



# **BUSINESS PLAN**

**CEN/TC 187**

## **REFRACTORY PRODUCTS AND MATERIALS**

### **1 BUSINESS ENVIRONMENT OF THE CEN/TC**

#### **1.1 Description of the Business Environment**

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

Refractories are materials inevitable for the production of steel, iron, cement, glass, ceramics, nonferrous metals, petrochemicals and incineration, wherever high temperatures are needed for production purposes. Refractory materials are increasingly finding use in areas other than the traditional areas highlighted above. They are an integral part of the emission controls of exhausts in both petrol and diesel fueled vehicles. Fire protection is now predominantly controlled using high tech refractory materials to protect lives. The manufacture of solar cells relies heavily on refractories as does the manufacture of led lighting. The aerospace and power generation industries rely heavily on high temperature capable materials, and all these are manufactured from high specification refractory materials.

Refractories need to resist all types of stresses (mechanical, thermal, and chemical) encountered at high level temperatures, such as fusion, erosion, creep formation, corrosion, and thermal shock. Refractory materials are not only required to work at high temperatures, they must do this with minimal heat losses to the surrounding environment.

Initially, the raw materials were high purity clays. However, increasing demands in performance by the users industry led to a much greater diversity including a large variety of synthetic materials, many of them imported from countries outside Europe. Processing has improved through quality management systems and the raw material tonnage has decreased. In addition, furnace and casting ladle life has increased that led and still leads to a sustainable and responsible treat of resources. Repair techniques and maintenance frequencies have also been optimized further reducing total raw material consumption.

The demand for refractory products is directly related to the requirements of consumer industries and their geographic distribution worldwide. The most significant consumer industry is steel production.

Materials development is seen as one of the major enabling technologies for new advancements in so many areas. Many of these new materials cannot be realized without the use of refractory materials. Developing and improving standards is a vital part of this overall process.

#### **1.2 Quantitative Indicators of the Business Environment**

The following quantitative indicators describe the business environment to provide adequate information to support actions of the CEN /TC:

Worldwide the biggest producers and markets for refractories are in China, Russia, the USA and Brazil. Globally the market is worth around 21 billion euros with an annual consumption of refractory products of around 40 million tons. The European refractories industry has a workforce of around 20 000 employees and produces 4 million tons annually, with sales of over 3 billion euros. This accounts for approximately 14 % of worldwide production. Germany is the largest consumer in the region accounting for almost 20 % of the consumption.

Half of the world's ten largest refractories companies have their headquarters and main research facilities in the European Union.

## **2 BENEFITS EXPECTED FROM THE WORK OF THE CEN/TC**

All CEN member countries participate in the development of refractories standards. National and multinational raw material suppliers and producer companies provide technical experts to advance the work.

Environmental improvements have included a reduction in energy consumption and the use of cleaner energy resources. In 2002, energy consumption used in European refractories production consisted of more than 90 % natural gas or electricity compared with 80 % in 1990.

While there has been a reduction in the consumption of raw materials, there has also been an increased emphasis on reducing the amount of material finally going to land fill because of the activities of the refractories and related user industries. Methods are increasingly being found to reuse material to a point that in 2002 it was calculated that of the raw material coming into the refractory production process only 18 % did not find other application thus requiring its disposal as waste.

Whilst standards themselves being developed and improved do not by themselves improve refractory materials, they are integral part of the refractory development process. *Without consistent high-quality methods, improvements in properties cannot be measured with confidence to ensure product development is progressing in the right directions.*

Without consistent high-quality and state-of-the-art testing methods, improvements in properties cannot be measured with confidence to ensure product development is progressing in the right directions. In addition, such testing methods are a prerequisite for reliable process and quality control"

International standardization is dealt with by ISO/TC 33 which has a close

liaison with CEN/TC 187 and many international standards have been developed in co-operation.

## **3 PARTICIPATION IN THE CEN/TC**

All the CEN national members are entitled to nominate delegates to CEN Technical Committees and experts to Working Groups, ensuring a balance of all interested parties. Participation as observers of recognized European or international organizations is also possible under certain conditions. To participate in the activities of this CEN/TC, please contact the national standards organization in your country.

## **4 OBJECTIVES OF THE CEN/TC AND STRATEGIES FOR THEIR ACHIEVEMENT**

### **4.1 Defined objectives of the CEN/TC**

The objectives of CEN/TC 187 are to contribute to the elimination of technical barriers to trade and to facilitate the internal European Union market for refractory materials. In particular, the aim is to

establish standards to characterize refractory materials through classification and by determination of their chemical and physical properties. Through the liaison with ISO/TC 33 the aim is to give standards an international diffusion and thus develop further the global market.

CEN/TC 187 will

- develop standards on refractory products and materials, in particular for their classification and for the determination of their chemical and physical properties.
- maintain published CEN standards on refractory products and materials.
- adjust the work programme as necessary to meet market needs.
- work in co-ordination with ISO/TC 33 on appropriate projects through the Vienna Agreement to avoid duplication of effort.

#### **4.2 Identified strategies to achieve the CEN/TC's defined objectives.**

CEN/TC 187 has developed a portfolio of standards for technological and physical properties and chemical analysis and is continuing to develop standards on classification and test methods, which are considered important to the refractory products and materials sector.

Additional work items are related to:

- product requirements,
- dimensions
- quality assurance of items delivered in bulk.

using international standards as the basis for the work, together with industry practice and product properties based on internal industry documents.

More than 60 standards have been published since the establishment of CEN/TC 187 in 1989.

The work is managed through the technical committee itself and the following working groups:

WG 1: Dense shaped refractory products

WG 2: Unshaped refractory materials (disbanded)

WG 3: Insulating materials and high temperature insulation wools (disbanded)

WG 4: Chemical analysis

WG 5: Chemical attack on refractory products (disbanded)

The TC meets annually and the WGs meet once or twice a year each as the work requires. The Secretariat produces regular work programme reports and ensures progress on the work.

CEN/TC 187 has established a strong liaison with the European Refractories Producers Federation (PRE).

#### **4.3 Environmental aspects**

CEN/TC 187 is aware that some of its ~~methods~~ standards have an impact on the environment. In writing or ~~reviewing~~ revising standards, the use of environmentally hazardous chemicals is avoided wherever feasible.

The move to instrumental methods such as XRF and direct solid sampling methods such as DC-Arc-OES and ETV-ICP-OES that do not require the use of environmentally hazardous chemicals are examples of this awareness.

Environmental improvements have included a reduction in energy consumption and there has been increased emphasis on reducing the amount of material going to landfill as a result of refractory and related user activities.

## **5 FACTORS AFFECTING COMPLETION AND IMPLEMENTATION OF THE CEN/TC WORK PROGRAMME**

The main factors affecting completion of the work program and the development of particular standards are as follows:

- 1) Limited availability of expertise: Only a limited number of experts are willing or able to devote their time to standardization activities often resulting in an imbalance of relevant stakeholders.
- 2) Vienna Agreement: Where standards are progressed under the Vienna Agreement with ISO lead, any delay in ISO/TC 33 results in a corresponding delay in CEN/TC 187.
- 3) Cost: The costs of hosting or attending any meeting are becoming more prohibitive and may result in difficulties finding a member to host a TC/WG meeting and in reduced levels of participation.
- 4) Lack of resources: Lack of funding will obviously affect the number of laboratories able to participate in interlaboratory trials required for validating any test methods.
- 5) Large work programme: The library of over 60 published standards for which CEN/TC 187 is responsible requires regular review and appropriate action, i.e., confirm, amend, revise, or withdraw. Coupled with a current programme of around 8 work items, this has the effect of keeping responsible personnel at full capacity and may create several competing priorities.