



BUSINESS PLAN
ISO/TC 270
PLASTICS AND RUBBER MACHINES

EXECUTIVE SUMMARY

The worldwide use of plastics and rubber has increased as decades went by, thanks to the relevant applications of such materials and to their advantages compared to the traditional ones.

The development of plastics applications has gone parallel to the industrial development of the single countries; in fact the yearly per capita consumption of plastic materials amounts to 150 kilos in the United States and to 50 kilos in the People's Republic of China and to very few kilos in some developing countries.

While plastics and rubber application fields have technically improved, the number of companies, manufacturing processing machines, has increased too. Since the beginning of the 80's the manufacturing of such machines has occurred in few countries: France, Germany, Italy, Japan, Switzerland, UK and United States, whereas nowadays there are important players in Brazil, China, India etc. that have taken over the market shares both directly from the previous leading countries or thanks to joint-ventures.

As plastics and rubber processing is made mainly with semi-automatic machines and auxiliaries or also with manual operations and the cycle of some machinery is particularly risky, safety standards have been developed mainly in Europe but also in the United States, in Japan etc. in order to grant the highest level of protection for operators and third parties at workplaces.

The main purpose of ISO/TC 270 is to develop consistent and recognized standards worldwide so that the safety level for those who are using plastics and rubber machines is equal for everyone everywhere.

These standards are willing to clearly identify the specific hazards and the safety measures and aim at being an useful reference for designers, manufacturers, users, safety inspectors etc.

Besides aspects concerning work safety, ISO/TC 270 could also consider other aspects such as machine classification and measurement of energy consumption, creating different subcommittees as required.



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 140 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 270

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:

Under the economical point of view, the pressure on the international market of new competitors is increasing, whose safety requirements are not always in line, granting the minimum residual risk.

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The need is therefore arisen, to remove technical barriers in the global market and to align safety requirements worldwide.

Social aspects related to safety at workplaces are the priority, where very old or second-hand machines are still placed, mainly in small and medium enterprises, that maybe do not totally fulfill safety regulations. It is in fact a negative reality that cannot be solved by regulations as they only refer to new machines. In this context, the diffusion of safe machines can lead to a decreasing use of old and unsafe machinery.

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 European plastics and rubber machinery industry currently represents a total of around 4.000 companies, which together have an annual turnover of almost 20 billion euro and have more than 100,000 employees.

In the rest of the world machinery manufacturers are beyond thousands and this number is particularly increasing in some countries such as China, India, Brazil.

The European plastics converters industry, which uses machinery, represents over 50,000 companies predominantly medium-sized plastics processing operations within Europe, employing more than 1,6 million employees with a turnover amounting to more than 280 billion euro. Worldwide, obviously, converters are not less than a million, not taking into account family-run companies.

Concerning in particular the worldwide production and export, the tables below show a comparison based on the years 2006-2010 of the 5 main players of the plastics and rubber worldwide industry.

YEAR	Core machinery production (million euro)	SHARES IN TOTAL (%)				
		Germany	Japan	Italy	USA	CHINA
2006	19,983	24.4	8.7	12.2	9.1	13.5
2010	23,347	21.0	5.4	9.6	5.4	29.3

YEAR	Core machinery export (million euro)	SHARES IN TOTAL (%)				
		Germany	Italy	Japan	USA	CHINA
2006	14,341	25.0	10.7	12.9	7.0	5.8
2010	14,003	23.7	9.6	13.1	6.7	10.6

Source EUROMAP





3 BENEFITS EXPECTED FROM THE WORK OF THE ISO/TC 270

Considering that the scope of ISO/TC 270 is to elaborate standards aiming at globally harmonize terminology, principles and methodologies in the design and construction of machines used for the production and processing of plastics and rubber, the proposed international standards respond to the need of designers, manufacturers, users and importers of machines to have at disposal clear, technically updated and officially recognized documents also for trading with countries all over the world. Moreover, the existence of these standards can enhance the global implementation of technological and environmental innovation and improvement of safety requirements.

Outputs from the standardization efforts support technological development, societal acceptance and market expansion by:

- identifying gaps in knowledge;
- identifying needs for, and encouraging the manufacturing and use of safe plastic and rubber machines
- developing risk assessment for each plastic and rubber machine
- supporting regulation in the area of plastic and rubber machines
- supporting communication of accurate and quantifiable information on plastic and rubber machines

ISO/TC 270 intends to work with its liaisons, trying also to get the support of machines manufacturers' and machines users' associations, in order to ensure that stakeholders in specific application areas have the requisite standardization tools to support their introduction and use of plastic and rubber machines safety aspects to new applications and markets.

4 REPRESENTATION AND PARTICIPATION IN THE ISO/TC 270

4.1 Countries/ISO member's bodies that are P and O members of the ISO committee

Chair: appointed by Italy

Secretariat: Italy

The following table provides the regional distribution of these members (waiting for more enrollments)

Region	P member	O member
Asia-Pacific	China, Japan, Malaysia,	Republic of Korea, Thailand
Europe	Austria, France, Germany, Italy, Luxembourg, Switzerland, United Kingdom	Spain, Poland
Americas	USA, Brazil	Ecuador
Middle East	Armenia, Turkey	



4.2 Analysis of the participation

ISO/TC 270 encourages the active involvement of a broad cross-section of stakeholder technical experts in the development of its international standards and other deliverables. The experts that are expected to participate in the standards developing activities of ISO/TC 270 include representatives of plastic and rubber machines manufacturers and users, national standards bodies, government laboratories and independent research and testing laboratories.

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

5.1 Defined objectives of ISO/TC 270

ISO/TC 270 has a primary purpose to design standards within its agreed scope that are in accordance with the ISO directives. The standards should be market driven and based on sound science.

Objectives of standards and other deliverables dealing with plastic and rubber machines are to:

- Facilitate global trade of plastic and rubber machines
- Support improvement in quality, market oriented, safety, user and environmental protection during the relevant phases of the machine life cycle
- Promote design and construction of machines used for the production and processing of plastics and rubber in order to identify hazards, estimate and evaluate risks, define safety measures.

The work of the Technical Committee is mainly focused on the area of safety but consideration could be given to other aspects such as machine classification and measurement of energy consumption, creating different subcommittees as required.

While it will be sensitive to the different levels of technological sophistication among the P members, it strives to advance state-of-the-art of plastic and rubber machines standardization. Attention is paid to the needs of all segments of the value chain. Special attention is paid to those standards that extend the global use of plastic and rubber machines, support new applications for plastic and rubber machines, eliminating technical barriers to trade. As a matter of fact, market penetration and expansion of plastic and rubber machines into other industries besides automotive, electrical/electronic, building, packaging requires the availability of global standards.

ISO standards are systematically checked in order to keep the contents up to date. New standards are reviewed after 3 years and then periodically every 5 years. As a result of the systematic review, standards can be either confirmed, revised, or withdrawn.

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

ISO/TC 270 program of work with reference to safety aspects will start by developing a specific standard for injection moulding machines. This strategy is justified by the fact that the above mentioned machines are the most widespread in the processing industry.

To realize this strategy, ISO/TC 270 will create a specific Working Group.





Further working groups may be created to develop standards for other plastics and rubber machines, e.g:

- Blow moulding machines
- Calenders
- Compression presses
- Extruders
- Size reduction machines
- Tire-curing presses
- Thermoforming machines
- Two roll mills

In order to increase efficiency, ISO/TC 270 intends to plan annual meetings, supported by the industry in a member body country, convening in parallel the active WGs.

It is also specifically important that ISO/TC 270 standardization work is developed in close cooperation with CEN and CENELEC. ISO/TC 270 therefore intends to create liaisons with CEN and CENELEC TCs to share common interests and efforts are already underway to strengthen appropriate liaison activities. In particular, a strict cooperation liaison with CEN/TC 145 "*Plastics and rubber machines*" is crucial, in order to constantly monitor the European activity and keep an open dialogue between ISO and CEN level. Moreover, further liaisons opportunities with other CEN and CENELEC TCs are welcome in order to share common interests. In this context, it is advisable that ISO/TC 270 mainly develops its work under the Vienna Agreement in order to reach worldwide harmonization as far as possible.

This harmonization can take into account national standards, for example but not limited to ANSI, SAC, JISC, ABNT standards.

ISO Livelihood server is to be considered the tool for filling and saving/communicating and exchange of documents. It is also used to archive as well as prompt information on the status of standards under development. ISO/TC 270 is committed to the efficient use of state-of-the-art electronic communication tools.

A liaison with CEN/TC 145 "*Plastics and rubber machines*", ISO/TC 199 "*Safety of machinery*" and ISO/TC 39/SC 10 "*Machine tools – Safety*" can be useful, to give ISO/TC 270 the opportunity to endorse future needs.

In addition, ISO/TC 270 considers liaisons with several organizations of European and International plastics and rubber industry associations such as:

- CPCIF – China Petroleum and Chemical Industry Federation
- EuPC – European Plastics Converters Association
- EUROMAP – European Plastics and Rubber machinery manufacturers Association
- JSIM – The Japan Society of Industrial Machinery Manufacturers
- PMMDA – Polymer machinery Manufacturers & Distributors Association
- SPE - Society of Plastics Engineers
- SPI – Society of the Plastics Industry



6 FACTORS AFFECTING COMPLETION AND IMPLEMENTATION OF THE ISO/TC 270 WORK PROGRAMME

The market of plastics and rubber processing machinery is more and more global. In fact the manufacturing - that was once focused in Europe, United States and Japan - is now widespread in different countries such as China, India, Brazil.

As a matter of fact, multinational companies that have workshops all over the world are forced to design their machines with different safety standards according to the destination market, in line with the regional safety regulations (or standards if any) of those countries where these machines are manufactured and/or used.

ISO/TC 270 therefore activated contacts in order to involve Brazil and India. Brazil is at present "P" Member in ISO/TC 270 and appointed 2 experts in ISO/TC 270 WG 1 "Safety of injection moulding machines". Further efforts are underway to involve India, South Korea and other countries as well.

7 STRUCTURE, CURRENT PROJECTS AND PUBLICATIONS OF THE ISO/TC 270

The structure of ISO/TC 270 consists of a Working Group under ISO/TC 270

ISO/TC 270/WG 1

Title: "Safety of injection moulding machines"

Scope: to develop a standard on the safety requirements for injection moulding machines.