



cutting through complexity

Georgian National Investment Agency

Chemical Sector Research
Soap

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.

Annual hand and body soap industry revenue comprises around USD 3.1 billion

Traditionally, soap has been manufactured from alkali (lye) and animal fats (tallow), although vegetable products such as palm oil and coconut oil can be substituted for tallow.

In chemistry, soap is a salt of a fatty acid. Soaps are mainly used as surfactants for washing, bathing, and cleaning, but they are also used in textile spinning and are important components of lubricants. Soaps for cleansing are obtained by treating vegetable or animal oils and fats with a strongly alkaline solution.

Soaps are key components of most lubricating greases, which are usually emulsions of calcium soap or lithium soaps and mineral oil. These calcium- and lithium-based greases are widely used. Many other metallic soaps are also useful, including those of aluminium, sodium, and mixtures of them. Such soaps are also used as thickeners to increase the viscosity of oils.

Major world companies in the sector include Colgate-Palmolive, Procter & Gamble (P&G), Ecolab, and Zep (all based in the US), along with Henkel KGaA (Germany), Hypermarcas (Brazil), Nice Group (China), and Unilever (UK).

In 2013 the global personal hygiene market value increased by 4.4%

The global personal hygiene market forecast for 2018 is 34,638.3 million units, which is an increase of 3.6% since 2013

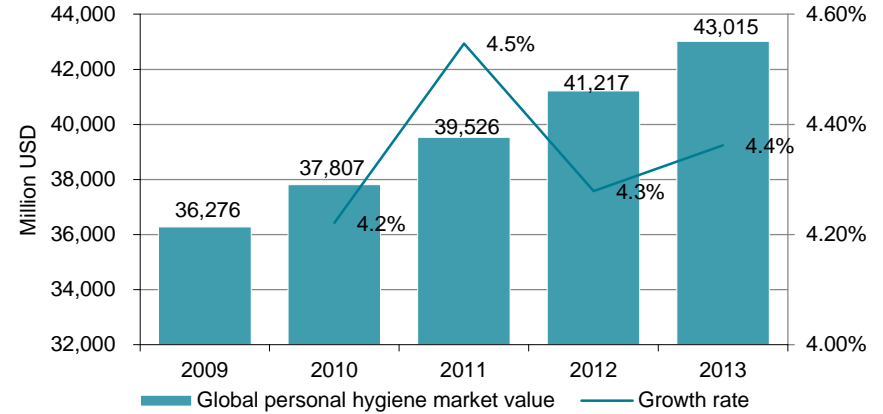
Soap, bath and shower products and deodorants represent parts of personal hygiene group.

Compound annual growth rate of global personal hygiene market amounted to 4.4% between 2009 and 2013.

The European and Asia-Pacific markets grew with CAGRs of 2.3% and 5.4% respectively, over the same period, to reach respective values of USD 15,667 million and USD 11,745 million in 2013.

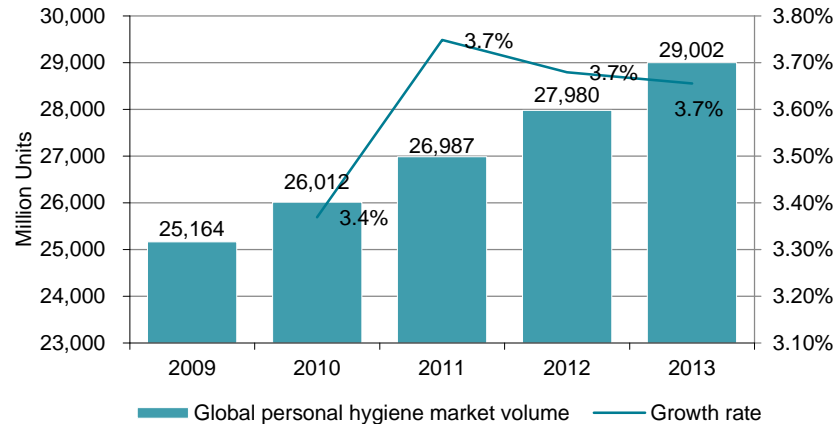
The group volume (consumption) increased by 3.7% in 2013 and reached 29,002 million units. CAGR for the volume of the personal hygiene market amounts 3.6% between 2009 and 2013.

Global Personal Hygiene Market value in 2009-2013



Source: MarketLine

Global Market volume of Personal Hygiene products in 2009-2013



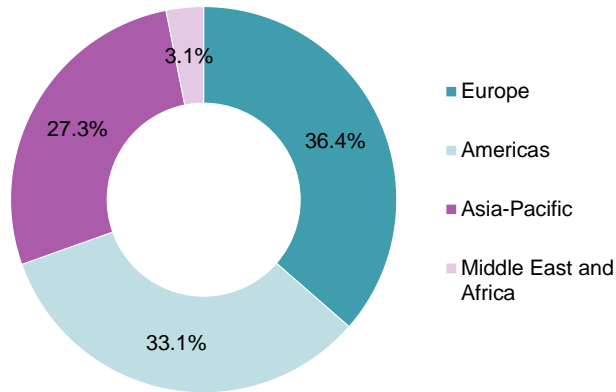
Source: MarketLine

Note: The market is valued at retail price, taking into account any applicable taxes and subsidized price reductions

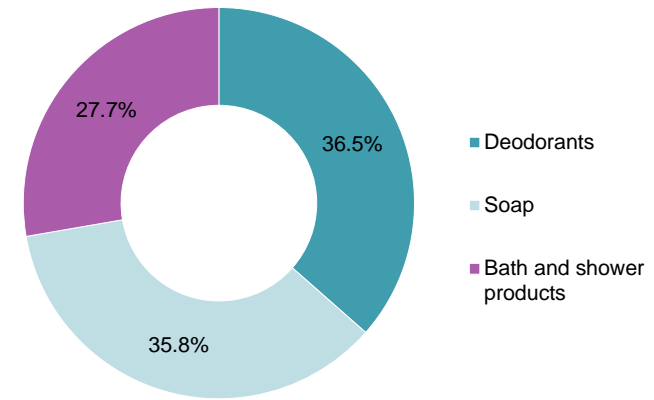
Soap is the second largest segment of the global personal hygiene market

The global personal hygiene market had total revenues of USD 43,015 million in 2013. Having the total consumption of hygiene market (29,002 million units) and the market share of the soap in the hygiene market we calculated the global soap consumption from the perspective of units of soap consumed to be around 10,383 million units. Europe accounted for 36.4% of the global hygiene market revenue.

Global personal hygiene market segmentation 2013



Global personal hygiene market segmentation by products types 2013



Source: MarketLine

The average annual production of soaps in the globe is around 10 billion pounds or 4.53 billion kg

In 2013 the global trade of soap increased by 9.34% and reached USD 9,904 million

According to the soap facts provided by the Globalsoap webpages the average yearly production of soaps in the globe is around 10 billion pounds or 4.53 billion kg.

According to the First Research the world's leading countries for soap manufacturing include Brazil, China, UK, and USA.

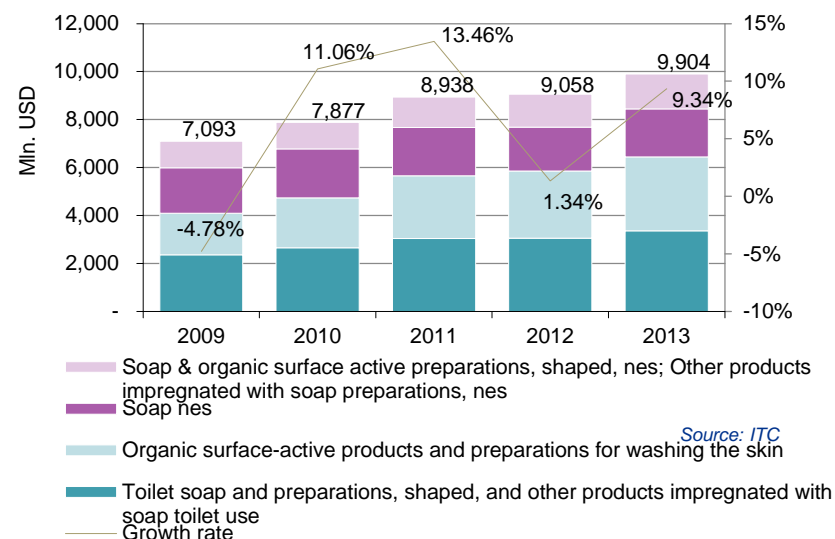
The US is the top market for soaps and detergents, followed by the UK. But the Asia/Pacific region, particularly China and India, holds the greatest potential for growth.

Major companies include Colgate-Palmolive, Procter & Gamble (P&G), Ecolab, and Zep (all based in the US), along with Henkel KGaA (Germany), Hypermecas (Brazil), Nice Group (China), and Unilever (UK).

IHS Chemical expects the global soap and detergents market to grow 3.4% per year through 2017 thus reaching the capacity of around 5 billion kg of soap.

In 2013 the global trade of soap increased by 9.34% compared with the previous year to reach USD 9,904 million

The world trade of soap 2009-2013



Soap

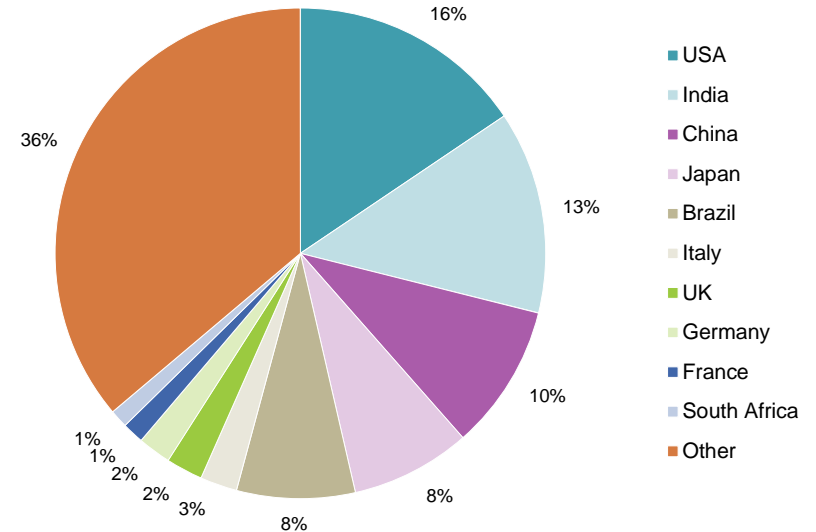
Market overview - consumption

USA was the top country accounting for around 16% of global revenue of soap market

We have used the market revenue of selected countries to analyze the world consumption of personal hygiene and specifically soap on country level.

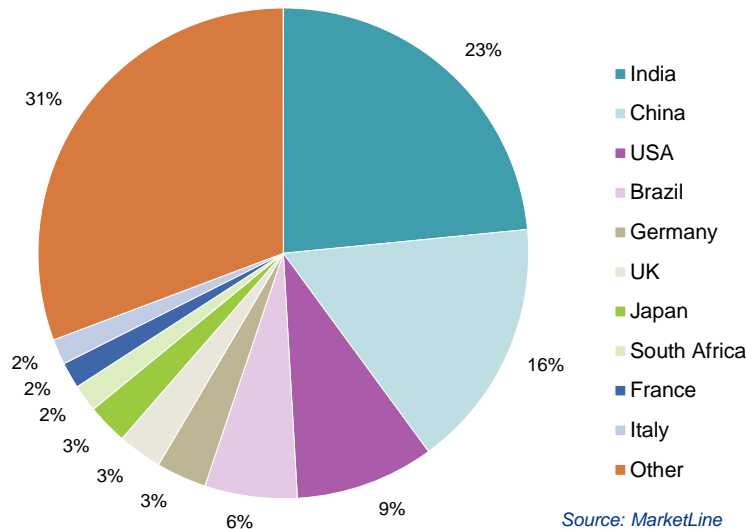
Among the selected countries in 2013 USA was the top country accounting for around 16% of global revenue of soap market thus being the largest consumer of soap from the perspective of value of consumption. India was the second largest market accounting for 13% of global soap revenue followed by China with 10% and Japan with 8%.

Global soap market revenue by selected countries in 2013



Source: MarketLine

Global personal hygiene consumption (units consumed) by selected countries in 2013



Source: MarketLine

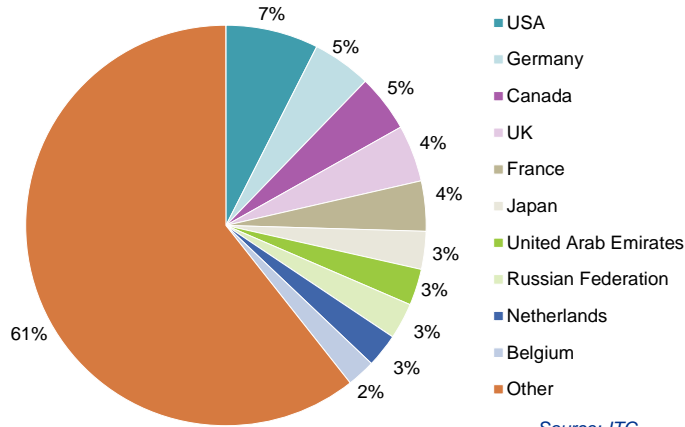
However from the perspective of the consumption volume (units consumed) India was the largest consumer of personal hygiene products (including soap) accounting for 23% of consumption. China was the second largest consumer with 16% share in global consumption of personal hygiene products followed by USA with 9%.

India consumed around 6.8 billion units of personal hygiene products. Soap accounted for about 88.7% of the personal hygiene revenue in India and we calculated the consumption of soap to be around 6 billion units.

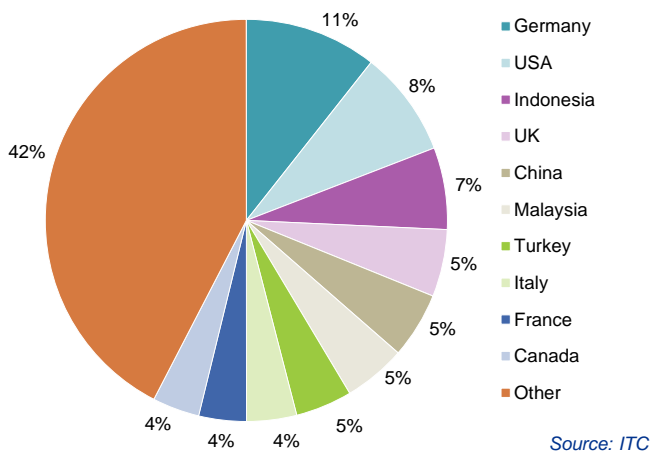
In 2013 top three importing countries of soap accounted for about 17% of the world soap import

In 2013 top three exporting countries of soap accounted for about 26% of the world soap export

Structure of the world soap import by countries in 2013



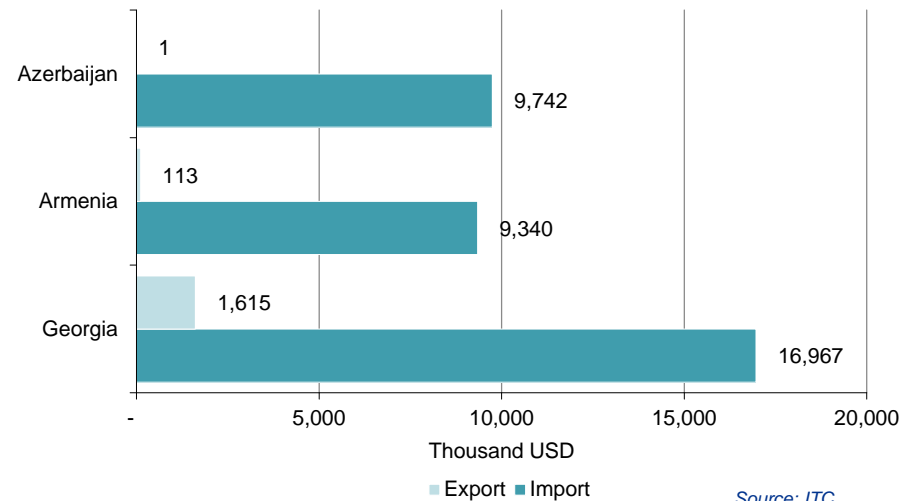
Structure of the world soap export by countries in 2013



In 2013 the world import value was USD 9.9 billion. The top ten importing countries of soap accounted for about 39% of world soap import. USA, Germany and Canada were the top 3 importers of soap with shares of 7%, 5% and 5% respectively. Meanwhile in 2013 the export value was USD 10 billion. The top ten exporting countries of soap accounted for about 58% of the world soap export. Germany, USA and Indonesia were the top 3 exporters of soap with shares of 11%, 8% and 7% in the world export of soap respectively.

In 2013 the import of soap in South Caucasus (Georgia, Azerbaijan and Armenia) was about USD 36 million, while the export was only USD 1.7 million. Among the countries of South Caucasus Georgia was the biggest importer.

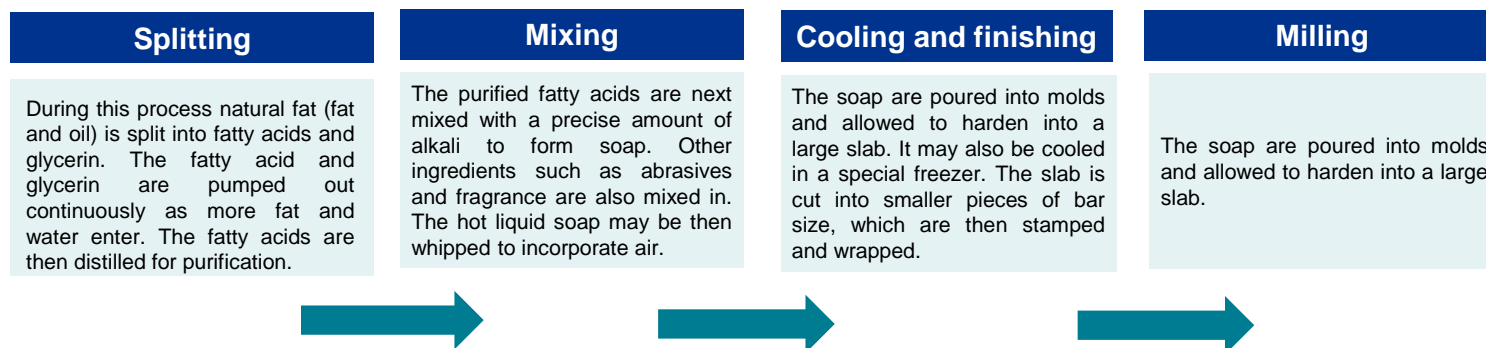
Import and export of soap in South Caucasus in 2013



Soap mainly requires two major raw materials: fat and oil, and alkali

There are two main types of soap manufacturing process: kettle method and continuous method. Nowadays the continuous method of soap production is used by large soap manufacturing companies. The method includes the following steps:

Soap production cycle general description



Soap mainly requires two major raw materials: **fat** and **oil**. Also **alkali** is used during the process. The alkali most commonly used today is sodium hydroxide.

Key ratios of the main raw materials and soap

Fat	
P/E	11.1x
Return on Assets %	2.7%
Gross Margin %	8.8%
SG&A Margin %	5.5%
EBIT Margin %	3.4%
Net Income Margin %	2.6%

Alkali	
P/E	26.2x
Return on Assets %	n/a
Gross Margin %	38.0%
SG&A Margin %	17.5%
EBIT Margin %	8.1%
Net Income Margin %	5.8%

Soaps	
P/E	31.0x
Return on Assets %	15.6%
Gross Margin %	49.3%
SG&A Margin %	29.3%
EBIT Margin %	19.6%
Net Income Margin %	14.5%

Soap

Price analysis

In the period from 2010 – 2013 the prices have had an increasing trend

Our research showed that during the period between 2010 and 2013 average import price of soap increased for all the regions included in our research. Prices differ significantly among the regions.

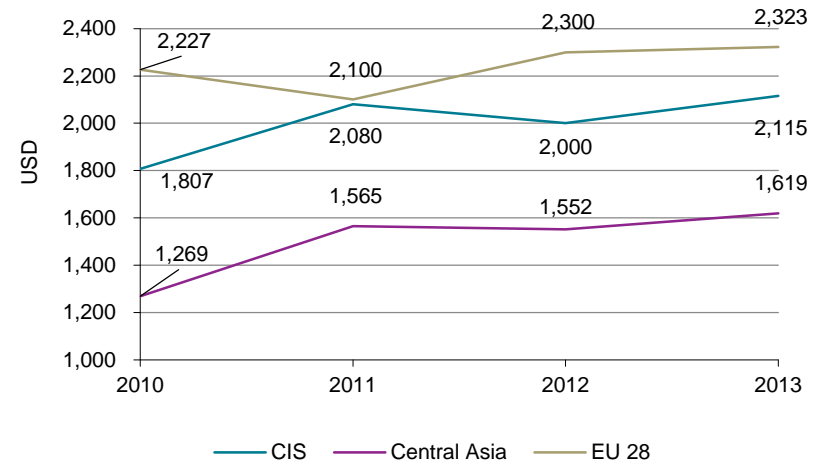
EU has the highest import price of soap.

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 drivers include:

- Cost of raw materials
- Packaging
- Transportation costs (both for raw materials and finished products)

Average import price of soap in CIS, EU and Central Asia, 2010-2013 (USD/Tons)



Source: ITC

Global Top 20 soap producing companies by revenue		
	Company	Total Revenue (Million USD)
1	CWS-boco Suisse SA	36,466
2	Colgate-Palmolive Co.	17,417
3	Hindustan Unilever Limited	4,879
4	LG Household and Health Care, Ltd.	4,279
5	PT Unilever Indonesia Tbk	2,776
6	Unilever UK Central Resources Limited	1,566
7	Henkel Italia S.p.A.	1,371
8	PZ Cussons plc	1,277
9	McBride plc	1,273
10	P.T. Sayap Mas Utama	1,000
11	PT Wings Surya	950
12	Henkel Corporation	805
13	The Procter & Gamble Manufacturing Company	783
14	Aekyung Co., Ltd.	704
15	Hayat Kimya Sanayi A.S.	669
16	KleanNara Co., Ltd.	626
17	Shanghai Hutchison Whitecat Company Limited	538
18	The Sun Products Corporation	492
19	Fábrica de Jabón La Corona, S.A. de C.V.	492
20	Bombril S.A.	481

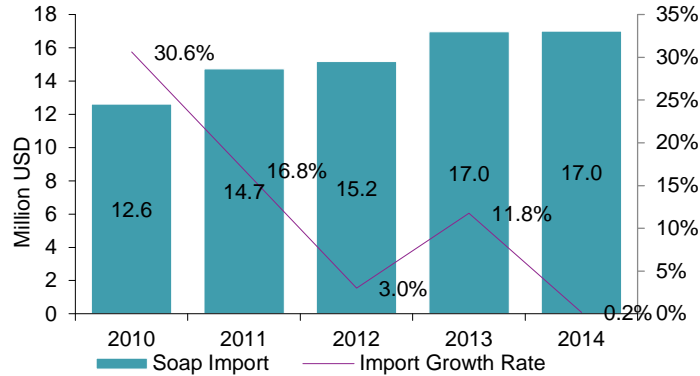
Source: S&P

Note: Ranking of the Top 20 companies is based on the total revenues for February 2015 (LTM). Soap production is one of the primary lines of business for the entities.

In 2014 Georgia imported USD 17 million of soaps majority of which was mixture of toilet soaps and preparations and soaps and organic surface active preparations

In 2014 the largest exporter of soaps to Georgia was Turkey

Import of soap in 2010 - 2014



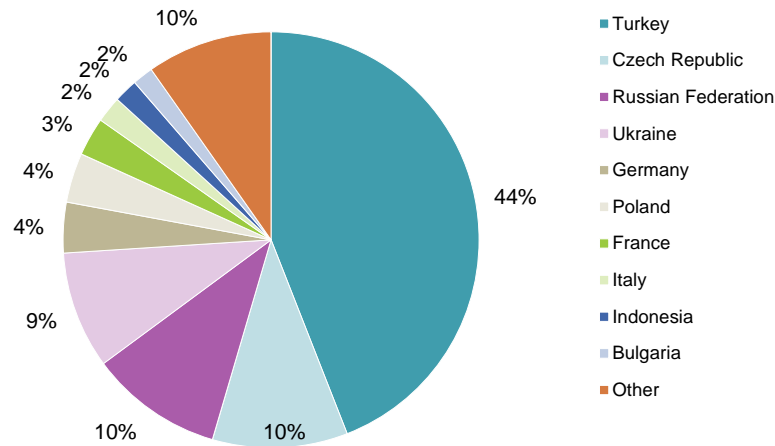
Source: ITC

In 2014 the import of soaps in Georgia increased by 0.2% in comparison with 2013 and reached USD 17 million. During 2010 – 2014 the soap import recorded 7.7% CAGR.

In 2014 Turkey accounted for 44% of the total import of soaps to Georgia. Czech Republic and Russia were also the largest exporters of soaps to Georgia accounting for 20% of the import in total.

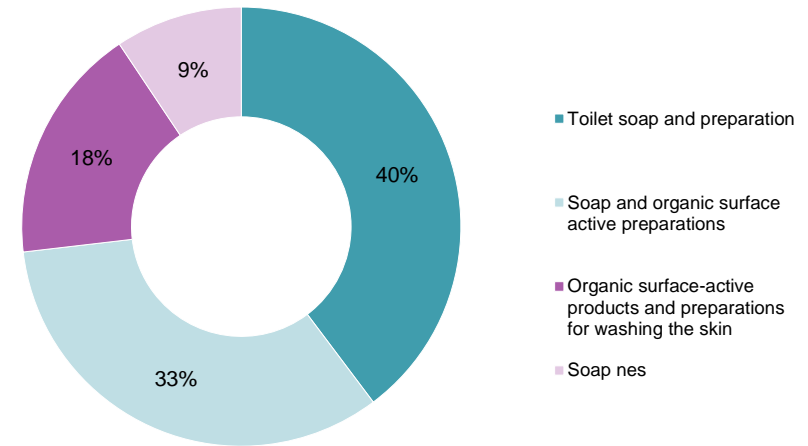
In 2014 the toilet soaps and preparations were the main type of soaps imported to Georgia accounting for 40% of the import. Soap and organic surface active preparations were the second largest group of imported soap (33%).

Soap import structure by countries, 2014



Source: ITC

Soap import structure by product type in 2014



Source: ITC

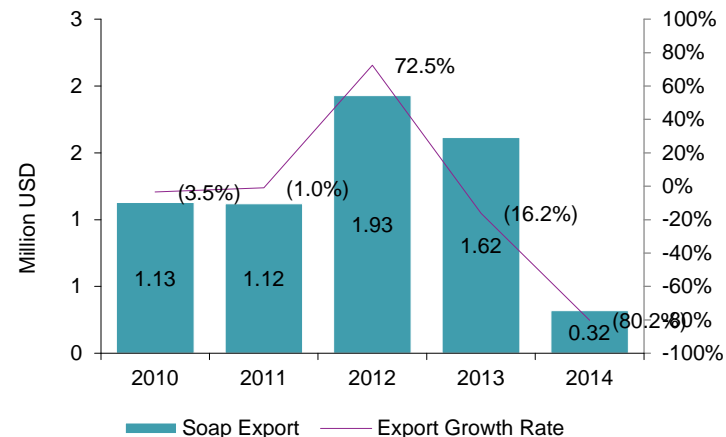
In 2014 Georgia exported USD 0.32 million of soaps

Georgia exported mainly to Afghanistan and Azerbaijan

In 2014 the export of soaps from Georgia decreased by 80.2% and was USD 0.32 million. During the 2010 – 2014 the soap export decreased by average of 27.1%.

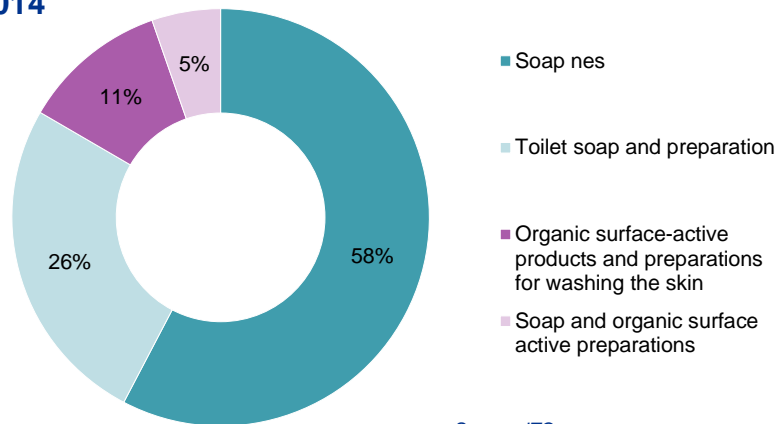
In 2014 the largest export country for Georgia soap was Afghanistan. It accounted for 53% of Georgia's export. The second largest destination of export for Georgian soaps was Azerbaijan accounting for 35% of the export, followed by Turkey and Belarus accounting for 5% and 3% respectively.

Export of soap in 2010 - 2014



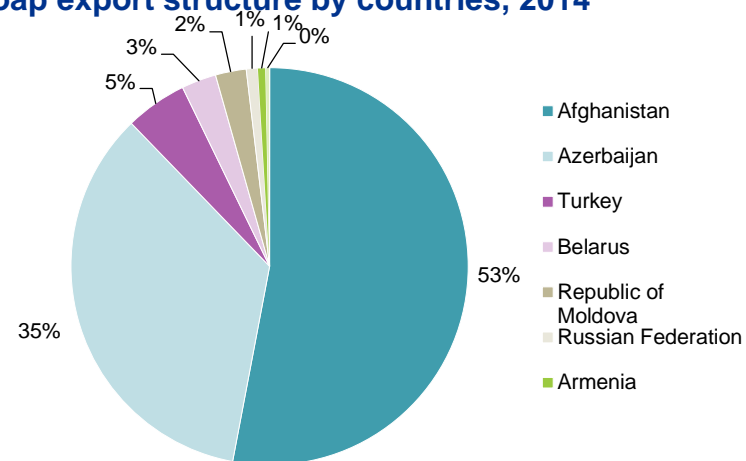
Source: ITC

Soap Export structure by product type in 2014



Source: ITC

Soap export structure by countries, 2014

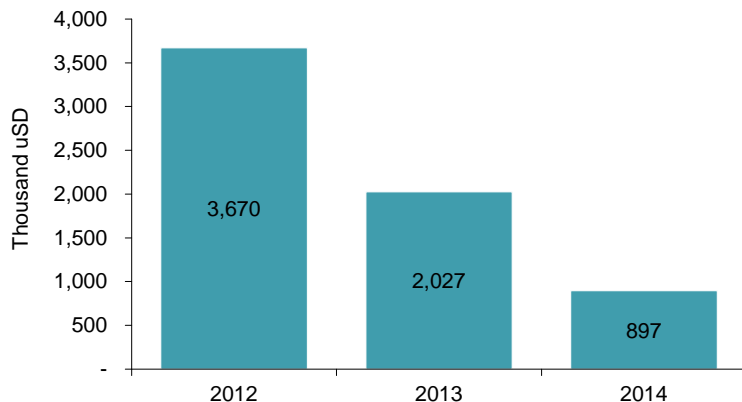


Source: ITC

Georgia - soap and detergents, cleaning and polishing products production and consumption

Production of soap and detergents, cleaning and polishing products amounted to USD 897 thousand

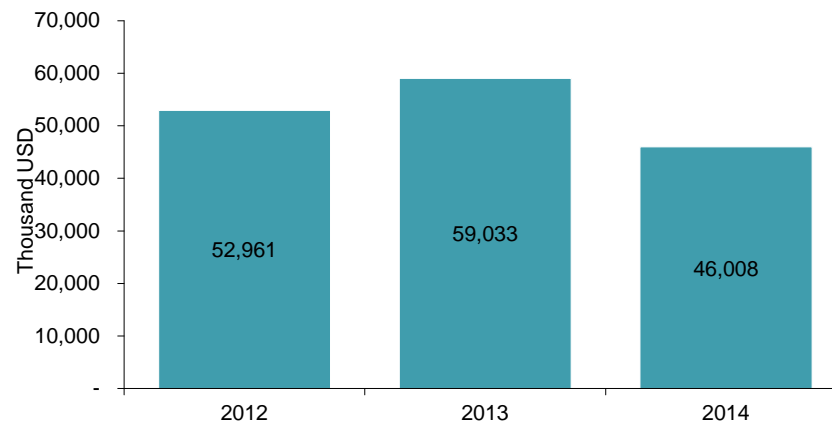
Production of soap and detergents, cleaning and polishing products in 2012 - 2014



Source: Geostat, KPMG analysis

During the first three quarters of 2014 consumption of soap and detergents, cleaning and polishing products amounted to USD 46,008 thousand.

Soap and detergents, cleaning and polishing products consumption in 2012 - 2014



Source: Geostat, KPMG analysis

Note: data for 2014 includes information for the first three quarters

The Georgian Statistics Office does not provide information regarding soap production separately. Production information is available for the group - soap and detergents, cleaning and polishing products.

According to the Georgian Statistical Office, production of soap and detergents, cleaning and polishing products reached USD 897 thousands for the first 3 quarters of 2014.

Volume of soap and detergents, cleaning and polishing products in 2014 reached 1,296.6 tones.

Raw materials in the selected Region/Countries – Fat and Oil

Fat and Oil export and import, export and import unit value

	Value imported in 2013 (USD thousand)	Value exported in 2013 (USD thousand)	Trade balance in 2013 (USD thousand)	Import Unit value (USD/ton)	Export Unit value (USD/ton)
Netherlands	6,035,960	6,637,992	-602,032	n/a	n/a
Spain	4,107,431	2,243,986	1,863,445	2,288	1,180
Germany	3,939,459	4,761,536	-822,077	1,226	1,179
Italy	2,534,788	4,123,690	-1,588,902	3,067	1,469
Belgium	2,320,322	2,543,180	-222,858	1,350	1,177
France	1,728,116	2,758,600	-1,030,484	1,198	1,597
United Kingdom	845,855	2,218,576	-1,372,721	1,339	1,374
Other EU	6,407,848	7,492,472	-1,084,624	n/a	n/a
Ukraine	3,507,076	403,204	3,103,872	n/a	n/a
Turkey	1,402,837	1,810,245	-407,408	1,628	1,173
Azerbaijan	227,884	75,563	152,321	n/a	n/a
Kazakhstan	56,578	184,706	-128,128	1,349	1,508
Georgia	11,929	90,977	-79,048	1,548	1,398
Turkmenistan	985	38,871	-37,886	n/a	n/a
Uzbekistan	119	249,890	-249,771	n/a	n/a
Kyrgyzstan	84	84,355	-84,271	n/a	n/a
Armenia	52	60,601	-60,549	n/a	n/a
Tajikistan	23	42,521	-42,498	n/a	n/a

Source: ITC

Among the selected countries the largest exporter of oils and fats were EU countries

Azerbaijan was the largest exporter among the South Caucasus countries

Among the selected countries the largest producers of oils and fats were Germany, France and Ukraine

Azerbaijan was the largest producer among the South Caucasus countries

According to FAOSTAT (Statistical database of Food And Agriculture Organization Of The United Nations) in 2013 among the selected countries the biggest producer of natural oils (natural oils refer to oils of coconut, cottonseed, groundnut, linseed, palm kernel, rapeseed, soybean, maize, olive, virgin, sunflower, etc.) were Germany, France and Ukraine. Among the South Caucasus countries Azerbaijan was the biggest producer of natural oils in 2013.

Oils production (ton) in 2008 - 2013

	2008	2009	2010	2011	2012	2013
Germany	3,573,740	3,715,541	3,660,434	3,436,929	4,060,464	3,981,389
France	2,079,550	2,505,611	2,619,640	2,613,469	2,757,418	2,654,418
Spain	2,000,866	2,250,674	2,500,578	2,655,324	2,501,974	2,203,374
Netherlands	1,101,620	1,237,303	1,247,858	1,238,240	1,062,730	1,123,030
Poland	760,476	910,150	960,831	729,249	867,882	1,006,976
Italy	1,193,824	1,141,389	1,136,693	1,103,583	1,131,477	973,677
United Kingdom	874,200	933,600	936,300	941,200	887,400	900,500
Other EU	3,277,913	3,458,688	3,727,297	3,842,224	4,009,081	4,130,587
Ukraine	2,000,319	2,901,494	3,096,256	3,291,780	3,945,643	2,495,601
Turkey	1,189,877	1,201,867	1,637,665	1,655,014	1,674,964	1,717,104
Uzbekistan	333,190	303,940	291,659	289,752	291,560	294,330
Kazakhstan	190,159	204,445	223,333	234,977	291,016	280,395
Turkmenistan	64,200	73,100	79,200	88,700	82,600	82,000
Tajikistan	18,400	14,300	15,300	17,300	21,800	18,685
Azerbaijan	14,638	12,302	11,546	40,999	16,348	15,141
Georgia	8,100	9,800	7,500	4,500	7,000	8,000
Kyrgyzstan	18,400	20,650	18,108	13,181	13,463	7,642
Armenia	350	652	1,034	503	2,393	3,924

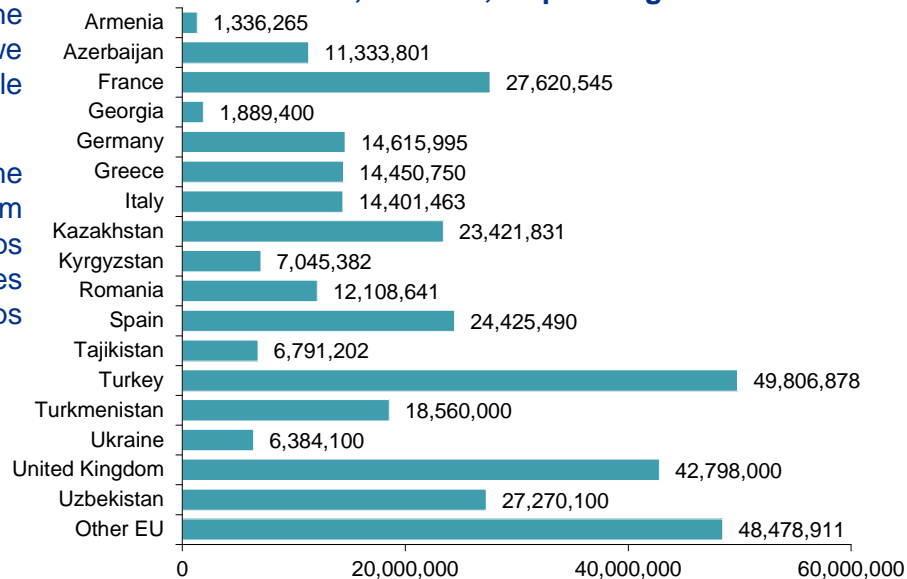
Source: FAOSTAT

Raw materials in the selected Region/Countries – Fat and Oil

For measuring the selected countries from the perspective of possibility of animal fat supply we use the statistical data regarding the cattle quantity (head count) in each country.

According to FAOSTAT data in 2013 among the selected countries Turkey and United Kingdom had the most amount of cattle, buffalos, ships and goats. Among the South Caucasus countries Azerbaijan has the most cattle, buffalos, ships and goats in 2013.

Head count of cattle, buffalos, ships and goats in 2013



Source: FAOSTAT

In 2013 the world import of sodium hydroxide was equal to approximately USD 852 million

Import of sodium hydroxide (alkali), 2013			
Importers	Value imported in (USD thousand)	Quantity imported in (Tons)	Import price (USD)
World	851,862	1,506,540	565
Belgium	23,546	38,003	620
Germany	17,730	22,938	773
Italy	17,452	24,842	703
France	15,778	22,429	703
United Kingdom	15,673	25,790	608
Spain	7,475	15,918	470
Other EU	46,902	70,088	N/A
Uzbekistan	22,534	46,810	481
Turkey	15,610	24,771	630
Kazakhstan	14,834	31,249	475
Ukraine	9,720	15,215	639
Georgia	5,988	7,840	764
Kyrgyzstan	4,794	6,716	714
Azerbaijan	1,442	2,440	591
Turkmenistan	1,365	2,991	456
Armenia	919	1,521	604
Tajikistan	413	653	632

Source: ITC

In 2013 Belgium was the major importing country of sodium hydroxide with the importing share in the world import equal to 2.8%, while Poland was the major exporting country of sodium hydroxide with the exporting share in the world export equal to 4.6%

In 2013 Germany had the highest import price of sodium hydroxide equal to USD 773 thousand, while United Kingdom had the highest export price equal to USD 2.7 million.

Export of sodium hydroxide (alkali), 2013							
Exporters	Exported value in (USD thousand)	Exported quantity, Tons	Unit value (USD/unit)	Exporters	Exported value in (USD thousand)	Exported quantity, Tons	Export price (USD)
World	790,901	1,582,735	500	Netherlands	1,501	1,249	1,202
Poland	36,256	63,231	573	Lithuania	1,396	1,914	729
Spain	20,321	28,592	711	Other EU	2,906	2,828	N/A
Belgium	14,941	21,541	694	Turkey	1,551	1,964	790
Romania	8,635	15,446	559	Ukraine	56	38	1,474
Czech Republic	2,885	1,799	1,604	Kazakhstan	35	47	745
United Kingdom	2,259	808	2,796	Georgia	16	20	800

Source: ITC

Electrolysis of brine (salt solution) accounts for 100% of sodium hydroxide capacity

Although there are a few other methods of production, electrolysis of brine (salt solution) accounts for 100% of sodium hydroxide capacity. According to USGS soda ash can be used as feedstock to manufacture sodium hydroxide (chemical caustic soda).

World Production of Salts		
	2013	2014e
United States	40,300	44,100
Australia	11,000	11,000
Brazil	7,500	7,500
Canada	12,200	13,300
Chile	6,580	8,000
China	70,000	71,000
France	6,100	6,000
Germany	11,900	12,000
India	16,000	17,000
Mexico	10,800	9,500
Poland	4,430	4,400
Spain	4,440	4,500
Turkey	5,300	5,400
Ukraine	6,200	5,400
United Kingdom	6,700	6,800
Other countries	42,200	43,400
World total (rounded)	262,000	269,000

Source: USGS

As mentioned by USGS no economic substitutes or alternatives for salt exist in most applications. Calcium chloride and calcium magnesium acetate, hydrochloric acid, and potassium chloride can be substituted for salt in deicing, certain chemical processes, and food flavoring, but at a higher cost.

World production and reserves			
Mine production			Reserves
Natural:	2013	2014e	
United States	11,500	11,600	623,000,000
Botswana	235	250	400,000
Kenya	500	420	7,000
Mexico	290	290	200,000
Turkey	1,900	2,000	200,000
Uganda	NA	NA	20,000
Other countries	—	260,000	
World total, natural (rounded)	14,400	14,600	24,000,000
World total, synthetic (rounded)	36,900	37,000	XX
World total (rounded)	51,300	51,600	XX

Source: USGS

Reserves

According to the USGS, economic and sub economic deposits of salt are substantial in principal salt-producing countries. The oceans contain a virtually inexhaustible supply of salt.

Pipeline for Soap, washing, polishing and cleaning supplies

P&G is planning to open multi-category manufacturing facility in 2017

Project	Pipeline
Procter & Gamble Plans USD 500 Million Multi-Category Manufacturing Hub In Berkeley County, West Virginia	<p>The Procter & Gamble Company will build a more than 1-million square foot, approximately \$500 million, multi-category manufacturing facility in Berkeley County, in the Eastern Panhandle of the state near the town of Tabler Station, West Virginia. The facility is planned to be opened in 2017.</p> <p>The new, multi-category manufacturing plant is part of a redesign of P&G's North American supply network.</p> <p>In the initial phase, the facility will create over 1,000 construction jobs, and, when it opens, will employ approximately 700 full-time, skilled P&G workers.</p>

Company	Country	Investment	Capacity	Launch data	Other details
Unilever	Turkey	EUR 150 million	-	-	On 22/11/2013 the company announced to make investment in a new manufacturing plant in Konya (Turkey) to increase its capacity in Home and Personal Care.



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