



STRATEGIC BUSINESS PLAN ISO/TC 52

EXECUTIVE SUMMARY

The scope of ISO/TC 52 is standardization in the field of light gauge metal containers with a nominal material thickness up to or equal to 0.49 mm. Industrial activity in this field occupies a large market share in metal packaging at international level. This type of packaging is extremely varied in shapes and sizes. By application it could be assigned to 2 main sectors, food industry and chemical industry. The published International Standards have segmented light gauge metal containers into open-top cans, general use containers and aerosol cans. They are marketed in the form of diverse representative products:

- 1) Open-top cans: beverage cans, canned food;
- 2) General use containers: paint buckets, chemical barrels, food containers;
- 3) Aerosol cans: cosmetics, household aerosols, food aerosols.

International standardization first of all concerned itself with inventorying the can formats associated with a given use sector, with defining the geometrical characteristics of the containers as well as the measurement methods. In the past two decades, great changes have taken place in technology innovation and global market. Apart from open-top cans, aerosol cans and general use containers, which have available International Standards, lids and special composites, shall be also taken into consideration. The standardization activities for light gauge metal containers could be reclassified as follows:

- 1) Terms and definitions;
- 2) Classification and specifications;
- 3) Analysis and test methods;
- 4) Management and control of process;
- 5) Safety performance evaluation;
- 6) Environmental protection and sustainable development.

Based on the considerations above, ISO/TC 52 proposes the following objectives and strategic directions for its work programme:

- 1) Check the need of from P members and O members through the 5 years systematic review on published International Standards. Communicate with essential stakeholders to track the trends in national, regional and global market, technology and trade;
- 2) Amend and revise deliverables according to the current needs of the market. Replace deliverables which are not applicable at present or to be withdrawn;
- 3) Develop deliverables which are of emergent demand due to market and technical changes. If possible, product standard on lids and test method of quality and performance shall be regarded as priority;
- 4) Furthermore, the fact that some ISO/TC 52 work is the base for some CEN work, this could lead to an evolution of the ISO/TC 52 standards in the future.

1. INTRODUCTION

1.1 *ISO technical committees and business planning*

The extension of formal business planning to ISO Technical Committees (ISO/TCs) is an important measure which forms part of a major review of business. The aim is to align the ISO work programme with expressed business environment needs and trends and to allow ISO/TCs to prioritize among different projects, to identify the benefits expected from the availability of International Standards, and to ensure adequate resources for projects throughout their development.

1.2 International standardization and the role of ISO

The foremost aim of international standardization is to facilitate the exchange of goods and services through the elimination of technical barriers to trade.

Three bodies are responsible for the planning, development and adoption of International Standards: [ISO](#) (International Organization for Standardization) is responsible for all sectors excluding Electrotechnical, which is the responsibility of [IEC](#) (International Electrotechnical Committee), and most of the Telecommunications Technologies, which are largely the responsibility of [ITU](#) (International Telecommunication Union).

ISO is a legal association, the members of which are the National Standards Bodies (NSBs) of some 164 countries (organizations representing social and economic interests at the international level), supported by a Central Secretariat based in Geneva, Switzerland.

The principal deliverable of ISO is the [International Standard](#).

An International Standard embodies the essential principles of global openness and transparency, consensus and technical coherence. These are safeguarded through its development in an ISO Technical Committee (ISO/TC), representative of all interested parties, supported by a public comment phase (the ISO Technical Enquiry). ISO and its [Technical Committees](#) are also able to offer the ISO Technical Specification (ISO/TS), the ISO Public Available Specification (ISO/PAS) and the ISO Technical Report (ISO/TR) as solutions to market needs. These ISO products represent lower levels of consensus and have therefore not the same status as an International Standard.

ISO offers also the International Workshop Agreement (IWA) as a deliverable which aims to bridge the gap between the activities of consortia and the formal process of standardization represented by ISO and its national members. An important distinction is that the IWA is developed by ISO workshops and fora, comprising only participants with direct interest, and so it is not accorded the status of an International Standard.

2. BUSINESS ENVIRONMENT OF THE ISO/TC

2.1 Description of the Business Environment

The following political, economic, technical, regulatory, legal and social dynamics describe the business environment of the industry sector, products, materials, disciplines or practices related to the scope of this ISO/TC, and they may significantly influence how the relevant standards development processes are conducted and the content of the resulting standards:

Material and technology

With the advantages of light-proof, rigidity and stability and stackability, metal packaging is quite suitable for foodstuff and chemical goods in their storage and transport. More than 90% metal cans are for food and beverage products. However, competition from other packaging materials, especially for plastic and glass, forces the metal cans to balance attractive design, nice performance while rational cost and price. As a result, metal cans are constantly changing overtime to meet new requirements from fillers and consumers and a need to take

advantage of opportunities offered by new raw materials and improved manufacturing technologies.

- 1) Thickness: aluminum and steel are the commonly used material. To bring down cost, weight and make it easier to recycle, aluminum shows better performance than steel and aluminum cans have held over three-fourth of beverage cans in 2015. Technology and process are still making breakthrough to reduce the thickness of both aluminum cans and steel cans, yet keep them rigid at the same time;
- 2) Structure: 3-piece cans and 2-piece cans are the most common types of metal cans. 2 piece cans are abundantly used and it shows a trend to replace 3-piece cans. However, the choice of structure type depends on various factors, the filler, pressure, device and process shall be taken into full consideration for can manufacturers. On the other hand, there is combined application in materials. Besides glass container body matching metal lids and metal body matching plastic caps, plastic is using as part of metal can body to allow the content visible;
- 3) Shapes: the market has been dominated by regular can shapes. Can manufacturers are making effort to generate new types of irregular shapes to add novelty to metal cans. It may ask for higher requirement of devices and processes;
- 4) Caps, closures and ends: to make metal cans convenient, various types of caps, closures and ends have been designed for market needs, including easy open ends, crown caps, twist-off caps, screw caps, peel-off ends, etc. It has become an import sector in the scope of ISO/TC52 and they are produced by specific suppliers;
- 5) Laminating: to reduce migration and make it better environmental friendly and easier for after-use treatment, the traditional organic coating is facing challenge from laminating.
- 6) Ink and printing: color scheme is one of the key strategies to attract consumers. Innovative process such as temperature sensitive ink appeared in beverage cans add changeable element to design, making products competitive and attractive.
- 7) Cost: international competition contributed to orienting the standardization work towards a rationalization of the market, therefore, concretely, towards a decrease in the number of formats. From the economic standpoint, any change in format for a manufacturer automatically brings about very high investment costs at production chain level; it is for this reason that the choice of a format, or any modification in format, must become integrated into an industrial strategy. The standardization programme for the last few years has taken into account these economic elements. However, standards should not be an obstacle to adequate changes of new metal packaging types and systems.

Stakeholders

Many stakeholders in the industrial chain are involved are the following are some of them:

- 1) Consumers: companies are engaging in greatly to attract consumers with products, especially food products. Beverage cans possess a stable market position. However, canned food is less attractive to consumers. The possible reasons may lay in concerns on freshness, food antiseptic, and nutrition and so on;
- 2) Large manufacturers: some large can manufacturers have become multinational enterprises in metal packaging industry. They provide thousands of employee positions and contribute to both domestic and international trade significantly. They have formed and held the idea of sustainability and they participate actively in technology and product innovation;
- 3) Small and medium-size enterprises: in some countries the industry is quite dispersed and there exists surplus production which makes waste of resources. Standardization will hopefully promote resource and technology optimization;
- 4) Inspection bodies: both empty cans and end products are imported and exported at a large number in the world, national and third inspection bodies are in charge of testing characteristics and quality of cans and fillers;
- 5) Industrial associations and federations: many countries have their own associations and federations special for metal packaging or metal cans, they provide useful information and data for the industry. The examples are US Can Manufactures Institute and Aluminum Association, Brazilian Aluminum Association, Metal Packaging Europe, European Aluminium, European Aerosol Federation, Japan Cannery Association, China Packaging Federation Metal Container Association, etc.

Recycling and pollution

Packaging of consumer products has rapidly grown in all developed economies as a consequence of higher buying power and self service distribution. In parallel packaging of industrial products has also increased. Therefore packaging waste represents a growing share of household waste. In comparison with paper and cardboard, plastic, glass and wood, metal takes up a low proportion at around 10% in packaging waste, due to high recycling rate and short recovery cycle. However, manufacture process including welding, flushing and baking require high energy and resource consumption. In addition, coating and printing bring difficulty in treatment of recycling. These processes impact greatly on environment and have become a concern for local and national authorities.

Laws and regulations

Packaging plays a vital social and economic function in its delivery of an endless range of products which are subject to various legislative requirements related to the quality, safety and hygiene of packaged products as for example:

- 1) Regulations concerning packaging in contact with foodstuffs;
- 2) Requirements for the transport of dangerous goods;
- 3) Requirements concerning excessive packaging on packaging size and cost;
- 4) Requirements for the environmental aspects of packaging.

Internationally measures dealing with the environmental aspects of packaging are at an early stage. Countries and regions have developed own laws regulations to control excessive packaging, reduce packaging waste and promote packaging recycling. The sectors of ISO/TC 52 need to follow the rules which have been issued world-wide. Some of the laws and regulations are as follows:

China: Law on the prevention and control of environment pollution caused by solid waste. GB (China national standard) 23350 Requirements of restricting excessive package—Foods and cosmetics.

EU: Directive 94/62/EC on packaging and packaging waste.

Japan: Law of container and packaging recycling.

USA: U.S. Code Title 42-the public health and welfare, Chapter 82-solid waste disposal.

2.2 Quantitative Indicators of the Business Environment

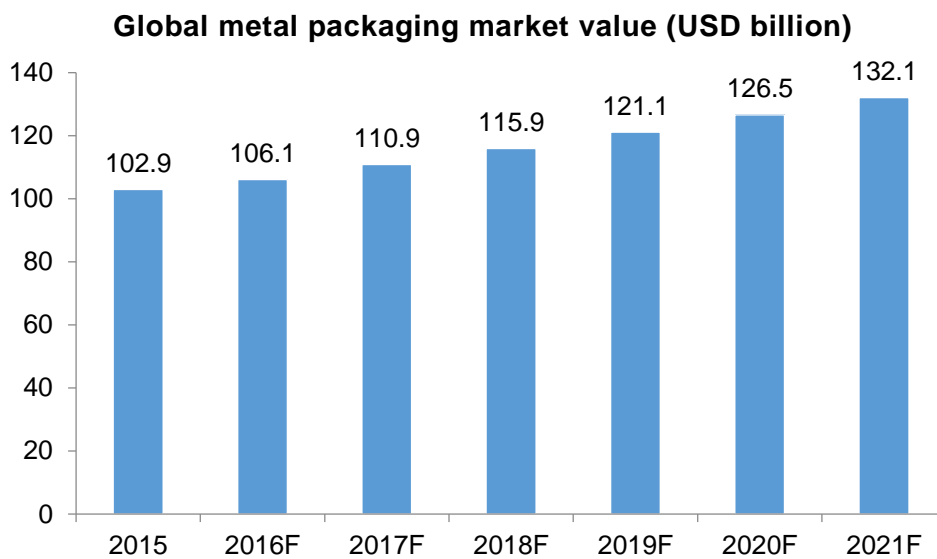
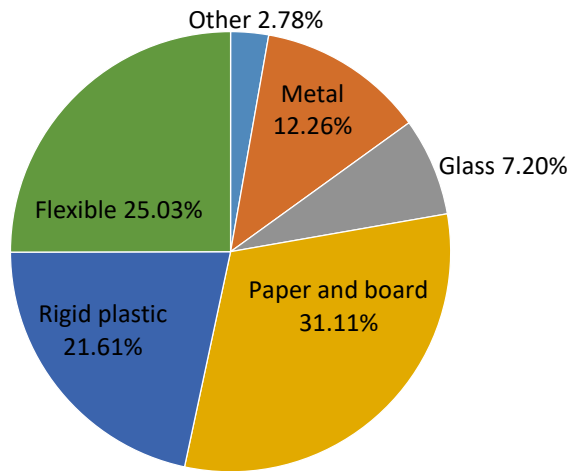
The following list of quantitative indicators describes the business environment in order to provide adequate information to support actions of the ISO/TC:

Global packaging market

Light gauge metal containers represent a great proportion in metal packaging of more than 50%. Being component of marketed products, it is difficult to isolate their market revenue. Only some general figures about world-wide packaging market could be quoted.

Metal packaging has been holding between 10% and 20% of global packaging market since 2008. In 2015 the market value of global packaging was estimated at USD 839 billion and metal packaging took up 12.26% at USD 102.9 billion.

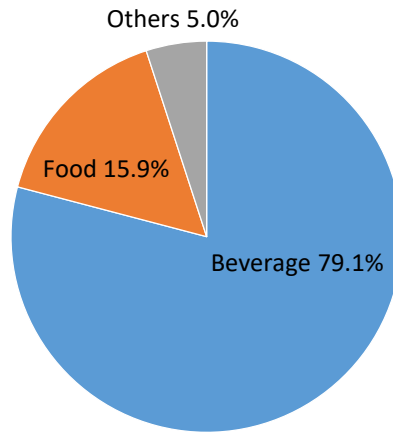
Global packaging market share of materials in value 2015



Metal cans

Metal cans take the majority in light gauge metal containers and more than 90% are used for food and beverage. In 2012 volume share of food cans was 15.9% while beverage cans was 79.1% and this proportion has not changed a lot. The annual production of metal cans has been over 350 billion units since 2013. In 2013 the production of food and beverage cans was 392.99 billion units and market worth was over USD 40 billion. It is estimated to reach 467.50 billion units and USD 49.20 billion by 2019.

Global metal cans market volume share by product 2012



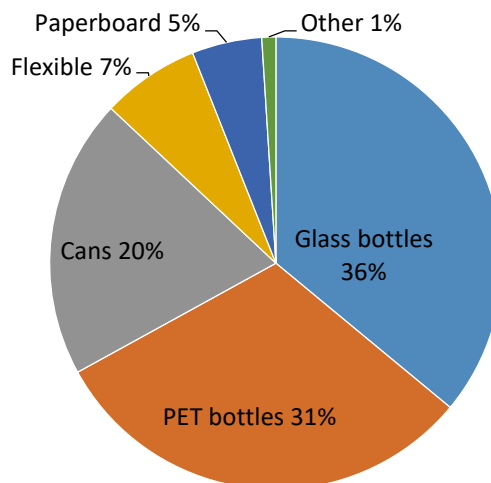
Beverage cans

Beverage cans not only occupy the largest proportion in metal cans, but also hold a significant part in beverage packaging. The market share of global beverage packaging has increased from 10% in 2010 to more than 20% in 2015, and the market value was estimated at USD 39.19 billion in 2015.

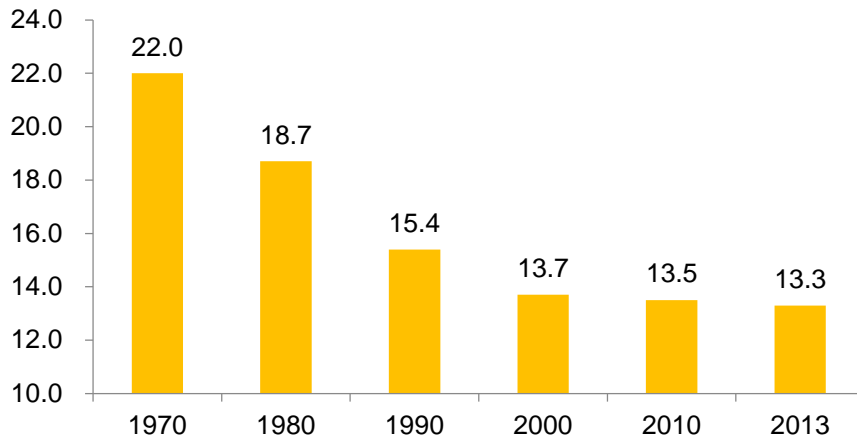
As for raw material, beverage cans are made from aluminium and steel, in 2015 nearly 80% were aluminum cans. The average weight of 12-ounce aluminum can and end has been reduced by 40% from 1970 to 2013 and in 2015 the weight of the average aluminum can reached 12.97 grams.

As for recycling rate, aluminum cans show an average higher figure than steel cans. The recycling rate of aluminum cans was more than 90% in Brazil and China, and over 70% in Europe since 2013. However, the data in 2015 shows the recycling rate of steel cans was 78% in Europe and 70% in USA. It remains an industrial issue to promote the circulation of steel.

Global beverage packaging market share by material 2015



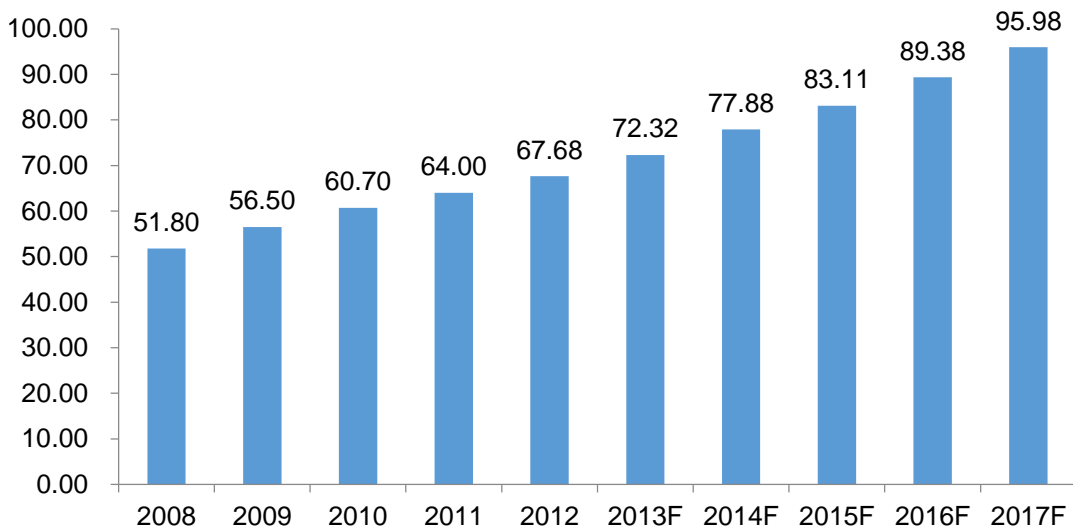
Average weight 12-ounce aluminium can and end (U.S.) (grams)



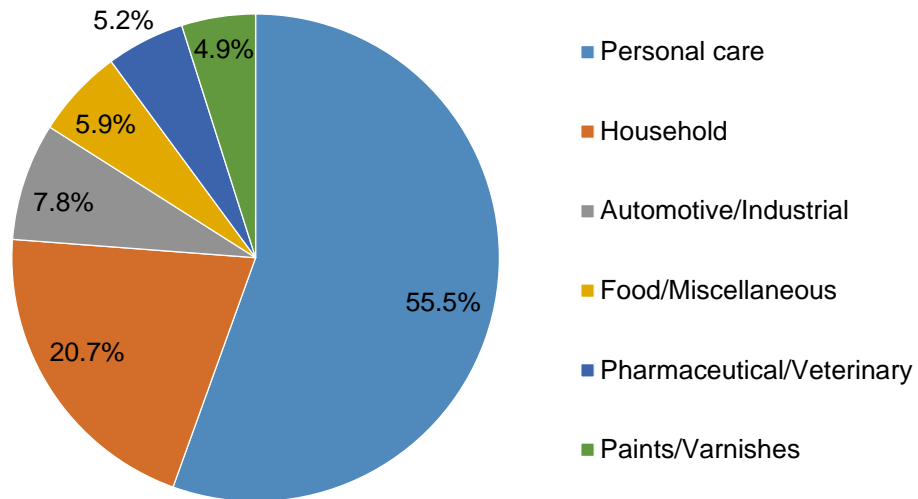
Aerosol cans

Aerosol can production has exceeded 10 billion units since 2006. In 2016 more than 15 billion units were produced and the market value was near USD 90 billion, with approximate revenue of USD 3 billion. Due to data in 2016, the two main sectors of aerosol cans share by personal care product (55.5%) and household products (20.7%).

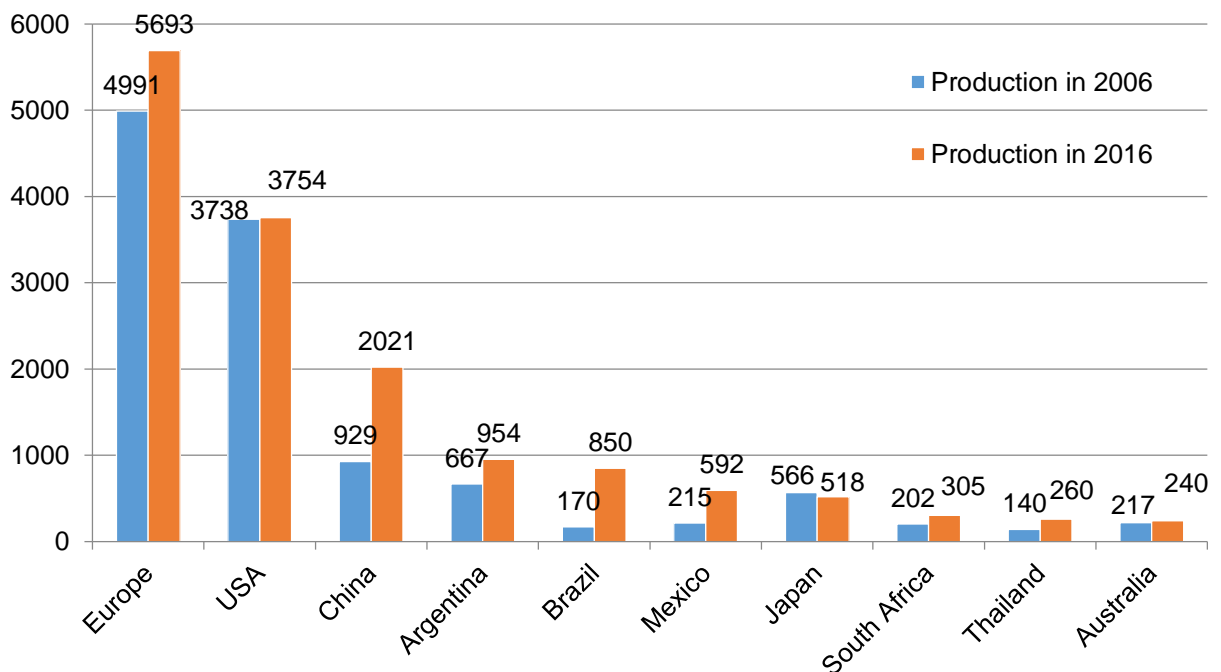
Global aerosol can market size (USD billion)



Aerosol production by segment 2016



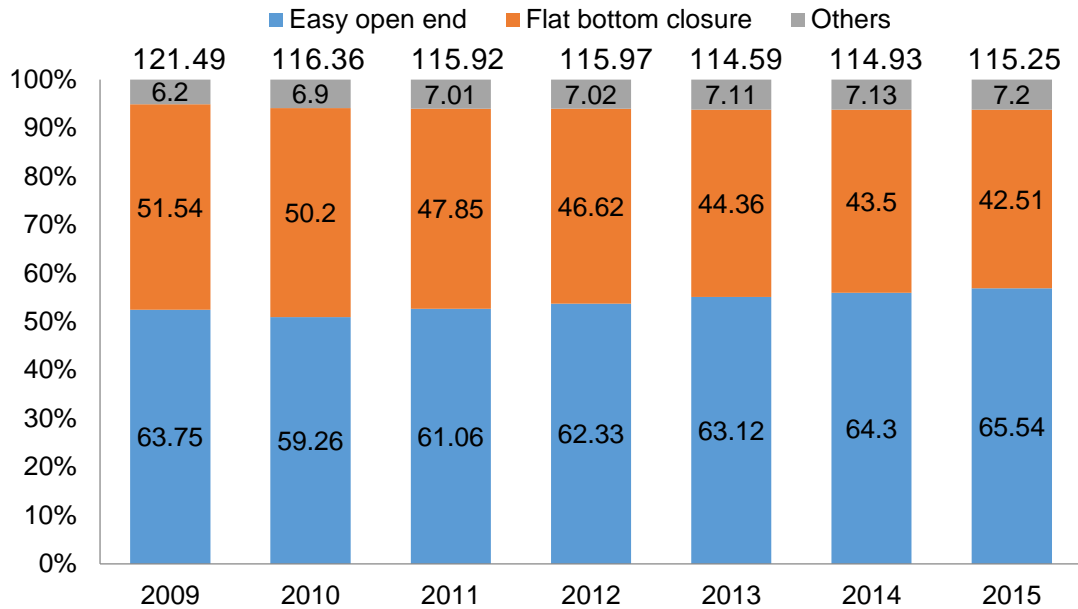
Aerosol can production by region (million units)



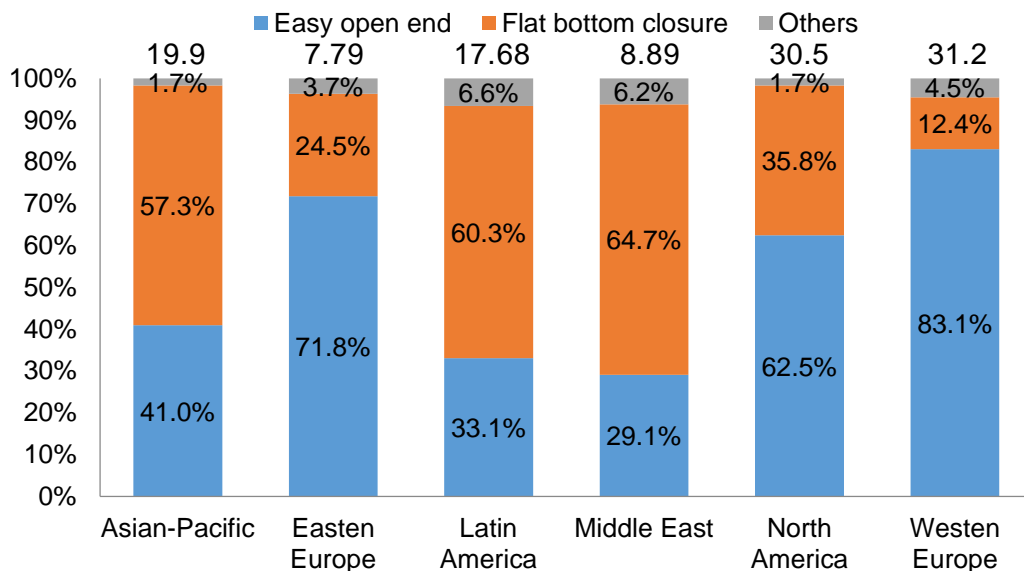
Metal caps, closures and ends

As food and beverage cans lead the development of metal cans, closure has become an import sector in the scope of ISO/TC52. To make metal cans convenient, various types of caps, closures and ends have been designed for market needs, including easy open ends, twist-off caps, crown caps and peel-off ends. Among them, easy open ends take up the largest amount in application. The annual consumption of easy open ends is over 100 billion pieces. For aluminium easy open ends, the annual production of is over 400 billion pieces and it has formed the most close quality, process and devices in the world.

Global end consumption for food & beverage cans (billion pieces)



Global end consumption for food & beverage cans by region 2015 (billion pieces)



3. BENEFITS EXPECTED FROM THE WORK OF THE ISO/TC

The published 8 International Standards have categorized 3 main products: open-top cans, aerosol cans and general use light gauge metal containers, which are world-wide recognized categories. ISO 90-1, ISO 90-2 and ISO 90-3 have been adopted by CEN as EN ISO 90-1, EN ISO 90-2 and EN ISO 90-3. The latest systemic reviews show that besides member bodies from Europe, China, United Kingdom and South Africa also adopt or use most International Standards developed by ISO/TC52.

The priority of work programme is to revise the 10 deliverables and develop International Standards beyond the existing definition, classification, determination method of dimension and capacity, turning into other aspects to catch up technical innovation in the industry.

4. REPRESENTATION AND PARTICIPATION IN THE ISO/TC

4.1 Membership

Countries/ISO member bodies that are P and O members of ISO/TC52

4.2 Analysis of the participation

At present ISO/TC 52 is consisted of 8 P-members and 27 O-members. The majority of P-members are from Europe. New project will be conducted to make ISO members in and outside the Europe willing to come back as P members to this committee.

Liaisons of the committee are ISO/TC 122 Packaging, ISO/TC 63 Glass containers. Category A liaison includes European Council of the Paint, Printing Ink and Artists' Colours Industry (CEPE), European Commission (EC) and European Aerosol Federation (FEA). Category B liaison are Food and Agriculture Organization of the United Nations (FAO) and World Customs Organization (WCO). Among them FEA has provided plenty of quick and valuable comments towards systematic reviews and committee internal ballots towards aerosol cans.

5. OBJECTIVES OF THE ISO/TC AND STRATEGIES FOR THEIR ACHIEVEMENT

5.1 Defined objectives of the ISO/TC

The available 8 International Standards and 2 Technical Reports of ISO/TC 52 focus on classification, dimension and capacity. The standard system needs to be re-constructed. Revision or replacement of the 10 deliverables of shall be achieved by 2022-12-31.

5.2 Identified strategies to achieve the ISO/TC's defined objectives

In 2012 SC 4 Open top containers and SC 5 General use containers were disbanded, and in 2017 SC6 Aerosol containers was also disbanded. At present there is no SC or WG within ISO/TC 52. Secretariat suggests establishing WGs basing on the following fields:

- 1) Basic standards: standards of terminology, definition and classification shall be revised or developed to catch up the newly appeared container types. To ensure consensus vocabulary used in international trade and standardization activity;
- 2) Product standards: products cover not only the existing open top cans, general use cans and aerosol cans, but also lids (metal container use and glass container use) and basic composites;
- 3) Methodology standards: work on analysis and test methods to match product quality evaluation, including characteristics and metal corrosion;
- 4) Management standards: work on key production process, to ensure safety and stability of both containers and fillers (especially for foodstuffs). On the other hand, it shall also help to bring up recycling rate of metal waste.

6. FACTORS AFFECTING COMPLETION AND IMPLEMENTATION OF THE ISO/TC WORK PROGRAMME

Standard system

Light gauge metal containers link sectors such as food, chemical, metal and machinery together. There are overlaps among the sectors and it is difficult to establish a widely recognized standard system;

Experts

The conduction of ISO/TC 52 work programme requires experts with multi-disciplinary knowledge to communicate comprehensively and effectively. It is hard for those experts to make time for standardization activities and meetings. Alternatively, certain cutting-edge technology is not well-developed in some countries and there is vacancy of experts;

Fund

Determination and inspection of can characteristics have mostly turned into specialized devices based. Standard developing bodies are lack of fund or there is no procurement plan for the devices to conduct the pre-normative research. Well-equipped companies are hopefully to be encouraged to participate in international standardization.

7. STRUCTURE, CURRENT PROJECTS AND PUBLICATIONS OF THE ISO/TC

Information on ISO online

The link below is to the TC's page on ISO's website:

[**ISO/TC 52 on ISO Online**](#)

Click on the tabs and links on this page to find the following information:

- About (Secretariat, Secretary, Chair, Date of creation, Scope, etc.)
- Contact details
- Structure (Subcommittees and working groups)
- Liaisons
- Meetings
- Tools
- Work programme (published standards and standards under development)

Reference information

[**Glossary of terms and abbreviations used in ISO/TC Business Plans**](#)

[**General information on the principles of ISO's technical work**](#)