



*cutting through complexity™*

# Georgian National Investment Agency

Chemical Sector Research  
Paints, Varnish and Other  
Coatings

April 2015



*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.*

### Coatings are used for three main purposes:

- Protection of the coated substance
- Providing decorative, aesthetic and other surface effects
- Providing warning, safety etc

Paint, varnish and other coatings are applied for their following main functions:

- Protection of the coated substance from corrosion, UV degradation, chemical effects and other environmental effects.
- Providing decorative, aesthetic and other surface effects.
- Providing warning, safety, etc

### Lifecycle of paint, varnish and other coatings



The stages include: manufacture and transportation of the raw materials; mixing of the raw materials to formulate the coating; application of the coating on a surface (such as through spraying, dipping or roll coating); use of the coated product (such as a piece of furniture or a car); removal of the coating, if required; and disposal of the coated product or removed coating.

Coatings can be distinguished according to:

- The market sector (automotive coatings, marine coatings, furniture coatings, architectural coatings, etc.)
- The curing method (oven curing coatings, air dried one- and two-component coatings, radiation curing coatings, etc.)
- Their role in a multilayer coating film (primer, surfacer, finish, etc.)
- The composition of the substrate coated (wood coatings, metal coatings, leather coatings, plastic coatings, etc.)
- The binder system used
- The nature of the coating (powder coatings, high solids coatings, etc.)
- The solvent used (organic solvent borne coatings, water borne coatings, powder coatings)
- The application method (coatings for sprayed finish, roller coating, dipping, etc.)

Main factors contributing to growth of coating industry:

- Increased vehicle production
- Growth in construction spending
- Increasing urbanization
- Growing global economy

Regulatory challenges

- Governments regulations and market demands are driving coatings formulators to develop:
- Low-VOC (Volatile Organic Compounds) waterborne coatings
- High-solids solvent borne coatings
- UV (Ultraviolet Cure)-cured coatings
- Coatings that will save energy once applied to a surface

Economic challenges

- Fluctuating and volatile prices of key raw materials and crude oil
- Supply shortages/finite amount of natural resources/growing population
- Increasingly stringent regulatory environment
- Developing water-based coatings that have the same performance properties as their solvent borne counterparts

**Annual growth rate of 5% is projected for paint and varnish industry up to 2018**

**The total revenue of the top 10 producers of paint and varnish accounted for 57.2% of the total sales in 2014 and 54% in 2013**

Paint, varnish and other coating is one of the fastest growing industry globally, mainly due to the huge demand in the construction industry. In 2014 global sales of paint, varnish and other coating increased by 3.9%, comprising about USD132.3 billion (43.38 million tons). After the fast recovery of the global recession (i.e. 12.5% sales value growth rate in 2012) the market became more mature. The forecasted average annual growth is 5% rate up to 2018.

The main end markets for paint, varnish and other coatings industry are building, industry, transportation, packaging. In 2013 the demand of paint, varnish and other coatings was higher from construction sector comprising 40% of the total sales. The second largest sector was industry, comprising 20% of the total sales.

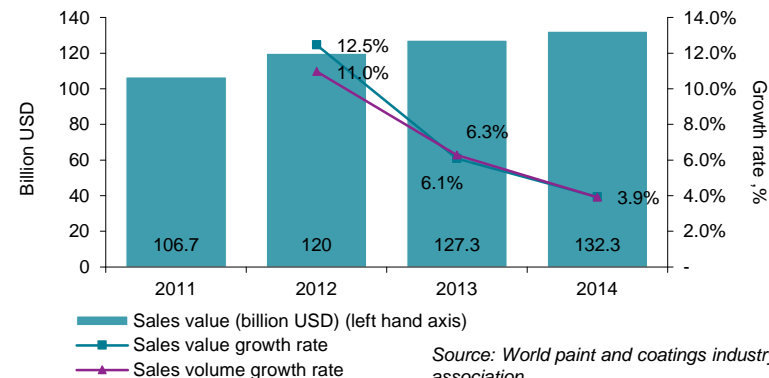
Based on the purpose of using paint, varnish and other coatings industry can be categorized into three markets: architectural/decorative, industrial OEM and special purpose coatings. Architectural coating is the largest segment. In 2014 architectural coating accounted for about 48% of the total sales, industrial coating - 25%.

The Asia-Pacific region is the leading paint, varnish and other coatings consumer with 48% of the volume and 38% of the value in 2013. Its share is projected to rise up to 46% of the sales value in 2018. China accounts for nearly 58% of the region's volume, and India accounts for 13%. The market growth rate for this region is forecasted to be on average 8% per year up to 2018.

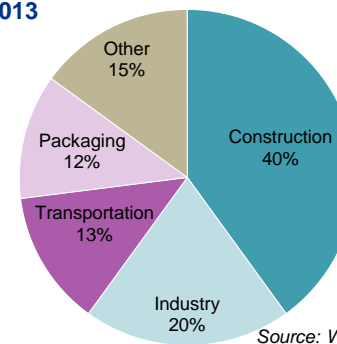
Europe is the second-largest paint, varnish and other coatings consumer taking 24% of the volume and 29% of the value in 2013. The European market is relatively mature and on average 2% annual growth rate is forecasted up to 2018. Faster growth rates are forecasted for Turkey and other Eastern European countries.

The paint, varnish and other coatings market has an increasing trend to green coatings. Waterborne coatings are the most used coatings and accounted for about 40% of the global demand in 2014. Solvent borne technologies were the second largest consumed coatings in the market. They are expected to show decline owing to the environmental regulations. Powder coatings are expected to be the fastest growing over the forecast period due to rising demand from automotive, electronics and construction.

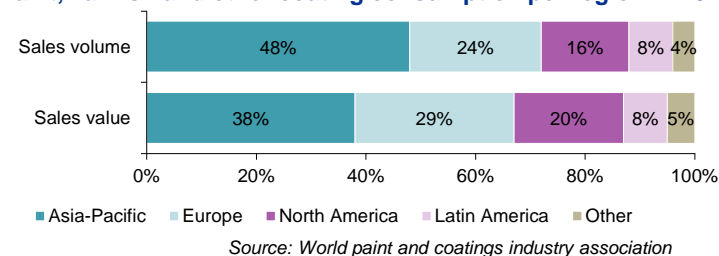
**Paint, varnish and other coating sales and growth rate, 2011-2014**



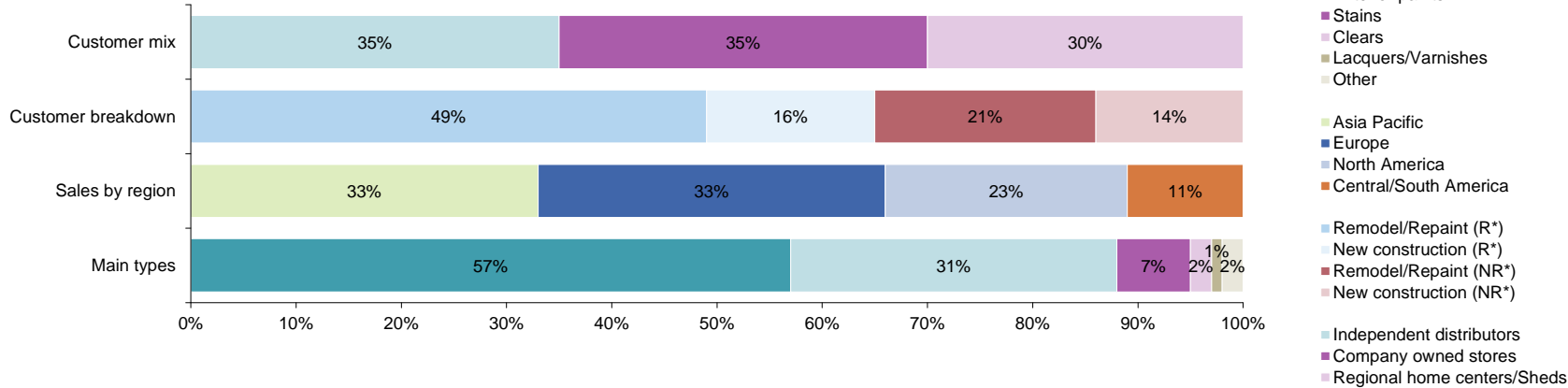
**Paint, varnish and other coatings end-user sectors in 2013**



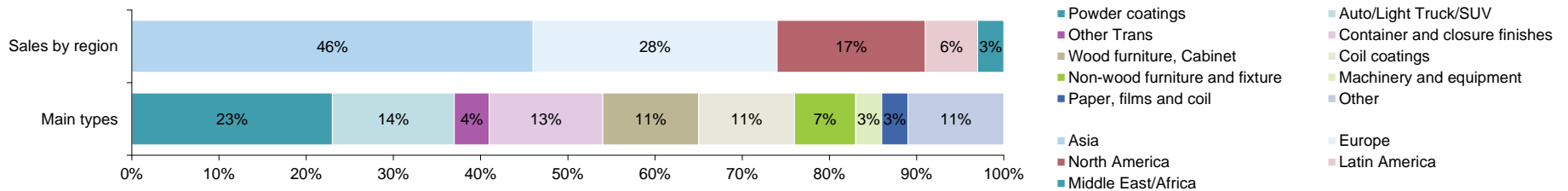
**Paint, varnish and other coating consumption per region in 2013**



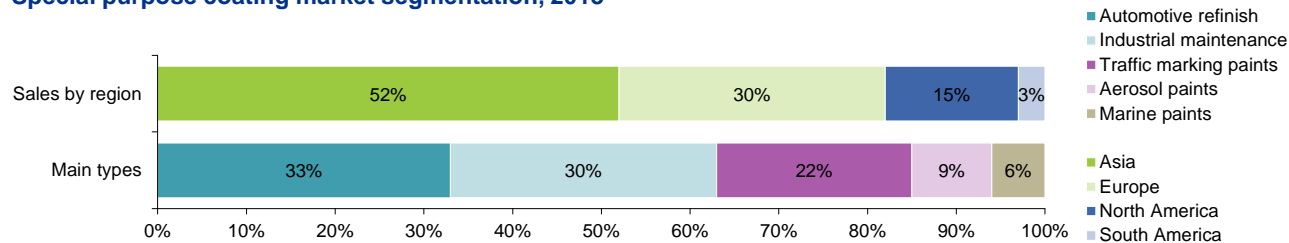
## Architectural coating market segmentation, 2013



## Industrial coating market segmentation, 2013



## Special purpose coating market segmentation, 2013



Note: R – Residential  
NR – Non residential

Source: Wells Fargo Securities

The international trade of paint, varnish and other coatings increased in 2013 by 5.4% reaching USD51,731 million.

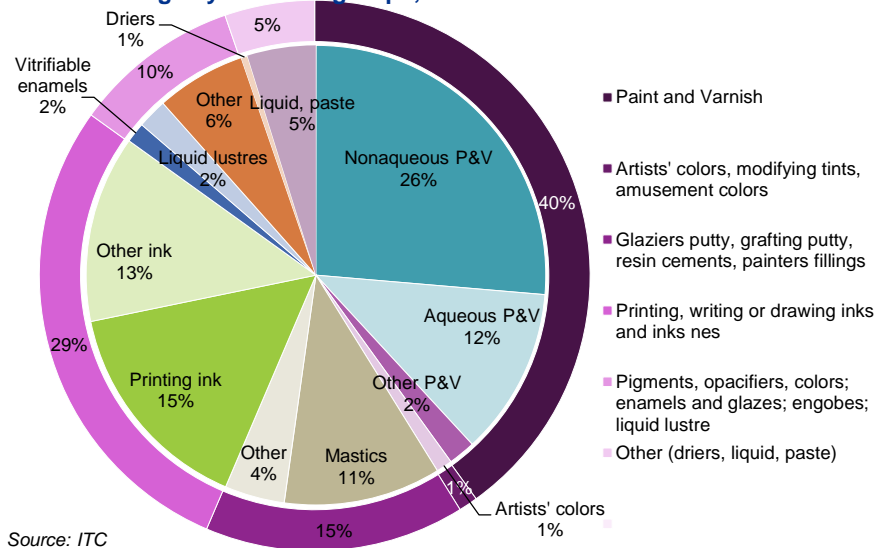
The international trade of paint and varnish and other coatings increased in 2013 by 5.4% reaching USD51,731 million.

The major increase of raw material prices in 2011-2012 resulted to negative growth rate (-3.1%) of the international trade in 2012. However, as the raw material prices stabilized starting in 2013 returning to the level of 2011 and the oil based raw material costs came down massively due to the crude oil price fall, there are positive expectations for the international trade growth rates.

The structure of the international trade of the main components of paint and varnish and other coatings for 2013 is presented below. The main subgroups are nonaqueous, aqueous and other paint and varnish, comprising 40% of the total group and printing, writing or drawing inks, comprising 29% of the group.

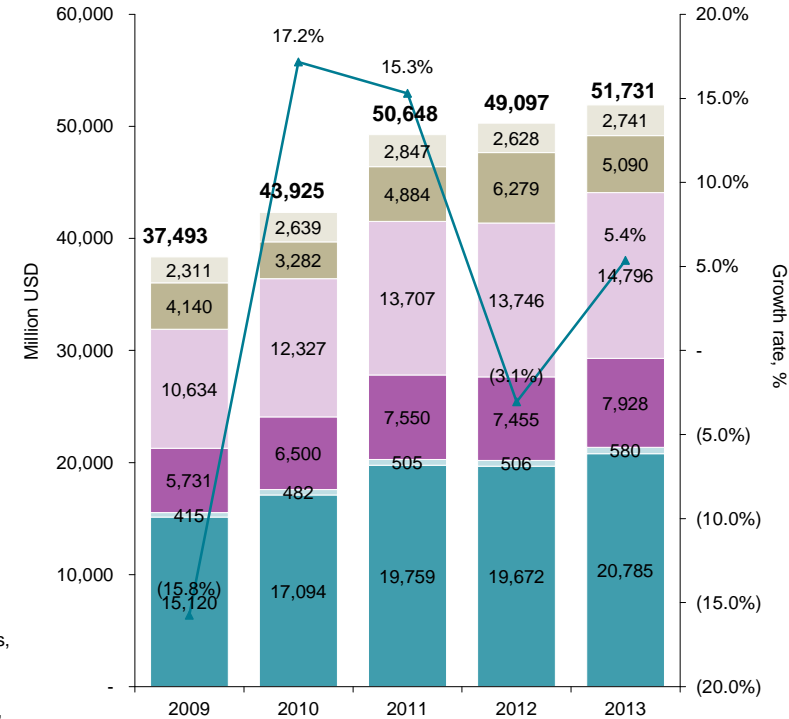
The detailed structure for the group is presented in the table on the slide next slide.

### Structure of the international trade of paint and varnish and other coatings by main subgroups, 2013



Source: ITC

### International trade of paint and varnish and other coatings, 2009-2013



- Other (driers, liquid, paste)
- Pigments, opacifiers, colors; enamels and glazes; engobes; liquid lustrre
- Printing, writing or drawing inks and inks nes
- Glaziers putty, grafting putty, resin cements, painters fillings
- Artists' colors, modifying tints, amusement colors
- Paint and Varnish
- Growth rate

Source: ITC

International trade of Paint, varnish and other coatings							
USD'000		2008	2009	2010	2011	2012	2013
<b>Paint and Varnish</b>		18,507,504	15,119,558	17,094,210	19,759,228	19,672,383	20,784,995
	<i>Nonaqueous solution of paint &amp; varnish</i>	12,304,061	9,878,389	11,192,807	13,001,744	12,993,794	13,684,363
	<i>Aqueous solution of paint &amp; varnish</i>	5,266,979	4,470,125	5,025,319	5,807,203	5,770,921	6,110,268
<b>Artists' colors, modifying tints, amusement colors</b>		463,760	415,471	481,788	505,363	506,207	579,947
<b>Glaziers putty, grafting putty, resin cements, painters fillings</b>		6,978,166	5,731,112	6,499,815	7,550,324	7,455,053	7,927,960
	<i>Mastics; painters' fillings</i>	4,538,955	3,786,881	4,439,097	5,186,897	5,214,292	5,743,340
<b>Printing, writing or drawing inks and inks nes</b>		11,528,476	10,633,560	12,326,565	13,707,058	13,746,126	14,795,685
	<i>Printing ink</i>	7,244,624	6,540,109	7,223,831	8,038,641	7,734,497	7,966,843
	<i>Ink</i>	4,283,839	4,093,445	5,102,736	5,668,407	6,011,617	6,828,835
<b>Pigments, opacifiers, colors; enamels and glazes; engobes; liquid lustre</b>		4,140,210	3,282,404	4,883,503	6,278,949	5,089,615	4,902,386
	<i>Vitrifiable enamels &amp; glazes, engobes (slips) and similar preparations</i>	688,681	577,623	795,400	1,137,543	827,188	735,662
	<i>Liquid lustres and similar preparations</i>	967,580	771,694	1,349,107	1,537,262	1,099,579	1,089,666
<b>Other products</b>		2,885,880	2,310,909	2,639,068	2,846,862	2,627,983	2,740,510
	<i>Prepared driers</i>	255,851	192,173	229,038	258,818	238,836	236,246
	<i>Pigments nonaqueous media, (liquid, paste) for paints and dyes</i>	2,630,029	2,118,736	2,410,030	2,588,044	2,389,147	2,504,264
<b>Total</b>		<b>44,503,996</b>	<b>37,493,014</b>	<b>43,924,949</b>	<b>50,647,784</b>	<b>49,097,367</b>	<b>51,731,483</b>

Source: ITC

**World production of paint, varnish and other coating increased by about 17% in 2012 compared with 2010**

World production of paint, varnish and other coating increased by about 17% in 2012\* compared with 2010.

China is the major producer in paint and coating industry. Chinese paints production totaled 12.7 million m.t. in 2012, which is nearly double the level of five years earlier.

European coating production decreased by 5.3% in 2012 compared with 2010. Recession in many countries, particularly in the south, has ground the construction market, which being the main end market of the paint and coating industry caused the decrease in the production levels.

Paint, varnish and other coating production is mainly concentrated in Asia-Pacific region, particularly in China and India and in Europe.

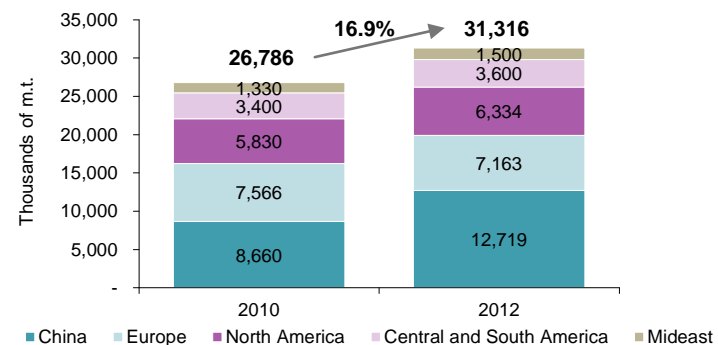
The main factors stipulating production in the mentioned regions are:

Asia-Pacific region - availability of low cost workforce and raw materials, as well as the fact that the paint, varnish and other coating market is not mature in the region and there is high market consumption growth rates potential.

Europe – High level of R&D developments, innovative technologies, developed fine chemicals production, which bring to high quality products production, as well as Europe is the second largest paint, varnish and other coating consumer market in the world.

\* The latest available data as at the reporting date

**World production of paints and coatings, 2010 vs 2012**



Source: IHS Chemical



**Global market volume of paint, varnish and other coatings industry is forecast to rise by CARG equal to 4.6% up to 49.8 million metric tons in 2018**

### Regional prospective

The Asia/Pacific region will remain the leading consumer of paint, varnish and other coatings through 2015, and will also see the most rapid gains. Regional demand will be fueled by China and India, the two largest markets in Asia and two of the fastest-growing coatings markets in the world. Additionally, an improved outlook for coatings demand in Japan will boost gains in the Asia/Pacific region.

Above average advances are also forecast for North America, rebounding strongly from the declining demand of the 2005-2010 period. Coatings demand in the region will benefit from a greatly improved outlook for building construction and manufacturing activity in the US.

While paint, varnish and other coatings demand in Western Europe will see a similar recovery from recent declines, the region will be the world's slowest-growing regional market.

Among the other areas of the world, the best opportunities are expected in the Africa/Mideast region, where paint demand per capita is the lowest in the world.

Argentina, China, Germany, Japan, and the United States represent the largest paint, varnish and other coating markets while the strongest annual growth is forecast to occur in Morocco (18.4%), Macedonia (12.3%), Ireland (12.3%), Azerbaijan (11%), and Ghana (10.1%).

### Prospective by product type

Architectural markets will continue to account for a majority of paint, varnish and other coatings demand in 2015. Demand for architectural paint will be fueled by healthy growth in residential construction spending, particularly in the US, Western Europe and Japan.

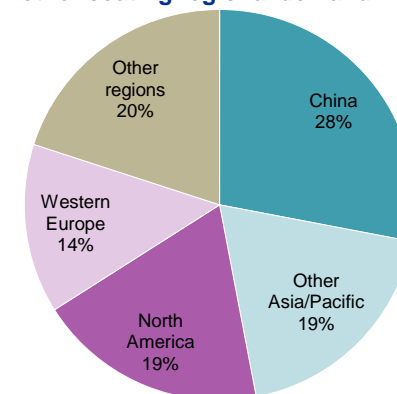
Paint, varnish and other coatings demand in manufacturing applications will benefit from a pickup in world motor vehicle production, as well as an improvement in building construction activity, which will drive demand for furniture coatings.

Maintenance and specialty coatings markets will see moderately slower gains, restrained by a downturn in marine applications, as well as a more negative outlook for vehicle refinish coatings in the developed countries of the world.

Global market volume of paint, varnish and other coatings industry is forecast to rise by CAGR equal to 4.6% to 49.8 million metric tons in 2018.

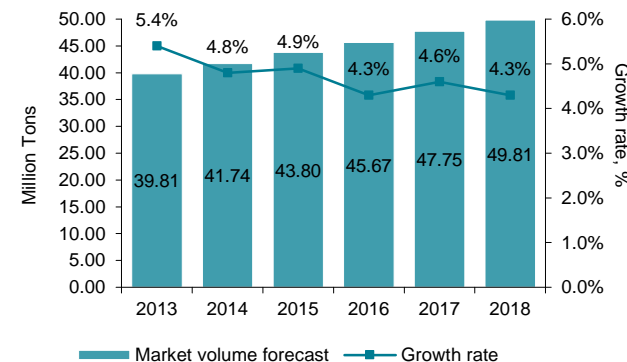
In 2013 non-aqueous polymer (other than polyester, vinyl and acrylic polymer) based Paint, varnish and other coatings accounted for 36.6% of the global demand while the remaining market share is divided between non-aqueous vinyl and acrylic polymer based paints and varnishes (17.8%), non-aqueous polyester based paints and varnishes (15.5%), aqueous polymer (other than vinyl and acrylic polymer) based paints and varnishes (13.4%), aqueous vinyl and acrylic polymer based paints and varnishes (11.7%), and other paints and varnishes (5%).

**Forecast of the world paint, varnish and other coating regional demand in 2015**



Source: The Freedonia Group

**Paint, varnish and other coating market volume forecast, 2013-2018**



Source: Market Line

# Paint, varnish and other coating industry production chain and profit distribution between market participants

Petrochemicals	
P/E	15.4x
Return on Assets %	6.3%
Gross Margin %	29.2%
SG&A Margin %	5.8%
EBIT Margin %	22.7%
Net Income Margin %	2.0%

Acids and Caustics	
P/E	1.1x
Return on Assets %	3.1%
Gross Margin %	13.8%
SG&A Margin %	8.7%
EBIT Margin %	3.2%
Net Income Margin %	(0.4%)

Alcohol	
P/E	10.2x
Return on Assets %	5.0%
Gross Margin %	9.8%
SG&A Margin %	2.7%
EBIT Margin %	7.1%
Net Income Margin %	5.9%

Paint and Varnish	
P/E	23.1x
Return on Assets %	5.8%
Gross Margin %	28.3%
SG&A Margin %	17.7%
EBIT Margin %	8.3%
Net Income Margin %	6.3%

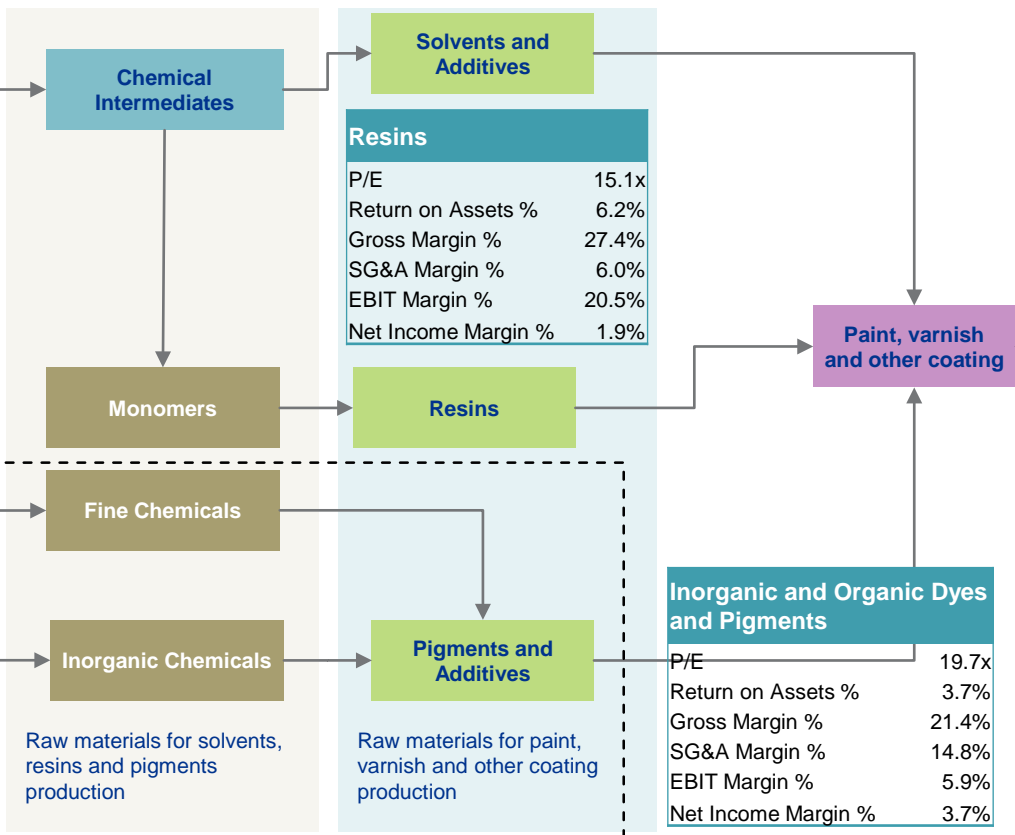
Printing Ink	
P/E	10.5x
Return on Assets %	4.2%
Gross Margin %	21.4%
SG&A Margin %	14.9%
EBIT Margin %	5.3%
Net Income Margin %	2.9%

Industrial Coatings	
P/E	22.5x
Return on Assets %	5.1%
Gross Margin %	25.3%
SG&A Margin %	16.4%
EBIT Margin %	7.1%
Net Income Margin %	5.2%

Petrochemical Feedstock

Mining Minerals

Industrial Inorganic Chemicals	
P/E	15.0x
Return on Assets %	4.1%
Gross Margin %	15.3%
SG&A Margin %	9.6%
EBIT Margin %	3.8%
Net Income Margin %	0.7%



Resins	
P/E	15.1x
Return on Assets %	6.2%
Gross Margin %	27.4%
SG&A Margin %	6.0%
EBIT Margin %	20.5%
Net Income Margin %	1.9%

Inorganic and Organic Dyes and Pigments	
P/E	19.7x
Return on Assets %	3.7%
Gross Margin %	21.4%
SG&A Margin %	14.8%
EBIT Margin %	5.9%
Net Income Margin %	3.7%

Note: - - - - Pigments production chain

Source: Key financial ratios – CapIQ, Data for 2013  
Production chain – Chemark consulting

The main price drivers in paint, varnish and other coating industry are: **Cost of raw materials (pigments, solvents, resins); Packaging; Transportation costs (both for raw materials and finished products).**

Volume and price of consumption can be affected by many factors. The fundamental price drivers are supply, demand and price of raw materials. The price of the products is also dependent on the production technology and the types of raw materials used. The recent market tendencies directed to the green coating industry raised the issue of using more expensive technologies and ecologically clean raw materials.

The main price drivers in paint, varnish and other coating industry are:

- Cost of raw materials (pigments, solvents, resins)
- Packaging
- Transportation costs (both for raw materials and finished products)

Price realization at the coatings producers level typically lags raw material cost increases by 3-6 months, as large paint buyers have a tendency to resist price hikes. As a result, coatings margins typically get temporarily squeezed in an inflationary environment before the (eventual) pass-through of higher raw materials prices.

Raw material inflation (up 39%), namely in Titanium dioxide (TiO<sub>2</sub>), which imparts opacity to paint, and is used heavily in coating production, was a major headwind in 2011. However, costs began to moderate in 2012 and reversed course as prices fell 10.5% YOY. TiO<sub>2</sub> pricing remained flat through 2014, with similarly benign trends expected to be the case in 2015.

The highest prices for the subject products were registered in EU28 countries. The price differences can be mainly explained by the mix of product types imported, as well as the quality of products imported.

Average import price of main types of paint, varnish and other coatings in EU28 countries, 2010-2013 (USD/Tons)				
	2010	2011	2012	2013
Nonaqueous solution of paint and varnish	4,560	5,150	4,888	5,012
Aqueous solution of paint and varnish	2,710	3,075	2,880	2,845
Printing, writing or drawing inks	11,643	13,730	13,086	15,284

Source: ITC

Average import price of main types of paint, varnish and other coatings in CIS region, 2010-2013 (USD/Tons)				
	2010	2011	2012	2013
Nonaqueous solution of paint and varnish	3,754	4,234	4,046	3,966
Aqueous solution of paint and varnish	2,174	2,434	2,445	2,464
Printing, writing or drawing inks	5,874	6,718	6,345	6,535

Source: ITC

Average import price of main types of paint, varnish and other coating in Central Asian Republics, 2010-2013 (USD/Tons)				
	2010	2011	2012	2013
Nonaqueous solution of paint and varnish	2,262	2,766	2,234	2,179
Aqueous solution of paint and varnish	1,611	1,792	1,981	2,040
Printing, writing or drawing inks	7,247	7,090	8,056	11,211

Source: ITC

Average import price of main types of paint, varnish and other coating in Georgia, 2010-2014 (USD/Tons)					
	2010	2011	2012	2013	2014
Nonaqueous solution of paint and varnish	2,039	2,553	2,629	2,729	2,536
Aqueous solution of paint and varnish	1,304	1,431	1,428	1,432	1,460
Printing, writing or drawing inks	7,707	7,398	6,708	6,814	6,771

Source: ITC

Coatings producers are also exposed to oil through derivative products

Total COGS exposure to oil derivatives comprise 17% on average

Coatings producers are also exposed to oil through derivative products, which are used in the coating production.

According to the Morgan Stanley estimate commodity oil derivatives, which account for approximately 9% of raw materials for the average coatings producer, will decline on a approximately one quarter lag in relation to upstream prices. Specialty oil derivatives, on the other hand, which account for the remaining approximately 18% of oil exposure, will likely take two or three quarters before exhibiting a moderated response to upstream pricing dynamics.

The duration of this lag reflects the time it takes suppliers to renegotiate pricing, and for supply and demand to reconcile at each step of the value chain.

So, according to the assumption of no value chain dilution, and adjusting for oil derivative exposure as a percent of COGS, Morgan Stanley research suggest approximately 4% lower COGS in 2015 for the average coatings producer and 2% lower COGS in 2016.

Estimated Coating Raw Material Exposure Linked to Oil	
	Average*
(+) Commodity oil derivative as a % of raw materials	9%
(+) Specialty oil derivative as a % of raw materials	14%
<b>Total oil derivative exposure in raw materials</b>	<b>24%</b>
(x) Raw Material as a % of COGS	74%
(=) Commodity oil derivative as a % of COGS	7%
(=) Specialty oil derivative as a % of COGS	10%
<b>Total COGS exposure to oil derivatives</b>	<b>17%</b>

Source: Company data, Morgan Stanley Research, 2014

Note: The average was calculated based on four major coating producer companies figures

**Top 20 paint, varnish and other coating producing companies according to world paint and coatings industry association**

	<b>Company</b>
1	AKZONOBEL
2	PPG Industries
3	SHERWIN-WILLIAMS
4	Axalta
5	BASF
6	RPM Inc
7	DIAMOND Paint
8	VALSPAR
9	SACAL
10	NIPPON Paint
11	Polisan Prokim
12	Global Pintura Representacao Comercio E Industry
13	Clariant Produkte
14	Valley Paint Manufacturing Co.
15	Kansai Paint Co. Ltd.
16	Advance Paints Private Limited
17	Toyo Ink SC Holdings Co., Ltd.
18	Altana AG
19	Asian Paints Limited
20	Eckart Suisse Sa

Source: (1) World paint and coatings industry association (top 10)

(2) Capital IQ (Industry Classification: Paints, Varnishes, and Lacquers (Primary); The ranking is based on the annual revenue figures based on the latest financial year information available)

*In 2014 Georgia imported paint, varnish and other coating in the amount of USD48.6 million.*

*The major shares in the structure of product types belong to Glaziers putty, grafting putty, resin cements, painters fillings and Nonaqueous solution of paint and varnish.*

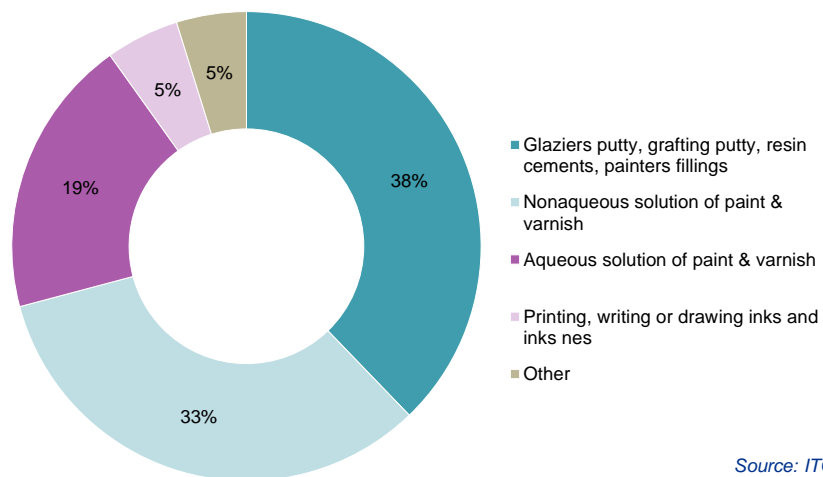
*Import value from Turkey comprised 57% of the total import in 2013.*

Paint, varnish and other coating import value of Georgia increased by 10.8% in 2014 compared to 2013, comprising USD48.6 million. High level of import growth rates was recorded in 2011, comprising 27.2%.

In 2014 Turkey accounted for 57% of the Georgian import of paint, varnish and other coating. The second largest country in the import structure is Germany, with 8% share, followed by Russia and Greece.

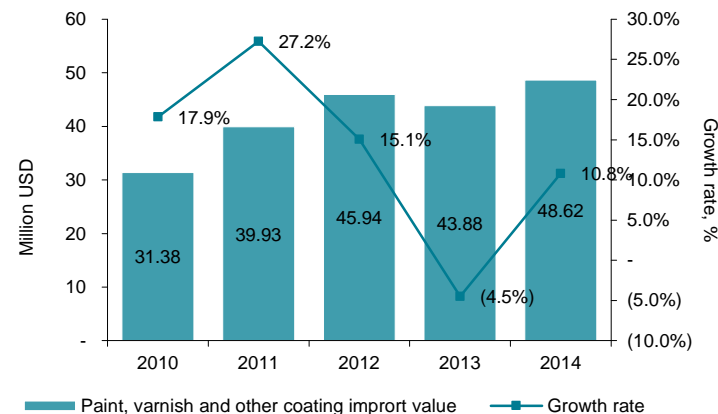
Glaziers putty, grafting putty, resin cements, painters fillings subgroup comprised 38% of the import structure followed by Nonaqueous solution of paint and varnish comprised with 33% share, in 2014.

**Paint, varnish and other coating import structure by product type, 2014**



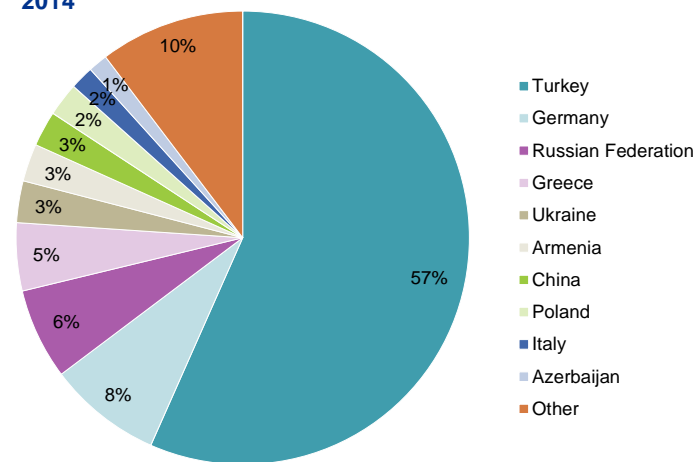
Source: ITC

**Paint, varnish and other coating import value, 2010-2014**



Source: ITC

**Paint, varnish and other coating import structure by country, 2014**



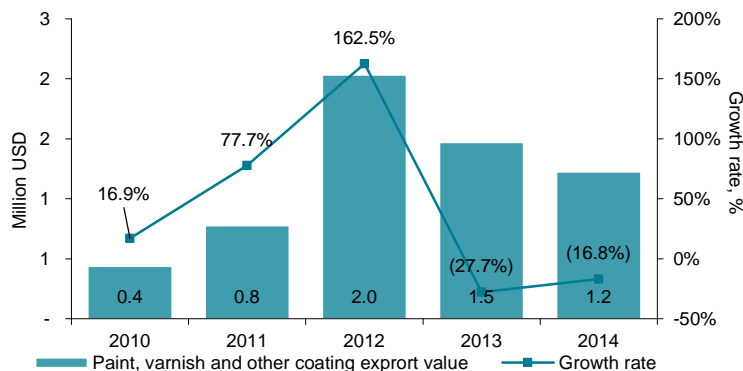
Source: ITC

In 2014 Georgia exported paint, varnish and other coating in the amount of USD1.2 million.

The major share in the structure of product types belongs to Aqueous solution of paint and varnish.

Export value to Armenia and Azerbaijan comprised 93% of the total export.

Paint, varnish and other coating export value, 2010-2014



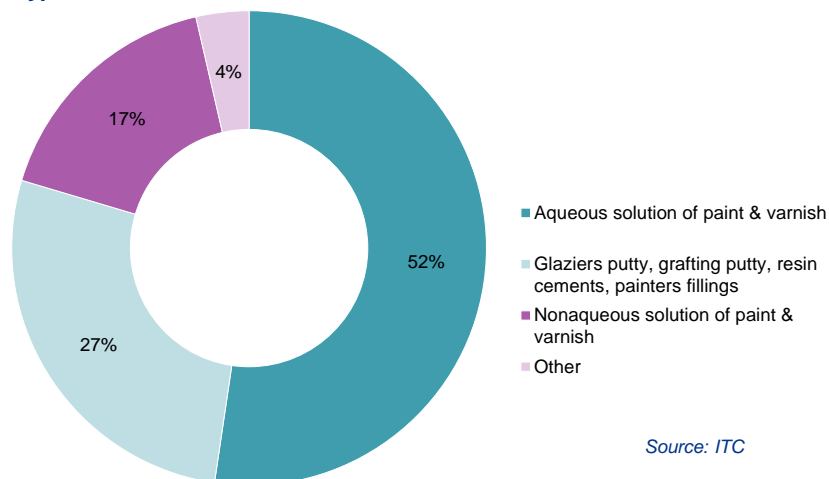
Source: ITC

Paint, varnish and other coating export value of Georgia decreased by 16.8% in 2014, compared to 2013 comprising USD1.2 million. 162.5% high level of export growth rate was recorded in 2012.

In 2014 Armenia accounted for 52% of the Georgian export of paint, varnish and other coating. The second largest country in the export structure is Azerbaijan, with 41% share.

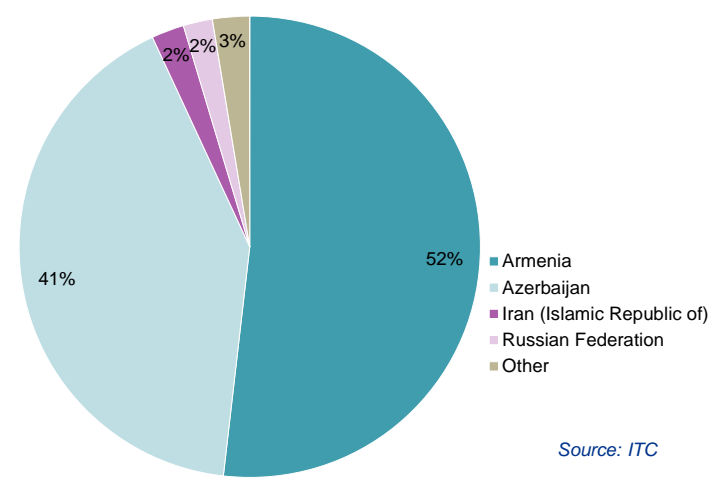
Nonaqueous solution of paint and varnish comprised 42% of the export structure of Georgia. The second largest share – 24%, belongs to glaziers putty, grafting putty, resin cements, painters fillings subgroup.

Paint, varnish and other coating export structure by product type, 2014



Source: ITC

Paint, varnish and other coating export structure by country, 2014



Source: ITC

***In 2013 paint, varnish and other coating production volume decreased by 13.4% in Georgia, comprising 3,829 tones.***

Paints and varnishes production in Georgia, 2012-2014(9 months)			
	2012	2013	2014 (9 months)
Production volume (Tons)	4,421	3,829	2,420
Production value (USD'000)	6,222	4,523	3,081

*Source: National Statistics Institute of Georgia*

In 2013 paint, varnish and other coating production volume decreased by 13.4% in Georgia, comprising 3,829 tones. According to Georgian statistical office the production volume during the first half of 2014, comprised 63.2% of the production volume of 2013.

Based on the KPMG calculations\*, the Georgian consumption volume in 2013 comprised about USD45.38 million.

*Note: Calculations are based on the production, import and export data*



### **Pipeline projects in the region**

Axalta Coating Systems in 2014 announced a commitment to invest \$60 million in Wuppertal, Germany to build a next-generation facility that will expand capacity to produce waterborne industrial coatings. Production at the new operations center is expected to begin in 2015.

Hempel recently broke ground for a coatings production facility in Russia. The new plant will help meet the growing demand for Hempel coatings in Russia, Ukraine and Central Asia.

### **Global situation**

There are number of pipeline projects in China, India, Latin American countries as this markets are one of the largest coating consuming markets with high growth rate potential.

No major projects in Central Asia, South Caucasus, Turkey and Ukraine are identified.

## Raw materials in the selected Region/Countries - Solvents

Import of solvents			
Importers	Value imported in 2013 (USD thousand)	Quantity imported in 2013 (Tons)	Import price (USD)
<b>World</b>	<b>62,631,362</b>	<b>N/A</b>	<b>1,875</b>
Belgium	3,256,226	3,669,403	887
Germany	3,089,730	3,894,237	793
Netherlands	2,381,946	3,247,061	734
United Kingdom	982,860	N/A	955
France	948,078	1,213,121	782
Italy	862,244	1,064,598	810
Spain	861,561	1,112,631	774
Poland	388,998	591,958	657
Sweden	366,088	374,068	979
Portugal	291,370	293,371	993
Austria	228,091	N/A	832
Finland	211,177	419,143	504
<b>Other EU</b>	<b>1,134,022</b>	<b>1,086,281</b>	<b>N/A</b>
Turkey	706,644	903,726	782
Ukraine	26,693	38,988	685
Kazakhstan	22,649	N/A	747
Turkmenistan	18,314	13,126	1,395
Georgia	12,274	6,210	1,976
Azerbaijan	7,138	10,796	661
Uzbekistan	5,487	4,035	1,360
Armenia	1,547	N/A	1,432
Kyrgyzstan	562	550	1,022
Tajikistan	552	513	1,076

Source: ITC

Export of solvents							
Exporters	Exported value in 2013 (USD thousand)	Exported quantity, Tons	Unit value (USD/unit)	Exporters	Exported value in 2013 (USD thousand)	Exported quantity, Tons	Export price (USD)
World	57,923,295	No Quantity	868	Turkey	93,158	76,868	1,212
Netherlands	2,928,956	3,822,959	766	Ukraine	54,194	103,375	524
Belgium	2,594,988	2,748,579	944	Azerbaijan	13,734	14,194	968
Germany	2,212,080	2,293,227	965	Uzbekistan	788	1,685	468
<b>Other EU</b>	<b>3,758,959</b>	<b>N/A</b>	<b>N/A</b>	Armenia	5,480	3,321	1,650
Kazakhstan	358	219	1,635	Kyrgyzstan	21	-	-
Georgia	102	73	1,397	Tajikistan	-	-	-
				Turkmenistan	-	-	-

Source: ITC

Note: Due to confidentiality matters some countries have not provided data

World trade of main solvents, 2013	
USD thousand	
Acetic acid	1,996,197
Acetone	2,027,693
Methanol (methyl alcohol)	11,736,418
Propan-1-ol(propyl alcohol)and propan-2ol(isopropyl alcohol)	1,586,253
Butan-1-ol (N-butyl alcohol)	1,428,017
O-xylene	1,651,926
M-xylene	163,546
P-xylene	22,643,813
Toluene	3,868,010
Cyclohexane	1,981,749
Chloroform (trichloromethane)	89,396
Dichloromethane (methylene chloride)	241,556
1,2-dichloroethane(ethylene dichloride)	1,060,051
Ethyl alcohol & other spirits	9,327,310
Ethyl acetate	1,436,270
N-butyl acetate	620,496
Trichloroethylene	63,558
Tetrachloroethylene (perchloroethylene)	159,686
Diethyl ether	38,216
Tetrahydrofuran	511,209
<b>Total</b>	<b>62,631,370</b>

Source: ITC

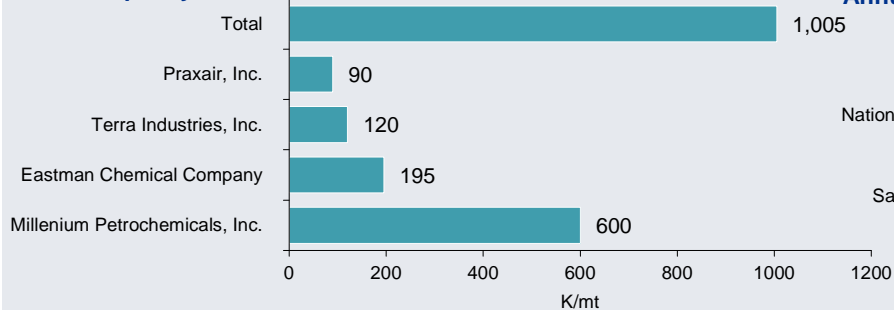
## Raw materials in the selected Region/Countries - Solvents

*The cumulative trade share of the mostly traded solvents- methanol and aromatics (xylenes and toluene) comprised approximately 64% of the total trade of solvents under research*

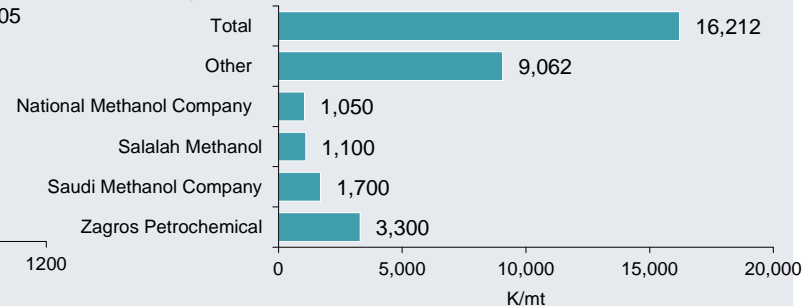
In 2013 the mostly traded solvents were methanol and aromatics (xylenes and toluene) the cumulative trade of which comprised approximately the 64% of the total trade of solvents under research.

### Annual capacity of methanol producers

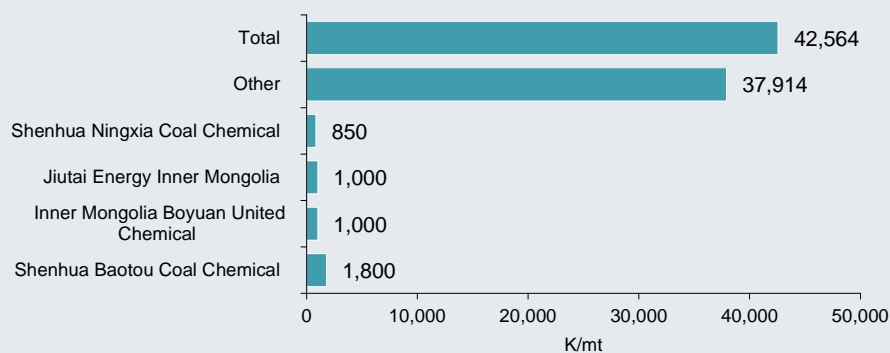
#### Annual capacity of US



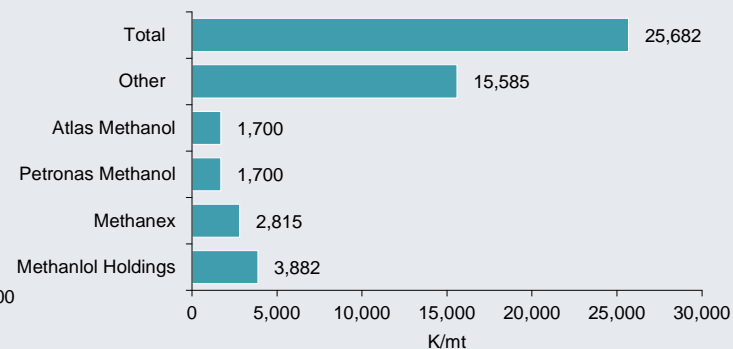
#### Annual capacity of Middle East



#### Annual capacity of China



#### Annual capacity of the rest of the world

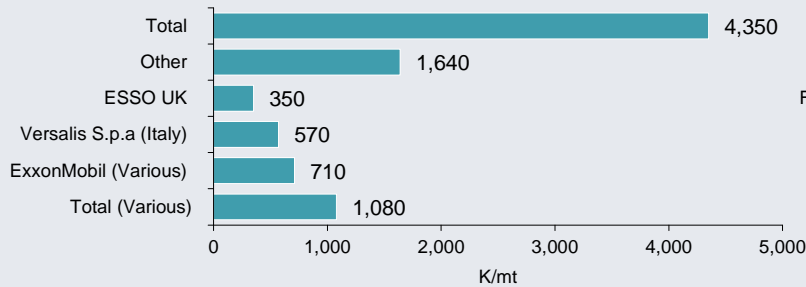


Source: Morgan Stanley Research, 2014

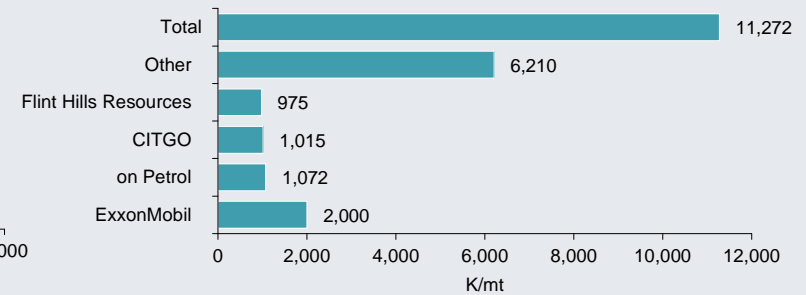
## Raw materials in the selected Region/Countries - Solvents

### Annual capacity of toluene and xylenes producers

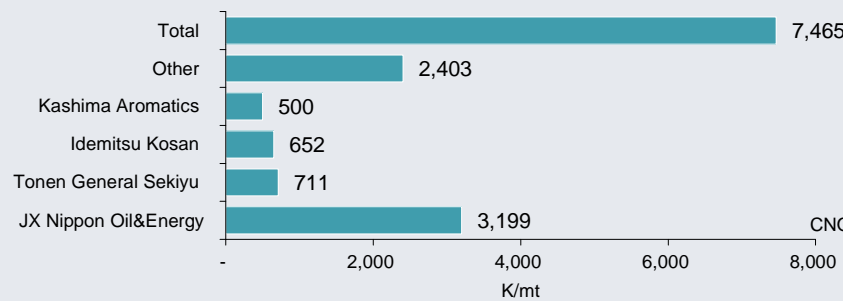
#### Annual capacity of Western Europe



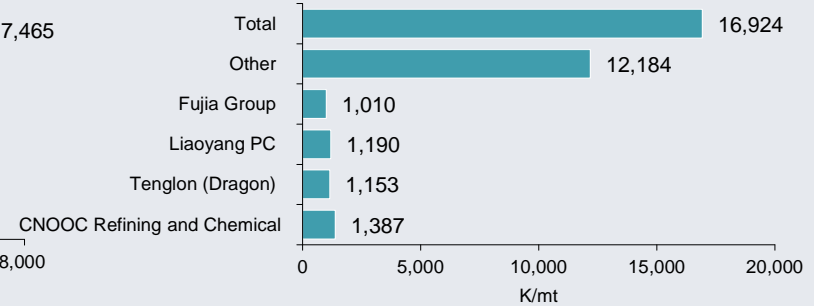
#### Annual capacity of US



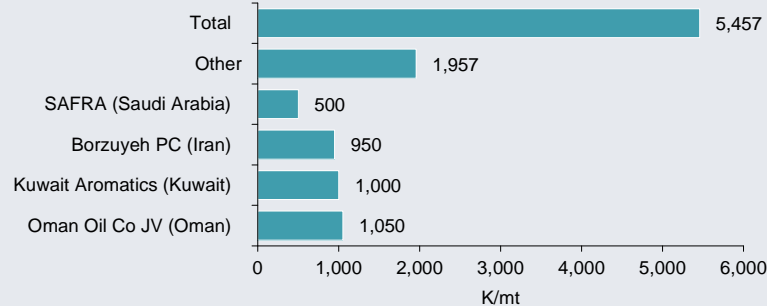
#### Annual capacity of Japan



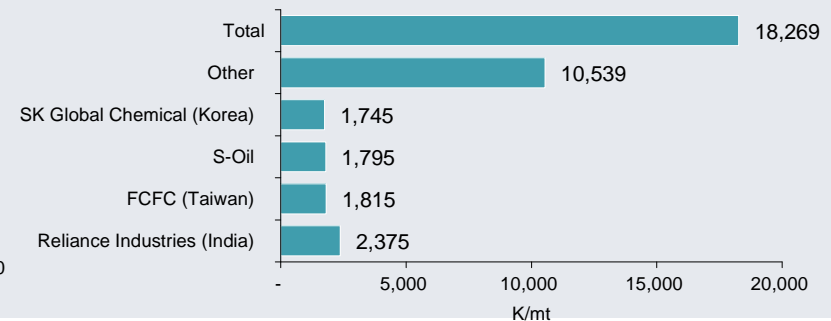
#### Annual capacity of China



#### Annual capacity of Middle East



#### Annual capacity of the rest of world



Source: Morgan Stanley Research, 2014

Import of resins			
Importers	Value imported in 2013 (USD thousand)	Quantity imported in 2013 (Tons)	Import price (USD)
World	93,246,210	No Quantity	2,102
Germany	6,529,943	3,009,284	1,961
Italy	4,072,148	1,952,493	1,773
Turkey	3,417,720	1,927,522	2,246
France	3,305,381	1,685,729	2,040
Netherlands	2,569,317	1,168,640	2,456
Belgium	2,522,478	1,078,310	2,856
United Kingdom	2,461,720	1,095,957	2,154
Poland	2,203,620	1,097,154	2,027
<b>Other EU</b>	<b>9,198,926</b>	<b>4,089,907</b>	<b>N/A</b>
Ukraine	649,219	436,212	1,650
Kazakhstan	170,163	97,767	1,518
Uzbekistan	112,923	85,578	4,024
Azerbaijan	31,357	30,419	2,167
Kyrgyzstan	25,758	16,966	2,244
Armenia	15,090	9,145	1,488
Turkmenistan	10,434	4,472	1,462
Tajikistan	8,930	12,218	2,333
Georgia	7,832	3,774	1,320

Source: ITC

World trade of main resins, 2013	
USD thousand	2013
Alkyd resins	1,012,642
Acrylic polymers in primary forms	16,000,161
Polymers of vinyl acetate/o vinyl esters&o vinyl poly,in primary forms	5,210,347
Polymers of vinyl chloride/other halogenated olefins, in primary forms	20,255,230
Epoxide resins	6,193,544
Polyesters nes, unsaturated	2,624,670
Urea resins; thiourea resins	1,127,603
Melamine resins	638,373
Amino-resins nes	5,125,956
Polyurethanes in primary forms	5,973,125
Polymers of styrene, in primary forms	26,833,434
Petroleum resins,coumarone,indene/coumarone-indene resins&polyterpenes	1,909,874
<b>Total</b>	<b>92,904,959</b>

Source: ITC

Export of resins							
Exporters	Exported value in 2013 (USD thousand)	Exported quantity, Tons	Unit value (USD/unit)	Exporters	Exported value in 2013 (USD thousand)	Exported quantity, Tons	Export price (USD)
World	86,591,269	42,498,004	2,038	Kazakhstan	3,849	7,698	1,140
Germany	7,674,631	3,401,835	2,256	Uzbekistan	2,505	5,266	951
Belgium	7,597,761	3,598,697	2,111	Armenia	597	438	1,363
Netherlands	5,426,989	2,525,898	2,149	Georgia	379	175	2,178
France	4,475,335	2,184,763	2,048	Tajikistan	61	64	1,906
Italy	2,903,474	1,088,243	2,668	Turkey	498,250	307,971	1,618
Spain	2,053,603	971,154	2,115	Ukraine	77,152	40,736	1,894
United Kingdom	1,648,240	559,590	2,945	Kyrgyzstan	8,582	5,334	1,609
<b>Other EU</b>	<b>5,600,693</b>	<b>N/A</b>	<b>N/A</b>	Azerbaijan	39,139	56,627	691
				Turkmenistan	-	-	-

Source: ITC

Note: Due to confidentiality matters some countries have not provided data, thus "N/A" stands for the not provided data



*cutting through complexity*

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