

**Pigments,
opacifiers,
colors; enamels
and glazes;
engobes; liquid
lustre**

Our findings, observations and/or recommendations are those that we could reasonably derive from the procedures or scope of services performed. The specific procedures performed were agreed with Georgian National Investment Agency (the Client) and were performed by us as set forth in the Report.

Our work was carried out solely based on the publicly available research data.

We have indicated within our Report the sources of the information presented and have satisfied ourselves, so far as possible, that the information presented in our Report is consistent with other information which was made available to us in the course of our work in accordance with the terms of the Contract. We have not, however, sought to establish the reliability of the sources by reference to other evidence.

All recommendations, provided to you with/in this Report that refer to the future have some limitations in the sense that they are based on the assumptions valid on the issuance date. These assumptions could change with time, after the date of this Report issuance, and so could lose their value.

References to 'KPMG Analysis' in this Report indicate only that we have (where specified) undertaken certain analytical activities on the underlying data to arrive at the information presented; we do not accept responsibility for the underlying data.

In order to understand the optimal/maximum industry capacity of production of Pigments, opacifiers, colors; enamels and glazes; engobes; liquid lustre in Georgia, we analyzed the potential consumption of the Georgian production by the countries of the region (EU, Ukraine, Turkey, Southern Caucasus and Central Asia) and Russia, assuming that significant part of the products will be exported to these countries. The consumption has been analyzed based on the supply/demand data. We calculated the gap between import and export in these countries, as well as considered the production potential capacity increase (pipeline) and consumption data to understand the potential volume of the Pigments, opacifiers, colors; enamels and glazes; engobes; liquid lustre, that might be exported to these countries. In addition, we analyzed the main countries from which Pigments, opacifiers, colors; enamels and glazes; engobes; liquid lustre are imported, and considering several factors, identified the countries which can potentially be replaced by Georgian imports (partially). The factors include:

- distance, i.e. transportation costs,
- economic and political factors
- ease of access to these countries by Georgia

Based on the analysis of the above factors for each country in the region and Russia, as well as considering the overall share of the importing countries, which might be potentially replaced, we calculated approximate maximum share of the potential import of the Pigments, opacifiers, colors; enamels and glazes; engobes; liquid lustre by Georgia to these countries.

Country	Import/export gap (USD m)	Existence of production facilities	Main exporter country/region	Total export in tons (2014 data)	Potential replacement	Share of import of the potential replacement countries in total import	Total imported tons by the potential replacement countries (2014 data)	Potential share of import from Georgia	Potential volume (tons)
Turkey	44.4	Yes	Spain, Italy, China, Egypt, Germany	44,182	Egypt, Europe (except Germany)	94%	41,346	10%	4,135
Ukraine	28.5	No	Spain, Czech Republic, Poland, Italy, Slovenia	21,833	Europe	99%	21,528	15%	3,229
Armenia	(0.3)	Yes			n/a				
Azerbaijan	0.2	Yes	Turkey, Spain, Poland, Netherlands	72	Europe	54%	39	20%	8
Central Asia	10.0	N/A	Russia, Turkey, China, Ukraine, Iran	9,288	Turkey, Iran, Ukraine	14%	1,296	7%	91
Russia	90.1	Yes	Spain, Italy, Turkey, Czech Republic, China	69,506	Turkey, Europe	99%	68,501	7%	4,795
EU	(1,220)	Yes			n/a				
TOTAL									12,257

Note: N/A means the data was not available in the public sources

The analysis shows, that there is a gap between the import and export in Russia and the countries of the region, except for Armenia and EU. The gap in Armenia and EU is negative, which shows that the export exceeds import. Considering that there are big producers of Pigments, opacifiers, colors; enamels and glazes; engobes; liquid lustre (Hempel, Berger, etc) based in the EU countries, and as for Armenia taking into account its small market, which already has manufacturers (SHEN HOLDING CJSC, SHEN TANIQ LLC, SKIFF, etc.), we considered that the possibility to access these markets is low, therefore didn't consider Armenia and EU as a potential consumer of the Georgian production.

The calculated optimal capacity of the production of Pigments, opacifiers, colors; enamels and glazes; engobes; liquid lustre in Georgia is 12,000 to 13,000 tons per year

The estimated investment is USD 19.3 million to USD 20.9 million

As for other countries/regions, the import/export gap is significant. Notwithstanding the existence of the production facilities in the most of the countries/regions, the demand exceeds supply and there is a potential for other supplier to enter these markets. As an example, the gap between the import/export in Turkey is USD 44.4 million. There are big producers in the country, including branches of the biggest producers of the sub-sector, as well as local producers (SETAS KIMYA A.S., Goteks chemicals, Makro Paint And Chemical Co., Ltd, etc.). Significant share of the local production is consumed in the domestic market, however there is still significant import of the Pigments, opacifiers, colors; enamels and glazes; engobes; liquid lustre to the country. The main importer countries are Spain, Italy, China, Egypt, Germany. Considering the distance factor, as well as ease of access of Georgia to Turkey, i.e. common border, we assumed that Georgia might potentially take up some share of the imports from Egypt, Europe (except Germany). The share of import from Egypt, Europe (except Germany) is 94% in the total import of the Pigments, opacifiers, colors; enamels and glazes; engobes; liquid lustre to the country, which is 41,346 tons in volume terms. We assumed that Georgia could potentially take up maximum 10% of the imports from these countries considering the potential specific quality, brand and pricing factors of Egypt, Europe (except Germany) products. Thus the potential volume of the import from Georgia can be around 4,135 tons. The same approach has been applied to the analysis of other countries. For the countries, which do not have local production, bigger potential share of import from Georgia has been applied. We also considered the current political factors in the region, however we assumed that this might potentially have a short-term impact, therefore adjusted the potential share accordingly (e.g. in case of the trade between Russia and Ukraine, we assumed that it might potentially continue and left some share for the mutual trade).

As Georgia's consumption figure is not significant, we didn't add any additional quantity to the potential volume. Thus, based on the calculations of import/export data and the potential consumption in Georgia (assuming that the consumption volume has not been changed significantly), the optimal capacity of the production in Georgia would be around 12,257 tons per year, i.e. range from 12,000 to 13,000 tons per year. In order to estimate the approximate investment for a manufacturing facility with the capacity of 12,000 to 13,000 tons per year, we searched for similar projects throughout several countries. Based on the information on the investment amount, which includes construction of the plant, storage place and related infrastructure facilities, installation of machines and boilers, we calculated the cost per ton, which is around USD 1,609 on average. Thus the estimated investment would be from USD 19.3 million to USD 20.9 million. This is an approximate range, as the factors like country specifics, construction costs, availability of technologies have not been analyzed for Georgia in detail. The table below summarizes data on investments in the Pigments, opacifiers, colors; enamels and glazes; engobes; liquid lustre world market.

Comparable projects					
Company	Plant Location	Date	Investment, USD mln	Capacity, thousand tonnes	Investment per tonne, USD
LANXESS	China	2013	70.6	25	2,824
Hempel	Nashik, India	2014	4	10	394
<i>Industry average</i>					1,609

While selecting the projects we considered ones constructed after 2013 only in order to have most recent data. The estimation has been performed based on the available data and educated guess, therefore it is recommended to perform thorough analysis before commencing to a certain project.

Taking into account the profitability we suggest that the new entrants could start with the production of most consumed products, e.g. pigments and enamels. Further integration of other products might become feasible when the company gains certain level of brand awareness in the targeted markets. Concentration on one product group would also decrease the required amount of initial investment as different product groups have different manufacturing technologies.

The main competitor countries are Russia, Ukraine and Turkey

The major competitor countries can be considered the neighboring countries which have significant production facilities. Based on our analysis, these include:

Main Competitor countries	Main competitor companies
Russia	<ul style="list-style-type: none"> • Tikkurila Oyj • Hempel • Beckers • Pigment • Himsvet
Ukraine	<ul style="list-style-type: none"> • Tikkurila Oyj • Hempel • Sjsc Titan
Turkey	<ul style="list-style-type: none"> • PPG Industries Inc. • Hempel • Yasar • SETAS KIMYA A.S. • Goteks chemicals • Makro Paint And Chemical Co., Ltd

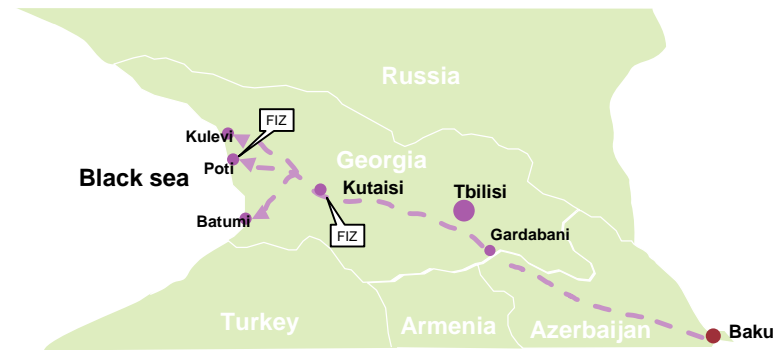
Azerbaijan and Armenia also have production facilities, however these are not significant and supply only small portion of the local consumption. Most of the production is consumed inside each country.

Pigments, opacifiers, colors; enamels and glazes; engobes; liquid lustre

Georgia's competitive advantage in manufacturing the chemical product

Given Georgia's access to the neighboring countries and its favorable economic and political position in the region, the country might potentially negotiate significant investments in the sector

- *Strategic location – Georgia's strategic location is an asset to any investor. As a bridge between Europe and Asia, Georgia offers direct access to European, Gulf Cooperation Council and CIS markets. Its three major oil and gas pipelines, Black Sea ports, well-developed railway systems, together with its airports are playing an increasingly important role in linking the East and West*
- *Stable macroeconomic environment – even though macroeconomic situation in the region is unstable, Georgia demonstrates positive expected economic growth of 2.5% in 2015, whereas in neighboring countries either economic contraction or growth close to zero is expected*
- *Liberal Trade Regimes – Georgia has low tariffs and streamlined border clearance procedures. With a range of Free Trade Agreements, Georgia has access to a 900 million market that is not subject to customs tax, including Turkey, CIS and EU countries*
- *Free Industrial Zones – Georgia has two industrial zones, in which businesses are exempted from all tax charges, except personal income tax*
- *Raw materials – Georgia itself may not be the producer of some of the key raw materials, however pigments, solvents, additives and resins can be easily obtained. Based on obtained data for 2013, Azerbaijan represents the net exporter of Resins with the amount of 26 thousand tons. Based on the analysis, the regional (excluding EU) export of pigments equals to USD 487 million.*



Ukraine and EU countries have positive trade balances of pigments equal to USD 230 million and USD 1.7 billion correspondingly. All the other countries in the region except for Ukraine and EU countries, have import/export gap of pigments, the total import exceeds the total export by USD 949 million. Turkey has the biggest import/export gap of pigments equaling to USD 868 million. Considering the availability of raw materials in Georgia for producing pigments, including mining minerals, Georgia might consider producing pigments to supply both the domestic and foreign demand.

Pigments, opacifiers, colors; enamels and glazes; engobes; liquid lustre Georgia's competitive advantage in manufacturing the chemical product

- *Low electricity cost* – The highest tariff for industrial consumers of one KWh energy in Georgia in 2014 was around USD 0.045 which is lower than in neighbor countries (in Armenia the price is around USD 0.069/per KWh, in Turkey USD 0.093/per KWh and in Azerbaijan 0.057/per KWh).*
- *Labor cost* in manufacturing industry is low amounting to 410 USD monthly on average
- *Legal environment* - No legal restrictions for importing/exporting and producing Pigments, opacifiers, colors; enamels and glazes; engobes; liquid lustre in Georgia and in the region.
- *Special Customs regime for exporters* - “Internal Processing Customs Regime”, which offers tax incentives for exporting companies. A company may get a license from the Ministry of Finance about “Internal Processing Regime” and receive an exemption from VAT and from import/customs tax on raw materials. If an exporting company sells the products in Georgia, then it has to pay VAT and import/customs tax only for these products.
- *Corporate profit tax* is flat at 15%. *Personal income tax* is 20% and there is no social tax.
- *Depreciation of capital assets* – Based on the Tax code legal entities are able to fully depreciate their assets in the year in which they are put into operation. As a result, significant amount of tax loss-carry forward is generated which could be used during the first years of operation

* Note: The prices are converted to USD based on the exchange rates as at 29 April 2015 (GEL/USD - 2.31, AMD/USD - 475.94, AZN/USD – 1.05, TRY/USD – 2.67)

Paint or varnish production sector had 92 employees in 2013

We obtained the official data on the average number of people working in chemical production. The number provided below includes not only chemists, but also other positions working in the sector (technical staff, administration etc.). The separate data on chemists is not separately available.

Annual average number of people working in chemicals production 2012-2013 (Declared Data)		
Person	2012	2013
Chemicals production	5,560	5,414
From above		
Paint or varnish production	116	92

As of 2013 the number of people employed in the chemical production sectors was 5,414. The number of people in Printing, writing or drawing production sub-sector was 92.

Key Assumptions

Based on the data gathered and analyzed in the previous stages, we performed high level financial calculations for the potential project on producing Pigments, opacifiers, colors; enamels and glazes; engobes; liquid lustre in Georgia. The more detailed description of the assumptions and relevant calculations are provided further on

- Construction period was forecast to last one year
- Capacity utilization was forecast to reach 50% in the second projection period and further increase by 25% YoY reaching 100% in the 4th projection period
- The delay in the launch of the production is due to the forecasted plant construction period. The delay in reaching full forecasted capacity of the production is due to the estimated time needed for marketing the product and building brand recognition, as well as considering learning curve effect.
- During the forecasted period the maximum capacity has been estimated as the nominal capacity determined based on the analysis of the data obtained during the research, i.e. potential debottlenecking of production has not been considered.
- Maintenance capital expenditures were forecast based on initial investment and estimated useful life of the plant of 30 years. As a result, maintenance CAPEX amounted to USD 657 thousand, further adjusted for the expected USD inflation.
- Maintenance CAPEX was assumed to be incurred starting from the 5th projection year
- As per the Georgian tax code, legal entities are able to fully depreciate their assets in the year in which they are commenced. As a result, the project will generate significant amount of tax loss-carry forward in the 1st projection year, making the project effectively exempt from corporate income tax during the first four years

Construction project details

Investment, '000 USD	19,722
Capacity	12,257
Construction timeline	1
Annual maintenance CAPEX, '000 USD	657
Domestic sales	0%
Export sales	100%

Source: KPMG Analysis

- WACC is estimated to be 15% for all chemicals products
- Based on the data provided by Damodaran, industry average capital structure of the chemicals producing companies in the emerging markets comprises of 29% debt and 71% of equity. The capital structure of the project was assumed to be the same as industry average



Pigments, opacifiers, colors; enamels and glazes; engobes; liquid lustre

Financial performance

We have assumed projection period of 10 years, followed by terminal period. The construction of factory is expected to be finished by the end of the first projection period, after which the plant will be commenced

Gross and EBITDA margins were forecast to amount to 28.4% and 10.7%, respectively throughout the forecast and terminal periods. EBT margin was projected to vary between 7.3% and 8.9%. Volatility of EBT margin is explained by increasing capital expenditures starting from year 5 and absence of corporate income tax till year 7. The COGS and the SG&A expenses have been calculated based on the industry average margins published in CapitallQ.

Projected statement of Profit and Loss											
'000 USD	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	TP
Revenues	-	19,429	29,813	40,745	41,560	42,432	43,366	44,277	45,206	46,156	47,079
Growth			53.5%	36.7%	2.0%	2.1%	2.2%	2.1%	2.1%	2.1%	2.0%
COGS	-	(13,911)	(21,346)	(29,173)	(29,757)	(30,382)	(31,050)	(31,702)	(32,368)	(33,047)	(33,708)
Gross profit	-	5,518	8,467	11,571	11,803	12,051	12,316	12,575	12,839	13,108	13,370
Gross profit margin		28.4%	28.4%	28.4%	28.4%	28.4%	28.4%	28.4%	28.4%	28.4%	28.4%
SG&A	-	(3,439)	(5,277)	(7,212)	(7,356)	(7,511)	(7,676)	(7,837)	(8,002)	(8,170)	(8,333)
EBITDA	-	2,079	3,190	4,360	4,447	4,540	4,640	4,738	4,837	4,939	5,037
EBITDA margin		10.7%	10.7%	10.7%	10.7%	10.7%	10.7%	10.7%	10.7%	10.7%	10.7%
Financial Depreciation		(657)	(657)	(657)	(670)	(694)	(719)	(745)	(771)	(798)	(825)
EBT	-	1,421	2,533	3,702	3,777	3,846	3,921	3,993	4,066	4,141	4,213
EBT margin		7.3%	8.5%	9.1%	9.1%	9.1%	9.0%	9.0%	9.0%	9.0%	8.9%
Corporate Income tax	-	-	-	-	-	-	(195)	(594)	(607)	(619)	(632)
Net Income	-	1,421	2,533	3,702	3,777	3,846	3,726	3,399	3,460	3,522	3,581
NI margin		7.3%	8.5%	9.1%	9.1%	9.1%	8.6%	7.7%	7.7%	7.6%	7.6%

Source: CapIQ, KPMG Analysis

Note: For our calculation purposes, we have not adjusted corporate income tax for the changes in deferred tax

Sales volumes

Production of Pigments, opacifiers, colors; enamels and glazes; engobes; liquid lustre was projected to start in Year 2 at the level of 6,129 tons further increasing to 12,257 tons in Year 4. The 100% of sales volume is expected to be sold on export.

Seles price

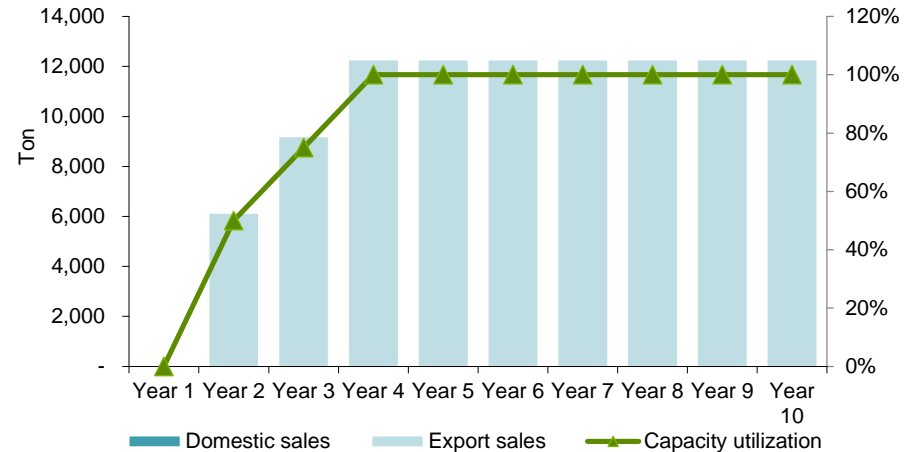
Average price per ton for the export was estimated to be USD 3,105 per ton based on average of the world market price as provided by International Trade Centre (ITC).

Selling prices



Source: ITC, KPMG Analysis

Sale volume of plant



Source: ITC, KPMG Analysis

Cost of Goods Sold and Selling, General and Administrative expenses were forecast based on 2 year industry average Gross and SG&A margins of 28.4% and 17.7% respectively.

The 79% of COGS were accounted for raw materials and remaining 21% was split between Labor (8%), Energy (3%) and Overheads, taxes and other (10%).

COGS and SG&A											
'000 USD	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	TP
COGS	-	(13,911)	(21,346)	(29,173)	(29,757)	(30,382)	(31,050)	(31,702)	(32,368)	(33,047)	(33,708)
Raw materials	-	(10,990)	(16,864)	(23,047)	(23,508)	(24,001)	(24,529)	(25,045)	(25,571)	(26,107)	(26,630)
Other	-	(2,921)	(4,483)	(6,126)	(6,249)	(6,380)	(6,520)	(6,657)	(6,797)	(6,940)	(7,079)
Labor	-	(1,113)	(1,708)	(2,334)	(2,381)	(2,431)	(2,484)	(2,536)	(2,589)	(2,644)	(2,697)
Energy	-	(417)	(640)	(875)	(893)	(911)	(931)	(951)	(971)	(991)	(1,011)
Overheads	-	(1,391)	(2,135)	(2,917)	(2,976)	(3,038)	(3,105)	(3,170)	(3,237)	(3,305)	(3,371)
SG&A expenses	-	(3,439)	(5,277)	(7,212)	(7,356)	(7,511)	(7,676)	(7,837)	(8,002)	(8,170)	(8,333)

Source: CapIQ, KPMG Analysis

The NPV of the project is positive amounting to USD 532 thousand

Discounted cash flow results											
'000 USD	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Terminal period
Total revenues	-	19,429	29,813	40,745	41,560	42,432	43,366	44,277	45,206	46,156	47,079
% of growth		-	53.45%	36.67%	2.00%	2.10%	2.20%	2.10%	2.10%	2.10%	2.00%
EBITDA	-	2,079	3,190	4,360	4,447	4,540	4,640	4,738	4,837	4,939	5,037
EBITDA margin		10.70%	10.70%	10.70%	10.70%	10.70%	10.70%	10.70%	10.70%	10.70%	10.70%
EBT	-	1,421	2,533	3,702	3,777	3,846	3,921	3,993	4,066	4,141	4,213
Income tax (adjusted)	-	-	-	-	-	-	(195)	(594)	(607)	(619)	(632)
NOPAT	-	1,421	2,533	3,702	3,777	3,846	3,726	3,399	3,460	3,522	3,581
Cash flow adjustments											
Depreciation	-	657	657	657	670	694	719	745	771	798	825
CAPEX	(19,722)	-	-	-	(729)	(744)	(760)	(776)	(793)	(809)	(825)
Change in working capital	-	(1,943)	(1,038)	(1,093)	(81)	(87)	(93)	(91)	(93)	(95)	(92)
FCFF	(19,722)	136	2,152	3,267	3,637	3,709	3,591	3,276	3,345	3,415	3,488
WACC	15.00%										
Terminal growth rate	2.00%										
Terminal value											16,891
Discount period	0.5	1.5	2.5	3.5	4.5	5.5	6.5	7.5	8.5	9.5	10
Discount factor	0.933	0.811	0.705	0.613	0.533	0.464	0.403	0.351	0.305	0.265	0.265
Discounted FCFF	(18,390)	110	1,517	2,003	1,939	1,720	1,448	1,148	1,020	905	7,112
Sum of discounted cash flows	(6,580)										
Terminal value	7,112										
NPV	532										

Source: CapIQ, KPMG Analysis

Note: For our calculation purposes, we have not adjusted corporate income tax for the changes in deferred tax

Key profitability factors of the Project

Based on the high-level calculations the project is feasible

Key profitability factors of the project											
'000 USD	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	TP
Revenues	-	19,429	29,813	40,745	41,560	42,432	43,366	44,277	45,206	46,156	47,079
EBITDA	-	2,079	3,190	4,360	4,447	4,540	4,640	4,738	4,837	4,939	5,037
Net Income	-	1,421	2,533	3,702	3,777	3,846	3,726	3,399	3,460	3,522	3,581
EBITDA margin	-	10.7%	10.7%	10.7%	10.7%	10.7%	10.7%	10.7%	10.7%	10.7%	10.7%
Net income margin	-	7.3%	8.5%	9.1%	9.1%	9.1%	8.6%	7.7%	7.7%	7.6%	7.6%
NPV of the Project	532										
IRR	15%										
Payback period	6.99										

Source: CapIQ, KPMG Analysis

Our assumptions and analysis has been performed based on the general economic and sector indicators. The detailed calculations for Georgia, including construction costs, labor costs, specific legal and environmental costs etc have not been considered. However, the country specific taxation has been considered, as well as the CPI and the pricing data.

Per the general analysis, the results show that the project is feasible for the calculated optimal capacity and the relevant investment, as well as given costs assumptions. The NPV of the project is positive amounting to USD 532 thousand, the IRR is high amounting to 15%. The payback period is estimated to be 6.99 years.



cutting through complexity

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