Group analyzed the sensitivities of the recoverable amounts to a reasonable possible change of a key assumption (notably to a change of one point in the discount rate or the perpetual growth rate). These analyses did not show a situation in which the carrying value of the main CGUs would exceed their recoverable amount, with the exception of the Greece CGU referred to below.

For the CGU Greece, a significant reduction in demand of construction materials due to the persisting economic recession led to the reduced revenues compared to the last year forecasts. As a result, the Group recorded an impairment loss of €2.0 mil. on the goodwill of the Greek CGU, based on the respective value in use as calculated using a discount rate of 10.5% (10% in 2011).