



ASOCIACE SKLÁŘSKÉHO  
A KERAMICKÉHO PRŮMYSLU ČR

Association of the Glass and Ceramic Industry of the Czech Republic

# ANNUAL REPORT

GLASS AND CERAMIC INDUSTRY  
OF THE CZECH REPUBLIC 2016



AUGUST 2017

## Dear friends,

We present our Annual Report - Glass and Ceramic Industry of the Czech Republic which contains information on the activities of the Association made last year. As usual, it contains arranged data on trade and production of the greater part of Czech glass companies, china factories and companies producing white ceramics. The Report brings a faithful picture of situation, successes and also problems of this branch.

Before you start reading, I would like to mention several facts accompanying us and significantly influencing our entrepreneur's environment and results. One of the most important challenges of today is a deficit of qualified employees, especially graduates of specialized (best of all of glass and ceramic) schools. Admittedly, the employees number of companies in the branch slightly increased in 2016, but the problem exists up to now. The situation is not always simple and not every company is successful in filling free or new appearing working positions with qualified people. In spite of this, the economical situation in the most of our companies is positive, the whole branch is growing and we expect a favourable development even in future period. It is possible to say with pride, that during the last few years many changes for the better appeared in this branch. Companies gain new markets, they work on technology development, they make innovations, and also production capacities grow. The initiator of growth is, in particular, an increased demand for products in related branches of building, automotive, chemical and food industries. Some of new regulation measures connected with sustainable development, especially as far as environment and energy demand, mean a drag - or a challenge for some companies.

I believe in a skill of our workers, in managing and decision-making of our entrepreneurs and management ensuring permanent competitiveness of the glass and ceramic industry in the Czech Republic. This could not be possible without these people, without these "engines", innovators, without you. And therefore, I am proud that these people are in our branch and they are not only a few.



Ing. Petr Mazzolini  
prezident

Asociace sklářského a keramického průmyslu ČR



ASOCIACE SKLÁŘSKÉHO  
A KERAMICKÉHO PRŮMYSLU ČR  
Association of the Glass and Ceramic Industry of the Czech Republic

## Board

### President

Ing. Petr Mazzolini

### Vice-presidents

Ing. Petr Beránek, Ing. Radislav Feix, PhD., Ing. Jaroslav Seifrt

### Members

Ing. Petr Beránek, Ladislav Dvořák, MBA, Ing. Lubomír Hnilička, Ing. Petr Hübner, PhDr. Martin Kubát,  
Ing. Milan Kucharčík, Ing. Jan Štefl, Ing. Pavel Wurzel

## Supervisory board

### Chairman

Ing. Jiří Mašek

### Members

Ing. Alexandra Kloužková, CSc., Ing. Jiří Bělský, CSc.

# TABLE OF CONTENTS

## Introduction

1. Association of the Glass and Ceramic Industry of the Czech Republic
2. Structure of the glass and ceramic industry in the Czech Republic
3. Position of the glass and ceramic industry in the Czech Republic
4. Development of the glass and ceramic industry in the period from 2011 to 2016
5. Export and import according to production branches in the period from 2011 to 2016

# INTRODUCTIONS

The Annual Report gives in its introduction part an overview on the position of the glass and ceramic industry within the processing industry of the Czech Republic, its structure and development in the period from 2010 till 2016. A survey of export and import according to individual production branches creates a part of this Report. Further on, an evaluation of the activities of the Association of the Glass and Ceramic Industry of the Czech Republic in the past period is given, as well.

Data processed in the Annual Report are based on data of the Czech Statistical Office (valid at the date of June 30, 2017). These data are completed with information gained from annual reports of the Association members.

Classification and terminology of the processing industry used in the Chapter "Position of the glass and ceramic industry in the Czech Republic" are taken from the Czech Statistical Office.

Time development lines compared in the Chapter "Development of the glass and ceramic industry" are given for the period from 2010 till 2016.

The glass and ceramic industry is in the submitted Annual Report mostly investigated and described separately, i.e. in seven so-called groups. These groups are created by related glass and ceramic production activities as far as technology and marketing. This methodology corresponds to a method of the statistical statement in the Czech Republic.

- ◆ **Flat glass** (unfinished and finished flat glass)
- ◆ **Container glass** (bottles, preserve glass jars, other glass containers)
- ◆ **Glass fibres** (reinforcing/textile fibres, insulating glass fibres)
- ◆ **Other glass** (special glasses - laboratory and laboratory apparatus glass, tubing, glass TV components, technical spheres, glass industrial apparatuses, protective welding glass, optical glass, glass blocks, fashion jewellery glass, etc.) **and lighting glass**
- ◆ **Utility glass** (drinking glass, glass for household, decorative glass, art glass, etc.)
- ◆ **Household china and ceramics** (china ware for household and decorative china, ceramic ware for household, decorative ceramics)
- ◆ **Technical ceramics and sanitary ware** (insulators, laboratory china, ceramic products for sanitary purposes, products for technical purposes)

The development in the rest groups created by the production of machinery, equipment and services for the glass and ceramic industry, is not investigated in the Annual Report as the whole. From the point of view of the statistical statement the activities connected with this group are investigated in a number of other subsections of the processing industry, and so it is not possible to process and compare them, especially numerical data, reliably.





## THE ASSOCIATION OF THE GLASS AND CERAMIC INDUSTRY OF THE CZECH REPUBLIC

### **The Association of the Glass and Ceramic Industry of the Czech Republic**

*The Association of the Glass and Ceramic Industry of the Czech Republic is a member of the Confederation of Industry of the Czech Republic and a member of the Glass Alliance Europe.*

*The Association of the Glass and Ceramic Industry of the Czech Republic (Association) was established in 1990 as an interest group of producers of flat, container, technical, utility and lighting glass, glass and mineral fibres, household china, household ceramics and sanitary ware, trade companies, suppliers of machinery, machine and technological equipments and services, specialized schools, research institutes and publishers of specialized journals. The Czech Glass Society is a member of the Association. A separate part of this chapter is devoted to the Czech Glass Society.*

The Association had 43 members at the date of December 31, 2016. Preciosa Ornela, a.s. became a member of the Association in the first half of 2017.

The activities of the Association are focused, especially on the promotion, assertion and defence of interests and demands in relation to the bodies of the state administration, on organizing a mutual cooperation of members in solution of common problems, on rational utilization of local raw materials, on environmental problems solution, on ensuring collective negotiations with respective trade union and making collective bargains, on ensuring a database for strategic decisions of its members, on assistance in search of foreign partners, on coordination of research and development in the glass and ceramic industry in cooperation with specialized schools and workplaces, on expert and financial support in publishing specialized literature and journals, and also on solution of specialized education problems.

#### Activities of the Association in 2016

*The Association collaborated on national level on fulfilling the policy statement of the Confederation of Industry of the Czech Republic (Confederation of Industry) and with the Czech Glass Society on the promotion of interests directly connected with the glass and ceramic industry. Within the European Union the Association collaborated with the Glass Alliance Europe (GAE) on the promotion of interests of the glass industry and in the framework of its possibilities also on the promotion of interests of other associated branches and with other professional groups.*

*The plan suggestion for 2016 followed the activities in 2015. The activities in 2016 were divided to the following themes: "Support of the glass and ceramic industry competitiveness", "Environment", "Collective negotiations of higher degree", "Education (apprenticeship, secondary and university)", "Social dialogue", and "Services and information". Support of research and development and lobbying for the glass and ceramic industry interests and activities promoting the Association and its members, were an important part of activities of the Association.*

**The Association took part in a number of projects in 2016:** National System for Qualification (NSK2), Interconnection of national, sector and regional social dialogue in the Czech Republic, Education and collaboration among social partners (as a partner with the Trade Union of Employees of Glass and Ceramic Industry and China (Trade Union).

#### Support of competitiveness of the glass and ceramic industry

The aim was to support competitiveness of glass and ceramic industry products on inland and also on international markets, and with regard to the possibilities of the Association to collaborate with the Confederation of Industry. Specific problems of the glass and ceramic industry were solved directly with the Ministry of Industry and Trade, the Ministry of Environment and further bodies of the state administration.

The Association in cooperation with member companies and within the membership in the Glass Alliance Europe (GAE), and also on national level with the Confederation of Industry, **took a firm stand actively against changes and elimination of the glass and ceramic industry from the list of sectors endangered by carbon leakage after 2020.** (Definition: Carbon leakage is a term describing a situation, which can appear when tradesmen, due to high expenses on climate protection, transfer their production to other countries with free access to greenhouse gases and emissions.)

The Association carried out **a systematic dialogue with the Ministry of Industry and Trade and the Ministry of Environment** on general support of the glass and ceramic industry, especially in the area of competitiveness support. The Association supported **providing the working force, development of**

**professional education** and motivation of working force through social dialogue and through all further available means.

The Association established **expert groups** for the promotion, assertion and defence of interests of the glass and ceramic industry. They discussed about up-to-date problems regarding the glass and ceramic industry. The aim of expert groups is to define the attitude to basic themes influencing the position of the Association members, and, subsequently, in cooperation with the Association secretary, to stand up for their promotion within the state authorities, the Confederation of Industry and the Glass Alliance Europe. Personal staff of groups was ensured in cooperation with all members.

### **Social dialogue**

For fulfilling of employers' functions and keeping the social dialogue the Association managed the Collective agreement of higher degree with representatives of the Trade Union. Further on, the Association collaborated with the Confederation of Industry, the Ministry of Industry and Trade, the Ministry of Environment and the Ministry of Labour and Social Affairs.

In 2016 the negotiation on the **Collective agreement of higher degree to the period from 2017 to 2018** with the Trade Union proceeded. The Association took part in the project of the Confederation of Industry "Interconnection of national, sector and regional social dialogue in the Czech Republic" (NORD); KA1 **Bipartite negotiations on sector level**. Through the working groups of the Glass Alliance Europe the Association shared in the attitude within the European Union to the problems of the **respirable crystalline quartz**.

With aim to increase knowledge on social dialogue and strengthening the cooperation between employers and employees the Association entered as a partner of the Trade Union to the Request for support of the project **Education and cooperation between social partners** and transfer of knowledge and experience from abroad. This project was accepted and is realized in the period from June 2016 till May 2018.

### **Education (apprenticeship, secondary and university)**

The Association is supporting the development and ensuring the quality of professional education on all levels.

In the area of education **problems regarding professional education system** for the glass, jewellery and ceramic industry are continuously solved. It was necessary to interest employers, as well.

The Association collaborated with the consortium of the Confederation of Industry, the Chamber of Commerce and TREVIMA, s.r.o. on the **National Qualification System (NSK 2)**.

### **Environment**

The Association cooperated with the Glass Alliance Europe, the Confederation of Industry, the Ministry of Environment and the Ministry of Industry and Trade and took part in the activities of respective working groups. In cooperation with the Glass Alliance Europe the Association took part on national level in support of interests of the Czech glass and ceramic industry within the European environmental policy (REACH, EU ETS, IPPC, etc.) and on making favourable legislation surroundings.



In the first half of this year the Association took a **stand on the EU ETS reform**, that key factors of the EU ETS reform may not endangered the competitiveness of the glass industry. In the end of the year the Association joined to the **common Stand on the processing industry** of the Czech Republic to the EU ETS reform appointed primarily to members of the European Parliament. In collaboration with the Association members, the Confederation of Industry and the Ministry of Industry and Trade the Association asserted **comments to the regulation No. 415/2012 of the Coll. of Laws** within the external debate of the Ministry of Environment regarding the flat glass production.

In cooperation with the Confederation of Industry and within a systematic dialogue with the Ministry of Industry and Trade (Action plan for a support of an increase of the Czech Republic independence in raw materials sources by substitution of primary sources by secondary raw materials) the Association promoted the solution of the problem of **waste glass for recycling** (waste flat glass, container glass, etc.). In collaboration with the Confederation of Industry and its members the Association promoted the interests of industry in preparation **legal regulations regarding the environment**.

In collaboration with the Glass Alliance Europe and with the own members the Association solved the problem of the **REACH and incorporating substances, used as glass raw materials** (new substances suggested for qualification, permission and protection of raw materials as semi-products). The Association monitored in cooperation with the Glass Alliance Europe and in cooperation with member companies the problem of **contact of products with food** (new values, total migration limits, specific problems, etc.).

### Services and information

The Association secretary continued in collecting and searching for information important for the Association members and transferred it to them. The Association gave information on this branch to the bodies of the state administration and to other institutions which can contribute to the development of the glass and ceramic industry.

**The Information bulletin was published every two weeks. This bulletin gives reports and news on activities of the Association, its members and on up-to-date problems regarding the glass and ceramic industry. The members of the Association received regularly the bulletin of the GAE and other information coming from the secretary of the GAE. The Association regularly updated information given to members and public on [www.skloakeramika.cz](http://www.skloakeramika.cz), oriented to the support of the glass and ceramic industry in the Czech Republic. According to requirements the Association gathered and evaluated important data for monitoring of up-to-date situation and development of this branch.**

**In the framework of the project Education and collaboration with social partners the Association co-organized training for its members oriented to the social dialogue. The Association members confirmed new statutes of the Association, valid since the January 1, 2017. Wording of previous statutes was fully replaced by a new text and the updated wording was published on web site of the Association ([www.askpcr.cz](http://www.askpcr.cz)).**

### Promotion of the Association and its members

The aim of the Association was to continue in medial promotion of the glass and ceramic industry and improve its image. The aim was always to introduce public with the production and the level of

the branch and to contribute to gaining new qualified workers to companies and young people to schools of all levels of education. The Association updated the web site oriented to the glass and ceramic industry containing latest news from this branch, report on glass and ceramics, survey of companies and schools, offer of working places, specialized publications, and calendar of specialized activities (see [www.askpcr.cz](http://www.askpcr.cz) and [www.skloakeramika.cz](http://www.skloakeramika.cz)). The Association took part in the Science Research Innovation Fair with aim to promote the glass and ceramic industry, Association members and their products and services. The Association promoted also the logo the Czech product, guaranteed by the Association of the Glass and Ceramic Industry of the Czech Republic.

The Annual Report - Glass and Ceramic Industry of the Czech Republic - 2015 was published based on the collaboration with the Association members and the Czech Statistical Office.

The Association contributed to finishing of the survey **Panorama zpracovatelského průmyslu ČR** (Panorama of the manufacturing industry of the Czech Republic) published by the Ministry of Industry and Trade. There were published articles on the Association activities in the *Sklář a keramik* journal, where the Association has a contract on cooperation. Further on, the Association cooperated on the special appendix of the *Technik* journal oriented to the glass industry. An article on the Czech glass industry was published in the *Glass World Wide* journal and other articles and data were given to other media.

The representatives of the Association nominated managers from the glass and ceramic industry to the competition **Manager of the Year**. PhDr. Martin Kubát, General Director of Crystalex CZ, s.r.o. and Ing. Gregor Gábel, General Director of Vetropack Moravia Glass, a.s. became finalists.

The 3<sup>rd</sup> **Meeting of glassmakers and ceramists**, the aim of which is to renew and develop relations among representatives of glass and ceramic industry in the Czech Republic was organized. Presentation of the Membership of Honour in the Association, with accent on technical education was a part of this meeting. This appreciation gained Doc. Ing. Stanislav Kasa, CSc. from the University of Chemistry and Technology, Prague, who was also a member of the Supervisory board of the Association for many years. The Association granted professional auspices to the discuss meeting *Sklářské svítání* (Glass dawn) in Jablonec nad Nisou, where representatives of the Association and its members participated.

### **The Czech Glass Society**

The Czech Glass Society is a member of the International Commission on Glass (ICG) and the European Society of Glass Science and Technology (ESG).

The Czech Glass Society was originally established in 1946 as a glass section of the Czechoslovak Glass and Ceramic Society. In present form it exists after division of the Czech and Slovak Federal Republic in 1993 as the Czech Glass Society (CGS).

The CGS is a voluntary organization associating individual and collective members from the production of glass, fashion jewellery and related branches.

### **ACTIVITIES OF THE CGS IN 2016**

At the date of December 31, 2016 the CGS had 224 individual members and 29 members of art section i.e. 253 members; 2 subsidiaries (VETROPACK MORAVIA GLASS, a.s., KAVALIERRGLASS, a.s.) with 40 members, and 18 collective members.

The highest priority of the CGS was to organize the **23<sup>rd</sup> International Congress on Glass ICG** in 2013. In subsequent years there were organized two dominant events - the **8<sup>th</sup> International Conference on Borate and Phosphate Glasses** (2014) and the **Czech and Slovak Conference on Glass** (2014) and **14<sup>th</sup> International Conference on Glass Machinery** including seminary **Metals in Glass Technologies** (2015).

An important activity of the CGS in the international field is the participation in Technical Committees of the **INTERNATIONAL COMMISSION ON GLASS (ICG)**: TC 2 - Chemical Durability & Analysis, TC 3 - Basic Glass Science, TC 7 – Nucleation, Crystallisation & Glass-Ceramics, TC 13 - Environment, TC 14 - Gases in Glass, TC 19 - Glass Surface Diagnostics, TC 20 - Glasses for Optoelectronics, TC 21 - Modelling of Melting Processes, TC 23 - Education & Training in Glass Science & Engineering, and TC 25 – Modelling of Glass Forming Processes.

In 2016 the fifth year of the discuss meeting **Sklářské svítání** (Glass dawn) was organized in the Museum of Glass and Jewellery in Jablonec nad Nisou. The aim of these discuss meetings was to inform public, that the glass industry has already overcome a hard period of economic recession.

The CGS devotes an interest to young glassmakers. The competition for young designers **Master of Crystal**, organized by the Czech glass company PRECIOSA in collaboration with the Museum of Glass and Jewellery in Jablonec nad Nisou and with a support of the CGS proceeded. It was the 9<sup>th</sup> year in 2016. Seventy authors' designs or works entered for the competition, from which the special jury of representatives of organizers and the art designer Jakub Berdych chose the winner of individual categories.

The CGS is a publisher of *Sklář a keramik* journal. In 2014 it was 90 years from publishing the first number of the specialized glass journal *Sklářské rozhledy*, published by the Glass Institute in Hradec Králové. The other anniversary is 60 years from the change of the original journal name to *Sklář a keramik* and 20 years from the change of the publisher to the CGS.

The CGS is a supporter of scientific journal *Ceramics – Silikáty*. Also the Glass Club continues in its activities.

The CGS is an official partner of the Centre of the Glass Art project in the František Glassworks. The CGS supported the 14<sup>th</sup> International Conference of Glass Machinery and the seminary *Metals in Glass Technologies* in 2015.



## STRUCTURE OF THE GLASS AND CERAMIC INDUSTRY IN THE CZECH REPUBLIC

The structure of the glass and ceramic industry of the Czech Republic is described below according to the division of individual production branches, as it is used in the following parts of this Annual Report. Companies profiling the branch through their economic importance and prestige are given in individual groups. Further on, also basic information on Czech producers of machinery and equipment and on companies providing services for the glass and ceramic industry and suppliers of basic raw materials, is given.

The number of companies in the Czech Republic with more than 20 employees at the date of June 30, 2017:

CZ-NACE 23.1 - Production of glass and glass products – 108 companies are included. According to the investigated production branches there are 32 producers of flat glass, 38 producers of hollow glass (from which 4 producers of container glass, other companies produce utility glass), 6 producers of glass fibres and products made of, and 32 producers of the other glass (see the following text).

CZ-NACE 23.41 - Production of ceramic and china products, mostly for household and decorative products – 19 companies are included, from which 7 producers of china.

CZ-NACE 23.42 - Production of ceramic sanitary ware – 2 companies are included.

### Flat glass

#### ***AGC Flat Glass Czech, a.s.: the key player in the area of flat glass production and processing***

The only producer of large-dimension flat glass in the Czech Republic is AGC Flat Glass Czech, a.s., a member of the AGC Group with the seat in Teplice. This company is at present the greatest producer of flat glass and its applications in Central and Eastern Europe. The 100 % owner of the company is Asahi Glass Co. Ltd., Japan.

The activities of AGC Flat Glass Czech, a.s. include the production of basic flat float glass, clear or with defined green tint. It is finished by further transformation to the so-called low-emission glasses controlling the light and energy flow, safety (laminated or toughened) glass, sound insulating glass,



matt or painted glasses for exterior and interior applications and mirrors. By further treatment double or triplex insulating glass, bent building glass, furniture glass, glass for solar technique and fire resistant glass, are produced. Beside float glass the company produces dozens of ornamental patterns of cast glass. The trade policy of the company is based on export to the countries of Central and Eastern Europe. The company production is applied also in world distribution channels of the AGC Group.

The activities of AGC Flat Glass Czech, a.s. are supported by distribution channels in the Czech Republic, Slovakia and Poland created by subsidiary companies for distribution of glass for architecture and the building industry. Through them the company is a supplier of important volumes of unfinished flat glass to other independent processing companies.

Great volumes of flat glass are processed in the Czech Republic in the automotive division of the AGC Group, in this case AGC Automotive Czech, a.s. Chudeřice u Bíliny. This company produces toughened and laminated safety glasses, especially for private cars, lorries, buses and coaches, including the additional operations like application of encapsulated or extruded plastic profiles and application of required additional components (strips, pins, connectors, holders, etc.). AGC Automotive Czech produces and sells approx. 25 mill. of automotive glasses/windshields per year and so, it is one of the greatest and the most complex producers in Europe.

The company is a part of European group of producing, development and trade subjects of the AGC Automotive Europe Ltd. group. Its activities are concentrated in Belgium, Czech Republic, France, Italy, Hungary, Germany, Russia, Spain, Turkey and Great Britain. The company is a producer of more than 70 mill. of windshields, rear windows, sidescreens and skylights made of safety automotive glass per year.

AGC Automotive Europe Ltd. is a part of the worldwide Automotive Glass Company, Asahi Glass Co. Ltd., Japan. The main vision is to be the most respected world supplier of all types of safety glass for the automotive industry.

In the Czech Republic there are many other companies processing flat glass for various specialized products. It is for instance Saint-Gobain Sekurit ČR, spol. s r.o. Hořovice - production of glass for private cars; Pilkington Czech, spol. s r.o. Noviny pod Ralskem - production of glass for the building industry; Amirro, s.r.o. Čelákovice - production of mirrors and furniture glass; ERTL GLAS, s.r.o. Říčany - production of laminated safety glass, heat protective glass; WMA-Glass, s.r.o. Chrástava - production of insulation glass; Bepof, spol. s r.o. Hranice u Aše - processing of flat glass and mirrors, etc.

Beside the above mentioned companies there are also many wholesale companies trading with products and services regarding finished flat glass.

### **Container glass**

The production of container glass includes beverage bottles and preserve glass jars made for the food industry (beer, wine, liquors, non-alcoholic drinks, mineral waters, fruit, etc.), and further on, glass containers for products of the chemical, pharmaceutical and cosmetic industries.

Dominant producers of container glass in the Czech Republic are O-I Manufacturing Czech Republic, a.s. with trading company O-I Sales and Distribution Czech Republic, s.r.o. Dubí u Teplic, members of

the transnational group of companies Owens-Illinois, USA, and VETROPACK MORAVIA GLASS, a.s. Kyjov, a member of the transnational group Vetropack Holding AG, Switzerland. Both these companies have about 80 % of a market share of container glass in the Czech Republic and they have also important export shares in neighbouring countries within their transnational ownership and trade bonds.

Further on, there are producers of container glass, e.g. SKLÁRNY MORAVIA, a.s. Úsobrno and STÖLZLE UNION, s.r.o. Heřmanova Huť (the owner is Stözlze - Oberglas GmbH) in the Czech Republic.

### **Glass fibres and products made of**

The only producer of glass textile fibres and products made of in the Czech Republic is SAINT-GOBAIN ADFORS CZ, s.r.o. Litomyšl, which is organizationally included to the sector of innovative materials of the Saint-Gobain group. As far as products it includes activities: "Vertex" and "ADFORS CONSTRUCTION PRODUCTS EUROPE". The term "CONSTRUCTION PRODUCTS" reflects the final utilization of company products.

The only Czech producer of thermal and sound insulation made of glass fibres in the form of mats and slabs (ROTAFLEX SUPER® trade mark) is Union Lesní Brána, a.s. Dubí u Teplic.

Insulation material based on glass wool in the form of slabs and rolls is produced by KNAUF INSULATION, spol. s r.o. Krupka u Teplic. The plant in Krupka is one of the most up-to-date production plants for the production of mineral insulation made of glass wool in Europe.

### **Utility glass**

There are about thirty companies with more than 20 employees with the main production of utility glass. Crystalex CZ, s.r.o., production plant in Nový Bor (machine made utility soda potassium glass), Crystal BOHEMIA, a.s. Poděbrady (lead crystal) and CRYSTALITE BOHEMIA, a.s. Světlá nad Sázavou belongs to the greatest. Further on, there are many smaller companies with various assortments, e.g. art glass, cut lead crystal, utility glass decorated with painting, pen-and-ink drawing, staining, high enamel and engraving, handmade utility glass, historical replicas, off-hand glass, etc. For example: Ajeto, spol. s r.o. Czech Glass Craft Lindava, Blažek Glass, s.r.o. Poděbrady, CAESAR CRYSTAL BOHEMIAE, a.s. Světlá nad Sázavou, SKLÁRNA SLAVIA, s.r.o. Nový Bor, Královská Huť, s.r.o. Doksy, EGERMANN, s.r.o. Nový Bor, BOHEMIA MACHINE, s.r.o. Světlá nad Sázavou, and a number of other companies.

Luxury handmade utility glass is produced by MOSER, a.s. Karlovy Vary.

KAVALLIERGLASS, a.s. Sázava nad Sázavou is a producer of household cooking glass.

### **Other glass**

Products included into this group of the glass industry are often (especially in abroad) called special glasses. It is a wide range of glass products with specifically defined properties having their customers mostly in other processing branches of industrial market. The assortment of this group is very wide in the Czech Republic. It includes technical, laboratory and laboratory apparatus glass,

technical spheres, glass industrial apparatuses, protective welding glass, optical glass. Also the production of glass blocks, fashion jewellery semiproducts and lighting glass are included.

A dominant Czech producer of technical and laboratory glass, tubing and apparatus glass made of borosilicate glass is KAVALIERRGLASS, a.s. Sázava. Technical and laboratory glass is also produced by TECHNOSKLO, s.r.o. Držkov, EXATHERM, s.r.o. Železný Brod (glass thermometers and densimeters), Detesk, s.r.o. Železný Brod (technical borosilicate glass) and other smaller companies.

From the producers of optical glass ECOGLASS, s.r.o. Jablonec nad Nisou, the producer of exactly pressed components of optical glass for electro-optical apparatuses can be stated.

VITRABLOK, s.r.o. Duchcov is a producer of glass blocks for the building industry.

Frits and glazes are made in MEFRIT spol. s r.o. Mělník and Glazura, spol. s r.o. Roudnice.

Production of fashion jewellery semiproducts is a subject of activities of many companies mostly in the north part of the Czech Republic in Jablonec region (Preciosa, a.s., LIGLASS, a.s., PAS Jablonec, a.s.).

Lighting glass is produced by Sklárna Janštejn, s.r.o. and it is a supplementary assortment of several smaller producers of utility and technical glass. A number of companies are engaged in the production of components for chandeliers and also in individual production of chandeliers, the most significant are, e.g. Preciosa, a.s., LIGLASS, a.s.

### **Household china and ceramics**

The assortment of household china includes not only products intended for daily use but also luxury products, e.g. luxury household china, household and decorative china, for instance rose and onion pattern, and figural china.

Among significant china producers belong Thun 1794, a.s. Nová Role, Český porcelán, a.s. Dubí u Teplic, G. Benedikt Karlovy Vary, s.r.o., Rudolf Kämpf, s.r.o. Nové Sedlo, König-Porzellan Sokolov, spol. s r.o. Sokolov.

A great number of more specialized smaller companies produce household ceramics. The greatest are KERAMO Kožlany, v.d., and Keramika Krumvíř, spol. s r.o. Krumvíř. Ceramic tiles are made in KERAMIA, s.r.o. Znojmo.

### **Technical ceramics and sanitary ware**

There are two dominant Czech producers of sanitary ware – LAUFEN CZ, s.r.o. (with producing facilities in Bechyně and Znojmo), a member of the Roca and Ideal Standard, s.r.o. Teplice. Both companies are strongly oriented to export and their market success is dependent in a great extent on the building industry boom in Europe.

The producers of technical china are Jizerská porcelánka, s.r.o. Desná v Jizerských horách producing laboratory chinaware and china tubing, and ELPOR, s.r.o. Krupka Bohosudov.

From the producers of technical ceramics can be stated: KERAMTECH, spol. s r.o. Žacléř - production of foundry ceramics and technical china, BRISK TÁBOR, a.s. - production of spark and glow plugs for internal combustion engines and technical ceramics, HOFMANN CERAMIC CZ, s.r.o. Bělá nad

Radbuzou - production of technical ceramics for foundries, ESTCOM CZ-oxidová keramika, a.s. Louny - production of refractory ceramics and ceramic tubes, and Diamorph Hob Certec, s.r.o. Horní Bříza - production of technical ceramics, etc.

### **Other mineral products**

Aluminosilicate fibres resistant to high temperatures and insulating fibre products made of (wool, mats, shaped pieces, slabs) with SIBRAL trade mark used mainly in the construction of heat appliances, are produced by UNIFRAX, s.r.o. Dubí u Teplic.

Fused basalt products (abrasion resistant and refractory materials with EUROR trade mark), abrasion resistant piping, and tiles for industry and interiors are produced in EUTIT, s.r.o., Stará Voda. This company is the only world producer of interior floor basalt tiles.

### **Furnaces/kilns, glass machinery and equipment, and special services for glass and ceramic industry**

Nowadays, about forty or fifty independent companies produce and deliver glass furnaces, kilns, machinery and equipment, glass moulds and apparatuses for the glass and ceramic production, or carry out service, design and various specialized and consultancy work for this industry. These companies are of a different size and they have, of course, various ranges of their activities.

Among the companies with individual production and trade activities exceeding significantly the territory of the Czech Republic belong some producers of machinery and equipment, e.g. Sklostroj Turnov CZ, s.r.o. producing machines and equipment for automatic production of container glass. Further on, SKLOPAN LIBEREC, a.s. is a supplier of machinery for processing of flat glass, and SKLÁŘSKÉ STROJE ZNOJMO, s.r.o. delivers various glass machinery equipments.

Heat appliances and kilns for china and ceramics firing, as a complex and in greater amount, are designed and delivered by REALISTIC, a.s. Karlovy Vary, BVD PECE, s.r.o. Karlovy Vary, and LAC, s.r.o. Rajhrad. The company Elsklo, s.r.o. Desná v Jizerských horách designs and delivers equipment for small-scale electric melting of glass. Glass melting aggregates are designed and delivered by Teplotechna - Prima, s.r.o. Teplice. Companies GLASS SERVICE, s.r.o. Vsetín and DITES, s.r.o. Teplice (automatized control systems for technological processes) have important activities in abroad in the area of design and control systems for glass melting aggregates. Gas-fired melting furnaces and auxiliary furnaces for hand production of glass are produced by EGT servis, s.r.o. Hradec Králové.

Producer and supplier of cast iron and steel moulds for container glass SKLOFORM, a.s. Suchdol nad Lužnicí - works predominantly on the level of services and deliveries for Czech producers. Further on, Desko, a.s. Desná v Jizerských horách delivers machinery and moulds for fashion jewellery production. Other producers of machinery for the production of glass are, e.g. FOR G, s.r.o. Teplice, and BOHEMIA MACHINE, s.r.o. Světlá nad Sázavou.

Quite a great group of companies and also a number of independent individuals are dealing with design of procedures and construction of machinery for mechanical working of glass (engraving, cutting, polishing), e.g. DIAS TURNOV, s.r.o. and POLPUR, s.r.o. Turnov.



### **Raw materials for the glass and ceramic industry**

A long tradition and the development of glass, china and ceramic production were determined, beside other factors, by an abundance of basic raw materials, i.e. sand, kaolin, feldspar and quartz.

High quality glass sands with extremely high content of  $\text{SiO}_2$  are outstanding for the glass industry and also for various utilizations in other branches. Sands are delivered in a moistened or dried form. Companies Provodínské písky, a.s. Provodín and Sklopísek Střeleč, a.s. Mladějov v Čechách mine and deliver these sands in the Czech Republic.

Mining and processing of kaolin is carried out by LB MINERALS, s.r.o. Horní Bříza, Sedlecký kaolin, a.s. Božičany, and Kaolin Hlubany, a.s. Podbořany. LB MINERALS, s.r.o. is a supplier of ceramic kaolins intended for wall and floor tiles and sanitary ware, mixed kaolins for sanitary ware, paper mills kaolins and kaolins for glass fibres. Floated kaolin delivered by Sedlecký kaolin, a.s. is used, especially for china and ceramics. Kaolin Hlubany, a.s. delivers floated kaolins for ceramics.

Beside mining and processing of kaolins also mining and processing of feldspar is a part of the production of the LB MINERALS, s.r.o. Potassium feldspars are suitable for production of container and flat glass, glazes and china; soda-lime feldspars are suitable for the production of frits and enamels. Soda-potassium and potassium-sodium feldspars are delivered by K M K GRANIT, a.s. Krásno. Feldspars are applied as flux.



## POSITION OF THE GLASS AND CERAMIC INDUSTRY IN THE CZECH REPUBLIC

The glass and ceramic industry is a traditional part of the processing industry in the Czech Republic.

The glass and ceramic industry is included in the subcategory Production of other non-metallic mineral products according to the Classification of Economic Activities (NACE) used by the European Union.

The CZ-NACE 23 Production of other non-metallic mineral products put together productions of glass, ceramics and building materials of various types and utilization. Production of these commodities has a long tradition and a high level in the Czech Republic.

**Classification of CZ-NACE 23 activities is the following:**

- 23.1 Production of glass and glass products
- 23.2 Production of refractory products
- 23.3 Production of building materials from clay materials
- 23.4 Production of other china and ceramic products
- 23.5 Production of cement, lime and plaster
- 23.6 Production of concrete, cement and plaster products
- 23.7 Cutting, shaping and finishing of stones
- 23.9 Production of abrasive materials and other non-metallic mineral products not stated elsewhere

**Sections 23.1 and 23.4 from which:**

- 23.41 Production of ceramic and china products, mostly for household and decorative products
- 23.42 Production of ceramic sanitary ware
- 23.43 Production of ceramic insulators and insulation accessories
- 23.44 Production of other technical ceramic products

represent the production of glass, glass products and the production of china and ceramic products which are a subject of evaluation of this Annual Report.

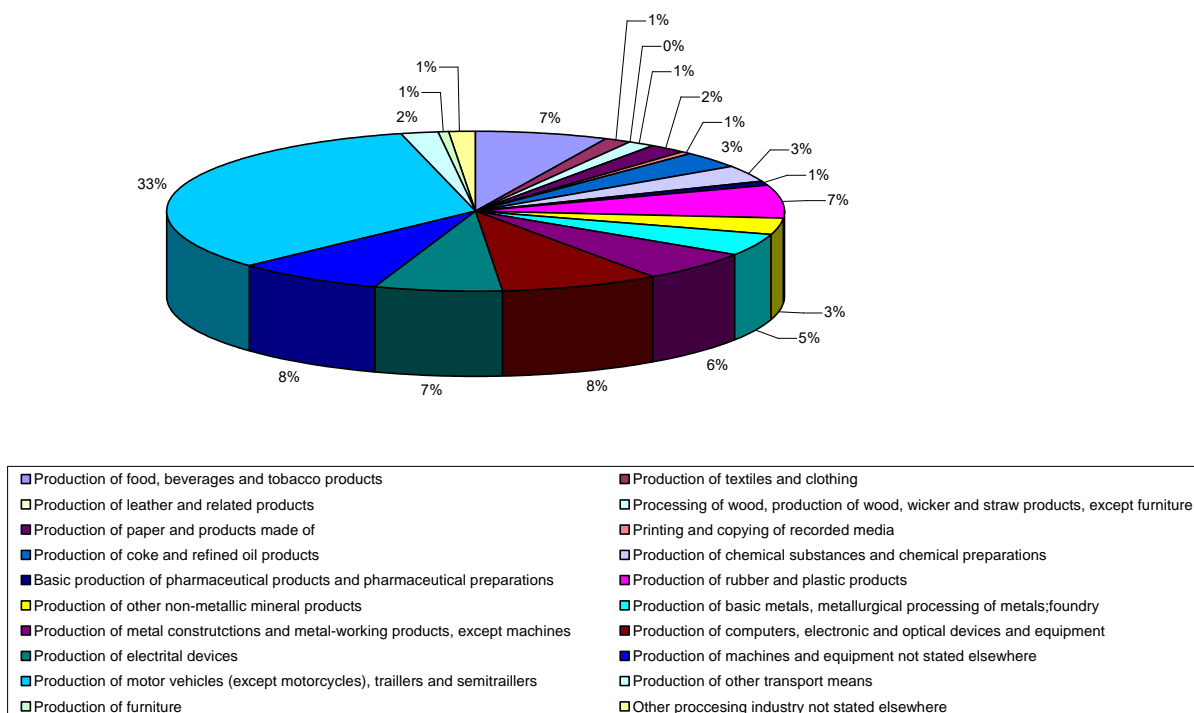
In following tables there are stated revenues without the value added tax (VAT) from sale of own products and services of industrial character (hereinafter revenues) and revenues without the VAT from the direct export (hereinafter direct export) of individual subcategories of the processing industry. Revenues and direct export are given in current prices. Revenues and direct export are given without the CZ-NACE 33 Repair and installation of machines and equipment.

The revenues of the processing industry in the Czech Republic reached the value of 3432.85 bill. CZK in 2016 (in 2015 it was 3366.08 bill. CZK). In comparison with the previous year the revenues of the processing industry increased by 1.95 %. The revenues in amount of 108.22 bill. CZK in the category Production of other non-metallic mineral products mean the increase by 6.8 % in comparison with 2015. The Production of other non-metallic mineral products shared on revenues of the processing industry with 3.2 % in 2016.

## Revenues of the processing industry in 2016

	Tržby (mld. Kč)	Podíl (%)
Production of food, beverages and tobacco products	236,87	6,9
Production of textiles and clothing	49,39	1,4
Production of leather and related products	3,82	0,1
Processing of wood, production of wood, wicker and straw products, except furniture	46,11	1,3
Production of paper and products made of	62,81	1,8
Printing and copying of recorded media	20,29	0,6
Production of coke and refined oil products	112,47	3,3
Production of chemical substances and chemical preparations	115,49	3,4
Basic production of pharmaceutical products and pharmaceutical preparations	28,54	0,8
Production of rubber and plastic products	233,10	6,8
Production of other non-metallic mineral products	108,22	3,2
Production of basic metals, metallurgical processing of metals;foundry	155,53	4,5
Production of metal constructions and metal-working products, except machines	212,30	6,2
Production of computers, electronic and optical devices and equipment	285,62	8,3
Production of electrital devices	226,08	6,6
Production of machines and equipment not stated elsewhere	267,64	7,8
Production of motor vehicles (except motorcycles), traillers and semitrailers	1137,08	33,1
Production of other transport means	64,00	1,9
Production of furniture	22,32	0,7
Other proccesing industry not stated elsewhere	45,17	1,3
<b>Processing industry</b>	<b>3 432,85</b>	<b>100,0</b>

## Structure of revenues of the processing industry in 2016



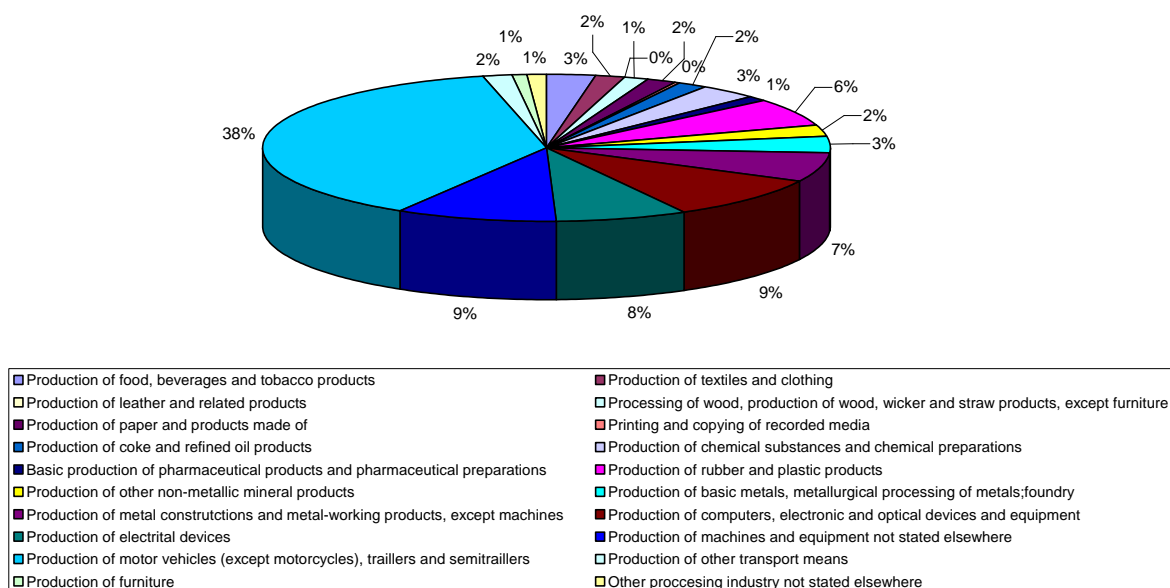


The direct export of the processing industry was 2252.94 bill. CZK, i.e. by 3.57 % more than in 2015 (2172.56 bill. CZK).

### Direct export of the processing industry in 2016

	Tržby (mld. Kč)	Podíl (%)
Production of food, beverages and tobacco products	236,87	6,9
Production of textiles and clothing	49,39	1,4
Production of leather and related products	3,82	0,1
Processing of wood, production of wood, wicker and straw products, except furniture	46,11	1,3
Production of paper and products made of	62,81	1,8
Printing and copying of recorded media	20,29	0,6
Production of coke and refined oil products	112,47	3,3
Production of chemical substances and chemical preparations	115,49	3,4
Basic production of pharmaceutical products and pharmaceutical preparations	28,54	0,8
Production of rubber and plastic products	233,10	6,8
Production of other non-metallic mineral products	108,22	3,2
Production of basic metals, metallurgical processing of metals;foundry	155,53	4,5
Production of metal constructions and metal-working products, except machines	212,30	6,2
Production of computers, electronic and optical devices and equipment	285,62	8,3
Production of electrical devices	226,08	6,6
Production of machines and equipment not stated elsewhere	267,64	7,8
Production of motor vehicles (except motorcycles), trailers and semitrailers	1137,08	33,1
Production of other transport means	64,00	1,9
Production of furniture	22,32	0,7
Other processing industry not stated elsewhere	45,17	1,3
<b>Processing industry</b>	<b>3 432,85</b>	<b>100,0</b>

### Structure of direct export of the processing industry in 2016



In the following table the individual processing industry subcategories are arranged according to the level of the inter-year change of revenues reached within years 2016 and 2015. These inter-year changes are used here as indicators of growth dynamism of individual branches.

#### Dynamism of sale according to the individual processing industry subcategories

	Tržby 2015 (mld. Kč)	Tržby 2016 (mld. Kč)	Index 16/15 (%)
Production of leather and related products	3,71	3,82	102,8
Other processing industry not stated elsewhere	45,72	45,17	98,8
Production of computers, electronic and optical devices and equipment	286,07	285,62	99,8
Production of other transport means	57,77	57,10	98,8
Production of metal constructions and metal-working products, except machines and equipment	202,81	212,30	104,7
Processing of wood, production of wood, wicker and straw products, except furniture	46,11	46,11	100,0
Production of machines and equipment not stated elsewhere	263,18	267,64	101,7
Production of electrical devices	223,91	226,08	101,0
Production of paper and products made of	62,20	62,81	101,0
Production of textiles and clothing	47,07	49,39	104,9
<b>Processing industry</b>	<b>3 366,09</b>	<b>3 426,94</b>	<b>101,8</b>
Production of food, beverages and tobacco products	238,42	237,87	99,8
Production of other non-metallic mineral products	108,67	108,22	99,6
Production of rubber and plastic products	229,55	233,10	101,5
Basic production of pharmaceutical products and pharmaceutical preparations	28,76	28,54	99,2
Production of furniture	19,83	22,32	112,5
Production of motor vehicles (except motorcycles), trailers and semitrailers	1035,69	1137,08	109,8
Production of chemical substances and chemical preparations	134,58	115,49	85,8
Production of basic metals, metallurgical processing of metals; foundry	170,97	155,53	91,0
Production of coke and refined oil products	142,38	112,47	79,0
Printing and copying of recorded media	18,69	20,29	108,6

The most significant growth was in the category Production metal constructions and metal-working products, except machines and equipment and the Production of electrical devices.

#### Glass and ceramic industry

In the following chapter “Development of the glass and ceramic industry in the period from 2011 till 2016”, the glass and ceramic industry as a part of the Czech processing industry, which corresponds to the characteristic orientation of organizations activities included in the Association, is studied and described in more details, i.e. in group division. For understanding the relations among the processing industry, production of other non-metallic mineral products and the glass and ceramic industry an informative table is given further on.

**Glass and ceramic industry in the processing industry in 2016**

	Tržby	Přímý vývoz
Glass and ceramic industry		
Indicators in bill. CZK (current prices)	44,51	32,80
Share in the Other non-metallic mineral products (%)	41,13	60,40
Share in the processing industry (%)	1,21	1,44
Production of the other non-metallic mineral products Indicators in bill. CZK (current prices)	108,22	54,30
Share in the processing industry (%)	2,94	2,39
Processing industry Indicators in bill. CZK (current prices)	3 685,89	2 271,45

The revenues of the glass and ceramic industry in 2016 in comparison with 2015 increased by 3,05 bill. CZK, i.e. by 7,35 %, from which the direct export increased by 0,24 bill. CZK, i.e. by 0,7 %.



## DEVELOPMENT OF THE GLASS AND CERAMIC INDUSTRY IN THE PERIOD FROM 2011 TILL 2016

In this part of the Annual Report characteristic values of the main production indices of the glass and ceramic industry of the Czech Republic in 2016 and in the period from 2011 till 2016 are recorded. In the context of real outer and inner background of the Czech Republic, based on these data, the aim is to analyze and describe the main trends of the development of economic indices of the glass and ceramic industry in above-mentioned years.

In the introduction of the glass and ceramic industry development analysis a survey of basic macroeconomic indices for the Czech Republic in the investigated period from 2011 till 2016 is given for understanding wide relations.

### MAIN MACROECONOMIC INDICES IN THE CZECH REPUBLIC IN THE PERIOD FROM 2011 TILL 2016

**(SOURCE: CZECH STATISTICAL OFFICE, JULY 2017)**

		2011	2012	2013	2014	2015	2016
Gross domestic product	growth in %, actually	2,0	-0,9	-0,5	2,7	5,3	2,6
Average inflation rate	growth in %, actually	1,9	3,3	1,4	0,4	0,3	0,7
General unemployment rate	average in %	6,7	7,0	7,0	6,1	5,0	4,0
Average real wage growth	in %	0,6	-0,8	-1,5	2,5	2,9	3,0
Balance of trade	bill. CZK	191,4	310,8	350,8	154,1	155,2	183,9
CZK / EUR	average per year	24,59	25,14	25,97	27,53	27,28	27,03
CZK / USD	average per year	17,69	19,58	19,56	20,75	24,60	24,43

Czech economy returned to the growth trajectory since 2014 and favourable tendencies of its development continued in the following two years, as well. After successful year 2015 when economical growth profited on accelerated European funds gathering, the economy slow down to a solid 2.4 % in 2016 thanks to growing home and foreign demand and in a surroundings characterized by strong faith of business sector and households in future development.

The consumption kept the role of the main source of growth in 2016, especially due to growing expenses of households, based on the growth of employment and incomes. Foreign trade became a significant growth factor again and rebuilt tendencies of faster export increase in comparison with



import. It was supported by the development of prices, when the exchange relations stayed in the majority of the year in plus sign values. The greatest volume of trade exchange was realized in the European Union countries, what confirmed the ability of Czech companies to keep the position on demanding European markets.

In the atmosphere of this economical prosperity the labour market went through top period in 2016. A total employment increased in comparison with previous year by 2.2 %, when the category of employees contributed with almost two thirds to this increase. The unemployment was the lowest in the European Union.

An important role in the Czech economy has industry, because it creates roughly one third of value added of the whole production. The industrial production continually grew in 2016 within last three years. However, its inter-year rate slowed down to 2.9 % due to deceleration in growth of new orders, due to continuing problems in coal market, and due to limitation of production in chemical industry and downtime of reactors in both nuclear power stations. Also impact of higher initial base due to a solid growth dynamics from the last two years appeared. In the decisive processing industry almost one third of total revenues were ensured by the production of motor vehicles. Higher demand for industrial production, especially from abroad, projected in the growth of employment, mostly in sectors with the highest production growth dynamics. Also wages increased briskly.

The building production did not follow the growth of the last two years and it decreased by 5.9 % in 2016. Beside a higher comparison base of 2015, especially an unpreparedness of new projects caused this unpleasant result. Mainly structural engineering was stricken production of which is mostly financed from public sources and also connected to incomes from the European Union from a new programme period.

*(Source: Czech Statistical Office, Vývoj ekonomiky České republiky v roce 2016, July 2017)*

The industry of glass and ceramics which is included in the subcategory Production of other mineral products belongs to the competence of the Ministry of Industry and Trade, which expects continuous growth of industrial production also in the following years.

The Czech Republic reached a noticeable surplus of continuing account of balance of payments in 2016, especially thanks to an extraordinary high positive balance of trade with goods and services. The value of export was record-breaking and reached 3312 bill. CZK (in spite of export growth deceleration in the second half of the year). These results were reached especially due to strongly growing export of motor vehicles, which created 27.8 % of export from the Czech Republic. A price development was influenced by a decline of oil prices on the turn of 2015 and 2016. This decline projected to consumer's prices the inter-year growth of which did not exceed 0.6 % in the first three quarters, and also to prices of industrial producers which decreased during the whole year in comparison with previous year. Monetary conditions in the Czech Republic were to a large extent determined by low interest rate and by continuing regime of interventions. Deposit interest rates decreased further on during 2016. The outflow of finances from time accounts to the credit of continuing accounts continued. Situation on labour market in 2016 continuously improved. Growth rate of total employment has been growing stronger already the third year, in last year it reached 1.8 %. The processing industry contributed to higher employment by more than 40 %, however services contributed more and more during the year. In the end of the last year a record number of employed people was 5.32 mill. However, a share of companies which understood a lack of labour force as an important barrier of their growth increased. General rate of unemployment during the whole year decreased further on, especially due to a reduction of a number of long-term unemployed people

and in December it was 3.6 %. The offer of free working positions was continuously wider. The best enforcement had specialists and qualified manual workers. Good financial situation of companies and strengthening difficulties with seeking new workers push on increasing of nominal wages. In the last year wages increased by 4.2 %, it was the greatest increase since 2008. The increase of minimum wage together with the increase of earnings in branches with dominance of the state projected to a 6 % growth of wage median in the 4<sup>th</sup> quarter of 2016 and so contributed to the decrease of wages differentiation of employees. In spite of strengthening inflation in the end of the year the average real wages increased within the whole year by 3.5 %, i.e. the highest rate since 2007.

*(Source: Czech Statistical Office, Vývoj ekonomiky České republiky v roce 2016, March 2017)*

Data and analyses given below were gathered and processed for the glass and ceramic industry as the area of the Czech processing industry corresponding to the characteristic orientation of companies associated in the Association. The selected method of the industrial development description comes out from investigation of data arranged in individual branches of the glass and ceramic industry. For the analysis of 2016 available statistical data of companies with more than 50 employees relevant to 30 June 2017, have been used and they were added with qualified estimations.

### **Price indices for the group of products of the glass and ceramic industry**

#### **Inter-year price indices**

REPR*		2011	2012	2013	2014	2015	2016
CG 23	Other non-metallic mineral products	99,6	100,2	99,6	99,8	100,2	101,2
CG 231	Glass and glass products	101,5	99,4	99,7	98,7	99,2	103,2
CG 232	Refractory products	101,2	102,1	101,1	100,1	99,5	101,3
CG 234	Other china and ceramic products**						

The total average price index of the Other non-metallic mineral products has not changed in comparison with previous year.

#### **Cumulative price indices**

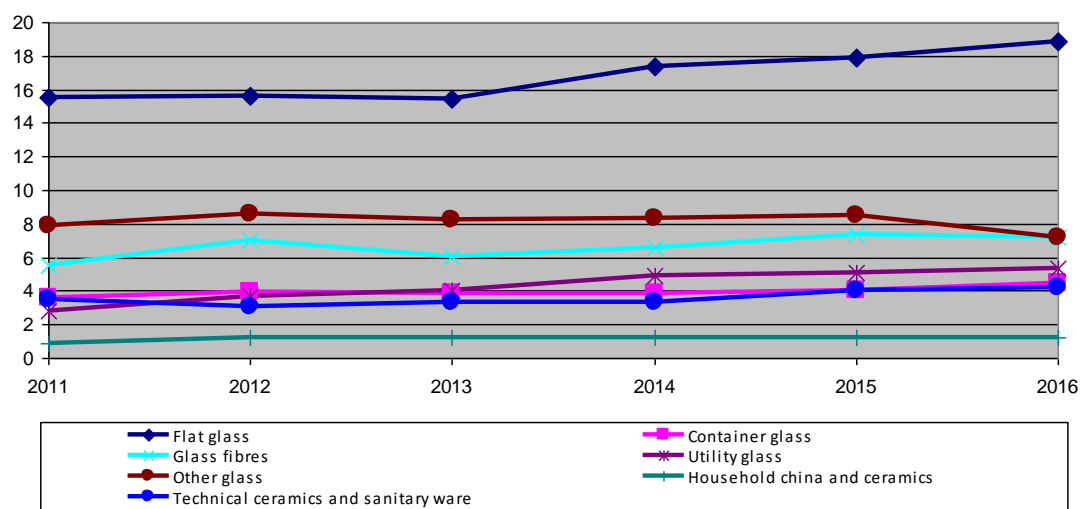
REPR		2011	2012	2013	2014	2015	2016
CG 23	Other non-metallic mineral products	96,9	97,1	96,7	96,5	97,1	98,3
CG 231	Glass and glass products	99,3	98,8	98,4	97,1	88,4	91,4
CG 232	Refractory products	98,9	101	102,1	102,2	108	109,4
CG 234	Other china and ceramic products*						

## Revenues for sale of own products and services

## Revenues for sale of own products and services (bill. CZK)

	2011	2012	2013	2014	2015	2016	index 16/15 (%)
Flat glass	15,56	15,64	15,46	17,34	17,87	18,90	105,8
Container glass	3,61	3,96	3,90	3,90	4,07	4,49	110,2
Glass fibres	5,52	7,06	6,02	6,56	7,4	7,17	96,8
Utility glass	2,77	3,66	4,03	4,92	5,1	5,35	105,0
Other glass	7,86	8,63	8,28	8,36	8,52	7,23	84,8
Glass, total	35,32	38,95	37,69	41,08	42,96	43,13	100,4
Household china and ceramics	0,84	1,19	1,22	1,25	1,25	1,26	100,6
Technical ceramics and sanitary ware	3,55	3,07	3,31	3,32	4,03	4,23	104,9
Ceramics, total	4,39	4,26	4,53	4,56	5,28	5,48	103,9
<b>Glass and ceramics, total</b>	<b>39,71</b>	<b>43,21</b>	<b>42,22</b>	<b>45,65</b>	<b>48,24</b>	<b>48,61</b>	<b>100,8</b>

## Development of revenues for sale of own products and services (bill. CZK)



In 2016 the revenues for sales of own products and services (hereinafter revenues) reached in investigated branches 48.61 bill. CZK.

The revenues of the glass industry reached 43.13 bill. CZK, what is by 0.4 % more than in 2015. The revenues increased in all glass industry branches. The share of flat glass was 44.0 %, other glass 17.0 %, glass fibres and products made of 17.0 %, container glass 10.0 %, and utility glass 12.0 %.

The revenues of investigated branches of china and ceramics reached 5.48 bill. CZK, what is by 3.65 % more than in 2015. The share of household china and ceramics was 23 %, the share of technical ceramics and sanitary ware was 77 %.

The development of revenues in 2016 in individual branches was the following.

The revenues for flat glass in 2016 were 18.90 bill. CZK. In comparison with 2015 it increased by 5.8 %. The flat glass production is dependent on the development of the building and automotive industries.

The output of the Czech building industry improved after several years of decline, according to statistical data.

The automotive industry achieved outstanding results in 2016 and henceforth has a significant share on the growth of the Czech economy. At the same time the year 2016 brought a number of historical records in motor vehicles production and made a base for good results in 2017. The world production of motor vehicles increased in comparison with previous year by 8.2 %, i.e. 1375,814 motor vehicles. Production of cars increased in 2016 in the Czech Republic at all inland producers (1344,182 cars).

The development of flat glass in following years will be influenced mainly by further development of the building industry in Central Europe and by the production of the automotive industry. The revenues for container glass reached amount of 4.49 bill. CZK in 2016, i.e. they increased in comparison with 2015 by 10.2 %. The revenues for glass fibres and products made of decreased slightly by 3.2 % in comparison with the previous year. The decline of the building industry in the Czech Republic had an influence on revenues. The growth of export of this assortment to foreign countries, especially to the European Union and Russia which partially compensated the slump of the building industry, projected positively to the revenues.

Since 2010 the revenues for utility glass have been increasing permanently. In comparison with 2015 the revenues of utility glass increased by 5.0 % (2.5 bill. CZK). The export is decisive for the amount of revenues. In this branch there is a very hard competition and Czech companies face it by a high quality, design and originality of products. It is possible to say that companies and their products in the world since 2010 have been strengthening their position.

The revenues for other glass decreased in comparison with 2015 (1.29 bill. CZK). This group includes a wide assortment of products (technical and laboratory glass, glass tiles and bricks, glass semiproducts for fashion jewellery, etc.). The revenues development of individual assortment groups is very unbalanced.

The revenues for household china and ceramics had practically no inter-year increase (0.6 %). The china producers succeeded to conclude necessary amount of trade contracts thanks to a consistent trade policy, however, they were affected by an unstable situation in countries of the former Soviet Union.

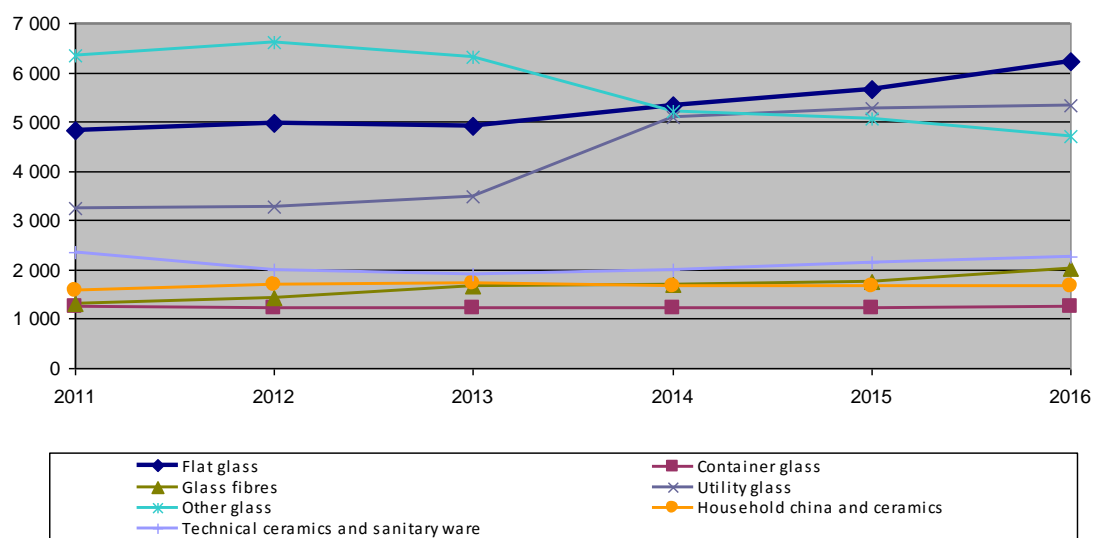
The revenues for technical ceramics and sanitary ware increased by 4.9 %, from which the revenues for sanitary ware increased by 9.5 %.

## Workers

### Average accounting number of workers (persons)

	2011	2012	2013	2014	2015	2016	index 16/15 (%)
Flat glass	4 817	4 975	4 911	5 338	5 660	6 229	110,1
Container glass	1 247	1 221	1 208	1 219	1 223	1 257	102,8
Glass fibres	1 319	1 432	1 656	1 698	1 763	2 012	114,1
Utility glass	3 254	3 276	3 472	5 079	5 264	5 327	101,2
Other glass	6 340	6 598	6 320	5 198	5 070	4 694	92,6
<b>Glass, total</b>	<b>16 977</b>	<b>17 502</b>	<b>17 567</b>	<b>18 532</b>	<b>18 980</b>	<b>19 519</b>	<b>102,8</b>
Household china and ceramics	1 571	1 702	1 725	1 676	1 680	1 671	99,5
Technical ceramics and sanitary ware	2 351	1 988	1 915	2 000	2 138	2 251	105,3
<b>Ceramics, total</b>	<b>3 922</b>	<b>3 690</b>	<b>3 640</b>	<b>3 676</b>	<b>3 818</b>	<b>3 922</b>	<b>102,7</b>
<b>Glass and ceramics, total</b>	<b>20 899</b>	<b>21 192</b>	<b>21 207</b>	<b>22 208</b>	<b>22 798</b>	<b>23 441</b>	<b>102,8</b>

### Development of average accounting number of workers (persons)



Total workers number in the glass and ceramic industry shown in 2016 in comparison with 2015 increased by 2.7 %, from which the glass industry showed a growth by 2.76 % (by 539 persons) and the ceramic industry increased by 2.65 % (104 persons). The inter-year development of workers number differs in individual branches.

The workers number increase in flat glass production is dependent on an increased demand of the automotive industry and building industries. The workers number increased by 569 persons.

The workers number increase was achieved also in container glass production (increase by 2.8 %) and in the production of glass fibres and products made of the workers number increased by 14.1 %.

The workers number decreased by 7.4 % and a decline continued from the last year in other glass production. The decrease of workers number is influenced by permanent decline of demand for glass



semiproducts for fashion jewellery and reduction the assortment with prevailing share of manual work.

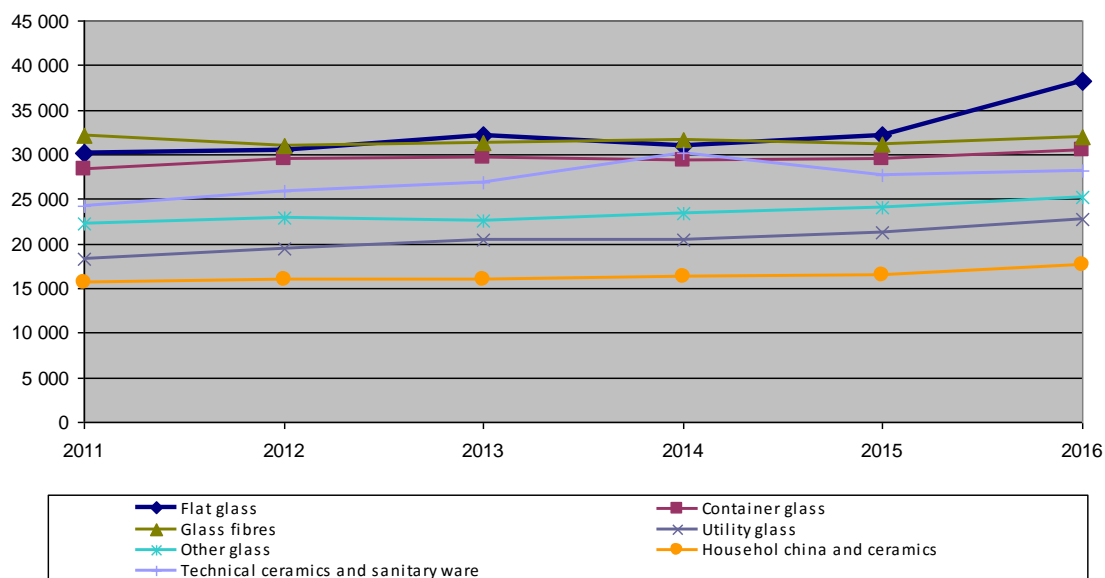
The workers number in household china and ceramics production is stable and without any significant change from the last year. The workers number in technical ceramics and sanitary ware increased by 5.3 %

### Average month-wages

#### Average month-wages (CZK)

	2011	2012	2013	2014	2015	2016	index 16/15 (%)
Flat glass	30 214	30 537	32 164	31 056	32 093	38 172	118,9
Container glass	28 332	29 561	29 645	29 418	29 431	30 509	103,7
Glass fibres	32 104	31 033	31 355	31 702	31 216	32 041	102,6
Utility glass	18 333	19 499	20 498	20 442	21 207	22 773	107,4
Other glass	22 175	22 971	22 527	23 354	23 997	25 192	105,0
Househol china and ceramics	15 680	16 018	16 066	16 365	16 440	17 606	107,1
Technical ceramics and sanitary ware	24 207	25 910	26 802	30 230	27 721	28 224	101,8
<b>Glass and ceramics, total</b>	<b>24 160</b>	<b>24 857</b>	<b>25 382</b>	<b>25 382</b>	<b>26 042</b>	<b>27 788</b>	<b>106,7</b>

#### Development of average month-wages (CZK)



The development of average month-wages within 2016 and 2015 documents the economic situation of glass and ceramic industry companies.

The average wages increased in the most of production branches.

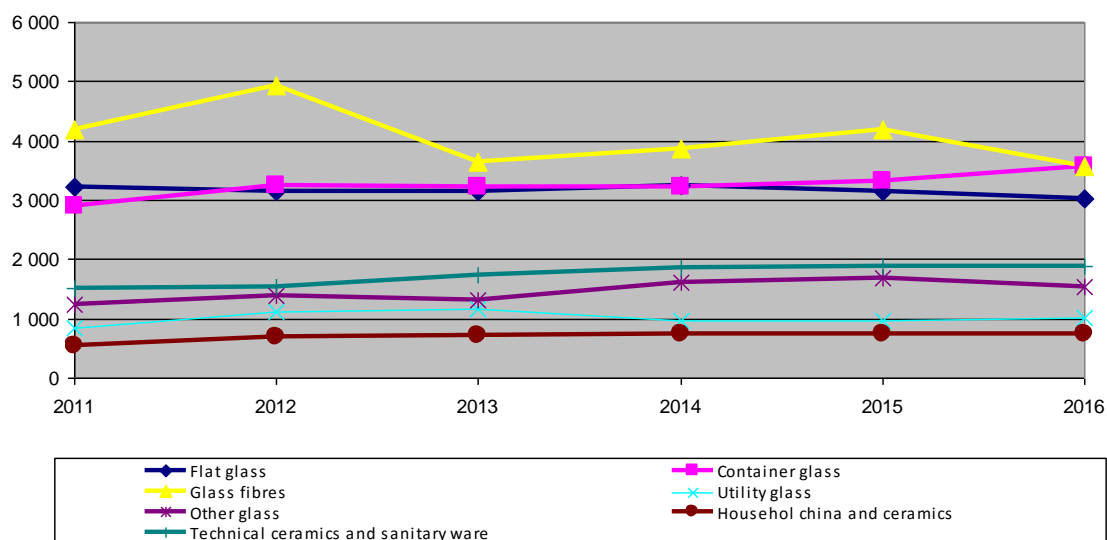
More and more noticeable tendency in differentiation of wages in mass and practically full-automatized production continues. It means production of flat glass and its processing (38,172 CZK), glass fibres and products made of and container glass. Further on, it applies to branches with more often changes (shorter production series) in the regime of automatized production lines and also a certain share of manual production. Significantly above the average wage in the Czech Republic (27,589 CZK; *Source: Czech Statistical Office*) there are average wages reached in the branches of glass fibres and products made of, flat glass and container glass. The average wage reached in the technical ceramics and sanitary ware (28,224 CZK) is higher than the average wage in the Czech Republic, and the average wage in the sanitary ware is 30,381 CZK. The level of the average wage in other glass is influenced on one side by strengthening the share of more qualified work (a group of technical glass production), and low wages in the production of glass semiproducts for fashion jewellery on the other side. Average wages in utility glass and, especially, in household china stay deeply below the average wage in the Czech Republic.

### Productivity of labour

#### **Productivity of labour from sales in current prices (ths. CZK/worker)**

	2011	2012	2013	2014	2015	2016	index 16/15 (%)
Flat glass	3 231	3 145	3 148	3 249	3 158	3 034	97,2
Container glass	2 895	3 242	3 223	3 226	3 324	3 570	103,0
Glass fibres	4 183	4 931	3 634	3 866	4 195	3 561	108,5
Utility glass	852	1 117	1 160	967	970	1 005	100,3
Other glass	1 240	1 380	1 310	1 608	1 681	1 539	104,5
Househol china and ceramics	536	701	708	743	743	753	100,0
Technical ceramics and sanitary ware	1 511	1 547	1 730	1 860	1 886	1 877	101,4
<b>Glass and ceramics, total</b>	<b>1 900</b>	<b>2 040</b>	<b>1 991</b>	<b>2 074</b>	<b>2 103</b>	<b>2 074</b>	<b>101,4</b>

#### **Development of productivity of labour from sales in current prices (ths. CZK/worker)**



The above-mentioned information (development of revenues, workers number and production character) is projected in more complex index of the productivity of labour from sales. The productivity of labour of the glass and ceramic industry as the whole increased by 1.4 % in comparison with previous year.

The productivity of labour in flat glass decreased by 2.8 %, in container glass it increased by 3 %. The productivity of labour in household china and ceramics increased. The productivity of labour increased by 0.3 % in utility glass. The productivity of labour in comparison with previous year decreased by 1.4 % in technical ceramics and sanitary ware.

### Export

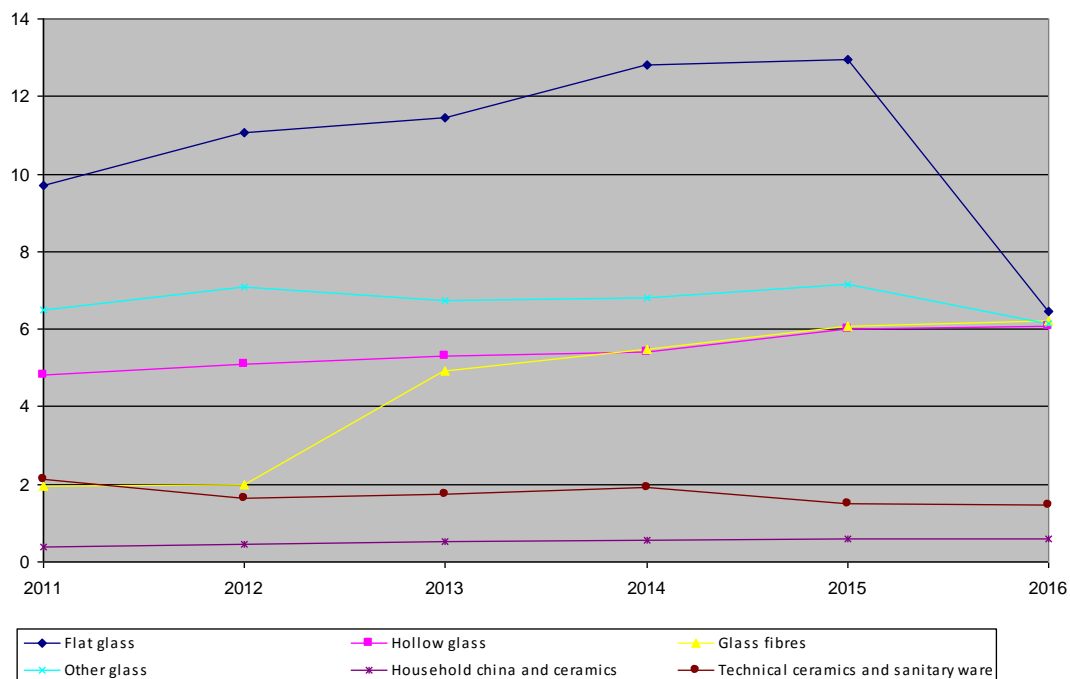
THE EXPORT IS STATED FURTHER ON IN REVENUES FROM DIRECT EXPORT IN CURRENT PRICES (HEREINAFTER DIRECT EXPORT) AND TOTAL EXPORT (I.E. DIRECT EXPORT, INDIRECT EXPORT).

THE DEVELOPMENT OF DIRECT EXPORT IS GIVEN IN THE FOLLOWING TABLE. THE HOLLOW GLASS PRODUCTION INCLUDES UTILITY AND CONTAINER GLASS. DUE TO THE STATISTICAL INVESTIGATION IT IS NOT POSSIBLE TO DIVIDE HOLLOW GLASS TO ABOVE MENTIONED PRODUCTION BRANCHES.

### DIRECT EXPORT (BILL. CZK)

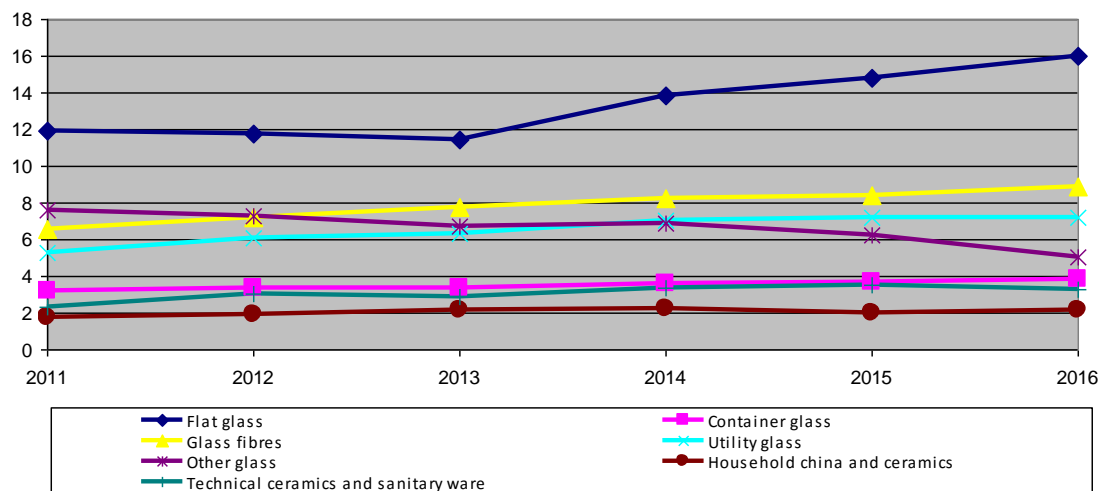
	2011	2012	2013	2014	2015	2016	index 16/15 (%)
Flat glass	9,70	11,07	11,44	12,83	12,96	6,45	49,8
Hollow glass	4,82	5,11	5,32	5,42	6,01	6,08	101,1
Glass fibres	1,97	1,99	4,92	5,47	6,07	6,22	102,5
Other glass	6,48	7,10	6,74	6,81	7,17	6,15	85,8
<b>Glass total</b>	<b>22,97</b>	<b>25,27</b>	<b>28,42</b>	<b>30,53</b>	<b>32,21</b>	<b>24,90</b>	<b>77,3</b>
Household china and ceramics	0,37	0,47	0,51	0,55	0,59	0,60	102,3
Technical ceramics and sanitary ware	2,13	1,65	1,74	1,92	1,50	1,47	98,1
<b>Ceramics, total</b>	<b>2,50</b>	<b>2,12</b>	<b>2,25</b>	<b>2,47</b>	<b>2,09</b>	<b>2,07</b>	<b>99,3</b>
<b>Glass and ceramics</b>	<b>25,47</b>	<b>27,39</b>	<b>30,67</b>	<b>33,00</b>	<b>34,30</b>	<b>26,98</b>	<b>78,7</b>

## Development of direct export (bill. CZK)



## EXPORT (BILL. CZK)

	2011	2012	2013	2014	2015	2016	index 16/15 (%)
Flat glass	11,923	11,757	11,450	13,866	14,778	15,980	108,1
Container glass	3,214	3,393	3,391	3,613	3,667	3,829	104,4
Glass fibres	6,568	7,240	7,786	8,266	8,374	8,897	106,2
Utility glass	5,291	6,112	6,298	7,065	7,240	7,181	99,2
Other glass	7,577	7,292	6,730	6,851	6,266	5,036	80,4
<b>Glass, total</b>	<b>34,573</b>	<b>35,794</b>	<b>35,655</b>	<b>39,661</b>	<b>40,325</b>	<b>40,923</b>	<b>101,5</b>
Household china and ceramics	1,789	1,921	2,137	2,209	2,019	2,132	105,6
Technical ceramics and sanitary ware	2,306	3,067	2,882	3,364	3,501	3,307	94,5
<b>Ceramics, total</b>	<b>4,095</b>	<b>4,988</b>	<b>5,019</b>	<b>5,573</b>	<b>5,520</b>	<b>5,439</b>	<b>98,5</b>
<b>Glass and ceramics, total</b>	<b>38,668</b>	<b>40,782</b>	<b>40,674</b>	<b>45,234</b>	<b>45,845</b>	<b>46,362</b>	<b>101,1</b>

**Development of export (bill. CZK)**

The glass and ceramic industry of the Czech Republic is oriented to export, i.e. it is directly influenced by economic changes in the world, especially in the European Union where 70.0 % of export of investigated production branches are directed.

After the decline of this branch export within years 2008 and 2009, the export has been increasing since 2010. However, in comparison with 2015 the direct export in 2016 decreased by 27 %. The reason for this significant decline is an increased demand for flat glass on home market. The total export increased by 1.1 %. The direct export of investigated branches in 2016 was 26.98 bill. CZK, total export was 46.36 bill. CZK.

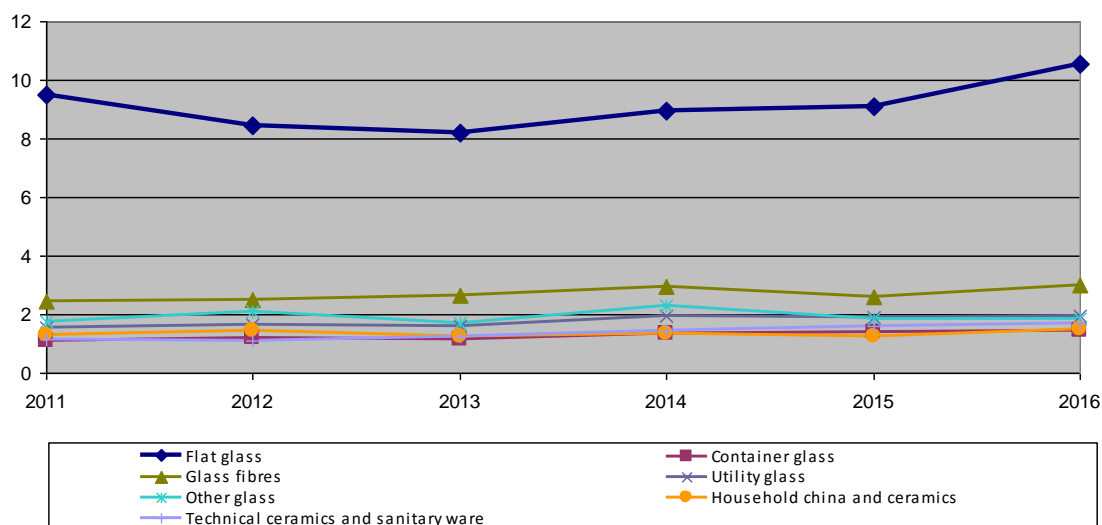
The export development in 2016 in individual branches is given in more details in Chapter 5, which analyses the export and import.

**Import****Import (bill. CZK)**

	2011	2012	2013	2014	2015	2016	index 16/15 (%)
Flat glass	9,521	8,433	8,212	8,937	9,111	10,57	116,0
Container glass	1,125	1,203	1,129	1,334	1,397	1,459	104,4
Glass fibres	2,448	2,520	2,646	2,960	2,617	2,982	113,9
Utility glass	1,552	1,651	1,624	1,953	1,897	1,956	103,1
Other glass	1,747	2,123	1,693	2,295	1,875	1,868	99,6
<b>Glass, total</b>	<b>16,393</b>	<b>15,930</b>	<b>15,304</b>	<b>17,479</b>	<b>16,897</b>	<b>18,835</b>	<b>111,5</b>
Household china and ceramics	1,323	1,474	1,270	1,33	1,232	1,518	123,2
Technical ceramics and sanitary ware	1,163	1,076	1,245	1,47	1,615	1,716	106,3
<b>Ceramics, total</b>	<b>2,486</b>	<b>2,550</b>	<b>2,515</b>	<b>2,800</b>	<b>2,847</b>	<b>3,234</b>	<b>113,6</b>
<b>Glass and ceramics, total</b>	<b>18,879</b>	<b>18,480</b>	<b>17,819</b>	<b>20,279</b>	<b>19,744</b>	<b>22,069</b>	<b>111,8</b>



### Import development (bill. CZK)



The total import of the glass and ceramic industry products has been decreasing since 2011. An increase appeared in 2014. In 2015 the inter-year decrease was by 2.6 % (2.03 bill. CZK), but in 2016 it increased again by 10 %.

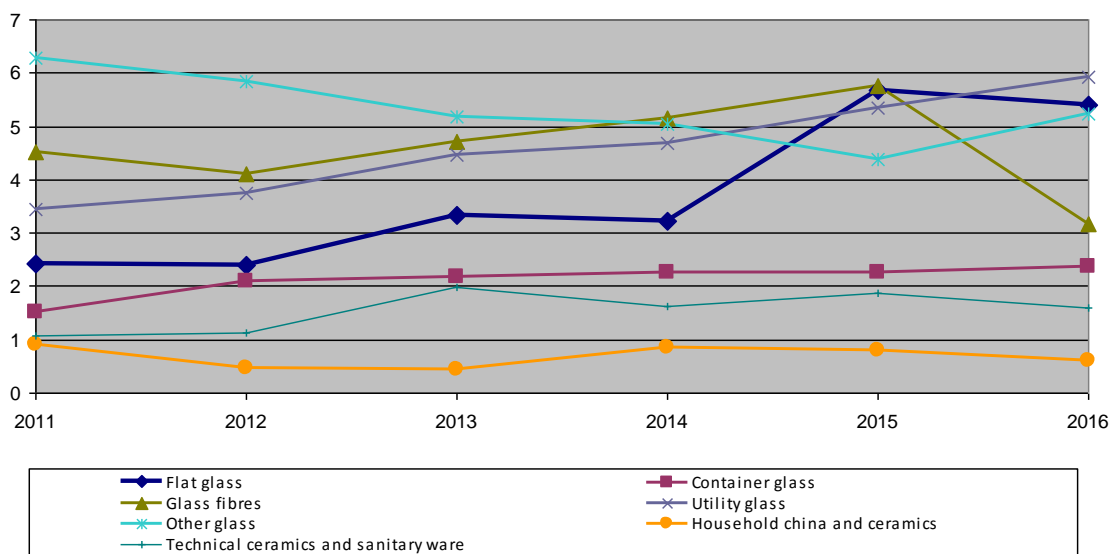
The import development in individual production branches in 2016 is given in more details in Chapter 5.

### Balance of foreign trade

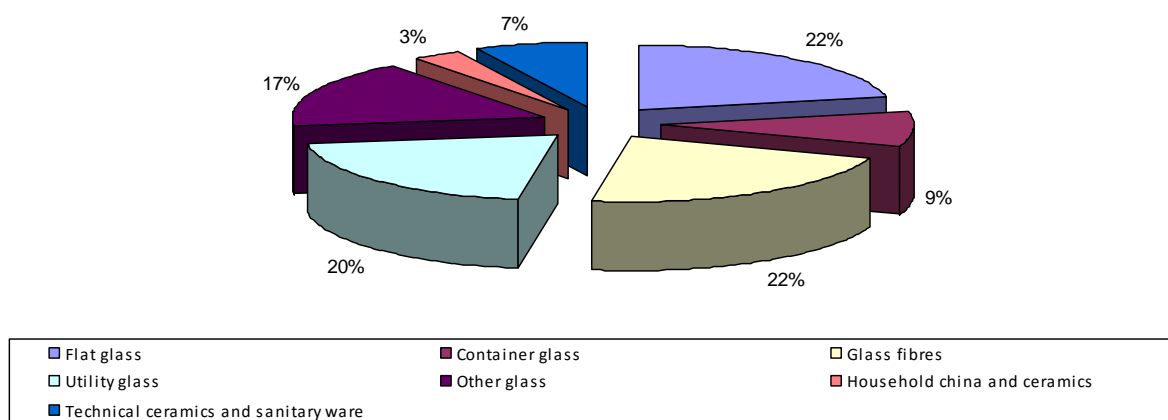
#### Balance of foreign trade (bill. CZK)

	2011	2012	2013	2014	2015	2016	index 16/15 (%)
Flat glass	2,415	2,402	3,324	3,238	5,667	5,410	95,5
Container glass	1,517	2,089	2,190	2,262	2,270	2,370	104,4
Glass fibres	4,532	4,120	4,720	5,140	5,757	3,168	55,0
Utility glass	3,457	3,739	4,461	4,674	5,343	5,915	110,7
Other glass	6,282	5,830	5,169	5,037	4,391	5,225	119,0
<b>Glass, total</b>	<b>18,203</b>	<b>18,180</b>	<b>19,864</b>	<b>20,351</b>	<b>23,428</b>	<b>22,088</b>	<b>94,3</b>
Household china and ceramics	0,899	0,466	0,447	0,867	0,787	0,614	78,0
Technical ceramics and sanitary ware	1,082	1,143	1,991	1,637	1,886	1,591	84,4
<b>Ceramics, total</b>	<b>1,981</b>	<b>1,609</b>	<b>2,438</b>	<b>2,504</b>	<b>2,673</b>	<b>2,205</b>	<b>82,5</b>
<b>Glass and ceramics, total</b>	<b>20,184</b>	<b>19,789</b>	<b>22,302</b>	<b>22,855</b>	<b>26,101</b>	<b>24,293</b>	<b>93,1</b>

### Development of balance of foreign trade (bill. CZK)



### Structure of balance of foreign trade



The branches of the glass and ceramic industry in the investigated period from 2011 till 2016 notably contributed to the active balance of foreign trade of the whole processing industry of the Czech Republic. The values of the balance of foreign trade confirm significantly important export orientation of this industry. The balance of foreign trade was 24.293 bill. CZK in 2016, it decreased by 7.4 % in comparison with 2015.

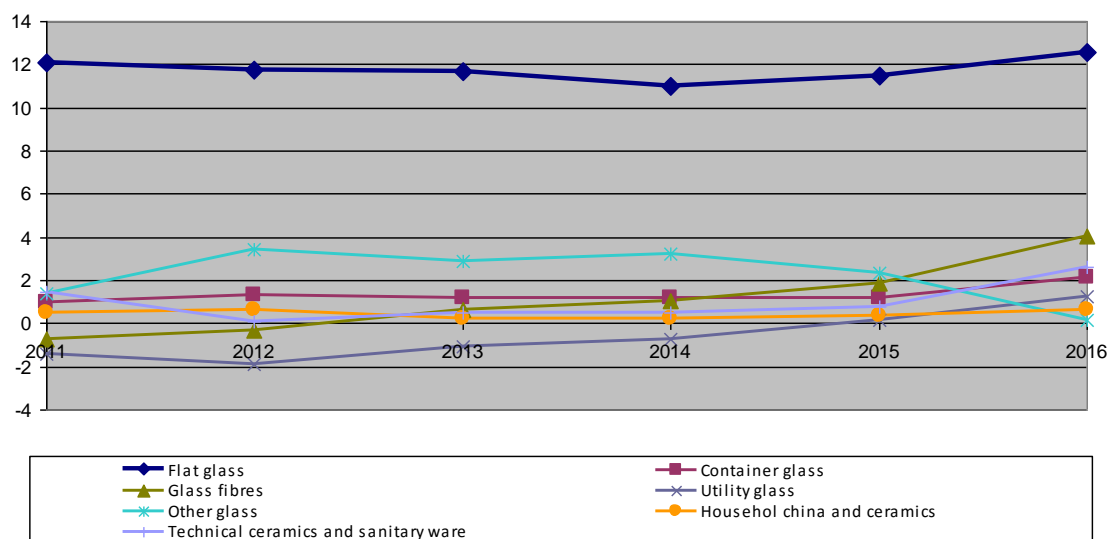
### Effective home demand

The effective home demand index is defined by the formula:

(The revenues from industrial activities + Import – Export)

**Effective home demand (bill. CZK)**

	2011	2012	2013	2014	2015	2016
Flat glass	12,11	11,72	11,67	11,01	11,47	12,56
Container glass	0,96	1,32	1,19	1,18	1,18	2,12
Glass fibres	-0,69	-0,30	0,64	1,02	1,85	4,06
Utility glass	-1,40	-1,92	-1,10	-0,75	0,13	1,25
Other glass	1,38	3,44	2,92	3,25	2,36	0,13
Househol china and ceramics	0,49	0,64	0,25	0,26	0,36	0,64
Technical ceramics and sanitary ware	1,47	0,07	0,47	0,52	0,75	2,64

**Development of effective home demand (bill. CZK)**

The development of the effective home demand in individual groups of the glass and ceramic industry is differentiated and specific.

**Conclusions**

After several years of slow growth signs of improvement begin to show in global economy. The world trade and processing industry grow and indicators of confidence in private sector vigorously strengthened. On the other side however, economical and political uncertainties in the world act negatively.

The Czech economy profits on good outer and inner conditions. In 2016 there was succeeded to keep the growth of revenues from previous years and keep the growth after decline in 2013. The main reason was the increase of demand for products intended to the automotive industry in the Czech Republic and success of producers in sales on new markets. The revenues for sale of the own products and services increased (by 0.8 %) in comparison with 2015. And, as a result of this, the productivity of labour from sales increased by 1.4 %. In comparison with previous year the revenues for the direct export decreased by 21.3 %. The total export increased by 1.1 %, as well. Both values reached the values of the fault year 2008. The balance of foreign trade decreased by 6.9 %.

The results in 2017 and the development in 2018 will be dependent on the development of economy of the Czech Republic and on the development on foreign markets.

In the summary of prediction of the Ministry of Finance from July 2017 there is stated:

The Czech economy profits on good outer and inner conditions. Economical growth in the 1<sup>st</sup> quarter of 2017 in comparison with previous quarter unexpectedly significantly accelerated **to 1.5 %**. Real gross domestic product **increased by 4.0 %** in comparison with the same period of the last year, also due to more working days.

**All components of use** shared on this result with an exception of changes of reserves and valuables. The consumption of households which increased by 3.5 % in comparison with previous year was traditionally robust. The growth of consumption reflected not only high dynamics of employment and wages, but also a declining rate of savings due to low interest rates and high faith of consumers without precedence in the next development. In the same extent (1.6 percentual point) the development of foreign trade contributed to the growth of economy which was supported by growing outer demand for products of the automotive industry. Investments to fixed capital returned after a decline in 2016 to the inter-year growth by 2.2 %. Not only private investments increased continuously, but also government investments in nominal expression. Also the growth by 2.8 % of government institutions consumption contributed to strong economy growth.

The indices of faith of purchasing managers, industrial and building production and retail revenues show a continuation of favourable development for the following part of 2017.

The improvement of the Czech economy condition and also an outer surroundings lead to the increase of prediction of real gross domestic product growth for 2017 from 2.5 % to 3.1 % and for 2018 from 2.5 % to 2.9 %.

On the labour market the economic prosperity causes a persistent increase of demand for working power. A high growth of employment, which permanently exceeds the limit 1 % since the end of 2014, step by step gathers unexploited sources. In May 2017 the seasonally adapted harmonized rate of employment (in internationally comparable methodology) reached 3.0 % and since the beginning of 2016 it is the lowest in the whole European Union.

The above mentioned positive estimations are projected also to the expected improvement of labour market and to suggestions of wages and salaries growth. This prediction supposes also positive development of balance of foreign trade.

#### **Prediction of the development of main macroeconomic indices**

*(Source: Ministry of Finance, July 2017)*

For a favourable development of the glass and ceramic industry the above mentioned facts are good news, however, it cannot be overestimated. The export orientation and dependence on a great number of related industrial branches, for which it delivers its products, make the glass and ceramic industry very vulnerable. Not only development of home demand but also future economic development, especially in Europe - the greatest export territory of the Czech glass and ceramic

industry - will be important. However, exporters will have to face up also loosing markets in regions stricken with war conflicts. The increasing competition of countries of the Third World, and mainly from the Far East, is permanently a great problem. This competition impinges without exceptions all branches of the glass and ceramic industry investigated in this Annual Report.

Glass and ceramic industry is a traditional branch of the processing industry of the Czech Republic. During its long-term existence this branch went through periods of prosperity and also recessions. It is possible to say, that it has never face up to such uncertainty and unpredictability of development on markets like in last years. For companies' owners and managers, it is necessary not only to predict at the very least development on markets but also to search new markets and strengthen their marketing activities. Also a consistent orientation to the production with high added value must be carried out. At the same time the product innovations and related services must be strengthen as much as possible.





## EXPORT AND IMPORT DEVELOPMENT ACCORDING TO PRODUCTION BRANCHES IN THE PERIOD FROM 2011 TILL 2016

### **Export**

In the following text the export of the assortment of the glass and ceramic industry is investigated according to the codes of the Customs Tariff, i.e. not only the direct export, but the total export from the Czech Republic.

### **Flat glass**

The export of flat glass in 2016 reached an amount of 15,206.5 mill. CZK. In comparison with 2015 the export increased by 2.9 %.

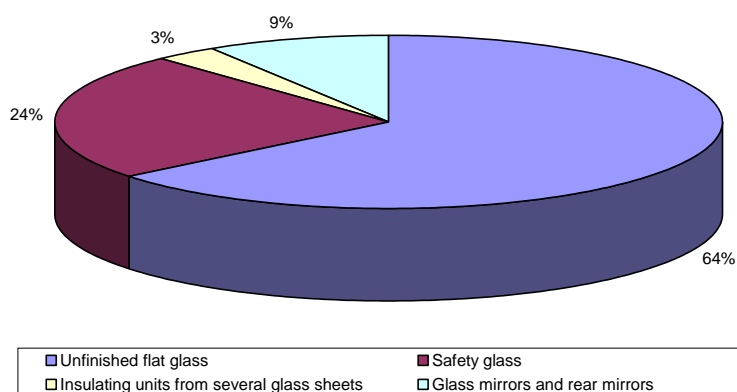
## Export of flat glass according to the assortment

## Structure of export of flat glass according to the assortment in 2016 (t)

	2011			2012			2013		
	Netto ( t )	mil.Kč	podíl (%)	Netto ( t )	mil.Kč	podíl (%)	Netto ( t )	mil.Kč	podíl (%)
Unfinished flat glass	287 196,5	3 625,1	30,4	286 672,4	3 545,5	30,2	274 751,1	3 103,5	27,1
Safety glass	94 186,0	6 558,1	55,0	88 121,5	6 400,1	54,4	101 128,6	6 694,0	58,5
Insulating units from several glass sheets	7 997,2	326,9	2,7	8 033,6	321,6	2,7	8 717,7	318,0	2,8
Glass mirrors and rear mirrors	39 496,3	1 413,2	11,9	35 635,8	1 490,0	12,7	30 233,5	1 334,1	11,7
<b>Totally</b>	<b>428 876,0</b>	<b>11 923,3</b>	<b>100,0</b>	<b>418 463,3</b>	<b>11 757,2</b>	<b>100,0</b>	<b>414 830,9</b>	<b>11 449,6</b>	<b>100,0</b>

	2014			2015			2016		
	Netto ( t )	mil.Kč	podíl (%)	Netto ( t )	mil.Kč	podíl (%)	Netto ( t )	mil.Kč	podíl (%)
Unfinished flat glass	294 228,3	3 228,5	23,3	315 500,0	3 522,0	23,8	337 721,7	3 836,2	25,2
Safety glass	109 563,2	8 743,2	63,1	110 371,1	9 144,3	61,9	125 758,2	9 144,3	60,1
Insulating units from several glass sheets	13 727,3	474,6	3,4	14 039,3	479,7	3,2	14 756,7	538,8	3,5
Glass mirrors and rear mirrors	32 984,8	1 419,3	10,2	40 159,6	1 632,3	11,0	47 306,7	1 687,2	11,1
<b>Totally</b>	<b>450 503,6</b>	<b>13 865,6</b>	<b>100,0</b>	<b>480 070,0</b>	<b>14 778,3</b>	<b>100,0</b>	<b>525 543,3</b>	<b>15 206,5</b>	<b>100,0</b>

## Structure of export of flat glass according to the assortment in 2016 (CZK)

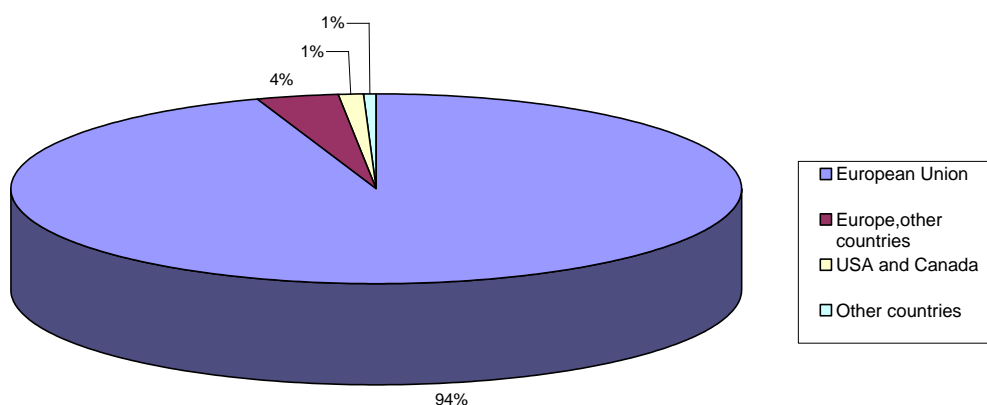


The greatest share of export in weight units had the unfinished flat glass in 2016 with 64.3 % (64.0 % was created by float glass), followed by the safety glass export with 23.9 %. As far as the export in CZK, the situation was contrary. The greatest share had the export of safety glass with 60.1 %. The share of the unfinished flat glass export was 25.2 %.

**Export of flat glass according to territories**

	2011			2012			2013		
	Netto ( t )	mil.Kč	podíl (%)	Netto ( t )	mil.Kč	podíl (%)	Netto ( t )	mil.Kč	podíl (%)
European Union	394 528,8	10 785,7	90,5	387 173,4	10 491,8	89,2	379 311,4	9 967,2	87,1
Europe, other countries	27 111,3	801,8	6,7	24 073,2	783,0	6,7	20 395,2	800,4	7,0
USA and Canada	1 988,8	40,8	0,3	2 306,9	56,5	0,5	1 341,1	51,9	0,5
Other countries	5 247,1	295,0	2,5	4 909,8	425,9	3,6	13 783,2	630,1	5,5
<b>Totally</b>	<b>428 876,0</b>	<b>11 923,3</b>	<b>100,0</b>	<b>418 463,3</b>	<b>11 757,2</b>	<b>100,0</b>	<b>414 830,9</b>	<b>11 449,6</b>	<b>100,0</b>

	2014			2015			2016		
	Netto ( t )	mil.Kč	podíl (%)	Netto ( t )	mil.Kč	podíl (%)	Netto ( t )	mil.Kč	podíl (%)
European Union	401 568,6	12 449,3	89,8	444 096,7	13 289,0	89,9	489 230,4	14 406,7	94,7
Europe, other countries	17 517,6	749,0	5,4	19 012,2	561,8	3,8	19 886,3	534,8	3,5
USA and Canada	2 647,5	128,2	0,9	3 066,2	243,9	1,7	2 265,2	163,9	1,1
Other countries	28 769,9	539,1	3,9	13 895,0	683,6	4,6	14 161,4	101,0	0,7
<b>Totally</b>	<b>450 503,6</b>	<b>13 865,6</b>	<b>100,0</b>	<b>480 070,1</b>	<b>14 778,3</b>	<b>100,0</b>	<b>525 543,3</b>	<b>15 206,4</b>	<b>100,0</b>

**Structure of export of flat glass according to territories in 2016 (CZK)**

A substantial part of flat glass export was directed to the European Union countries. In 2016 the share on export was 94.7 %. The greatest customers were Germany, Austria, Poland, Belgium, France, Hungary and Slovakia. The greatest customers out of the European Union were Serbia, Bosnia and Herzegovina and Russia.

The structure of export corresponds to the final use of the assortment of flat glass (mostly utilized in the building and automotive industries) and to the production and trade strategy of companies.

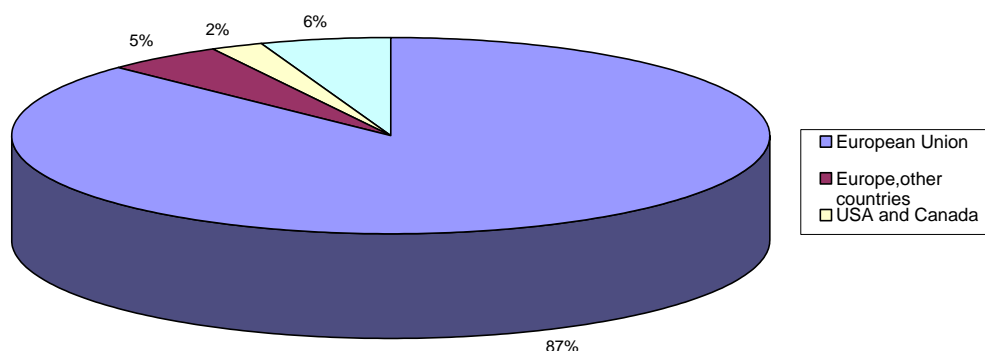
**Container glass**

Container glass export in 2016 was 3829.9 mill. CZK. In comparison with 2015 the export slightly increased.

**Export of container glass according to territories**

	2011			2012			2013		
	Netto ( t )	mil.Kč	podíl (%)	Netto ( t )	mil.Kč	podíl (%)	Netto ( t )	mil.Kč	podíl (%)
European Union	288 752,6	2 797,0	87,0	293 835,3	2 992,9	88,2	280 335,3	2 993,9	88,3
Europe,other countries	31 980,9	354,7	11,0	28 423,2	335,2	9,9	23 225,2	286,4	8,4
USA and Canada	1 253,8	24,3	0,8	1 848,2	36,2	1,1	1 430,8	30,8	0,9
Other countries	1 856,3	38,3	1,2	1 334,1	28,4	0,8	4 302,6	80,0	2,4
<b>Totally</b>	<b>323 843,6</b>	<b>3 214,3</b>	<b>100,0</b>	<b>325 440,8</b>	<b>3 392,7</b>	<b>100,0</b>	<b>309 293,9</b>	<b>3 391,1</b>	<b>100,0</b>

	2014			2015			2016		
	Netto ( t )	mil.Kč	podíl (%)	Netto ( t )	mil.Kč	podíl (%)	Netto ( t )	mil.Kč	podíl (%)
European Union	286 545,4	3 244,0	89,8	313 740,1	3 514,7	90,9	287 631,7	3 344,9	87,3
Europe,other countries	17 468,5	236,0	6,5	11 019,4	168,1	4,3	11 595,8	183,7	4,8
USA and Canada	3 809,5	85,0	2,4	3 587,3	79,8	2,1	2 177,7	84,1	2,2
Other countries	2 129,6	48,0	1,3	5 026,6	104,8	2,7	9 081,3	217,2	5,7
<b>Totally</b>	<b>309 953,0</b>	<b>3 612,9</b>	<b>100,0</b>	<b>333 373,4</b>	<b>3 867,4</b>	<b>100,0</b>	<b>310 486,5</b>	<b>3 829,9</b>	<b>100,0</b>

**Structure of export of container glass according to territories in 2016 (CZK)**

The export is determined by the character of use of a substantial part of container glass assortment. It is not economical to deliver bottles and preserve jars to long distances. In 2016 87.3 % of export was intended to the European Union countries. The greatest customers were Germany, Poland, Slovakia, Austria and Italy. The 4.8 % of export was directed to other European countries. From these countries the greatest customers were Switzerland and Russia.

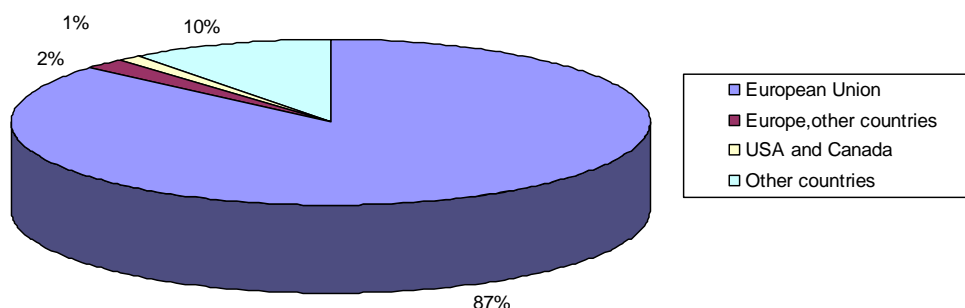
**Glass fibres and products made of**

The export of glass fibres and products made of in 2016 was 8897.6 mill. CZK. In comparison with 2015 it increased by 5.9 % (8374.5 mill. CZK).

**Export of glass fibres and products made of according to territories**

	2011			2012			2013		
	Netto ( t )	mil.Kč	podíl (%)	Netto ( t )	mil.Kč	podíl (%)	Netto ( t )	mil.Kč	podíl (%)
European Union	142 284,1	5 953,7	89,4	144 169,5	6 530,9	90,2	134 110,3	6 785,8	87,1
Europe,other countries	5 358,6	234,4	3,5	8 275,7	279,5	3,9	8 404,4	252,0	3,2
USA and Canada	1 247,0	68,3	1,0	1 228,2	74,8	1,0	1 163,9	75,2	1,0
Other countries	5 265,7	401,3	6,0	6 112,4	354,4	4,9	15 697,0	673,5	8,6
<b>Totally</b>	<b>154 155,4</b>	<b>6 657,7</b>	<b>100,0</b>	<b>159 785,8</b>	<b>7 239,6</b>	<b>100,0</b>	<b>159 375,6</b>	<b>7 786,5</b>	<b>100,0</b>

	2014			2015			2016		
	Netto ( t )	mil.Kč	podíl (%)	Netto ( t )	mil.Kč	podíl (%)	Netto ( t )	mil.Kč	podíl (%)
European Union	131 985,5	6 544,6	79,2	143 555,7	7 240,3	86,5	149 212,2	7 689,1	86,4
Europe,other countries	4 546,7	231,7	2,8	4 392,0	233,0	2,8	3 032,1	198,0	2,2
USA and Canada	1 870,1	5,3	0,1	3 405,5	169,0	2,0	2 202,7	94,3	1,1
Other countries	14 273,1	1 484,7	18,0	13 728,4	732,2	8,7	16 751,7	916,2	10,3
<b>Totally</b>	<b>152 675,4</b>	<b>8 266,3</b>	<b>100,0</b>	<b>165 081,5</b>	<b>8 374,5</b>	<b>100,0</b>	<b>171 198,8</b>	<b>8 897,6</b>	<b>100,0</b>

**Structure of export of glass fibres and products made of according to territories in 2016 (CZK)**

A substantial part of export (86.4 %) was realized in the European Union countries. The greatest customers in 2016 were Germany, Poland, France, Italy, Austria and Slovakia. As far as countries out of the European Union it was Bosnia and Herzegovina and Serbia.

**Utility glass**

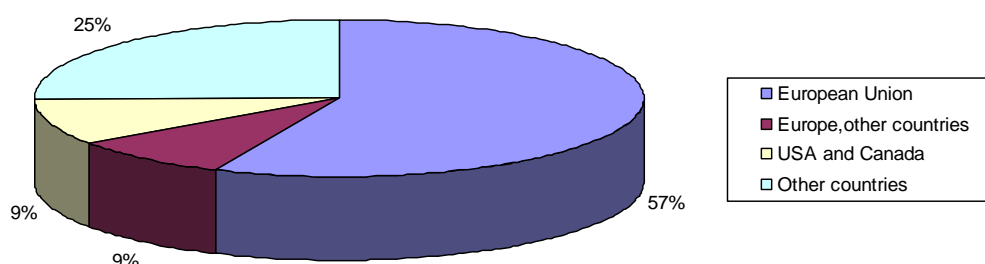
The export of utility glass belongs to traditional export branches of the Czech processing industry. In 2016 the export was in amount of 7181.4 mill. CZK. In comparison with 2015 it decreased a little.



**Export of utility glass according to territories**

	2011			2012			2013		
	Netto ( t )	mil.Kč	podíl (%)	Netto ( t )	mil.Kč	podíl (%)	Netto ( t )	mil.Kč	podíl (%)
European Union	42 794,7	2 389,7	45,2	41 483,4	2 878,3	47,1	46 550,5	3 044,2	48,3
Europe, other countries	9 435,6	840,2	15,9	9 670,8	928,1	15,2	9 418,2	978,2	15,5
USA and Canada	2 902,3	394,3	7,5	2 702,0	443,2	7,3	2 485,6	420,3	6,7
Other countries	12 126,0	1 666,7	31,5	12 403,4	1 862,8	30,5	12 470,9	1 855,5	29,5
<b>Totally</b>	<b>67 258,6</b>	<b>5 290,9</b>	<b>100,0</b>	<b>66 259,6</b>	<b>6 112,4</b>	<b>100,0</b>	<b>70 925,2</b>	<b>6 298,2</b>	<b>100,0</b>

	2014			2015			2016		
	Netto ( t )	mil.Kč	podíl (%)	Netto ( t )	mil.Kč	podíl (%)	Netto ( t )	mil.Kč	podíl (%)
European Union	53 136,5	3 651,4	51,7	52 511,3	3 913,3	54,0	57 024,5	4 069,3	56,7
Europe, other countries	8 921,2	962,5	13,6	5 985,7	611,1	8,4	6 354,4	626,6	8,7
USA and Canada	2 898,4	489,7	6,9	4 111,2	671,9	9,3	4 645,5	673,0	9,4
Other countries	13 749,4	1 961,0	27,8	14 805,8	2 044,0	28,2	13 604,2	1 812,5	25,2
<b>Totally</b>	<b>78 705,5</b>	<b>7 064,5</b>	<b>100,0</b>	<b>77 413,9</b>	<b>7 240,3</b>	<b>100,0</b>	<b>81 628,6</b>	<b>7 181,4</b>	<b>100,0</b>

**Structure of export of utility glass according to territories in 2016 (CZK)**

It is possible to say that the utility glass assortment is exported to the whole world. The share of export in 2016 to the European countries was 56.7 %. The greatest customers were Germany, France, Slovakia, Austria, Italy, Hungary, and Poland. The share on export directed to the Other countries (export to 80 countries) and to the USA and Canada was in amount of 34.6 %. The greatest customers were the USA, Japan, Egypt, the United Arab Emirates, China, Brazil and Kazakhstan.

**Other glass**

The assortment of the other glass export is very wide. It includes technical, laboratory and laboratory apparatus glass, technical spheres, glass industrial apparatuses, protective welding glass, optical glass, and also the production of glass blocks, glass fashion jewellery semiproducts and production of lighting glass, is incorporated.

The other glass export in 2016 reached amount of 5036.6 mill. CZK, what is by 19.6 % less than in 2015 (6265.8 mill. CZK).

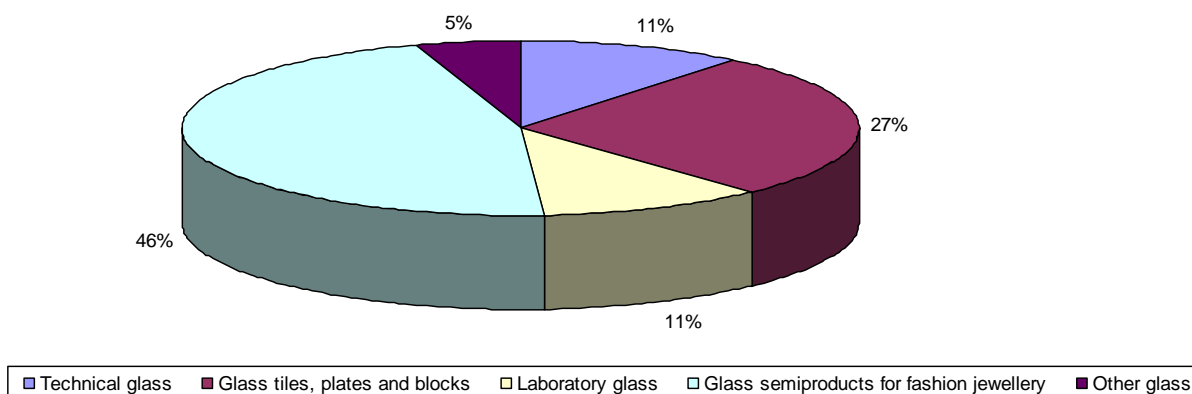
In 2016 lighting glass which is not stated in codes for the export and import of glass (Products for electrical lighting devices, made of glass, except reflectors and facet glass etc. glass decorations for electrical chandeliers, approx. 300 mill. CZK) was not included to the export.

#### Export of other glass according to assortment

	2011			2012			2013		
	Netto ( t )	mil.Kč	podíl (%)	Netto ( t )	mil.Kč	podíl (%)	Netto ( t )	mil.Kč	podíl (%)
Technical glass	7 041,0	616,1	8,1	4 674,7	498,1	6,8	3 813,5	405,6	6,0
Glass tiles, plates and blocks	68 584,5	1 405,7	18,6	70 446,9	1 348,1	18,5	71 226,7	1 422,2	21,1
Laboratory glass	4 070,9	522,1	6,9	3 800,2	541,6	7,4	3 012,4	442,3	6,6
Glass semiproducts for fashion jewellery	4 640,8	4 581,1	60,5	4 936,5	4 462,0	61,2	5 075,4	4 293,7	63,8
Other glass	13 726,2	452,3	6,0	22 212,4	441,9	6,1	10 235,6	166,5	2,5
<b>Totally</b>	<b>98 063,4</b>	<b>7 577,3</b>	<b>100,0</b>	<b>106 070,7</b>	<b>7 291,7</b>	<b>100,0</b>	<b>93 363,6</b>	<b>6 730,3</b>	<b>100,0</b>

	2014			2015			2016		
	Netto ( t )	mil.Kč	podíl (%)	Netto ( t )	mil.Kč	podíl (%)	Netto ( t )	mil.Kč	podíl (%)
Technical glass	3 936,5	464,2	6,8	4 176,8	500,0	8,0	4 816,8	543,9	10,8
Glass tiles, plates and blocks	58 463,5	1 497,5	21,9	57 652,5	1 444,9	23,1	57 249,9	1 368,4	27,2
Laboratory glass	3 095,1	508,9	7,4	3 140,2	556,9	8,9	2 789,3	555,3	11,0
Glass semiproducts for fashion jewellery	4 889,6	4 168,8	60,8	4 606,9	3 546,1	56,6	3 755,4	2 319,3	46,0
Other glass	16 434,0	211,6	3,1	20 982,5	217,9	3,5	41 079,0	249,7	5,0
<b>Totally</b>	<b>86 818,7</b>	<b>6 851,0</b>	<b>100,0</b>	<b>90 558,9</b>	<b>6 265,8</b>	<b>100,0</b>	<b>109 690,4</b>	<b>5 036,6</b>	<b>100,0</b>

#### Structure of other glass export according to assortment in 2016 (CZK)



The greatest share with 46.0 % has the export of fashion jewellery and glass fashion jewellery semiproducts. The export of this assortment which is traditional in the Czech Republic has been facing up still stronger and substantially cheaper competition from the Far East. In comparison with 2015 the share of glass tiles, plates and bricks (27.2 %) increased, on the contrary the share of glass fashion jewellery semiproducts decreased (46.0 %).

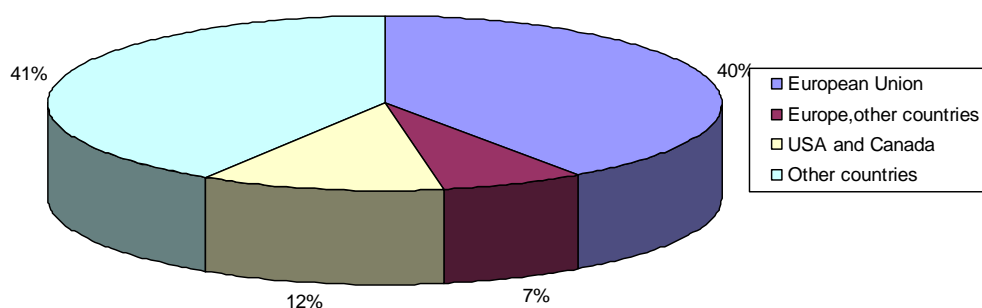
In the following table the export of other glass according to territories is given.

### Export of other glass according to territories

	2011			2012			2013		
	Netto ( t )	mil.Kč	podíl (%)	Netto ( t )	mil.Kč	podíl (%)	Netto ( t )	mil.Kč	podíl (%)
European Union	53 911,4	2 781,4	34,0	59 141,6	2 564,8	35,2	50 455,9	2 415,2	35,9
Europe, other countries	3 646,0	244,1	3,0	5 792,3	312,5	4,3	4 600,3	410,0	6,1
USA and Canada	6 584,4	466,9	5,7	7 504,3	475,2	6,5	7 106,4	466,1	6,9
Other countries	33 921,6	4 084,9	49,9	33 632,5	3 939,2	54,0	31 201,0	3 439,0	51,1
<b>Totally</b>	<b>98 063,4</b>	<b>8 187,2</b>	<b>92,6</b>	<b>106 070,7</b>	<b>7 291,7</b>	<b>100,0</b>	<b>93 363,6</b>	<b>7 730,3</b>	<b>100,0</b>

	2014			2015			2016		
	Netto ( t )	mil.Kč	podíl (%)	Netto ( t )	mil.Kč	podíl (%)	Netto ( t )	mil.Kč	podíl (%)
European Union	53 380,2	2 477,6	36,2	52 508,5	2 394,6	38,2	66 729,1	2 025,3	40,2
Europe, other countries	5 536,7	455,7	6,7	3 364,8	323,9	5,2	5 215,7	346,7	6,9
USA and Canada	6 314,0	490,5	7,2	5 998,9	599,3	9,6	9 537,4	598,8	11,9
Other countries	21 587,9	3 427,1	50,0	28 686,6	2 948,0	47,0	28 208,3	2 065,9	41,0
<b>Totally</b>	<b>86 818,8</b>	<b>6 850,9</b>	<b>100,0</b>	<b>90 558,8</b>	<b>6 265,8</b>	<b>100,0</b>	<b>109 690,5</b>	<b>5 036,7</b>	<b>100,0</b>

### Structure of export of other glass according to territories in 2016 (CZK)



In contrast with flat, container and fibre glass export, the most of the other glass export (41.0 %) is oriented to the countries out of Europe. In each group of products there is a different situation and it can differ according to orders every year. In 2016 the share of export of glass tiles, plates and blocks assortment (55.0 %), laboratory glass (65.5 %) and technical glass (47.2 %) to the European Union prevailed. On the other side the export of glass semiproducts for fashion jewellery assortment (75.6 %) prevailed to the Other countries, including the USA and Canada.

The greatest customers in the European Union were Germany, Poland, Italy, France, Belgium, Austria and Romania, in the other European countries Russia, Ukraine, Switzerland and Norway. From the Other countries and the USA and Canada the greatest customers, mostly of fashion jewellery and

glass semiproducts for fashion jewellery, were the United Arab Emirates, China, Hongkong, the USA, Japan and India.

### Household china and ceramics

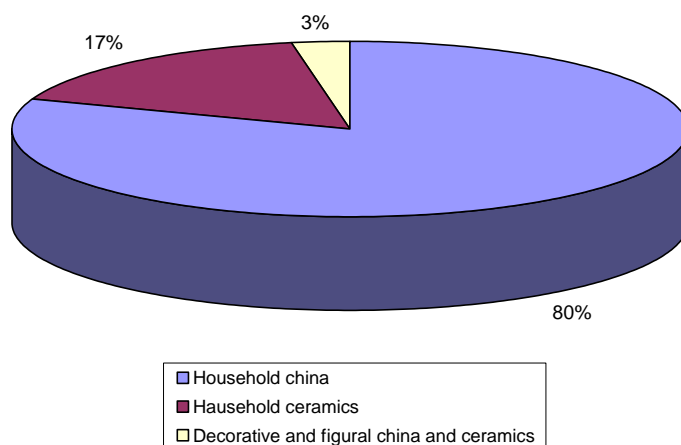
The household china export similarly as the utility glass export belongs to the traditional export branches of the Czech processing industry. In 2016 the export was 2132.4 mill. CZK. In comparison with 2015 the export increased by 5.3 %.

### Export of household china and ceramics according to the assortment

	2011			2012			2013		
	Netto (t)	mil.Kč	podíl (%)	Netto (t)	mil.Kč	podíl (%)	Netto (t)	mil.Kč	podíl (%)
Household china	13 466,4	1 551,6	86,7	14 549,7	1 713,0	89,1	17 763,6	1 890,4	88,5
Household ceramics	1 514,4	188,2	10,5	1 377,1	127,1	6,6	1 637,8	154,3	7,2
Decorative and figural china and ceramics	316,7	49,5	2,8	381,0	81,7	4,3	369,7	91,9	4,3
<b>Totally</b>	<b>15 297,5</b>	<b>1 789,3</b>	<b>100,0</b>	<b>16 307,8</b>	<b>1 921,8</b>	<b>100,0</b>	<b>19 771,1</b>	<b>2 136,6</b>	<b>100,0</b>

	2014			2015			2016		
	Netto (t)	mil.Kč	podíl (%)	Netto (t)	mil.Kč	podíl (%)	Netto (t)	mil.Kč	podíl (%)
Household china	15 730,9	1 909,7	86,4	14 470,7	1 739,7	86,2	13 449,6	1 720,4	80,7
Household ceramics	1 967,2	225,0	10,2	1 799,5	202,2	10,0	1 940,1	352,8	16,5
Decorative and figural china and ceramics	323,7	74,5	3,4	303,3	77,3	3,8	283,6	59,2	2,8
<b>Totally</b>	<b>18 021,8</b>	<b>2 209,2</b>	<b>100,0</b>	<b>16 573,5</b>	<b>2 019,2</b>	<b>100,0</b>	<b>15 673,3</b>	<b>2 132,4</b>	<b>100,0</b>

### Structure of export of household china and ceramics according to the assortment in 2016 (CZK)

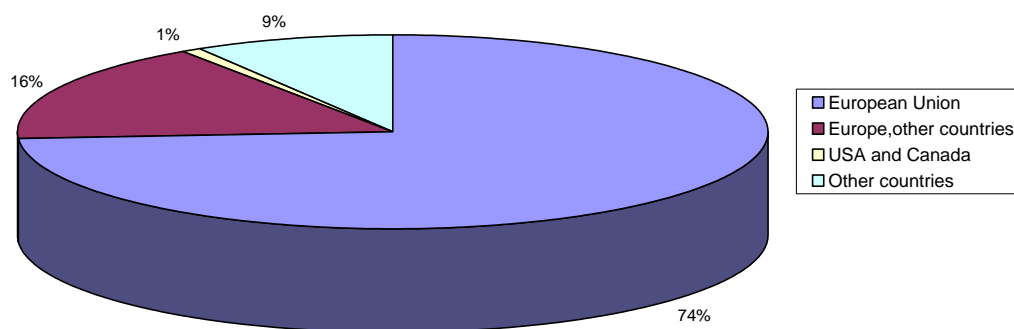


The share of household china in the branch household china and ceramics is 80.7 %.

**Export of household china and ceramics according to territories**

	2011			2012			2013		
	Netto (t)	mil.Kč	podíl (%)	Netto (t)	mil.Kč	podíl (%)	Netto (t)	mil.Kč	podíl (%)
European Union	10 668,7	898,1	50,2	12 040,1	1 079,8	56,2	15 499,8	1 277,8	59,8
Europe, other countries	3 298,7	457,7	25,6	3 052,5	496,9	25,9	3 054,4	539,0	25,2
USA and Canada	491,5	134,7	7,5	384,2	101,7	5,3	114,8	27,0	1,3
Other countries	838,6	298,8	16,7	831,8	243,4	12,7	1 102,1	292,8	13,7
<b>Totally</b>	<b>15 297,5</b>	<b>1 789,3</b>	<b>100,0</b>	<b>16 308,6</b>	<b>1 921,8</b>	<b>100,0</b>	<b>19 771,1</b>	<b>2 136,6</b>	<b>100,0</b>

	2014			2015			2016		
	Netto (t)	mil.Kč	podíl (%)	Netto (t)	mil.Kč	podíl (%)	Netto (t)	mil.Kč	podíl (%)
European Union	14 201,3	1 353,2	61,3	13 662,1	1 426,9	70,7	13 111,4	1 578,2	74,0
Europe, other countries	2 473,0	492,2	22,3	1 569,4	363,7	18,0	1 745,0	349,9	16,4
USA and Canada	120,0	24,3	1,1	134,8	22,1	1,1	109,1	19,8	0,9
Other countries	1 227,5	339,6	15,4	1 207,2	206,5	10,2	707,8	184,5	8,7
<b>Totally</b>	<b>18 021,8</b>	<b>2 209,3</b>	<b>100,0</b>	<b>16 573,5</b>	<b>2 019,2</b>	<b>100,0</b>	<b>15 673,3</b>	<b>2 132,4</b>	<b>100,0</b>

**Structure of export of household china and ceramics according to territories in 2016 (CZK)**

As follows from the above given table and graph, there is a visible export growth to all investigated territories till 2013, and the following decrease to values similar to 2012.

The greatest customers in the European Union countries were Germany, Slovakia, France and Sweden. In the other European countries, it was Russia and Switzerland. In the group of Other countries, incl. the USA and Canada, the export was directed to 55 countries of the world. The greatest customers in 2016 were the USA and Korea.

The household china export has been very strongly influenced by substantially cheaper ware from the Far East like the export of utility glass and glass semiproducts for fashion jewellery.

### Technical ceramics and sanitary ware

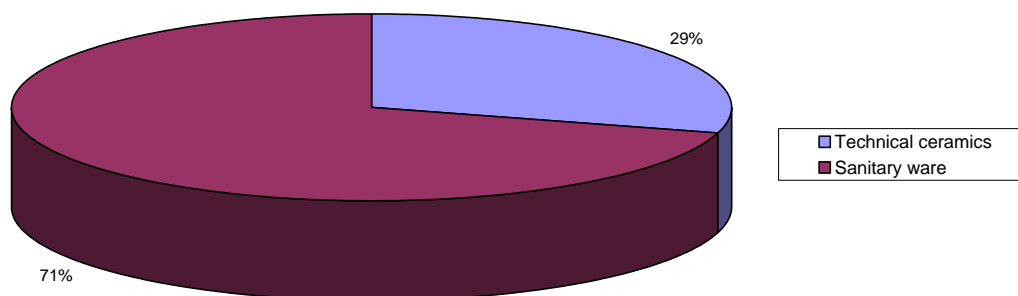
The technical ceramics and sanitary ware export was 3307.4 mill. CZK in 2016. In comparison with 2015 the export decreased by 5.7 %.

#### Export of technical ceramics and sanitary ware according to the assortment

	2011			2012			2013		
	Netto ( t )	mil.Kč	podíl ( % )	Netto ( t )	mil.Kč	podíl ( % )	Netto ( t )	mil.Kč	podíl ( % )
Technical ceramics	4 439,2	631,9	27,4	4 598,7	1 165,0	38,0	7 524,0	1 014,5	35,2
Sanitary ware	28 581,0	1 674,0	72,6	32 584,5	1 902,3	62,0	31 904,4	1 868,4	64,8
<b>Totally</b>	<b>33 020,2</b>	<b>2 305,9</b>	<b>100,0</b>	<b>37 183,2</b>	<b>3 067,3</b>	<b>100,0</b>	<b>39 428,4</b>	<b>2 882,9</b>	<b>100,0</b>

	2014			2015			2016		
	Netto ( t )	mil.Kč	podíl ( % )	Netto ( t )	mil.Kč	podíl ( % )	Netto ( t )	mil.Kč	podíl ( % )
Technical ceramics	6 582,5	1 251,5	37,2	4 751,1	1 215,3	34,7	4 740,6	971,2	29,4
Sanitary ware	33 045,4	2 112,2	62,8	35 532,6	2 286,0	65,3	35 346,9	2 336,2	70,6
<b>Totally</b>	<b>39 627,9</b>	<b>3 363,7</b>	<b>100,0</b>	<b>40 283,7</b>	<b>3 501,3</b>	<b>100,0</b>	<b>40 087,5</b>	<b>3 307,4</b>	<b>100,0</b>

#### Structure of export of technical ceramics and sanitary ware according to the assortment in 2016 (CZK)

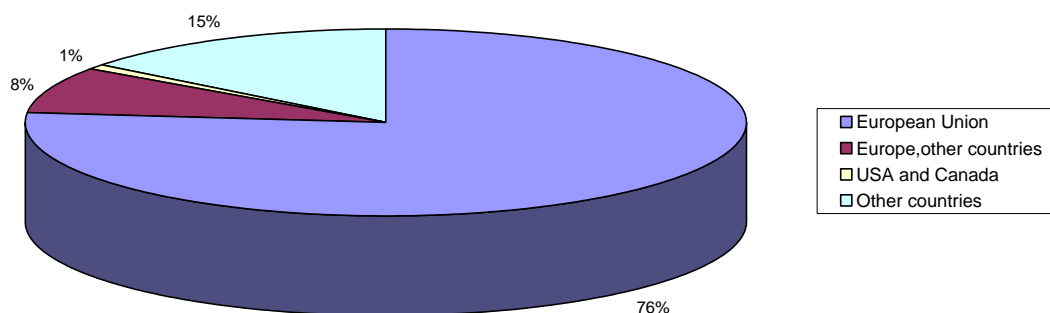


In 2016 the sanitary ware shared with 70.6 % and the technical ceramics with 29.4 % on export.

**Export of technical ceramics and sanitary ware according to territories**

	2011			2012			2013		
	Netto (t)	mil.Kč	podíl (%)	Netto (t)	mil.Kč	podíl (%)	Netto (t)	mil.Kč	podíl (%)
European Union	28 132,9	907,0	82,7	29 664,8	066,1	67,4	31 605,5	1 983,9	68,8
Europe,other countries	3 106,7	261,4	11,3	3 883,7	310,2	10,1	3 781,8	270,8	9,4
USA and Canada	33,8	6,5	0,3	113,1	20,2	0,7	119,7	20,7	0,7
Other countries	1 746,8	131,0	5,7	3 521,6	670,8	21,9	3 921,4	607,5	21,1
<b>Totally</b>	<b>33 020,2</b>	<b>305,9</b>	<b>100,0</b>	<b>37 183,2</b>	<b>067,3</b>	<b>100,0</b>	<b>39 428,4</b>	<b>2 882,9</b>	<b>100,0</b>

	2014			2015			2016		
	Netto (t)	mil.Kč	podíl (%)	Netto (t)	mil.Kč	podíl (%)	Netto (t)	mil.Kč	podíl (%)
European Union	31 635,0	248,6	66,8	32 075,2	502,1	71,5	32 188,2	2 532,4	76,6
Europe,other countries	4 542,2	320,8	9,5	4 100,5	299,2	8,5	3 483,9	271,7	8,2
USA and Canada	212,2	34,6	1,0	244,2	36,1	1,0	116,6	23,0	0,7
Other countries	3 238,5	759,7	22,6	3 863,8	663,9	19,0	4 298,8	480,2	14,5
<b>Totally</b>	<b>39 627,9</b>	<b>363,7</b>	<b>100,0</b>	<b>40 283,7</b>	<b>501,3</b>	<b>100,0</b>	<b>40 087,5</b>	<b>3 307,3</b>	<b>100,0</b>

**Structure of export of technical ceramics and sanitary ware according to territories in 2016 (CZK)**

A substantial part of both assortments was exported to the countries of Europe. Sanitary ware shared on export to the European countries in 2016 with 85.9 % (from which 75.7 % to the European Union), technical ceramics shared on the export with 82.0 % (from which 78.7 % to the European Union). Germany, Austria and Great Britain belong to the greatest customers of sanitary ware in Europe.

Due to an unpleasant development in the building industry in the European Union, sanitary ware producers look for new markets in the countries out of Europe. Sanitary ware is exported e.g. to China, the Republic of South Africa, Tunis, Oman, Nigeria and Mongolia.



## Import

### Flat glass

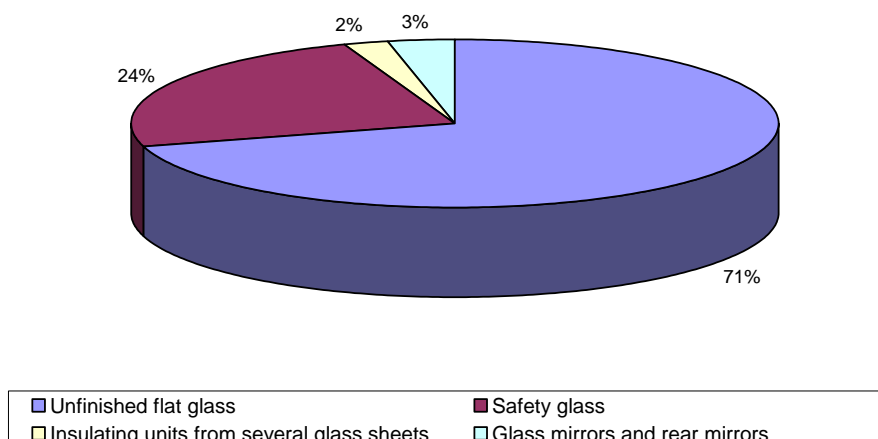
The import of flat glass assortment was in 2016 in amount of 10,563.1 mill. CZK. In comparison with 2015 it increased by 13.9 % (9090.8 mill. CZK).

#### Import of flat glass according to the assortment

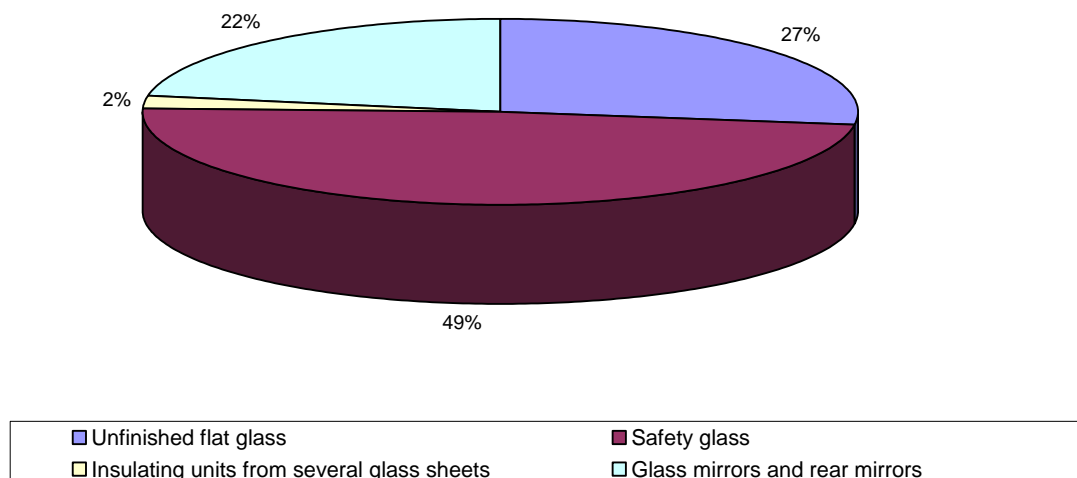
	2011			2012			2013		
	Netto ( t )	mil.Kč	podíl ( % )	Netto ( t )	mil.Kč	podíl ( % )	Netto ( t )	mil.Kč	podíl ( % )
Unfinished flat glass	320 056,1	3 543,3	37,2	210 393,8	2 925,9	34,7	192 847,3	2 639,1	32,1
Safety glass	91 371,4	4 030,8	42,3	72 876,8	3 487,7	41,4	64 210,2	3 588,2	43,7
Insulating units from several glass sheets	5 990,5	200,4	2,1	8 978,4	266,6	3,2	8 146,9	263,4	3,2
Glass mirrors and rear mirrors	8 762,3	1 746,2	18,3	9 544,2	1 753,1	20,8	9 447,0	1 721,6	21,0
<b>Totally</b>	<b>426 180,3</b>	<b>9 520,7</b>	<b>100,0</b>	<b>301 793,2</b>	<b>8 433,3</b>	<b>100,0</b>	<b>274 651,4</b>	<b>8 212,3</b>	<b>100,0</b>

	2014			2015			2016		
	Netto ( t )	mil.Kč	podíl ( % )	Netto ( t )	mil.Kč	podíl ( % )	Netto ( t )	mil.Kč	podíl ( % )
Unfinished flat glass	210 097,9	2 877,1	32,2	181 369,0	2 613,2	28,7	206 741,3	2 869,6	27,2
Safety glass	62 329,1	3 887,7	43,5	63 943,7	4 263,5	46,9	69 987,7	5 124,2	48,5
Insulating units from several glass sheets	6 977,3	247,5	2,8	6 181,3	217,7	2,4	6 421,5	233,1	2,2
Glass mirrors and rear mirrors	9 756,6	1 925,7	21,5	9 301,1	1 996,4	22,0	9 791,2	2 336,2	22,1
<b>Totally</b>	<b>289 160,9</b>	<b>8 938,0</b>	<b>100,0</b>	<b>260 795,1</b>	<b>9 090,8</b>	<b>100,0</b>	<b>292 941,7</b>	<b>10 563,1</b>	<b>100,0</b>

#### Structure of import of flat glass according to the assortment in 2016 (t)



### Structure of import of flat glass according to the assortment in 2016 (CZK)



As follows from the above stated table (expressed in CZK), the import of all investigated assortments increased. The share on the flat glass import in mass had the import of unfinished flat glass with 70.6 %, from which float glass shows 94.1 %. The amount of import is given by the processing capacities in the Czech Republic.

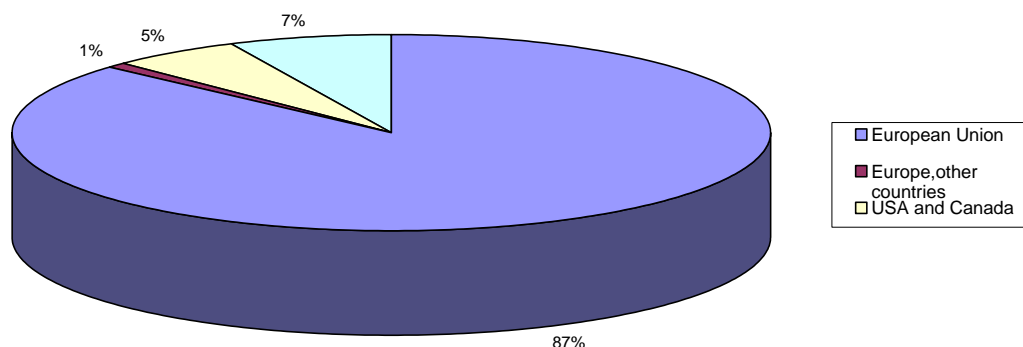
Toughened laminated safety glass shared with 48.5 % (expressed in CZK) on import. It is followed by unfinished flat glass with 27.2 %.

### Import of flat glass according to territories

	2011			2012			2013		
	Netto ( t )	mil.Kč	podíl ( % )	Netto ( t )	mil.Kč	podíl ( % )	Netto ( t )	mil.Kč	podíl ( % )
European Union	395 053,0	8 556,2	89,9	273 871,8	7 215,9	85,6	252 951,3	7 023,5	85,5
Europe, other countries	362,4	48,1	0,5	318,4	46,5	0,6	166,6	59,2	0,7
USA and Canada	346,2	241,4	2,5	426,3	352,4	4,2	420,7	352,8	4,3
Other countries	30 418,7	675,0	7,1	27 176,7	818,5	9,7	21 112,8	776,8	9,5
<b>Totally</b>	<b>426 180,3</b>	<b>9 520,7</b>	<b>100,0</b>	<b>301 793,2</b>	<b>8 433,3</b>	<b>100,0</b>	<b>274 651,4</b>	<b>8 212,3</b>	<b>100,0</b>

	2014			2015			2016		
	Netto ( t )	mil.Kč	podíl ( % )	Netto ( t )	mil.Kč	podíl ( % )	Netto ( t )	mil.Kč	podíl ( % )
European Union	264 369,8	7 578,3	84,8	244 007,0	7 627,5	83,9	278 716,1	9 165,2	86,8
Europe, other countries	156,9	59,3	0,7	78,1	52,4	0,6	971,9	91,4	0,9
USA and Canada	418,7	400,6	4,5	417,9	531,9	5,9	410,2	571,4	5,4
Other countries	24 214,5	899,8	10,1	16 292,1	879,1	9,7	12 843,5	735,2	7,0
<b>Totally</b>	<b>289 159,9</b>	<b>8 938,0</b>	<b>100,0</b>	<b>260 795,1</b>	<b>9 090,9</b>	<b>100,0</b>	<b>292 941,7</b>	<b>10 563,2</b>	<b>100,0</b>

### Structure of import of flat glass according to territories in 2016 (CZK)



In 2016 there was imported 86.8 % of flat glass (expressed in CZK) to the Czech Republic from the European Union countries. The greatest importers were Belgium, Germany and France.

### Container glass

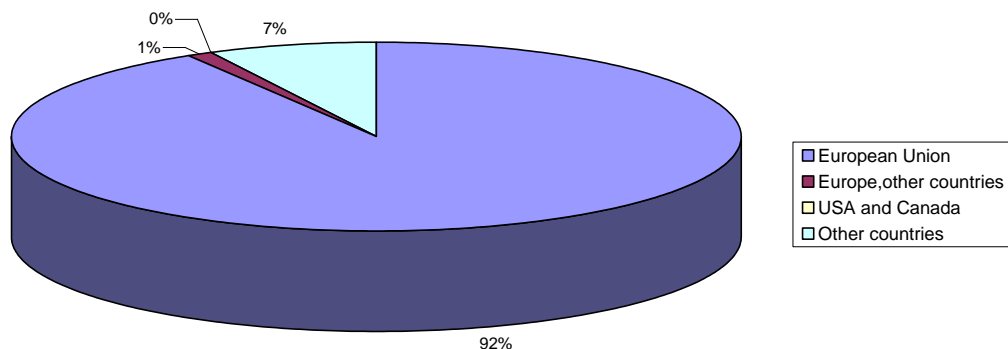
The container glass import in 2016 was in amount of 1459.1 mill. CZK, i.e. it was higher by 4.3 % than in 2015.

### Import of container glass according to territories

	2011			2012			2013		
	Netto ( t )	mil.Kč	podíl ( % )	Netto ( t )	mil.Kč	podíl ( % )	Netto ( t )	mil.Kč	podíl ( % )
European Union	95 964,9	1 080,3	96,0	102 250,1	1 147,7	95,4	104 663,2	1 097,8	97,3
Europe,other countries	3 256,9	24,7	2,2	4 114,3	35,2	2,9	1 326,4	12,6	1,1
USA and Canada	1,1	0,8	0,1	4,4	1,7	0,1	14,5	3,7	0,3
Other countries	641,5	19,6	1,7	398,8	18,8	1,6	393,6	14,6	1,3
<b>Totally</b>	<b>99 864,4</b>	<b>1 125,4</b>	<b>100,0</b>	<b>106 767,6</b>	<b>1 203,4</b>	<b>100,0</b>	<b>106 397,7</b>	<b>1 128,7</b>	<b>100,0</b>

	2014			2015			2016		
	Netto ( t )	mil.Kč	podíl ( % )	Netto ( t )	mil.Kč	podíl ( % )	Netto ( t )	mil.Kč	podíl ( % )
European Union	108 696,8	1 202,4	90,1	113 082,3	1 283,3	91,8	104 133,5	1 331,7	91,3
Europe,other countries	11 737,9	98,1	7,3	1 099,3	10,2	0,7	1 810,4	16,1	1,1
USA and Canada	69,4	17,8	1,3	5,8	5,0	0,4	7,0	3,6	0,3
Other countries	508,0	15,9	1,2	9 510,5	98,7	7,1	10 609,3	107,6	7,4
<b>Totally</b>	<b>121 012,1</b>	<b>1 334,1</b>	<b>100,0</b>	<b>123 698,0</b>	<b>1 397,2</b>	<b>100,0</b>	<b>116 560,1</b>	<b>1 459,1</b>	<b>100,0</b>

### Structure of import of container glass according to territories in 2016 (CZK)



The import like the export is determined by the character of use of container glass assortment. In 2016 there was realized 91.3 % of import from the European Union countries. The greatest importers were Germany, Slovakia and Poland.

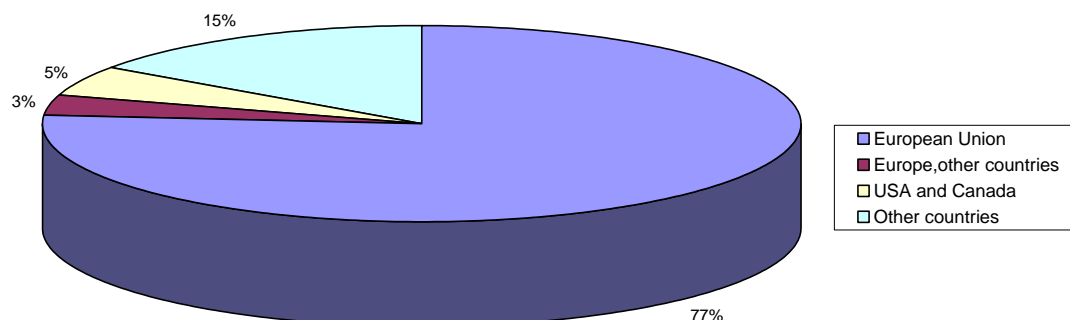
### Glass fibres and products made of

The import of glass fibres and products made of to the Czech Republic was 2982.5 mill. CZK in 2016, what is by 12.3 % more than in 2015.

### Import of glass fibres and products made of according to territories

	2011			2012			2013		
	Netto ( t )	mil.Kč	podíl ( % )	Netto ( t )	mil.Kč	podíl ( % )	Netto ( t )	mil.Kč	podíl ( % )
European Union	44 036,3	1 534,8	62,7	48 275,6	1 832,8	72,7	41 449,5	2 054,6	77,7
Europe, other countries	1 163,5	53,4	2,2	1 512,2	102,4	4,1	1 426,1	94,7	3,6
USA and Canada	1 405,9	103,6	4,2	546,5	88,4	3,5	529,0	91,1	3,4
Other countries	19 906,1	756,5	30,9	13 705,3	496,1	19,7	9 936,8	405,2	15,3
<b>Totally</b>	<b>66 511,8</b>	<b>2 448,3</b>	<b>100,0</b>	<b>64 039,6</b>	<b>2 519,7</b>	<b>100,0</b>	<b>53 341,4</b>	<b>2 645,6</b>	<b>100,0</b>

	2014			2015			2016		
	Netto ( t )	mil.Kč	podíl ( % )	Netto ( t )	mil.Kč	podíl ( % )	Netto ( t )	mil.Kč	podíl ( % )
European Union	46 610,1	2 253,6	76,1	41 265,1	2 053,3	78,5	45 534,0	2 275,3	76,3
Europe, other countries	1 786,6	129,0	4,4	1 862,6	82,1	3,1	3 223,4	102,3	3,4
USA and Canada	663,3	124,0	4,2	965,6	127,0	4,9	1 477,3	148,4	5,0
Other countries	10 272,2	453,3	15,3	6 504,6	354,6	13,5	9 558,3	456,6	15,3
<b>Totally</b>	<b>59 332,2</b>	<b>2 959,9</b>	<b>100,0</b>	<b>50 597,8</b>	<b>2 617,0</b>	<b>100,0</b>	<b>59 793,0</b>	<b>2 982,5</b>	<b>100,0</b>

**Structure of import of glass fibres and products made of according to territories in 2016 (CZK)**

The share of the European Union countries on import was 76.3 %. The greatest importers were Germany, Poland, Slovakia, Italy and France. The importers from the other European countries were Russia and Belarus.

**Utility glass**

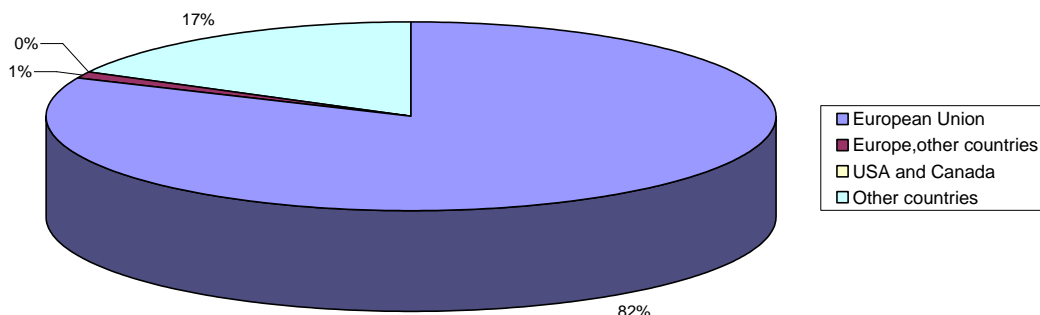
The utility glass import in 2016 was 1956.1 mill. CZK.

**Import of utility glass according to territories**

	2010			2011			2012		
	Netto ( t )	mil.Kč	podíl ( % )	Netto ( t )	mil.Kč	podíl ( % )	Netto ( t )	mil.Kč	podíl ( % )
European Union	24 038,6	1 071,7	69,0	42 883,0	1 150,7	74,2	39 905,1	1 286,9	78,0
Europe, other countries	1 142,9	28,0	1,8	1 107,6	26,9	1,7	565,3	14,2	0,9
USA and Canada	23,2	2,6	0,2	30,6	3,2	0,2	17,5	3,7	0,2
Other countries	11 656,9	450,4	29,0	10 358,1	370,7	23,9	5 581,2	345,9	21,0
<b>Totally</b>	<b>36 861,6</b>	<b>1 552,7</b>	<b>100,0</b>	<b>54 379,3</b>	<b>1 551,5</b>	<b>100,0</b>	<b>46 069,1</b>	<b>1 650,7</b>	<b>100,0</b>

	2013			2014			2015		
	Netto ( t )	mil.Kč	podíl ( % )	Netto ( t )	mil.Kč	podíl ( % )	Netto ( t )	mil.Kč	podíl ( % )
European Union	32 899,1	1 229,6	75,7	33 839,4	1 572,3	80,5	45 654,0	1 547,5	81,6
Europe, other countries	793,0	26,5	1,6	781,1	24,8	1,3	778,2	23,2	1,2
USA and Canada	15,1	3,3	0,2	11,1	4,7	0,2	70,5	0,5	0,0
Other countries	9 093,1	364,9	22,5	9 446,8	351,1	18,0	6 613,7	325,7	17,2
<b>Totally</b>	<b>42 800,3</b>	<b>1 624,3</b>	<b>100,0</b>	<b>44 078,4</b>	<b>1 953,0</b>	<b>100,0</b>	<b>53 116,4</b>	<b>1 896,9</b>	<b>100,0</b>

### Structure of import of utility glass according to territories in 2016 (CZK)



The greatest share of import (71.8 %) was realized from the European Union countries. The greatest importers were Bulgaria, Germany, Poland, Portugal, France and Italy. From the Other countries (19.9 % of total import) the greatest importers in 2016 were China and Turkey. Both these countries totally created 93.4 % of import from the Other countries.

### Other glass

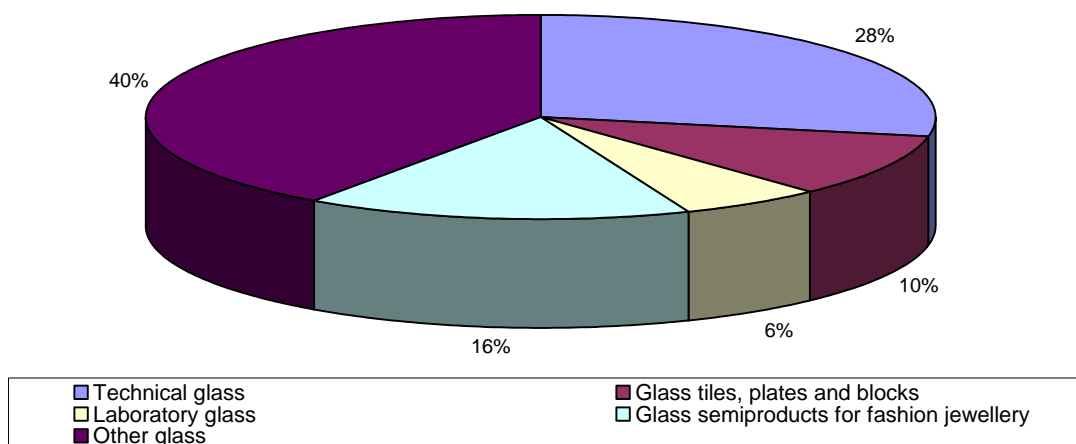
The import of other glass in 2016 was 1602.3 mill. CZK. The inter-year decrease was by 15.4 % (1848.5 mill. CZK).

### Import of other glass according to the assortment

	2011			2012			2013		
	Netto ( t )	mil.Kč	podíl ( % )	Netto ( t )	mil.Kč	podíl ( % )	Netto ( t )	mil.Kč	podíl ( % )
Technical glass	2 057,8	245,1	14,0	1 967,6	240,3	11,3	2 466,3	259,8	15,3
Glass tiles, plates and blocks	6 664,2	230,4	13,2	5 550,0	213,4	10,0	5 130,4	226,1	13,4
Laboratory glass	502,1	76,4	4,4	473,2	80,0	3,8	320,0	67,0	4,0
Glass semiproducts for fashion jewellery	3 226,2	346,9	19,9	3 313,9	812,3	38,3	2 614,7	555,3	32,8
Other glass	157 324,0	847,9	48,5	136 098,9	777,5	36,6	136 408,7	584,8	34,5
<b>Totally</b>	<b>169 774,3</b>	<b>1 746,7</b>	<b>100,0</b>	<b>147 403,6</b>	<b>2 123,5</b>	<b>100,0</b>	<b>146 940,1</b>	<b>1 693,0</b>	<b>100,0</b>

	2014			2015			2016		
	Netto ( t )	mil.Kč	podíl ( % )	Netto ( t )	mil.Kč	podíl ( % )	Netto ( t )	mil.Kč	podíl ( % )
Technical glass	4 174,3	635,9	24,6	3 726,0	425,5	23,0	3 658,6	451,6	28,2
Glass tiles, plates and blocks	7 117,2	239,9	9,3	4 214,2	225,5	12,2	3 971,0	160,3	10,0
Laboratory glass	253,1	79,9	3,1	567,8	103,1	5,6	260,7	91,2	5,7
Glass semiproducts for fashion jewellery	2 863,7	968,1	37,5	3 088,0	446,6	24,2	3 063,0	254,6	15,9
Other glass	171 069,4	657,1	25,5	171 104,4	647,8	35,0	175 633,8	644,6	40,2
<b>Totally</b>	<b>185 477,7</b>	<b>2 580,9</b>	<b>100,0</b>	<b>182 700,4</b>	<b>1 848,5</b>	<b>100,0</b>	<b>186 587,1</b>	<b>1 602,3</b>	<b>100,0</b>

## Structure of import of other glass according to the assortment in 2016 (CZK)



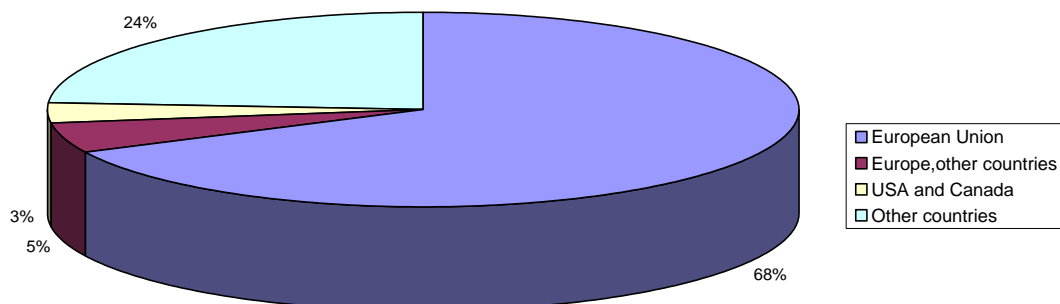
In the following table the other glass import according to territories is given.

## Import of other glass according to territories

	2011			2012			2013		
	Netto ( t )	mil.Kč	podíl ( % )	Netto ( t )	mil.Kč	podíl ( % )	Netto ( t )	mil.Kč	podíl ( % )
European Union	138 606,8	1 221,9	70,0	138 018,4	1 702,8	80,2	127 864,7	1 285,3	75,9
Europe,other countries	24 218,6	52,7	3,0	6 101,1	37,9	1,8	108,2	58,6	3,5
USA and Canada	40,1	40,3	2,3	33,0	36,2	1,7	341,0	42,8	2,5
Other countries	6 908,8	431,8	24,7	3 251,1	346,0	16,3	18 626,2	306,3	18,1
<b>Totally</b>	<b>169 774,3</b>	<b>1 746,7</b>	<b>100,0</b>	<b>147 403,6</b>	<b>2 122,9</b>	<b>100,0</b>	<b>146 940,1</b>	<b>1 693,0</b>	<b>100,0</b>

	2014			2015			2016		
	Netto ( t )	mil.Kč	podíl ( % )	Netto ( t )	mil.Kč	podíl ( % )	Netto ( t )	mil.Kč	podíl ( % )
European Union	160 150,8	1 557,0	60,3	156 801,3	1 211,6	65,5	159 908,6	1 077,4	67,8
Europe,other countries	82,9	69,9	2,7	100,6	73,3	4,0	111,8	79,4	5,0
USA and Canada	345,4	39,9	1,5	182,5	67,8	3,7	375,8	52,1	3,3
Other countries	24 888,8	913,9	35,4	24 615,9	495,9	26,8	26 299,5	379,9	23,9
<b>Totally</b>	<b>185 467,9</b>	<b>2 580,7</b>	<b>100,0</b>	<b>181 700,3</b>	<b>1 848,6</b>	<b>100,0</b>	<b>186 695,7</b>	<b>1 588,8</b>	<b>100,0</b>

## Structure of import of other glass according to territories in 2016 (CZK)





In 2016 the import from the European Union countries was 67.6 % and 23.9 % from the Other countries. The import was realized from various countries according to the assortment. In 2016 the greatest importers of technical glass were Germany, France, China, Malaysia and Taiwan, laboratory glass Germany, Italy, the USA, Great Britain, India and China, glass tiles, plates and blocks Belgium, Germany, the USA, Great Britain, India and China, glass semiproducts for fashion jewellery Austria, Germany, France, the USA, China, Hongkong and Japan.

### Household china and ceramics

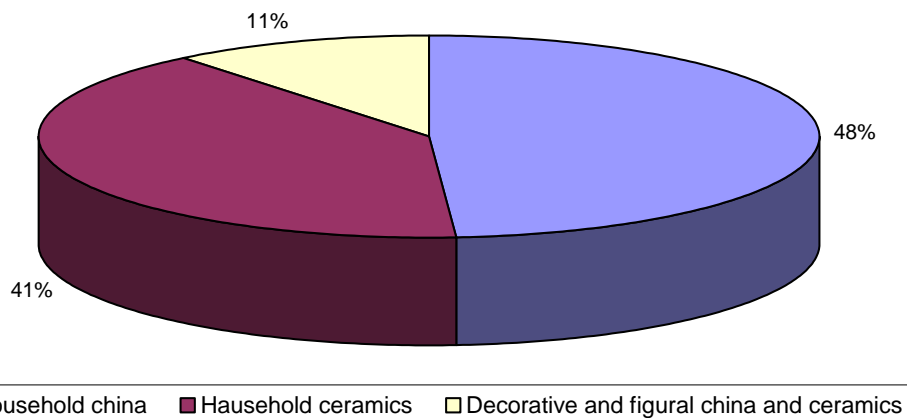
In 2016 the household china and ceramics were imported to the Czech Republic in a value of 1518.1 mill. CZK, i.e. by 18.8 % more than in 2015.

### Import of household china and ceramics according to the assortment

	2011			2012			2013		
	Netto ( t )	mil.Kč	podíl ( % )	Netto ( t )	mil.Kč	podíl ( % )	Netto ( t )	mil.Kč	podíl ( % )
Household china	10 625,6	728,7	55,1	9 037,4	790,4	53,6	7 974,8	791,6	62,3
Household ceramics	8 712,4	415,3	31,4	7 820,3	522,5	35,4	5 429,8	304,5	24,0
Decorative and figural china and ceramics	3 249,4	179,2	13,5	2 750,2	161,1	10,9	3 095,9	174,1	13,7
<b>Totally</b>	<b>22 587,4</b>	<b>323,2</b>	<b>100,0</b>	<b>19 607,9</b>	<b>474,0</b>	<b>100,0</b>	<b>16 500,5</b>	<b>270,2</b>	<b>100,0</b>

	2014			2015			2016		
	Netto ( t )	mil.Kč	podíl ( % )	Netto ( t )	mil.Kč	podíl ( % )	Netto ( t )	mil.Kč	podíl ( % )
Household china	10 295,8	790,3	59,4	7 070,9	709,4	57,6	11 253,9	740,2	48,8
Household ceramics	6 805,2	398,5	30,0	5 574,8	377,7	30,6	7 147,9	615,2	40,5
Decorative and figural china and ceramics	2 226,7	141,7	10,6	2 248,5	145,2	11,8	2 480,0	162,7	10,7
<b>Totally</b>	<b>19 327,7</b>	<b>330,4</b>	<b>100,0</b>	<b>14 894,2</b>	<b>232,3</b>	<b>100,0</b>	<b>20 881,8</b>	<b>518,1</b>	<b>100,0</b>

### Structure of import of household china and ceramics according to the assortment in 2016 (CZK)



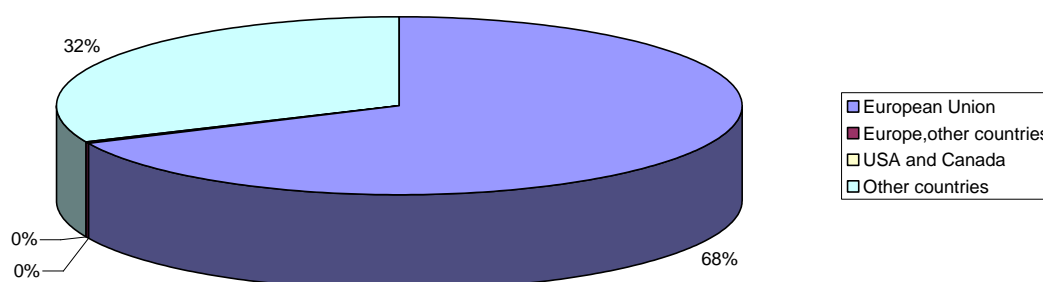
The household china shares with 48.8 %, household ceramics with 40.5 % and decorative and figural china and ceramics with 10.7 % on the import of this group assortment.

#### Import of household china and ceramics according to territories

	2011			2012			2013		
	Netto ( t )	mil.Kč	podíl ( % )	Netto ( t )	mil.Kč	podíl ( % )	Netto ( t )	mil.Kč	podíl ( % )
European Union	10 295,9	669,0	50,6	8 563,9	756,1	51,3	9 170,7	824,3	64,9
Europe,other countries	211,8	10,8	0,8	142,2	4,3	0,3	53,6	3,1	0,2
USA and Canada	5,3	0,9	0,1	5,8	0,9	0,1	1,9	0,6	0,0
Other countries	12 074,4	642,5	48,6	10 896,0	712,7	48,4	7 274,3	442,2	34,8
<b>Totally</b>	<b>22 587,4</b>	<b>1 323,2</b>	<b>100,0</b>	<b>19 607,9</b>	<b>1 474,0</b>	<b>100,0</b>	<b>16 500,5</b>	<b>1 270,2</b>	<b>100,0</b>

	2014			2015			2016		
	Netto ( t )	mil.Kč	podíl ( % )	Netto ( t )	mil.Kč	podíl ( % )	Netto ( t )	mil.Kč	podíl ( % )
European Union	10 678,9	798,7	60,0	7 486,3	722,7	58,7	9 878,1	1 035,0	68,2
Europe,other countries	36,8	5,0	0,4	33,7	1,2	0,1	9,6	0,8	0,1
USA and Canada	2,6	0,4	0,0	1,5	0,8	0,1	1,6	1,1	0,1
Other countries	8 609,5	526,4	39,6	7 372,6	507,5	41,2	10 992,6	481,2	31,7
<b>Totally</b>	<b>19 327,8</b>	<b>1 330,5</b>	<b>100,0</b>	<b>14 894,1</b>	<b>1 232,2</b>	<b>100,0</b>	<b>20 881,9</b>	<b>1 518,1</b>	<b>100,0</b>

#### Structure of import of household china and ceramics according to territories in 2016 (CZK)



The import from the European Union countries shared on total import with 68.2 %. The greatest importer was Germany, sharing on import from the European Union with 29.6 %, followed by Romania.

The Other countries shared on import of household china and ceramics with 41.2 %. The greatest importer was China, sharing on import from the Other countries with 88.4 % (384.1 mill. CZK).

### Technical ceramics and sanitary ware

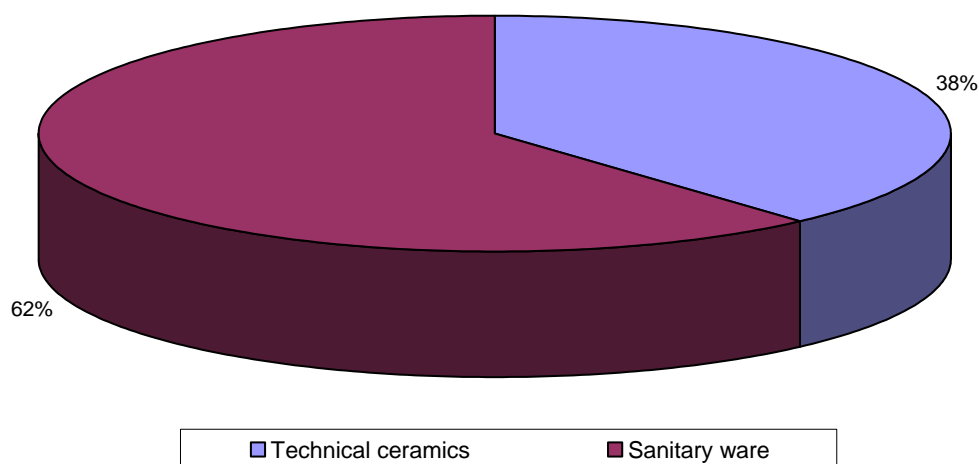
The technical ceramics and sanitary ware import was 1716.1 mill. CZK in 2016. The import of technical ceramics increased in comparison with 2015 by 5.9 % (1615.1 mill. CZK).

#### Import of technical ceramics and sanitary ware according to the assortment

	2011			2012			2013		
	Netto (t)	mil.Kč	podíl ( % )	Netto (t)	mil.Kč	podíl ( % )	Netto (t)	mil.Kč	podíl ( % )
Technical ceramics	4 408,0	463,1	39,8	4 360,6	296,7	27,6	3 616,7	339,5	27,3
Sanitary ware	18 574,2	699,5	60,2	14 559,2	779,4	72,4	13 457,2	905,5	72,7
<b>Totally</b>	<b>22 982,2</b>	<b>1 162,6</b>	<b>100,0</b>	<b>18 919,8</b>	<b>1 076,1</b>	<b>100,0</b>	<b>17 073,9</b>	<b>1 245,0</b>	<b>100,0</b>

	2014			2015			2016		
	Netto (t)	mil.Kč	podíl ( % )	Netto (t)	mil.Kč	podíl ( % )	Netto (t)	mil.Kč	podíl ( % )
Technical ceramics	3 670,6	487,1	33,1	3 838,0	642,0	39,7	3 758,6	655,9	38,2
Sanitary ware	13 981,6	982,5	66,9	14 548,2	973,1	60,3	15 251,0	1 060,2	61,8
<b>Totally</b>	<b>17 652,2</b>	<b>1 469,6</b>	<b>100,0</b>	<b>18 386,2</b>	<b>1 615,1</b>	<b>100,0</b>	<b>19 009,6</b>	<b>1 716,1</b>	<b>100,0</b>

#### Structure of import of technical ceramics and sanitary ware according to the assortment in 2016 (CZK)

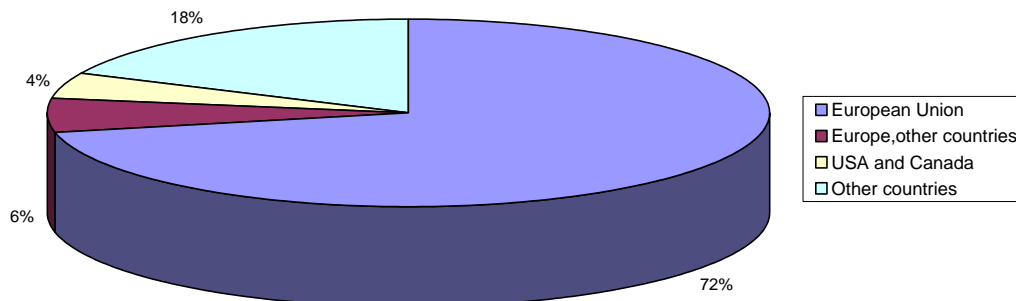


Sanitary ware shared on import in 2016 with 61.8 % and technical ceramics with 38.2 %.

**Import of technical ceramics and sanitary ware according to territories**

	2011			2012			2013		
	Netto ( t )	mil.Kč	podíl ( % )	Netto ( t )	mil.Kč	podíl ( % )	Netto ( t )	mil.Kč	podíl ( % )
European Union	16 844,1	905,4	77,9	13 248,2	805,8	74,9	11 663,7	877,6	70,5
Europe,other countries	1 141,4	51,4	4,4	1 179,4	63,9	5,9	1 179,7	62,4	5,0
USA and Canada	22,2	38,8	3,3	14,2	38,9	3,6	14,9	8,9	0,7
Other countries	4 974,5	167,0	14,4	4 478,0	167,5	15,6	4 215,6	296,1	23,8
<b>Totally</b>	<b>22 982,2</b>	<b>1 162,6</b>	<b>100,0</b>	<b>18 919,8</b>	<b>1 076,1</b>	<b>100,0</b>	<b>17 073,9</b>	<b>1 245,0</b>	<b>100,0</b>

	2014			2015			2016		
	Netto ( t )	mil.Kč	podíl ( % )	Netto ( t )	mil.Kč	podíl ( % )	Netto ( t )	mil.Kč	podíl ( % )
European Union	11 517,8	1 029,7	70,1	12 247,1	1 202,1	74,4	12 318,0	1 228,5	71,6
Europe,other countries	1 759,3	116,4	7,9	1 616,1	76,5	4,7	1 547,9	102,6	6,0
USA and Canada	5,5	80,2	5,5	5,9	75,7	4,7	7,8	74,6	4,3
Other countries	4 369,7	243,2	16,5	4 517,0	260,9	16,2	5 136,0	310,3	18,1
<b>Totally</b>	<b>17 652,3</b>	<b>1 469,5</b>	<b>100,0</b>	<b>18 386,1</b>	<b>1 615,2</b>	<b>100,0</b>	<b>19 009,7</b>	<b>1 716,0</b>	<b>100,0</b>

**Structure of import of technical ceramics and sanitary ware according to territories in 2016 (CZK)**

In 2016 the import from the European Union countries shared on technical ceramics import with 71.6 %. The greatest importer was Germany. As far as sanitary ware the share of import from the European Union countries was 60.5 %. The greatest importers were Poland, Austria and Germany. From the Other countries the share on total import of sanitary ware of which was 29.5 %, the greatest importers of this assortment were China and Turkey.

**[www.askpcr.cz](http://www.askpcr.cz)**  
**[www.skloakeramika.cz](http://www.skloakeramika.cz)**

**© 2017 ASSOCIATION OF THE GLASS AND CERAMIC INDUSTRY OF THE CZECH REP.**  
**[Sámkova 1, 101 00 Praha 10 Česká republika](#)**

**Tel.: +420 271 745 888 E-mail: [info@askpcr.cz](mailto:info@askpcr.cz)**

**The Annual Report 2016 is available also in English. Both versions you can find on:**  
**[www.askpcr.cz/en](http://www.askpcr.cz/en)**

**Photos published in the Annual Report were given by companies:**

**[AGC Flat Glas Czech a.s.](#)**  
**[Crystal BOHEMIA a.s.](#)**  
**[Crystalex CZ s.r.o.](#)**  
**[Český porcelán a.s.](#)**  
**[LAUFEN CZ, s.r.o.](#)**  
**[Moser a.s.](#)**  
**[VETROPACK MORAVIA GLASS a.s.](#)**