BUSINESS PLAN

ISO/TC 18
Zinc and zinc alloys

EXECUTIVE SUMMARY

This document gives background and statistical information related to the world wide zinc industry along with detailed information on the related ISO activities and standards published.

The market for zinc and zinc alloys is very diversified. Zinc and zinc alloys are used in many industries.

ISO/TC 18 was reactivated in 1997

Since its creation, the Secretariat of the main committee was held by Belgium (IBN) which also holds the secretariat of subcommittee ISO/TC 18 SC 1 “Methods of sampling and analysis of zinc and zinc alloys”

The secretariat of ISO/TC 18 SC 2 “Zinc alloy ingots intended for castings” is hold by France (AFNOR).

The secretariat of ISO/TC 18 SC 3 “Zinc ingots” is administered in the USA by ASTM for the American National Standards Institute (ANSI).

The secretariat of ISO/TC 18 SC 4 is held by the Republic of Korea (KATS) since its inception.

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

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:

The market for zinc and zinc alloys is very diversified and the major uses are the following :

- Corrosion protection of steel (galvanizing, zinc thermal spraying, elctroplating, zinc-rich paints) in fields of Building/construction, energy/power, street furniture, agriculture, automotive/transport
- Die casting and gravity casting in fields of automotive equipment, household appliances, fittings, toys, tools, etc.
- Brass (copper-zinc alloy), aluminium alloys, magnesium alloys in fields of Building/construction, fittings, automotive and electrical components, etc.
- Rolled zinc for Building/construction
- Batteries for Automotive/transport, computers, medical equipment, consumer products
- Zinc oxide for Tyres, all rubber goods, paint pigments, ceramic glazes, electrostatic copying paper
- Zinc compounds for Food industry, animal feed, fertilizers, pharmaceutical industry, cosmetics industry.

In addition zinc is completely recyclable without any loss of its physical or chemical properties.

About 30 % of the world’s zinc consumption is supplied by recycled zinc (World consumption of zinc has risen to 7,7 million metric tonnes in 1997).

Zinc is also used for purifying water (advanced water purification systems for potable and industrial process water and in wastewater treatment).

The interested parties in the standards of TC and subcommittees represent miners, recyclers, manufacturers, suppliers, consumer associations, consulting, public authorities, laboratory and test houses.

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 **Key Value** of Zinc to Society

Zinc is essential to a modern society. Zinc provides the most cost-effective and environmentally efficient method of protecting steel against corrosion. By prolonging the life of steel, zinc performs an invaluable service – it helps to save natural resources such as iron ore and energy and extends the life of steel goods and capital investments in steel, such as homes, bridges, port facilities, power lines and water distribution, telecommunications and transport.

Zinc's key uses are :

- anti-corrosion coatings on steel (galvanizing)
- precision components (die castings)
- construction material
- brass
- pharmaceuticals and cosmetics
- micronutrient for man, animals and plants

Zinc is also an essential element which is indispensable for human health and for all living organisms.

Economic Value of the Zinc Industry

Zinc and zinc-containing products contribute about USD 40 billion to the global economy each year. Given the wide range of industries that exploit the unique properties of zinc, it is not surprising that the metal is of significant economic importance.

- Zinc mining, smelting and refining contribute an estimated USD 18,5 billion to the world economy.
- Zinc ore concentrate, of which approximately 7,5 million tonnes is produced each year, has a market value of around USD 7,6 billion.
- The world market for refined zinc was worth over USD 8,8 billion in 1999.
- The world market for zinc used in galvanizing is worth about USD 3,5 billion annually and the continuous galvanizing industry has a turnover in excess of USD 50 billion. The total economic contribution of the general galvanizing industry to the global economy is around USD 7,5 billion a year.
- The market for the major uses of zinc oxide is estimated to be in the region of USD 1 billion a year.

Worldwide **Employment**

The zinc industry provides direct employment for over 210 000 people.

- The zinc mining industry employs an estimated 55 400 people (excluding China).
- The zinc refining and smelting industry employs an estimated 65 000 people.
- An estimated 25 000 people are employed in the continuous galvanizing industry.
- The general galvanizing industry directly employs in the region of 60 000 people. In North America alone there are about 250 general galvanizing plants employing some 14 000 people. In Europe there are some 650 general galvanizing plants which employ some 32 000 people.
- The zinc oxide industry employs an estimated 6 000 people.

Four **Key Facts** about Zinc

Natural

Zinc, like all metals, is a natural component of the earth's crust and an inherent part of our environment. Zinc is present not only in rock and soil, but also in air, water and the biosphere (plants, animals and humans). Zinc is constantly being transported by nature, a process called 'natural cycling'. Rain, snow, ice, sun and wind erode zinc-containing rocks and soil.

Wind and water carry minute amounts of zinc to lakes, rivers and the sea, where it collects as sediment or is transported further. Natural phenomena such as volcanic eruptions, forest fires, dust storms and sea spray all contribute to the continuous movement of zinc through nature.

Protective

Zinc's most remarkable quality is its natural capacity to protect. Zinc coatings protect steel against corrosion, extending the life of steel by up to five times. Thus car manufacturers can provide no-corrosion guarantees of 12 years or more and zinc helps to protect the value of a typical family investment. Zinc protects human health too – it is now known that zinc is essential for human health in general and the functioning of the human immune system in particular. Zinc-based creams and lotions are widely used to protect the skin against the harmful effects of the sun. Zinc is used in water purification systems and zinc supplements are added to soil to protect crop yields.

Sustainable

The key provision of sustainability is to fulfill present needs without compromising the ability of future generations to meet their needs too. Thus sustainability focuses on economic growth, environmental protection and social progress. Zinc makes a significant contribution to sustainable development. In its role as steel protector, zinc is an essential material for public and private infrastructure development, prolonging the useful life of steel goods and structures and reducing the cost of their maintenance. As a natural essential element, zinc is part of every ecosystem. Zinc is completely recyclable, providing a sustainable resource for future generations.

Zinc contributes to social progress too, by providing affordable shelter, promoting good health and contributing to the durability of the infrastructure and transport systems on which a modern society depends.

Environmentally Friendly

All life on earth has evolved, over hundreds of millions of years, in the presence of zinc. Zinc is used by nature for a host of biological processes. For this reason, zinc is referred to as an "essential element", meaning that it is essential for the health of living organisms. Plants, animals and humans all regulate their zinc intake from nature. The possibility that emissions of industrial activity during the last two hundred years might be leading to increases levels of zinc in the environment became an issue. Since the 1970s, however, progressive emission control at refineries and industrial installations have reduced these emissions considerably. At the same time, general pollution control has greatly reduced the acidity of the air in most industrialised countries, with the result that zinc coatings on steel exposed outdoors now last longer and longer. The amount of zinc in the environment today is close to natural background levels. In other words, man's activities are no longer disturbing the natural balance of zinc in the environment.

Facts about Zinc and **Human Health**

1) Zinc is essential for human health

2) Zinc is vital for many biological functions such as disease resistance, wound healing, digestion, reproduction, physical growth, diabetes control, taste and smell. More than 300 enzymes in the human body require zinc for proper functioning

3) The adult human body contains 2 – 3 grams of zinc and 2 kg/4,4 lb of total metals including zinc; more than half of the total is calcium, followed by sodium, magnesium and potassium.

4) The U.S. Recommended Daily Allowance (RDA) for zinc is 12 mg/day for women and 15 mg/day for men. Pregnant and lactating mothers need more, up to 19 mg/day.

5) According to the World Health Organization, pneumonia, diarrhoea, measles, malaria and malnutrition account for 70 % of all childhood deaths globally. Recent trials in various countries worldwide show that zinc supplementation can reduce the incidence and severity of diarrhoea and respiratory diseases. Risk of dietary zinc deficiency is very high for children in developing countries.

6) New studies based on the national food balance sheets of the UN's Food and Agriculture Organisation (FAO) suggests that nearly half the world's people, especially those in the poorer countries of South and Southeast Asia and sub-Saharan Africa, have insufficient zinc in their food supply.

7) Studies have shown that American adults typically receive only 8-10 mg/day zinc, less than the recommended amount, and 50 % of American children aged 2 to 10 were found to have zinc intakes below recommended levels.

8) The principal sources of dietary zinc are red meat, poultry, fish and seafood. Mean daily intake of zinc from drinking water is estimated to be less than 0.2 mg/day. In countries where staple diets are based on unrefined cereals and legumes and intakes of meat and fish are low, dietary strategies should be developed to improve the content and bioavailability of zinc.

9) The effects of zinc deficiency are well documented and may be severe, ranging from impaired neuropsychological functions, growth retardation and stunting, impaired reproduction, immune disorders, dermatitis, impaired wound healing, lethargy, loss of appetite, loss of hair. Most of these effects are treatable by adequate amounts of zinc.

10) Population groups especially at risk from zinc deficiency are pregnant and lactating mothers, children and adolescants, the elderly, people engaged in hard physical work, diabetics, alcoholics, smokers, patients with severe wounds

11) Zinc is commonly used to protect and heal: sunblock creams and lotions, sunburn treatment, baby creams to prevent diaper rash, treatment of acne, cold sores, dandruff, treatment of wounds, burns, surgical incisions, cosmetics. Zinc lozenges have been shown to reduce the duration of a common cold from 7,6 days to 4,4 days.

Source : WHO, IPCS, Boston University, AZA

Facts about Zinc and the **Environment**

Zinc is Natural

Zinc is part of nature and exists naturally in air, water and soil. Zinc is continuously being mobilised and transported in the environment, as a result of natural erosion processes, forest fires, aerosol formation above seas, volcanic eruptions and biological activity. Consequently, zinc is naturally present everywhere in the environment.

Natural background levels of zinc in the environment

Air (rural)	**0,01 – 0,2**	**µg/m^3**	**Coastal seas**	**0.5 –1**	**µg/l**
Soil	10 – 300	mg/kg	Lowland rivers	5 – 30	µg/l
Parent rocks	2 – 1500	mg/kg	Mountain rivers	<10	µg/l
Ore bodies	5 to more than 15	percent	Large lakes	0,09 – 0,3	µg/l
Open ocean	0,001 – 0,06	µg/l	Streams in mineralized areas	> 200	µg/l

*Source : Van Assche et al. 1996

Zinc is an Essential Element

All life on earth has evolved in the presence of zinc which is used by nature for specific biological processes (see Facts about Zinc and Human Health). Zinc levels are self-regulated by most organisms. Zinc is not biomagnified. It is the bioavailability of zinc, not total concentration levels, which has ecoogical significance. Zinc's bioavailability depends on the physical and chemical properties of the environment and biological processes, such as temperature, pH, water hardness, organism age and size and other factors. Zinc is a reactive metal which readily combines with other elements to form insoluble compounds that are not bioavailable.

All Living Organisms need Zinc

The adult human body contains 2-3 grams of zinc. Zinc is essential for good health (see Facts about Zinc and Human Health). The recommended daily intake of zinc is 12 mg/day for women, 15 mg/day for men and 7-11 mg/day for children, depending on age. Zinc deficiency has been reported in a wide range of agricultural plants and animals with severe effects in all stages of reproduction, growth and tissue proliferation. Of all the micronutrients required by plants, zinc is the most commonly deficient in soil (U.N. Food & Agriculture Organisation. 1990).

Zinc is Recyclable … and a Sustainable Resource

Zinc is endlessly recyclable without any loss of its physical or chemical properties. Already today, about 30 % of the world's zinc supply comes from recycled zinc and about 80 % of the zinc available for recycling is indeed recycled (see recycling Zinc). Due to the durability and long life-span of most zinc products, which in some cases last maintenance-free for over 100 years, much of the zinc produced in the past is still in use, constituting a valuable and sustainable resource for future generations.
Furthermore, global reserves of zinc ore, far from depleting, have in fact increased over the last 25 years (see Zinc ore reserves).

Using Zinc has Environmental Benefits

Saving energy: by prolonging the life and durability of steel, zinc saves vast amounts of energy that would otherwise be required to frequently replace corroded steel structures and manufactured goods. For example, if the steel sheet produced in Sweden were not zinc coated, we would waste an amount of energy that corresponds to the annual output of one power plant. Steel protected with zinc, however, is a uniquely durable material which makes a significant contribution to saving energy resources on a global scale, thereby helping to reduce global warming.

Saving forests: zinc-coated steel, which is 100 % recyclable, is increasingly used for industrial, commercial and residential construction. This means, for example, that a typical North American family home, traditionally built with timber, can now be built at competitive cost from six scrap automobiles, instead of one acre (0.4 hectares) of forest. This diminishes pressure on forest resources and the natural habitats that forests provide.

Purifying water: zinc is used in advanced water purification systems for potable and industrial process water and in wastewater treatment.

Improving air quality: zinc-air batteries are used to power zero-emission vehicles, thereby contributing to improved urban air quality.

Anthropogenic emissions are decreasing

The largest natural emission of zinc to water results from erosion. Natural inputs to air are mainly due to igneous emissions and forest fires. Anthropogenic (man-made) sources of zinc are from mining, zinc and metal production facilities, corrosion of galvanized structures, coal and fuel combustion, waste disposal and incineration, and use of zinc-containing fertilisers and agrochemicals. Many indicators – for example, zinc concentration in Greenland snow and ice, zinc levels in the Rhine river or zinc corrosion rates in Stockholm – combine to show that anthropogenic zinc emissions in industrialised countries have reduced substantially during the last 20 years, and continue to decline. Reasons for this reduction include effective control of industrial point source emissions and the general decrase in atmospheric SO_2 (a cause of acid rain), which has resulted in lower zinc corrosion rates and subsequently zinc coatings which last longer.

Recycling Zinc

1) Zinc is completely recyclable without any loss of its physical or chemical properties.
2) 80 % of the zinc available for recycling is currently recycled.
3) 30 % of the world's zinc supply – 2,9 million mt – comes from recycled zinc. The remaining 70 % originates from zinc ores.
4) Brass recycling alone recovers over 600 000 mt of zinc each year.
5) The supply of zinc-coated steel scrap is expected to increase by more than 50 % over the coming ten years.
6) Due to the long life span of most zinc products, which in some cases may last maintenance-free for over 100 years, much of the zinc produced in the past is still in use, constituting a valuable and sustainable resource of zinc for future generations.
7) Zinc is recycled

- from manufacturing and processing operations ("process scrap" or "new scrap") such as zinc sheet and galvanized steel offcuts and trimmings, galvanizers residues, die casting foundry returns, brass machining scrap, steel recycling.
- From discarded products ("post consumer waste" or "old scrap") such as automobiles, tyres, household appliances, electronics components, street furniture, galvanized parts from buildings, dismantled zinc roofs and guttering, etc.

Zinc **Production** and **Consumption**
Annual World Totals 1970 – 1999 (Thousand metric tonnes)

	Mine Production	**Metal Production**	**Metal Consumption**(1)
1970	5590	5234	5013
1971	5675	5110	5164
1972	5866	5516	5679
1973	6070	5826	6190
1974	6129	5994	5995
1975	6176	5483	5052
1976	6249	5811	5769
1977	6567	5989	5847
1978	6401	6038	6328
1979	6299	6456	6437
1980	6108	6243	6289
1981	6004	6287	6199
1982	6275	6056	6043
1983	6289	6384	6370
1984	6523	6678	6539
1985	6651	6870	6532
1986	6534	6831	6747
1987	6846	7035	6959
1988	6714	6856	6848
1989	6785	6787	6714
1990	6965	6691	6666
1991	7165	6854	6627
1992	7213	6953	6557
1993	6758	7184	6608
1994	6829	7126	6976
1995	6939	7241	7354
1996	7315	7428	7523
1997	7162	7733	7723
1998	7568	8017	7875
1999	7825	8199	8177

(1) Refined zinc – Source : ILZSG

3 BENEFITS EXPECTED FROM THE WORK OF THE ISO/TC

The main purpose of the ISO standards concerning zinc and zinc alloys is to defend the purity of the zinc by ensuring a limit content value to the toxic elements contained in zinc.
This permits to defend the market which is strongly attacked by the organisations defending the environment.
Another aim of these standards is to defend the anti-corrosion properties of zinc.
Along these lines, it was decided to reduce in ISO 752 “Zinc ingots” the contents in cadmium for the alloys used for galvanisation and for roofings and to limit in ISO 301 “Zinc alloy ingots intended for casting” the number of alloys to 6 performant alloys and to avoid the corrosion by reducing the lead contents.
These decisions permit to insure the position of zinc and zinc alloys in the context of the sustainable development and the protection of the environment.

4 REPRESENTATION AND PARTICIPATION IN THE ISO/TC

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

P-members	O-members
Belgium	Argentina
Canada	Australia
China	Austria
Germany	Bulgaria
Finland	Chile
France	Greece
Italy	Croatia
Japan	Hungary
Kazakhstan	India
Korea (Democr. People’s Rep.)	Indonesia
Korea (Republic of)	Iran, Islamic Republic of
Poland	Kenya
United Kingdom	Mexico
USA	Pakistan
	Russian Federation
	Serbia and Montenegro
	Singapore
	South Africa
	Spain
	Sweden
	Tunesia
	Turkey

Countries represented in **SC 1** “Methods of sampling and analysis of zinc and zinc alloys”

P-members	O-members
Belgium Canada France Finland Germany Japan Korea (Republic of) Poland United Kingdom USA	Bulgaria Spain

Countries represented in **SC 2** “Zinc alloys for castings”

P-members	O-members
Belgium Canada France Germany Japan Korea (Republic of) United Kingdom USA	Bulgaria Finland Poland Spain

Countries represented in **SC 3** “Primary zinc”

P-members	O-members
Belgium Canada Finland France Germany Japan Korea (Republic of) United Kingdom USA	Poland Spain

Countries represented in SC 4 “Zinc and zinc alloys wrought products”

P-members	O-members
Belgium Canada Germany Japan Korea (Republic of) USA	Finland France United Kingdom

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

5.1 Defined objectives of the ISO/TC

The objectives of the TC are :

- to draft standards at the request of industry and to adjust its work program to meet market needs
- to follow the work done by other committees regarding the zinc and zinc aspects and also the CEN/TC 209 work.

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

1) ISO/TC 18 is updating the existing international standards concerning the composition of zinc and zinc alloys i.e. ISO 301 "Zinc alloy ingots intended for casting" and ISO 752 "Zinc ingots". The new version of ISO 752 has been published in 2004.

2) The existing international standards concerning chemical analysis of zinc and zinc alloys will be revised using the work already done by CEN/TC 209.

   The European standards

   EN 12441-1 Zinc and zinc alloys – Chemical analysis – Part 1 : Determination of aluminium in zinc alloys – Titrimetric method

   EN 12441-2 Idem – Idem – Part 2 : Determination of magnesium in zinc alloys – Flame atomic spectrometric method

   EN 12441-4 Idem – Idem – Part 4 : Determination of iron in zinc alloys – Spectrophotometric method

   And

   EN 12441-5 Idem – Idem – Part 5 : Determination of iron in primary zinc – Spectrophotometric method

   have been used as basis for the drafting of ISO-standards.

   These new international standards will replace the existing international standards ISO 1169, 3750, 1055 and 714 respectively.

   The work concerning the drafts prEN 12019-1 "Zinc and zinc alloys – Part 1 : Optical emission spectrometric analysis of solid samples" and prEN 12019-2 "Idem – Part 2 : Inductively Coupled Plasma Optical emission spectrometric analysis" has been continued by ISO/TC 18 in the framework of the Vienna agreement". These documents are published as ISO 3815-1 (replacing ISO 3815:1976) and ISO 3815-2.

   The four existing International Standards for sampling (ISO 3751, 3752, 3816 and 3817) have been replaced by a new ISO standard ISO 20081 based on EN 12060, with small editorial changes.

The international standards ISO 713, 714, 715, 1053, 1054, 1055, 1570, 1976, 2576 and 2741 will be withdrawn once a new ISO standard ISO 3815-2 covering the analysis of the elements Pb, Cd, Cu and Sn is approved.

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

There are no problems for the moment. There is a good collaboration with the industry on a world-wide base.

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

This section gives an overview of the ISO/TC's structure, scopes of the ISO/TCs and any existing subcommittees and information on existing and planned standardization projects, publication of the ISO/TC and its subcommittees.

7.1 Structure of the ISO committee

7.2 Current projects of the ISO technical committee and its subcommittees

7.3 Publications of the ISO technical committee and its subcommittees

ISO/TC 018 – Zinc and zinc alloys

Responsible ISO Member: Belgium
Chairperson: Mr. G. Crocq
Secretary: Mr. P. Rigaux
Chairperson & Secretary Time Allocation Per Year = *18% FTE*

Scope: Standardization of definitions, classification, quality, sampling and acceptance tests of zinc and zinc alloys, as well as of zinc alloy castings

Actions for alignment with the business environment :

Projects directly under this technical committe : none

ISO/TC 018 SC 01 Methods of sampling and analysis of zinc and zinc alloys

Responsible ISO Member: IBN
Chairperson: M. J. Brits
Secretary: M. P. Rigaux
Chairperson & Secretary Time Allocation Per Year = *08% FTE*

Scope: Analytical methods for the determination of element contents of zinc and zinc alloys, analytical methods of testing chemical composition of zinc and zinc alloys, provisions for preparation of test solutions and calibration solutions for zinc and zinc alloys

Actions for alignment with the business environment:

Projects directly under this subcommittee:

Designation	ISO 713 : 1975
Title	Zinc – Determination of lead and cadmium contents – Polarographic method
Target dates	ISO Stage 60 (Publication): 1975
Comments	
Relationship of this project to the business environment	
Actions for alignment with the business environment	Will be withdrawn after the publication of the new ISO standard ISO 3815-2 covering the analysis of Pb, Cd, Cu and Sn

Designation	ISO 714 : 1975
Title	Zinc – Determination of iron content – Photometric method
Target dates	ISO Stage 60 (Publication): 1975
Comments	
Relationship of this project to the business environment	
Actions for alignment with the business environment	Will be withdrawn after the publication of the new ISO standard ISO 3815-2 covering the analysis of Pb, Cd, Cu and Sn

Designation	ISO 715 : 1975
Title	Zinc – Determination of lead content – Polarographic method
Target dates	ISO Stage 60 (Publication): 1975
Comments	
Relationship of this project to the business environment	
Actions for alignment with the business environment	Will bewithdrawn after the publication of the new ISO standard ISO 3815-2 covering the analysis of Pb, Cd, Cu and Sn

Designation	ISO 1053 : 1975
Title	Zinc – Determination of copper content – Spectrophotometric method
Target dates	ISO Stage 60 (Publication): 1975
Comments	
Relationship of this project to the business environment	
Actions for alignment with the business environment	Will be withdrawn after publication of the new ISO standard ISO 3815-2 covering the analysis of Pb, Cd, Cu and Sn

Designation	ISO 1054 : 1975
Title	Zinc – Determination of cadmium content – Polarographic method
Target dates	ISO Stage 60 (Publication): 1975
Comments	
Relationship of this project to the business environment	
Actions for alignment with the business environment	Will be withdrawn after publication of the new ISO standard ISO 3815-2 covering the analysis of Pb, Cd, Cu and Sn

Designation	ISO 1055 : 1975
Title	Zinc and zinc alloys – Determination of iron content – Spectrophotometric method
Target dates	ISO Stage 60 (Publication): 1975
Comments	
Relationship of this project to the business environment	
Actions for alignment with the business environment	Will be withdrawn after publication of the new ISO standard ISO 3815-2 covering the analysis of Pb, Cd, Cu and Sn

Designation	ISO 1169: 1975
Title	Zinc alloys – Determination of aluminium content – Volumetric method
Target dates	ISO Stage 60 (Publication): 1975
Comments	
Relationship of this project to the business environment	
Actions for alignment with the business environment	Will be replaced by a new ISO standard based on EN 12441-1

Designation	ISO 1570 : 1975
Title	Zinc and zinc alloys – Determination of tin content – Spectrophotometric method
Target dates	ISO Stage 60 (Publication): 1975
Comments	
Relationship of this project to the business environment	
Actions for alignment with the business environment	Will be withdrawn after publication of the new ISO standard ISO 3815-2 covering the analysis of Pb, Cd, Cu and Sn

Designation	ISO 1976 : 1975
Title	Zinc alloys – Determination of copper content – Electrolytic method
Target dates	ISO Stage 60 (Publication): 1975
Comments	
Relationship of this project to the business environment	
Actions for alignment with the business environment	Will be withdrawn after publication of the new ISO standard ISO 3815-2 covering the analysis of Pb, Cd, Cu and Sn

Designation	ISO 2576 : 1975
Title	Chemical analysis of zinc alloys – Polarographic determination of lead and cadmium in zinc alloys containing copper – Spectrophotometric method
Target dates	ISO Stage 60 (Publication): 1972
Comments	
Relationship of this project to the business environment	
Actions for alignment with the business environment	Will be withdrawn after publication of the new ISO standard ISO 3815-2 covering the analysis of Pb, Cd, Cu and Sn

Designation	ISO 2741: 1973
Title	Zinc alloys – Complexometric determination of magnesium
Target dates	ISO Stage 60 (Publication): 1973
Comments	
Relationship of this project to the business environment	
Actions for alignment with the business environment	Will be withdrawn after publication of the new ISO standard ISO 3815-2 covering the analysis of Pb, Cd, Cu and Sn

Designation	ISO 3750: 1976
Title	Zinc alloys – Determination of magnesium content – Atomic absorption method
Target dates	ISO Stage 60 (Publication): 1976
Comments	
Relationship of this project to the business environment	
Actions for alignment with the business environment	Will be replaced by a new ISO standard based on EN 12441-2

Designation	ISO 3751: 1976
Title	Zinc ingots – Selection and preparation of samples for chemical analysis
Target dates	ISO Stage 60 (Publication): 1976
Comments	
Relationship of this project to the business environment	
Actions for alignment with the business environment	Replaced by the new ISO standard ISO 20081 based on EN 12060

Designation	ISO 3752: 1976
Title	Zinc alloy ingots – Selection and preparation of samples for chemical analysis
Target dates	ISO Stage 60 (Publication): 1976
Comments	
Relationship of this project to the business environment	
Actions for alignment with the business environment	Replaced by the new ISO standard ISO 20081 based on EN 12060

Designation	ISO 3815: 1976
Title	Zinc and zinc alloys – Spectrographic analysis
Target dates	ISO Stage 60 (Publication): 1976
Comments	
Relationship of this project to the business environment	
Actions for alignment with the business environment	Will be revised on the base of draft prEN 12019-1 in the framework of the Vienna agreement

Designation	ISO 3816: 1976
Title	Zinc ingots – Selection and preparation of samples for spectrographic analysis
Target dates	ISO Stage 60 (Publication): 1976
Comments	
Relationship of this project to the business environment	
Actions for alignment with the business environment	Replaced by the new ISO standard ISO 20081 based on EN 12060

Designation	ISO 3817: 1976
Title	Zinc alloy ingots – Selection and preparation of samples for spectrographic analysis
Target dates	ISO Stage 60 (Publication): 1976
Comments	
Relationship of this project to the business environment	
Actions for alignment with the business environment	Replaced by the new ISO standard ISO 20081 based on EN 12060

Designation	DIS 1169
Title	Zinc and zinc alloys – Determination of aluminium content in zinc alloys – Titrimetric method
Target dates	ISO Stage 40 (Issuance of DIS) : 2004-06-01 ISO Stage 50 (Issuance of FDIS) : 2006-11-01 ISO Stage 60 (Publication): 2007-06-01
Comments	
Relationship of this project to the business environment	Revision of ISO 1169 : 1975 based on EN 12441-1
Actions for alignment with the business environment	

Designation	DIS 3750
Title	Zinc and zinc alloys – Determination of magnesium content in zinc alloys – Flame atomic absorption spectrometric method
Target dates	ISO Stage 40 (Issuance of DIS) : 2004-06-01 ISO Stage 50 (Issuance of FDIS) : 2006-11-01 ISO Stage 60 (Publication): 2007-06-01
Comments	
Relationship of this project to the business environment	Revision of ISO 3750: 1976 based on EN 12441-2
Actions for alignment with the business environment	

Designation	FDIS 3815-1
Title	Zinc and zinc alloys – Chemical analysis – Part 1 : Spectrometric method
Target dates	ISO Stage 40 (Issuance of DIS) : 2003-06-01 ISO Stage 50 (Issuance of FDIS) : 2005-11-01 ISO Stage 60 (Publication): 2006-06-01
Comments	
Relationship of this project to the business environment	Revision of ISO 3815: 1976 based on draft prEN 12019-1 in the framework of the Vienna agreement
Actions for alignment with the business environment	

Designation	FDIS 3815-2
Title	Zinc and zinc alloys – Chemical analysis – Part 2 : Analysis by inductively coupled plasma optical emission spectrometry
Target dates	ISO Stage 40 (Issuance of DIS) : 2003-06-01 ISO Stage 50 (Issuance of FDIS) : 2005-11-01 ISO Stage 60 (Publication): 2006-06-01
Comments	
Relationship of this project to the business environment	Revision of ISO 713, 714, 715, 1053, 1054, 1055, 1570, 1976, 2576 and 2741 in the framework of the Vienna agreement
Actions for alignment with the business environment	

Designation	ISO 20081
Title	Zinc and zinc alloys – Methods of sampling - Specifications
Target dates	ISO Stage 40 (Issuance of DIS) : 2004-06-01 ISO Stage 50 (Issuance of FDIS) : 2006-11-01 ISO Stage 60 (Publication): 2007-06-01
Comments	
Relationship of this project to the business environment	Replaces ISO 3751, 3752, 3816 and 3817 – Based on EN 12060
Actions for alignment with the business environment	

ISO/TC 018 SC 02 Zinc alloy ingots intended for casting

Responsible ISO Member: AFNOR
Chairperson: M. D. Rollez
Secretary: M. S. Sochon
Chairperson & Secretary Time Allocation Per Year = *XX% FTE*

Scope: Revision of ISO 301 based on EN 1774, drafting ISO 15201

Actions for alignment with the business environment:

Projects directly under this subcommittee:

Designation	ISO 301 : 1981
Title	Zinc alloy ingots intended for casting
Target dates	ISO Stage 60 (Publication): 1981
Comments	
Relationship of this project to the business environment	
Actions for alignment with the business environment	Under revision based on EN 1774

Designation	DIS 301
Title	Zinc alloy ingots intended for casting
Target dates	ISO Stage 40 (Issuance of DIS) : 2001-10-01 ISO Stage 50 (Issuance of FDIS) : 2002-02-01 ISO Stage 60 (Publication): 2002-10-01
Comments	
Relationship of this project to the business environment	Revision of ISO 301:1981 based on EN 1774
Actions for alignment with the business environment	

Designation	DIS 15201
Title	Zinc and zinc alloys – Castings - Specifications
Target dates	ISO Stage 40 (Issuance of DIS) : 2004-12-31 ISO Stage 50 (Issuance of FDIS) : 2005-12-31 ISO Stage 60 (Publication): 2006-06-01
Comments	
Relationship of this project to the business environment	
Actions for alignment with the business environment	

ISO/TC 018 SC 03 Zinc ingots

Responsible ISO Member: ANSI
Chairperson: Mr. S. L. Ash
Secretary: Mr. J. Adkins
Chairperson & Secretary Time Allocation Per Year = *XX% FTE*

Scope: Revision of ISO 752, specifically taking into account EN 1174

Actions for alignment with the business environment:

Projects directly under this subcommittee:

Designation	ISO 752:2004
Title	Zinc ingots
Target dates	ISO Stage 40 (Issuance of DIS) : 2001-09-01 ISO Stage 50 (Issuance of FDIS) : 2002-02-01 ISO Stage 60 (Publication): 2002-07-30
Comments	
Relationship of this project to the business environment	
Actions for alignment with the business environment	Replaces ISO 752:1981

ISO/TC 018 SC 04 Zinc and zinc alloys wrought products

Responsible ISO Member: KATS
Chairperson:
Secretary: Mr. J. K. Lee
Chairperson & Secretary Time Allocation Per Year = *XX% FTE*

Scope: Zinc and zinc alloys wrought products

Actions for alignment with the business environment:

Projects directly under this subcommittee: none

Reference information

Glossary of terms and abbreviations used in ISO/TC Business Plans

General information on the principles of ISO's technical work

Term	Abbrev.	Definition
Standardization		Activity of establishing, with regard to actual or potential problems, provisions for common and repeated use, aimed at the achievement of the optimum degree of order in a given context. NOTES 1 In particular, the activity consists of the processes of formulating, issuing and implementing standards. 2 Important benefits of standardization are improvement of the suitability of products, processes and services for their intended purposes, prevention of barriers to trade and facilitation of technological co-operation.
Standard		Document, established by consensus and approved by a recognised body, that provides, for common and repeated use, rules guidelines or characteristics for activities or their results, aimed at the achievement of the optimum degree of order in a given context. NOTE Standards should be based on the consolidated results of science, technology and experience, and aimed at the promotion of optimum community benefits.
package of standards		A group, as small as possible, of inter-related standards in the scope of one or more ISO/TCs which are usually developed simultaneously to one another as parts of one standard, or standards that must be developed simultaneously.
Consensus		General agreement, characterised by the absence of sustained opposition to substantial issues by any important part of the concerned interests and by a process that involves seeking to take into account the views of all parties concerned and to reconcile any conflicting arguments. NOTE Consensus need not imply unanimity.
ISO/TC International Standardization Deliverables:		
International Standard	IS	A normative document, developed according to consensus procedures, which has been approved by the ISO membership and P-members of the responsible committee in accordance with Part 1 of the ISO/IEC Directives as a draft International Standard and/or as a final draft International Standard

Term	Abbrev.	Definition
		and which has been published by the ISO Central Secretariat.
ISO Technical Specification	ISO/TS	A normative document representing the technical consensus within an ISO committee, approved by 2/3 of the P-members of the ISO/TC or SC.
ISO Public Available Specification	ISO/PAS	A normative document representing the consensus within a working group, approved by a simple majority of the P-members of the TC/SC under which the working group operates.
ISO Technical Report	ISO/TR	An informative document containing information of a different form from that of normally published in a normative document.
Amendment	Amd	An amendment alters and/or adds to previously agreed technical provisions in an existing standard.
Technical Committee	ISO/TC	A technical body responsible for the programming and planning of technical work and the monitoring and execution of this technical work. The ISO/TC is also responsible for the consensus building process among its members for individual work items.
Subcommittee	SC	A technical body reporting to an ISO/TC which, within its scope which is covered by the scope of its parent ISO/TC, is responsible for the monitoring and execution of the technical work. The SC is also responsible for the approval and consensus building process among its members for individual work items.
ISO/TC Working group And ISO/SC Working group	WG	A technical body, appointed by the ISO/TC or ISO/SC and composed of experts, responsible for the drafting of standards, in accordance to the ISO rules and the clear specifications set by the ISO/TC or ISO/SC.
Editing Committee		A committee set up by a technical body (ISO/TC or SC) at the beginning of its work, which represents the three official languages of ISO. It is responsible for the correct formulation and presentation of the standard(s) prepared by the technical body (ISO/TC or SC) and the equivalence of the texts in the three official languages.
Participating member	P-member	A member body participating actively in the work of a TC or SC, with an obligation to vote on all questions formally submitted for voting within the TC or SC on enquiry drafts and final draft International Standards and, wherever possible, to participate in meetings.
Work Item number	WI	The identification number given to a standards project in a standards work programme. It is intended that the standards project leads to the issue of a new, amended or revised standard, an ISO/PAS, ISO/TS or other ISO product.
Vienna Agreement	VA	Agreement on technical co-operation between ISO and CEN.
VA ISO lead (5.1)		Technical co-operation between ISO and CEN under

Term	Abbrev.	Definition
		the VA, where the work is done by the ISO/TC, where a formal notification of interest was received by ISO from CEN, and where parallel synchronised procedures are applied in ISO and CEN for the approval processes.
VA CEN lead (5.2)		Technical co-operation between ISO and CEN under the VA, where the work is done by the CEN/TC or SC, where a formal notification of interest was received by CEN from ISO, and where parallel synchronised procedures are applied in ISO and CEN for the approval processes.
ISO stakeholders		Individuals, institutions, organizations or enterprises who have a direct or indirect interest in the ISO System, its activities and products and who have a specific interest in the effective programming of ISO work items and their adequate resourcing.