



STRATEGIC BUSINESS PLAN – ISO/TC 47: CHEMISTRY

Executive summary

ISO/TC 47 is in charge of “standardization in the field of the chemical industry in general, particularly the basic chemical products, the use of which is current in widely other industries, and which have not been covered by any of the other technical committees of ISO”, such as ISO/TC35: Paints and varnishes, ISO/TC 45: Rubber and rubber products, ISO/TC 61: Plastics, ISO/TC 91: Surface active agents, ISO/TC 134: Fertilizers, soil conditioners and beneficial substances and so on.

Basic chemicals support a vast supply chain by below four levels. It is also described that the business of chemistry consists of hundreds of sub-segments in chemical industry.

- 1/ production of chemicals;
- 2/ Industries manufacturing intermediate products;
- 3/ Industries manufacturing consumer products and other final goods; and
- 4/ Wholesale, retail and service industries based on chemistry-derived products.

In this sense, chemistry is the foundation of manufacturing. The working fields of ISO/TC 47 are related to many of other technical committees of ISO.

Chemistry plays an essential role in driving SDGs and particularly in circular economy. The number of chemicals in active use has rapidly grown in recent decades, bringing various benefits and solutions that support important sustainability goals, including advancing public health protection, ensuring food security, providing clean water and sanitation and combating climate change by producing countless industrial and consumer goods. In 2022, world chemicals sales totalled US\$ 5,722 billion* (Cefic “2023 Facts And Figures of The European Chemical Industry”, <https://cefic.org/a-pillar-of-the-european-economy/facts-and-figures-of-the-european-chemical-industry/>). The largest share of sales derives from China (44%), followed by the EU (14%) and the US (11%) (Cefic). Sales are projected to almost double from 2017 to 2030. Projected growth will be highest in Asia. High growth rates are also expected in Africa and the Middle East (UN environment programme “Global Chemicals Outlook 2”, <https://www.unep.org/topics/chemicals-and-pollution-action/chemicals-management/global-chemicals-outlook>).

* The world chemicals sales in 2002 was US\$ 1732 billion (previous BP of ISO/TC 47)

* The world GDP in 2022 is US\$ 101,002 billion (World Bank “World Development Indicators database 1 July 2023”, https://databankfiles.worldbank.org/public/ddpext_download/GDP.pdf)

Chemicals have been used and produced in other industries and in various ways that lead to the minimization of significant adverse effects on human health and environment. The reason is all chemicals has two aspects: benefit and risk. In globalized economy and under the chemical industry’s complex value chain, international standards provide common framework, common understanding and common methods for quality assurance and enhance communication not only between purchasers and suppliers, but also among all stakeholders.

The main objectives of ISO/TC 47 are to achieve the sound management of chemicals and used-chemicals throughout their life cycle by developing and maintaining international standards. The priorities in the work of the ISO/TC 47 are;

- 1/ The existing standards on test/ analytical methods for basic chemicals in ISO/TC 47 are old. They are expected to update the methods based on state-of-the-art knowledge and technology and from the result of systematic review of these standards.

New standards on test/ analytical methods and specification for basic chemicals, which are for sustainability-enabling new products and new market, such as electric vehicle, renewable energy related equipment/ devices and for sustainable production—such as basic chemicals produced by chemical recycling.

These test/ analytical methods for basic chemicals are needed for their quality assurance, or the management of their impact on EH&S (environment, health and safety) and for fair trade from the view point of WTO/TBT agreement, especially to developing countries and emerging countries.

2/ To provide the guiding principles and framework on the sound management of chemicals and used-chemicals throughout their life cycle is another key priority in ISO/TC 47 along with global chemicals policy. In contributing to resources circulation and supporting transitions to circular economy, chemistry can bring innovative solutions. ISO/TC 47 aims to develop and disseminate new solutions by developing standards, which help establishing basic knowledge and promoting mutual understanding among all stakeholders.

3/ Regarding Climate Change issues, accounting and verification of GHG emission of chemical products throughout whole value chain are expected as the possible consideration for new work items in ISO/TC 47.

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 47 Chemistry

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:

Chemicals are heavily depended on national or regional laws and regulations in order to protect the environment and ensure their safety. Up until now, national or regional government has relied on control (based on scientific knowledge) to regulate specific chemicals that threaten irreversible damage to biological and environmental systems. Recently, there has been a call for sound management of chemicals (added “waste” at the 5th UN environment Assembly in 2022) internationally with more comprehensive, proactive and voluntary management rather than government mandate and controls.

Sound management of chemicals was well recognized in Chapter 19 of Agenda 21 a quarter century ago. Given the rapidly increasing levels of chemicals in production, the continuous introduction of new substances to the market and rapid expansion of chemicals market globally, it has made great efforts to achieve “the sound management of chemicals and waste” by policy-makers, academia and industry. Below is the historical description of regulatory framework, which heavily influence on business of chemicals and standardization work on chemicals.

The United Nations Environment Programme (UNEP) was created in 1972. As the first United Nations programme focused solely on environmental issues, Chemicals Management has been discussed, based on Chapter 19, “Environmentally sound management of toxic chemicals, including prevention of illegal international traffic in toxic and dangerous products,” of Agenda 21 in United Nations Sustainable Development, adopted in the UNEP, Rio de Janeiro, Brazil in 1992, (see “Background,” Conference: Environment and sustainable development, United Nations website: <https://www.un.org/en/conferences/environment>).

According to Chapter 19 (paragraph 27) of Agenda 21, globally harmonized system of classification and labelling of chemicals (GHS) has been published. The most recent edition is the GHS (Rev. 10) published in 2023 (see “Globally Harmonized System of Classification and Labelling of Chemicals (GHS Rev. 10, 2023),” UNECE: United Nations Economic Commission for Europe website: <https://unece.org/transport/dangerous-goods/ghs-rev10-2023>). Following the 2-year cycle of work of the GHS Sub-Committee of Experts, a new revised edition of the GHS may be expected to be published in 2025 (see “About the GHS,” UNECE website: <https://unece.org/about-ghs>).

In the UNEP, the United Nations Summit on Sustainable Development was held at the United Nations Headquarters in New York in September, 2015. At the Summit more than 150 world leaders formally approved an ambitious new agenda for sustainable development. The new plan, “Transforming Our World: The 2030 Agenda for Sustainable Development by 2030,” included a declaration, 17 sustainable development goals (SDGs) and 169 targets (see “United Nations Summit on Sustainable Development, 25-27 September 2015, New York,” United Nations website: <https://www.un.org/en/conferences/environment/newyork2015>).

The Strategic Approach to International Chemicals Management (SAICM) is a global multi-sectoral and multi-stakeholder policy framework, whose secretariat is hosted by UNEP. It offers a forum to discuss and address the many challenges related to the adoption and implementation of national policies to safely manage chemicals (see “The Strategic Approach to International Chemicals Management (SAICM)”, UN environment programme website: <https://www.unep.org/resources/factsheet/strategic-approach-international-chemicals-management-saicm>). SAICM’s overall objective is the achievement of the sound management of chemicals throughout their life cycle so that by 2020, chemicals are produced and used in ways that minimize significant adverse impact on the environment and human health (see “Overview,” Strategic Approach to International Chemicals Management, UN environment programme website: <https://www.saicm.org/About/Overview/tabid/5522/language/en-US/Default.aspx>). SAICM was adopted in the First International Conference on Chemical Management (ICCM1) in 2006. Then, ICCM2, ICCM3, ICCM4 and ICCM5 were held in, respectively, 2009, 2012, 2015 and 2023 (see “International Conference on Chemicals Management,” Strategic Approach to International Chemicals Management, UN environment programme website: <https://www.saicm.org/About/ICCM/tabid/5521/language/en-US/Default.aspx>). Because SAICM mandate expired in 2020, the new framework, “Global Framework on Chemicals - For a Planet Free of Harm from Chemicals and Waste, so-called “GFC” was adopted in ICCM5, 2023 (see “ICCM5,” Global Framework on Chemicals, UN environment programme website: <https://www.unep.org/news-and-stories/press-release/global-framework-agreed-bonn-sets-targets-address-harm-chemicals-and>).

Regarding climate change measures, in the UNEP, Rio de Janeiro, Brazil in 1992 stated above, the United Nations Framework Convention on Climate Change (UNFCCC) was opened for signature (see “Background,” Conference - Environment and sustainable development, United Nations website: <https://www.un.org/en/conferences/environment>), and entered into force in 1994 (see “Process and meeting,” United Nations Climate Change website: <https://unfccc.int/process-and-meetings/what-is-the-united-nations-framework-convention-on-climate-change>). To tackle to the climate crisis, increasing frequent and severe droughts, heatwaves and rainfall year by year, the Paris Agreement, of which overarching goal is to hold “the increase in the global average temperature to well below 2°C above pre-industrial levels” and pursue efforts “to limit the temperature increase to 1.5°C above pre-industrial levels,” was adopted by 196 Parties at the UN Climate Change Conference (COP21) in Paris, France, on December 12, 2015, three months later after UNEP, New York, 2015, and entered into force on November 4, 2016. Now, number of parties have pledged to net-zero emissions of greenhouse gas (GHG) by 2050 or soon after and GHG emissions reduction in 2030, as the Nationally Determined Contributions (NDCs) according to the Paris Agreement (see “Nationally Determined Contributions Registry,” United Nations Climate Change website: <https://unfccc.int/NDCREG>).

Climate action is one of high priorities in ISO, ISO approved “the London Declaration, in September 2021” (<https://www.iso.org/ClimateAction/LondonDeclaration.html>) and developed “the London Declaration Action Plan in 2021”. In the Action Plan, it is recommended all ISO Technical Committees “to faster the active consideration of climate science and associated transitions in the development of all new and revised International Standards and publications”. Furthermore, Key recommendation #02 by ISO/TMB mentions “From the analysis of the

correlations between Sectors and Impact of standards, the sectors that need particular attention to boost the positive effects of standards towards climate action are those with a smaller number of relevant standards under certain high-emitting sectors, such as Ores and metals, Food and Agriculture, Chemicals.”

Worldwide CO₂ emissions from all sectors (Power, Building, Transport, Industry and Other) account for 33.9Gt-CO₂ in 2020, while it from Industry (Steel, Cement, Chemicals and Other) or Chemicals is, respectively 8.4, 1.3Gt-CO₂ (25%, 3.8% of the total CO₂), based on “Net Zero by 2050” International Energy Agency (IEA), 2021 (see “Net Zero by 2050, A Roadmap for the Global Energy Sector,” IEA website: <https://www.iea.org/reports/net-zero-by-2050>). In 2022, CO₂ emissions from primary chemical (ethylene, propylene, benzene toluene, mixed xylenes, ammonia and methanol) production are around 935Mt (ca. 3% of the total CO₂) (see “Chemicals,” IEA website: <https://www.iea.org/energy-system/industry/chemicals>). Therefore, it is expected to dampen rising demand for primary chemicals and energy consumption for their production by increasing plastics recycling, more efficient fertilizer use and implementation of electrolytic hydrogen, CCUS and direct electrification (see “Net Zero Roadmap: A Global Pathway to Keep the 1.5 °C Goal in Reach 2023 Update, IEA website: <https://www.iea.org/reports/net-zero-roadmap-a-global-pathway-to-keep-the-15-0c-goal-in-reach>).

In the above context, the European Green Deal, showing the path to a climate-neutral Europe by 2050 was distributed in 2019 by European Commission in order to make EU the first climate-neutral continent in the world. And proposal of reducing GHG emissions by at least 55% by 2030 was set out in 2021 by European Commission and now are fully adopted as the Fit for 55 legislation (see “Delivering the European Green Deal,” European Commission website: https://commission.europa.eu/strategy-and-policy/priorities-2019-2024/european-green-deal/delivering-european-green-deal_en).

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:

The business of chemistry is worldwide. The first chemical plants were built in Europe during the industrial revolution. European chemical industry has been driving the world's chemical industry. The globalization of the business of chemistry took off in the 1960s. During the 1980s and 1990s, US and Western European companies grew at a particularly rapid pace and at the same time many standards on chemical products specifications and their test methods had been developed by European national member bodies. In 1990s many developing nations in Asia and in Latin America, developed globally competitive chemical industries. In 2000s the Middle East was rapidly emerging as a major player in global petrochemical markets. Thus, chemicals production has grown rapidly during the past half century. Currently chemicals constitute one of the largest manufacturing industries in the world. In 2022, world chemicals sales totaled US\$ 5,722billion *(Cefic). The sales are projected to almost double from 2017 to 2030. Projected growth will be highest in Asia. High growth rates are also expected in Africa and the Middle East (UN environment programme).

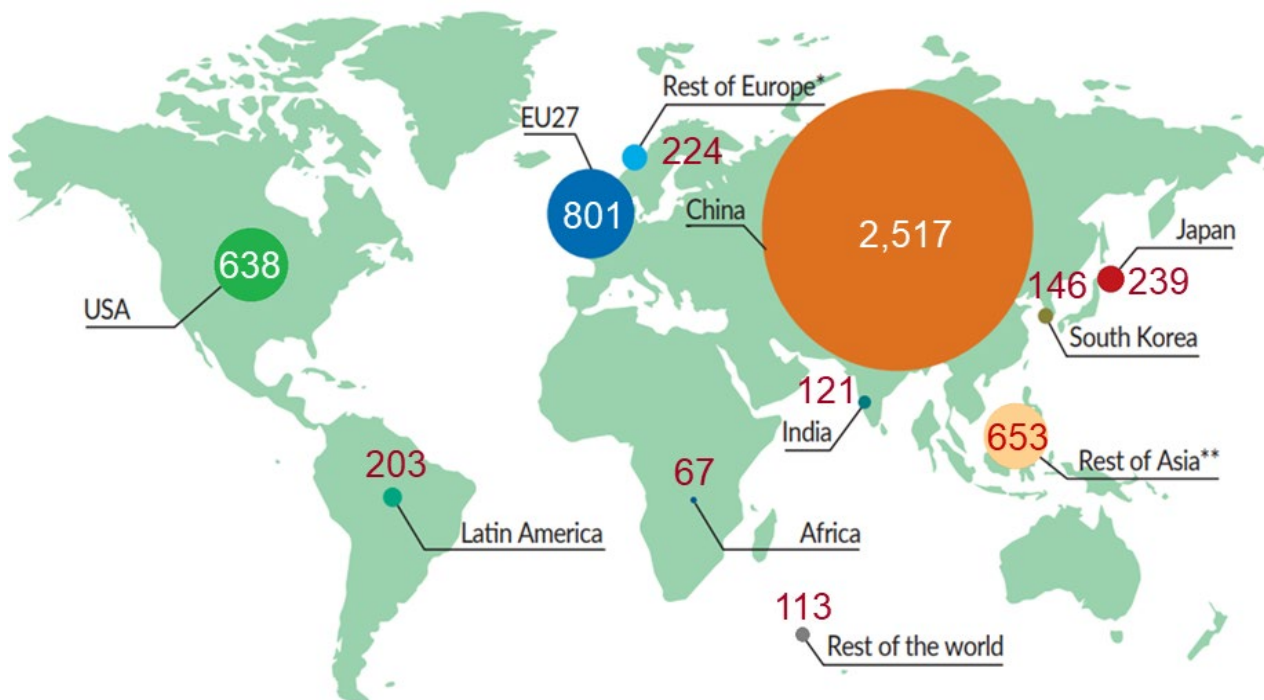
**The world chemicals sales in 2002 was US\$ 1,732 billion (previous BP of ISO/TC 47).*

**The world GDP in 2022 is US\$ 101,002 billion (World Bank)*

The largest share of sales derives from China (44%), followed by the EU (14%) and the US (11%) (Cefic). The production and use of chemicals are rapidly growing and shifting to the developing world, where safety regulations and standards on chemicals are lower or non-existent. In line with international “sound management of chemicals and waste” policy, international standards to

assure the quality of chemicals in global market and to protect environment from hazardous chemicals and to ensure chemicals safety are highly expected by developing nations.

World chemical sales in 2022, US\$5,722 billion

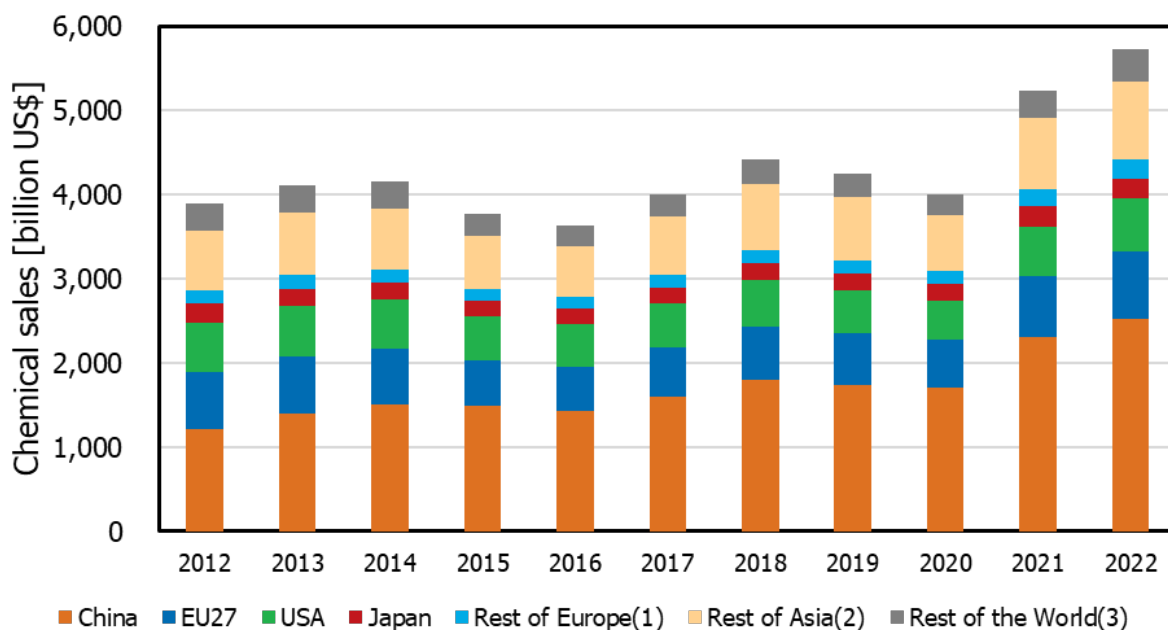


*Rest of Europe includes UK, Switzerland, Norway, Turkey, Russia and Ukraine.

**Rest of Asia excludes China, Japan, South Korea and India.

Figure 1 World chemical sales in 2022

World chemical sales trend

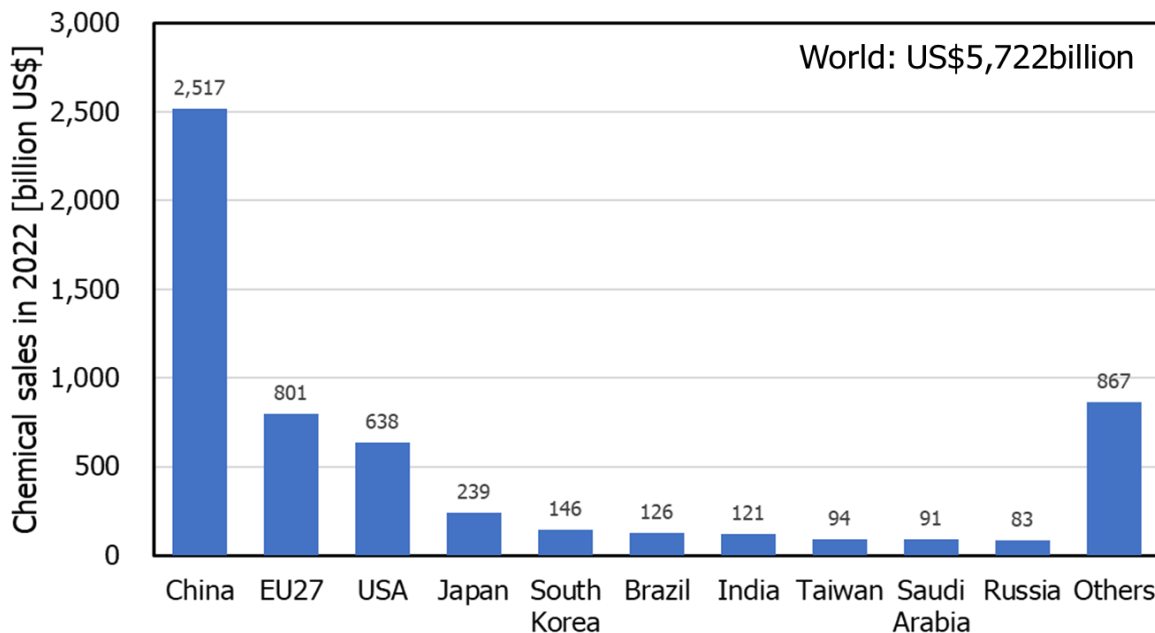


- (1) Rest of Europe includes UK, Switzerland, Norway, Turkey, Russia and Ukraine.
(2) Rest of Asia excludes China and Japan (including South Korea and India).
(3) Rest of the World includes Latin America and Africa.

Source: Cefic Chemdata international (<https://cefic.org/a-pillar-of-the-european-economy/facts-and-figures-of-the-european-chemical-industry/profile/>; February 1, 2024) and ECU/EUR exchange rates versus national currencies (https://ec.europa.eu/eurostat/databrowser/view/tec00033_custom_8847437/default/table?lang=en; December 5, 2023).

Figure 2 World chemical sales trend

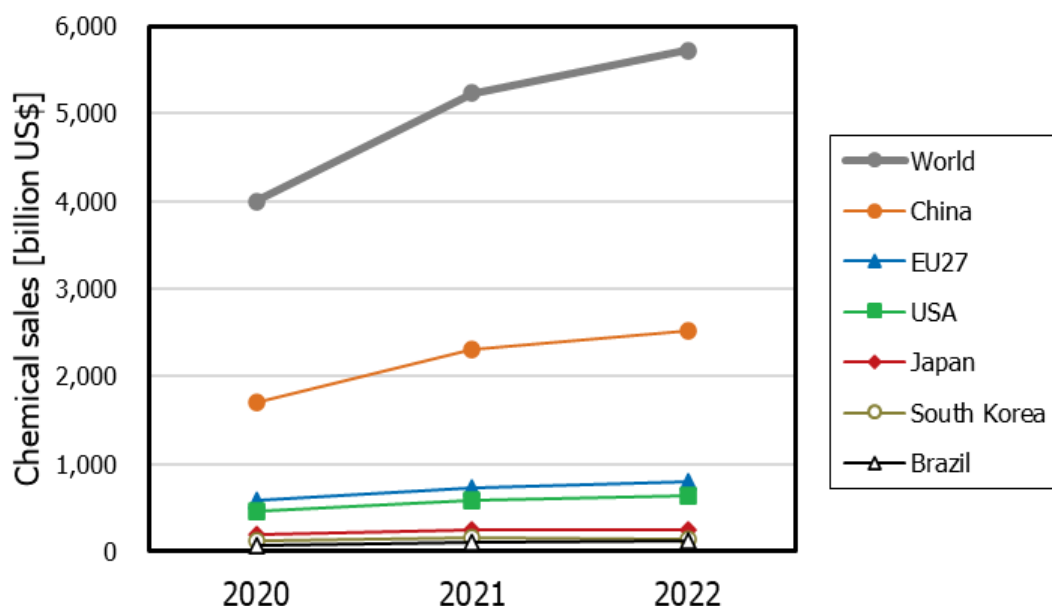
Top 10 chemical sales of nations/groups in 2022



Source: Calculated from cefic (December 5, 2023), DATA FILES (XLS) - 2023 CEFIC FACTS AND FIGURES (<https://cefic.org/a-pillar-of-the-european-economy/facts-and-figures-of-the-european-chemical-industry/profile/>; December 22, 2023) and Eurostat (June 6, 2023), ECU/EUR exchange rates versus national currencies (https://ec.europa.eu/eurostat/databrowser/view/tec00033_custom_8847437/default/table?lang=en; December 5, 2023).

Figure 3 Top 10 chemical sales of nations/groups in 2022

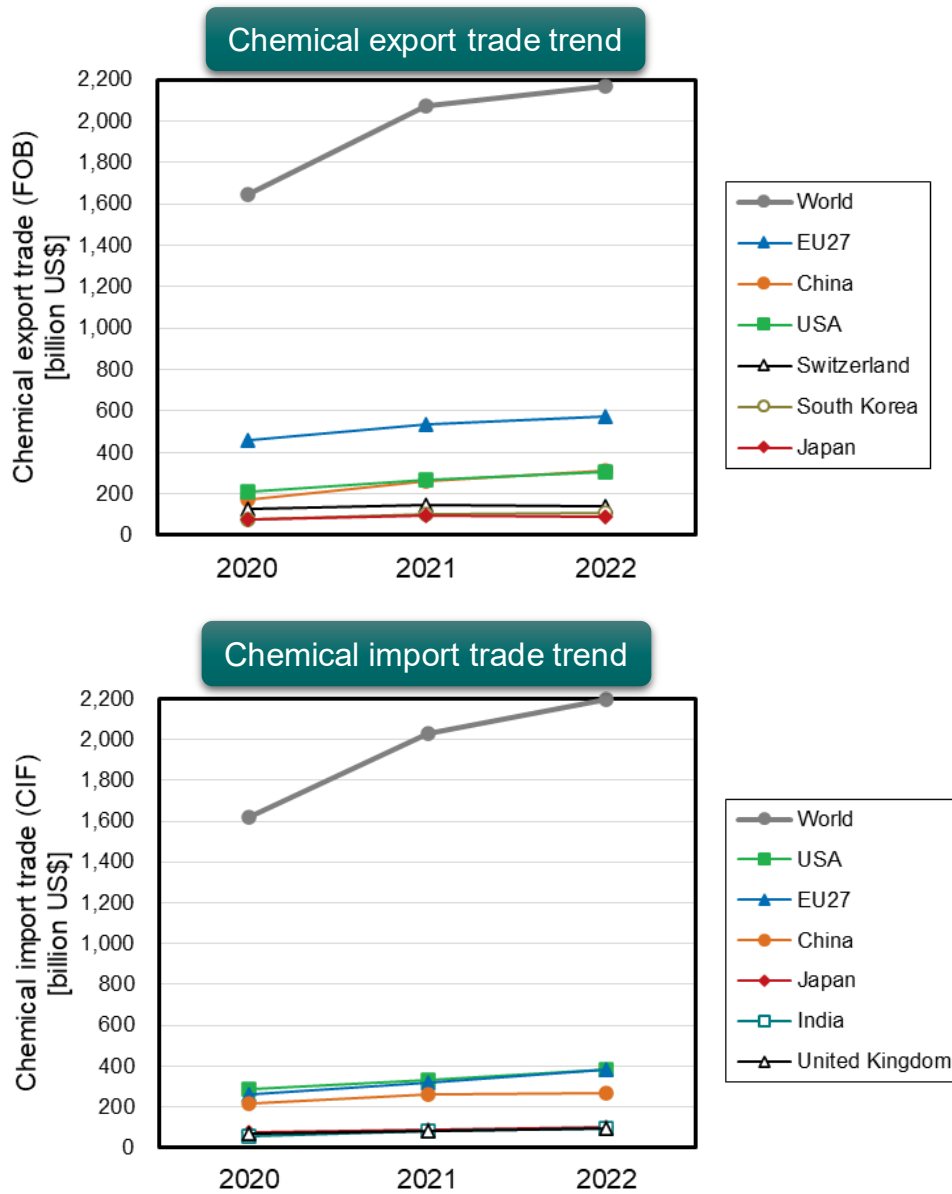
Chemical sales trend of top 6 nations/groups in 2022



Source: Calculated from cefic (December 5, 2023), DATA FILES (XLS) - 2023 CEFIC FACTS AND FIGURES (<https://cefic.org/a-pillar-of-the-european-economy/facts-and-figures-of-the-european-chemical-industry/profile/>; December 22, 2023) and Eurostat (June 6, 2023), ECU/EUR exchange rates versus national currencies (https://ec.europa.eu/eurostat/databrowser/view/tec00033_custom_8847437/default/table?lang=en; December 5, 2023).

Figure 4 Chemical sales trend of top 6 nations/groups in 2022

Chemical (5: SITC R. 4) export/import trade trend of top 6 nations/groups in 2022

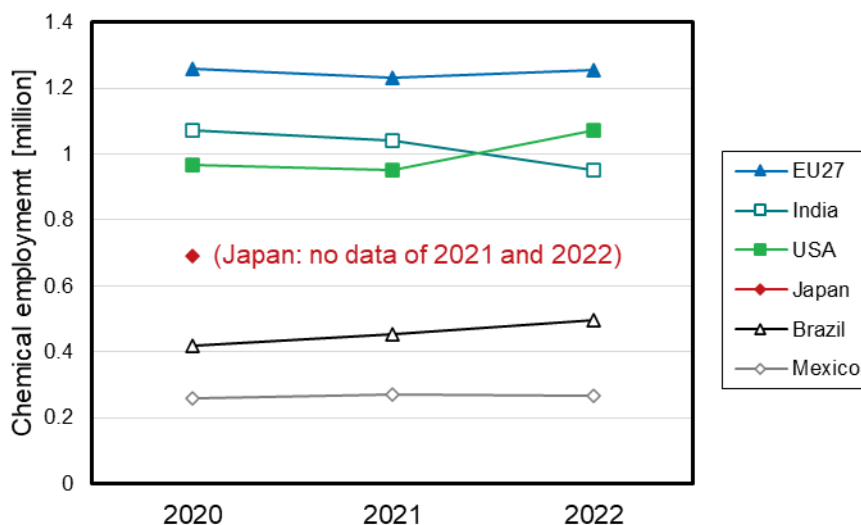


Chemical: 5 of SITC-Rev. 4 (Chemicals and related products, n.e.s.)

Source: Made from UN Comtrade Database (<https://comtradeplus.un.org/TradeFlow>; December 27, 2023).

Figure 5 Chemical (5: SITC R. 4) export/import trade trend of top 6 nations/groups in 2022

Chemical (20: ISIC R. 4) employment trend of top 6 nations/groups in 2020



Chemical: 20 of ISIC-Rev.4 (Manufacture of chemicals and chemical products)

Note: China, South Korea, Taiwan, Saudi Arabia and Russia of the top 10 nations/groups in 2022's chemical sales (Figure. 2) are excluded from the chemical employment of top 6 nations/groups because their ILOSTAT data are not available.

Source: Made from EMP_TEMP_SEX_EC2_NB_A.csv.gz, ILOSTAT (https://www.ilo.org/ilostat-files/WEB_bulk_download/html/bulk_indicator.html; December 6, 2023).

Figure 6 Chemical (20: ISIC R. 4) employment trend of top 6 nations/groups in 2020

3 Benefits expected from the work of the ISO/TC 47 Chemistry

Basic chemicals are produced in large volumes and have little to no product differentiation among manufacturers, who produce basic chemicals by various kinds of process. Basic chemicals are defined by their molecules structure basically. Even basic chemicals are produced from several different feedstocks, such as coal, oil, natural gas and recovered resources through chemical recycling.

At the same time, basic chemicals are used in a wide range of industries and applications; they can be used to make other chemicals and other manufactured goods or used to aid in processing. Several elements to assure the quality of the chemicals are necessary to their business and global trade. In order to assure the quality, test methods and accurate measurement procedures are essential. Especially globally well-established standardized methods and system helps ensuring the quality of chemical and providing mutual credibility of the result from the tests among wide range of business and global trade. For the chemical manufacturers, it is able to save the cost for testing and to avoid various requests from clients.

In addition, since the sound management of chemicals and used-chemicals throughout their life cycle is global issue, ISO/TC 47 developed ISO 11014: 2009 Safety data sheet (SDS) for chemical products – content and order of sections. A Safety Data Sheet (SDS) is an important tool to communicate comprehensive information about a chemical, including its properties; physical, health and environmental hazards; and any protective measures or safety precautions that should be followed when handling, storing or transporting the material. The targets for the information are not only for workers in chemical industry, but also for any persons managing the risks of chemical handling in the workplace along chemical value chain. The SDS is one of the

implementations of The Globally Harmonized System of Classification and Labelling of Chemicals (GHS), which is a non-binding global policy instrument in line with global sound management of chemicals and waste policy. At present, it is reported that the vast majority of countries have not yet implemented the system (UNEP, “Study on Industry involvement in the integrated approach to financing the sound management of chemicals and waste”, April 2022). The standardization of GHS implementation can contribute to and responded to social, safety, health or environmental issues on chemicals under the international policy and can assist developing nations’ capacity building on chemicals management and safety use of chemicals.

4 Representation and participation in the ISO/TC 47 Chemistry

4.1 Membership

There are 18 Participating members and 39 Observing members in ISO/TC 47 (as of 2024-06-20). Its Participating members are Algeria, Armenia, Austria, Belgium, China, Congo (The democratic Republic of the), Finland, Germany, India, Iran (Islamic Republic of), Italy, Japan, Korea (Republic of), Russian Federation, Saudi Arabia, Serbia, Sweden and Tunisia. Detail available at <https://www.iso.org/committee/48858.html?view=participation> (as of 2024-06-20)

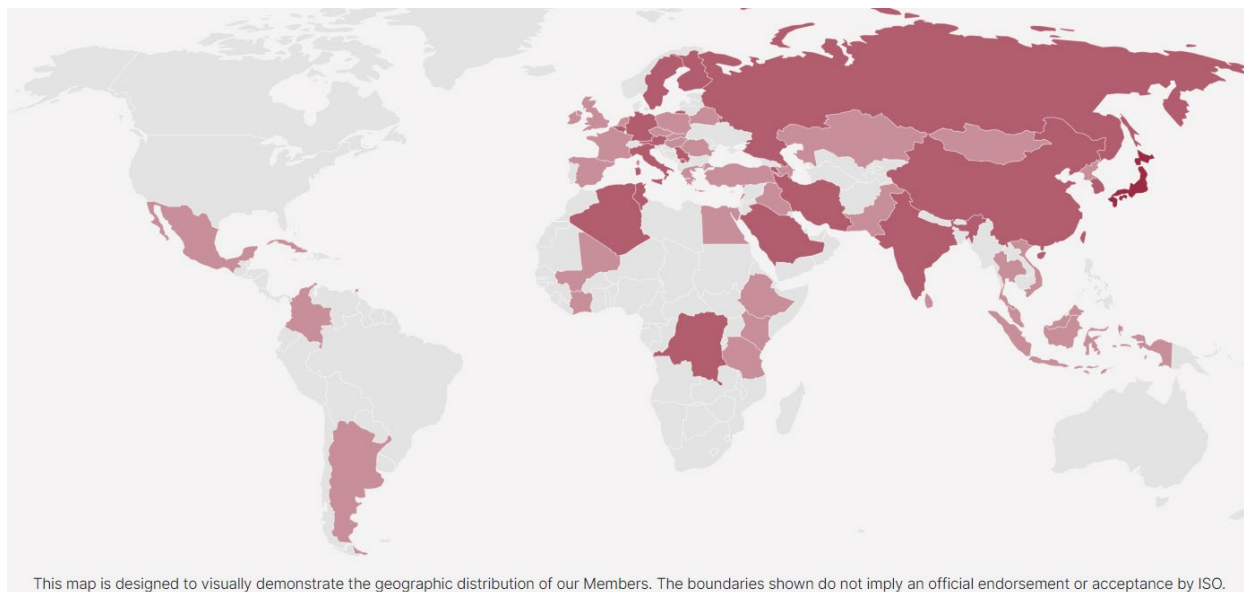


Figure 7 ISO/TC 47 members
(Dark red countries are P-members. Light red countries are O-members.)

4.2 Analysis of the participation

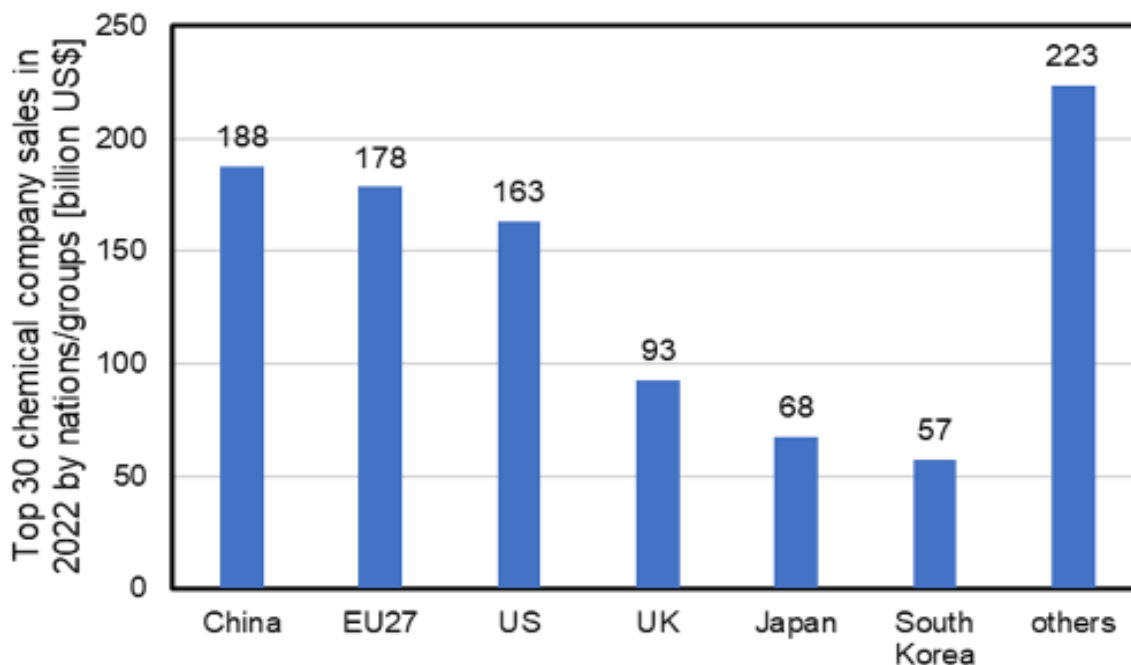
There is an imbalance in the representation from member bodies because the member bodies with major chemical industries are not P-members of ISO/TC 47 (see Figure 1 and Figure 7). On the other hand, a good number of developing countries, where chemical industry has recently grown significantly, are represented in P-members of ISO/TC47. In terms of results, the members participating in ISO/TC 47 are not reflected the current market situation and ISO/TC 47 has faced the lack of active members, who has enough knowledge and technologies around the sound management of chemicals and used-chemicals throughout their life cycle.

The lack of the participation among developed countries is assumed that they have already well-established and implemented basic frame of chemicals management and also have had enough information and reliability on chemicals in their products throughout their business. On the other hand, positive participation from developing countries and countries with economies in transition is assumed to come from their need of globally accepted and harmonized test methods, chemical products specifications, chemical management system and information/knowledge on chemicals in global market.

ISO/TC 47 has sought for opportunities of standardization relating to Chemical Environment, Health & Safety (EH&S) that are of great concern to a variety of stakeholders, it will mainly focus on the development of framework on chemicals management. However, the standardization on this area has not been implemented because of the lack of experts' participation.

There are several examples of voluntary initiatives to provide schemes relevant to management of chemicals and used-chemicals. "Responsible Care (<https://icca-chem.org/resources/icca-responsible-care-leadership-group-rclg-status-report/>)" in International Council of Chemical Associations (ICCA) is the global chemical industry's voluntary initiative to drive continuous improvement in safe chemicals management and achieve excellent performances in environment, health, safety and security by setting guiding principles and by providing performance indicators and implementation guidance. Working with ICCA on comprehensive management of chemicals and used-chemicals could be a great opportunity to achieve and realize ISO/TC 47 main objectives. The ICCA is comprised of the world's major chemical companies and the chemical industries of major countries.

Nationality of top 30 chemical company sales in 2022



Source: Made from "C&EN's Global Top 50 chemical firms for 2023," C&EN, vol. 101, 24 (2023/7/24) (<https://cen.acs.org/business/finance/CENs-Global-Top-50-2023/101/i24>).

Figure 8 Nationality of top 30 chemical company sales in 2022

5 Objectives of the ISO/TC 47 Chemistry and strategies for their achievement

5.1 Defined objectives of the ISO/TC

ISO/TC 47 is in charge of “standardization in the field of the chemical industry in general, particularly the basic chemical products, the use of which is current in widely other industries, and which have not been covered by any of the other technical committees of ISO”.

Currently ISO/TC47 has 106 standards mainly in the field of specification and test methods of basic chemicals. There are 5 standards under development (as of 2024-06-20).

According to “Sustainability in the Chemical Industry: Grand Challenges and Research Needs by National Academies, 2006”, it is mentions that the next 20-100 years (2025-2105) in which the use of fossil fuels will be phased out, and where the ability to carry out green chemistry and engineering (built on fundamental understanding of the full life cycle impacts and toxicology of chemicals), and having access to alternative renewable sources of fuels and feedstocks will be critical. The society is transfer from consumption economy to circular economy, where resources are used repeatedly. Considering the big circumstances change, ISO/TC 47/WG4 has newly established to develop a new standard on chemical recycling, which specifies general requirements for basic chemicals and raw materials of basic chemicals resulting from chemical recycling of organic materials. The standard helps chemical supply chains stakeholder having the common understanding of chemical recycled organic materials. This standard is expected to publish at the end of 2025.

ISO/TC47 has sought for opportunities of standardization relating to sustainability from a perspective of Chemical Environment, Health & Safety (EH&S) and of resource circulation.

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

The objectives of ISO/TC 47 are to achieve the sound management of chemicals and used-chemicals throughout their life cycle by developing and maintaining international standards.

The priorities in the work of the ISO/TC 47 are;

1/ The existing standards on test/ analytical methods for basic chemicals in ISO/TC 47 are old. They are expected to update the methods based on state-of-the-art knowledge and technology and from the result of systematic review of these standards.

New standards on test/ analytical methods and specification for basic chemicals, which are for sustainability-enabling new products and new market, such as electric vehicle, renewable energy related equipment/ devices and for sustainable production—such as basic chemicals produced by chemical recycling.

These test/ analytical methods for basic chemicals are needed for their quality assurance, or the management of their impact on EH&S (environment, health and safety) and for fair trade from the view point of WTO/TBT agreement, especially to developing countries and emerging countries.

2/ To provide the guiding principles and framework on the sound management of chemicals and used-chemicals throughout their life cycle is another key priority in ISO/TC 47 along with global chemicals policy. In contributing to resources circulation and supporting transitions to circular economy, chemistry can bring innovative solutions. ISO/TC 47 aims to develop and disseminate new solutions by developing standards, which help establishing basic knowledge and promoting mutual understanding among all stakeholders.

3/ Regarding Climate Change issues, accounting and verification of GHG emission of chemical products throughout whole value chain are expected as the possible consideration for new work items in ISO/TC 47.

6 Factors affecting completion and implementation of the ISO/TC work programme

ISO/TC 47 was created in 1947. There were more than 500 international standards at its peak (around 1970s and 1980s). Currently ISO/TC 47 has 106 standards (as of 2024-06-20). Most of the existing ISO/TC47 standards were old and obsolete ones for chemical industry in developed countries. However, basic chemicals are used in various ways by most of other industry sectors and support a vast supply chain of chemicals to produce consumer goods. In addition, the production and use of chemicals are rapidly growing and shifting to the developing world, where safety regulations and standards on chemicals management are lower or non-existent.

In order to make ISO/TC 47 more active by developing new standards and to update the existing old and obsolete standards, it is necessary to receive involvement from the member bodies in the nations, which have globally large sale chemical industry, shown in Figure 3: Top 10 chemical sales of nations/group in 2022 and in Figure 8: Nationality of top 30 chemical company sales in 2022. They have major chemical industries and have state-of-the-art knowledge and technologies to update the existing old standards and to start new projects on circular solutions under the sound management of chemicals and used-chemicals throughout their life cycle.

Most of all manufactured goods are relied on chemicals. Therefore, cooperation not only with other ISO TCs related to chemicals and across different sectors, which are chemical-intensive industry sectors (e.g. construction, agriculture, electronics), but also with other organizations categorized “liaison-category C” in ISO, which have voluntary global program/initiatives on management of chemicals and used-chemicals. The chemical industry’s “Responsible Care” programme is an example of voluntary self-regulation for going beyond regulatory compliance. The ICCA’s Responsible Care initiatives are expected to be contributed to cooperative work in ISO/TC 47.

The challenges to develop the standards on sound management of chemicals and used-chemicals throughout their life cycle are complex and no single ISO Technical committee, no single organization nor a country cannot solve them in isolation. Collaboration is crucial to complete and implement the ISO/TC 47 work programme toward a low carbon, circular economy and sustainability.

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 47 on ISO Online \(as of 2024-06-20\)](#)

Click on the above links on this page to find the following information:

- About (Secretariat, Committee Manager, 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](#)

This ISO/TC47 Strategic Business Plan (SBP) has been reviewed and developed by ISO/TC 47 Advisory Group 1 and also in consultation with all ISO/TC 47 members and its liaison groups for 6 weeks from 2024-05-06 to 2024-06-17.

This SBP was approved at the 15th ISO/TC 47 Plenary meeting in Tokyo, Japan on 2024-09-24.

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