

# 11

ANNUAL REPORT



The European Group of Organisations  
for Fire testing, Inspection and Certification



**EGOLF Executive and Secretary General in Braunschweig, Germany, June 2011**  
*Ulf Wickström, Gary Blume, Christine Roszykiewicz, Andrzej Borowy, Pascal Coget*

## FINANCIAL REPORT

	<b>2011</b>	<b>2010</b>
	€	€
<b>INCOME</b>		
Membership subscriptions	118,000	116,200
Courses, workshops & conferences	10,700	2,800
Other income	2,960	1,392
<b>Total income</b>	<b>131,660</b>	<b>120,392</b>
<b>EXPENDITURE</b>		
Secretary General	52,519	72,952
Executive expenses	8,067	9,199
Plenary & TC meeting costs	4,197	n/a
GNB FSG Secretariat	7,377	10,518
Round robins and courses	21,500	10,400
Website development & administration	12,990	3,750
Printing costs	2,999	2,101
Audit & other expenses	4,760	2,392
<b>Total expenditure</b>	<b>114,409</b>	<b>111,312</b>

## A VIEW FROM THE PRESIDENT

Dear Members, Partners, Stakeholders,

One of the most significant events of last year was the arrival of the Construction Products Regulation. This will gradually replace the Construction Products Directive. It is far from a revolution but will turn the vision of European harmonization into more of a reality.

I should also like to highlight the work of the EGOLF Executive Committee (Conseil de Gérance), which is composed of the Secretary General, the President and three elected members from Plenary. The latter are appointed for three years, retire by rotation and are eligible for re-election twice only consecutively. They give of their time voluntarily to help define and pursue the strategy of EGOLF and to turn the ideas of members into operational decisions and action.

Since Plenary only meets twice a year, it benefits from the more regular meetings of Executive, where routine business can be handled and early discussions held on matters of importance to members. It also provides an invaluable and confidential sounding board for insights and advice from trusted experts in their field, whose responsibilities include monitoring and supporting each of the three technical committees – Reaction to Fire (TC1), Fire resistance (TC2) and Certification, Accreditation and Inspection (TC4). Other tasks include acting as liaisons with the different working groups in CEN TC 127, reviewing membership applications, accompanying the Secretary General on visits to the fire testing labs. of new applicants, and addressing financial and legal requirements.

The EGOLF Executive acts effectively as a Board of Directors, reporting to the Plenary. I strongly urge our members to support their activities and to engage with them, not just during bi-annual meetings but at other times in the year, as and when the need arises. This will always be appreciated

I warmly thank Ulf Wickström (SP, Sweden) who has completed 6 years of office as a member of this Committee, and welcome Anne Steen-Hansen (SINTEF, Norway) who joined us in March.

One of the EGOLF founders and first President of EGOLF, Paul Vandeveld, is retiring this year. I wish him all the best and thank him for his inestimable contributions to the Association.

We still have many challenges to face: continuous raising of the bar on quality and steps to excellence on behalf of our members, active cooperation with European institutions, building on our reputation as a key objective player in the field of fire safety, and evolving in such a way that EGOLF remains for everybody, not just in Europe, a valuable brand of which each member can be proud.



Pascal Coget  
EGOLF President



## EGOLF MEETINGS

### AUTHORS

Christine Roszykiewicz (EGOLF)  
and Gert van den Berg (Efectis NL)

Fig.1: Delegates outside the Haus der Wissenschaft, where they met in Braunschweig, Germany October 2011.



### EXECUTIVE MEETINGS

At their meetings in June and December, the Executive Committee considered a wide range of issues during two intense two day meetings. These included a review of key activities in the Associations' strategic plan, including the proposed Quality Framework "Steps to Excellence", a review of members' preferences for the development of harmonisation courses in the next twelve months and plans for a new website content management system.

### PLENARY MEETINGS

Two plenary meetings were held in 2011, the first hosted by SP in Borås, Sweden, and the second by MPA Braunschweig in Germany. Both events featured the new EGOLF Quality Scheme "Steps to Excellence", which is intended to assist members to strive for excellence within the framework laid down in the Association's Statutes and Internal Rules. A recent survey had been carried out with Members to plot their current position on the



Fig. 2: A surprise picnic was hosted by MPA Braunschweig after a tour of their lab in October.

path to Gold Star status. This will be monitored in the next twelve months, as the stakes are raised ever higher in the challenge to deliver EGOLF's aim of harmonisation and a level playing field across Europe.

## TECHNICAL COMMITTEE MEETINGS

### TC1 (Reaction to fire) chaired by Hendrik Rademacher (MPA NRW)

Tiia Rynnänen of VTT Expert Services Ltd., Finland, gave a presentation on the final report of the round robin for test method EN ISO 11925-2:2010 'Ignitibility of building products subject to direct impingement of flame – single flame source test'. A detailed article is featured on pages 6 to 9 of this Annual Report.

A report of the round robin for test method EN ISO 1182 'Non-combustibility test' was subsequently presented during the Spring meeting in Espoo by Anne Steen-Hansen from SINTEF in Norway. This is featured on pages 14 to 16. Two more round robins are planned in 2012 and 2013, the first on EN ISO 9239 'Floor

coverings – determination of the burning behaviour using a radiant heat source' and the second on TS 1187-2012 roof test methods 1 and 2.

### TC2 (Fire resistance) chaired by Anders Drustrup (DBI, Denmark)

The main focus of the TC2 meetings continues to be the large number of help desk items submitted by members. Where necessary, draft recommendations are prepared and the solutions made available to members via the EGOLF website. Once formalised, these recommendations and agreements are also available to the public on the Publications folder of the website.

## EGOLF MEETS EA



EA (European co-operation for Accreditation – <http://www.european-accreditation.org>) is a

non profit association for nationally recognised accreditation bodies in Europe. In 2011, EGOLF was formerly invited to become a Recognized Stakeholder of EA. This special status allows EGOLF to be more directly involved in and contribute to EA's technical activities. EA comprises a General Assembly, an Executive Committee, an Advisory Board, a secretariat and seven committees, of which the Laboratory Committee is of most interest to EGOLF.

During the past couple of years, TC4 and EA have held a number of discussions concerning the different approaches between accreditation bodies across Europe. The aim of EGOLF is to ensure that accreditations are harmonised throughout the continent. In recent months, Gert van den Berg (Convenor EGOLF TC4) has attended an EA Laboratory Committee meeting in Rome (Italy), during which the following topics were discussed:

- Accreditation against various types of standards (testing, EXAP and classification standards)
- Uncertainty of measurement
- EGOLF Agreement 08 (EGR 08): Accreditation of fire laboratories – interpretation of EN ISO/IEC 17025
- Technical Assessors: EGOLF assistance to EA. An EGOLF workshop on this topic is planned in 2012.



Fig. 3: Delegates attending meeting of TC2 (Fire Resistance).

# ROUND ROBIN REPORT ON THE HEAT OF COMBUSTION TEST METHOD EN ISO 11925-2:2002

## AUTHORS

Tiia Ryyänen & Katja Ruotanen,  
VTT Expert Services Ltd.



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## 1. Introduction

Round robins among the EGOLF members are organised to ensure the quality of test results.

The results of round robins provide information about

- the ability of EGOLF laboratories to perform tests properly
- variability in equipment, test procedures and tools
- reproducibility and repeatability

The round robin exercise concerning test standard EN ISO 11925-2 was organised in 2010 and 2011 by EGOLF member VTT Expert Services Ltd.

Forty laboratories participated and three samples were tested.

## 2. Materials tested

**Sample 1** was wood insulating fibreboard, thickness 12 mm and density 260 kg/m<sup>3</sup>, with expected flame spread time to 150 mm under 60 s.

**Sample 2** was polystyrene foam, thickness 55 mm and density 30 kg/m<sup>3</sup>, with expected flame spread time to 150 mm under 20 s.

**Sample 3** was vapour barrier foil (HDPE-tissue with PE surface), thickness 0,3 mm and area weight 132 g/m<sup>2</sup>. This was selected because of melting properties.

## 3. Test method

Tests were carried out according to standard EN ISO 11925-2:2002 Reaction to fire tests – Ignitability of building products subjected to

direct impingement of flame - Part 2: Single-flame source test (ISO 11925-2:2002)

The test equipment is shown in Figures 4 and 5.

The conditioned specimens are fixed vertically in the frame and ignited with a 20 mm high propane gas flame. The flame is impinged on the bottom edge of the specimen (edge exposure) or 40 mm above the bottom edge (surface exposure) for 15 s or 30 s.

The occurrence of burning particles is observed with filter paper placed below the specimen.

If the flame application time is 15 s, the total test duration is 20 s from the time at which the flame is first applied. If the flame application time is 30 s, the total test duration is 60 s from the time at which the flame is first applied.

For each test specimen it is recorded whether an ignition (flaming longer than 3 s) occurs, whether the flame



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Fig. 1: Sample 1 before edge ignition

Fig. 2: Sample 2 before edge ignition

Fig. 3: Sample 3 before surface ignition

Fig. 4: Combustion chamber with burner and test specimen holder.

Fig. 5: Flame height measuring device and burner spacer for edge and surface flame impingement.

tip reaches 150 mm above the flame application point and the time at which this occurs and whether ignition of the filter paper occurs.

For each exposure condition a minimum of six specimens (250 mm x 90 mm) of the product shall be tested, three cut lengthwise and three crosswise.

Flame application time and exposure conditions for the samples in this round robin were as follows:

- Sample 1: 30 s surface and edge exposure
- Sample 2: 15 s surface exposure
- Sample 3: 15 s surface and edge exposure

## 4. Results

### 4.1 Variability in equipments and test procedure

All other parts of the equipment in the laboratories were according to the

standard except distance between the underside of the test specimen and filter paper (in 18 laboratories). This distance will influence on ignition of filter paper.

In the test procedure there were the following deviations:

- Two of the laboratories made the tests only in one direction (3 test specimens per sample).
- One laboratory made the edge exposure test to side edge of the test specimen (specimen turned 90°) and not to the centre of the width of the bottom edge of the test specimen. The additional side edge test (specimen turned 90°) shall be carried out only for multilayer products greater than 10 mm thick.

### 4.2 Test results

Burning behaviour of sample 3 was irregular and this was the reason for high degree of uncertainty in the test results. For this reason, mainly results

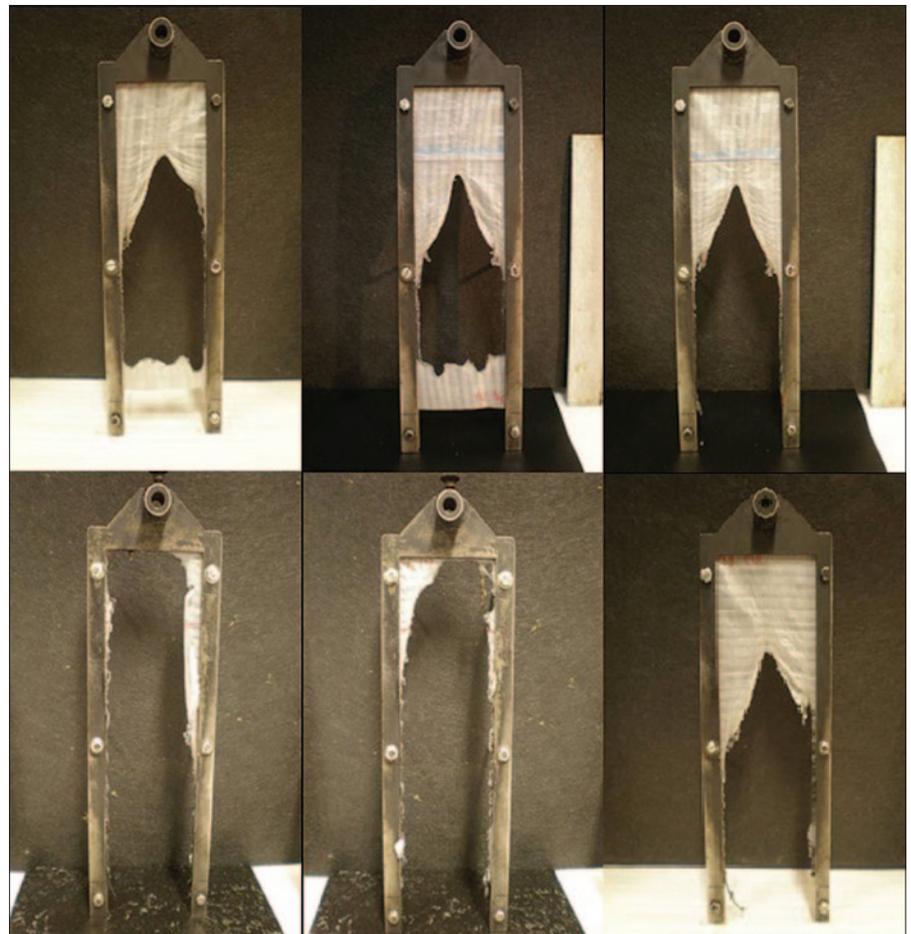


Fig. 6: Test specimens of sample 3 after the test in one of the laboratories.

of sample 1 and 2 were examined in the conclusion of this round robin.

Two methods of statistical analysis were used depending on type of test result.

- The number of yes and no results, as well as their relative proportions and degree of uncertainty, were calculated in the same way as in EN ISO 11925-2:2002 Annex B.
- The data of flame spread time to reach 150 mm was analysed according to ISO 5725-2:1994

Uncertainty of whether the flame tip reached 150 mm was 20 % for sample 1 and 30 % for sample 2.

Time to reach 150 mm of sample 1 and 2 deviated remarkably in some laboratories from the results of other laboratories. The reason for that could not be found in test equipment, test reports or photos, but it should be remembered that the following items are important in measuring flame spread:

- exact timing for flame spread from the moment the gas flame

contacts the test specimen to the moment the flame tip reaches 150 mm

- flame application: size of gas flame, distance, exposure time
- checking the distance from the flame application point to 150 mm
- test shall be carried in light circumstance where the flame tip can be seen in test specimen.

Uncertainty of ignition of filter paper was 0 % for sample 1, 20 % for sample 2 and 85 % for sample 3. The reason for high uncertainty of sample 3 was the material itself, as described above.

Probably ignition of filter paper was observed in some laboratories after the test as the whole test specimen has burned. This estimation is based on photos taken after the test. This explains the uncertainty of sample 2. According to the standard ignition of filter paper is observed during the test. Test duration is 20 s or 60 s depending on the flame application time. See Figures 7 and 8.



Fig. 7: Sample 2 after the test and extinction.



Fig. 8: Burning of sample 2 after the test.

### 4.3 Results in dependence of attending an EGOLF training course

There were more deviations in test results amongst those laboratories which had not attended EGOLF courses. However, there were also some in laboratories which had attended. This indicates that it is important for a laboratory to attend EGOLF courses and to follow instructions given in the course. If there are many people in the laboratory who carry out the test and not everyone has attended the EGOLF course, the laboratory should provide courses within the laboratory. Laboratories should also have detailed instructions according to the standard and a copy of

the EGOLF course in the national language. The EGOLF course material needs to be clear and detailed with photos and pictures if necessary.

### 4.4 Results compared to classification criteria in EN 13501-1

For classification there are only yes/no results for compliance parameters; whether flame tip reaches 150 mm (Fs) during the test (20 s or 60 s) and ignition of the filter paper (flaming droplets). In Table 1 are presented the portions of laboratories where the sample has failed the criteria for classification.

### 4.5 Conclusions

Most of the participating laboratories were able to perform the test according to the standard EN ISO 11925-2. Laboratories should have detailed instructions for testing according to the standard and EGOLF courses in the national language.

Equipment in the laboratories was in accordance with the standard.

The distance of filter paper from the test specimen is not defined clearly in the standard. There is only a requirement for the distance between the underside of the specimen and the top of horizontal plate above the metal grid. Obviously this was the reason why there was deviation in the distance in many laboratories.

This distance between the underside of the test specimen and filter paper will influence ignition of the filter paper. For this reason, distance should be defined more clearly in the standard. There should be one more sentence in clause 4.11 Filter paper and tray as follows:

The distance between the underside of the specimen and the top of horizontal plate where the aluminium tray is shall be  $(125 \pm 10)$  mm for edge impingement and  $(85 \pm 10)$  mm for surface flame impingement.

Table 1: Portion of laboratories with failed results of the samples.

Sample - ignition time and type	Failed the criteria <sup>1)</sup> for Fs (%)	Failed the criteria <sup>2)</sup> for flaming droplets (%)
1 – 30 s surface and edge	90 <sup>1)</sup>	2
2 – 15 s surface	85 <sup>2)</sup>	10
3 – 15 s surface and edge	37 <sup>2)</sup>	75

1) Criteria in classes B, C and D:  $F_s \leq 150$  mm within 60 s.  
Criteria in class E:  $F_s \leq 150$  mm within 20 s.

2) Ignition of filter paper.



## A TRIBUTE TO PAUL VANDEVELDE

### A FOUNDER MEMBER AND FIRST PRESIDENT OF EGOLF

#### AUTHOR

Geoff Deakin MBE

**In the Spring of 2011, Paul Vandeveldel will be retiring from EGOLF and his numerous fans in the fire testing world would like to pay tribute to this man of many talents - academic, businessman, negotiator, strategist, and above all a true gentleman.**

Paul has been a leader within the fire safety community in Europe since the late 70's, when he was appointed by the European Commission to lead a small team of experts, charged with reporting on the state of the art and the competence held within the



fire testing laboratories throughout Europe. This small group of four Commission consultants initiated regular meetings in the early 80's between fire experts from European fire laboratories and was the start of EGOLF, established in 1988.

The first EGOLF Executive Group was made up of the four Commission experts, namely Paul Vandeveldel (wfrgent), Geoff Deakin (ex Warringtonfire), Hans Klingelhöfer (ex MPA NRW Germany) and Alain Le Duff (ex CSTB, France). In the late 80's and 90's, EGOLF developed a strong voice with influence over the development of fire testing and classification requirements within Europe. It was considered by many as 'the fire safety mafia' and the four members of the Executive at its core often referred to as the 'Cosa Nostra'. It would have been appropriate to consider the then Dr, Vandeveldel as the 'Godfather' of this movement.

In influencing the developments in fire safety across Europe, EGOLF organised many European conferences with the support of the European Commission. The concept and planning of these



1988: meeting to discuss setting up EGOLF.



EGOLF in Braunschweig 1998.

took place almost exclusively in hotels across Europe after midnight, when routine business for the day had been completed and inspiration aided by some late night refreshments. Similarly, the content of the Interpretative Documents supporting the CPD was inspired, and one solution advanced to resolve the problem associated with reaction to fire testing included the so called 'three sisters' solution, using a combination of British, French and German national tests. This failed to gain support in the longer term and had to give way to the new Single Burning Item (SBI) test. It was in a similar environment, i.e. late at night in a hotel room that one of the initial prototypes of an SBI test apparatus was modelled from cardboard then carefully transported to Brussels for presentation to the Commission.

Suffice to say that Paul was always at the centre of all these developments. His late night staying powers were well practiced. What most people will not know is that after his days work at the University of Gent, Paul would return home to help his wife, Rosa, in the running of a successful medium sized printing company. When not travelling, Paul worked with Rosa into the early hours of the morning as estimator, compiler, colour matcher, translator, compositor, machine engineer or as provider of many other skills for the benefit of a business with high technology and high value equipment.

For Paul, the fire laboratory of the University of Gent was very much his baby. He was there at the time of its conception when he engineered much of its facilities and he led its development into an internationally recognised institution, contributing academically, in research and development and in the formulation of codes and standards contributing to fire safety. His academic resp-

onsibilities were coupled with being the fire laboratory head or manager and many internationally recognised fire safety experts of today were mentored through their degrees and doctorates by Paul. The expertise held by the laboratory brought about commercial success of the laboratory and, in turn, the spinoff of the laboratory into an independent operation in partnership with Warrington Fire Research.

Paul was, and still remains, very much at the core of strategic fire safety matters within Belgium, providing the various Ministries there with advice through his expert knowledge. His eloquence and negotiating skills have led the discussions on wide

and varied aspects of fire safety. The best phrase to describe Paul's role amongst us for over more than 40 years is 'fire safety strategist' - skilled in leading and developing policies, thinking conceptually and creating something from nothing, thinking about the future instead of the present, finding compromises and solutions to seemingly impossible problems, taking intellectual leaps of faith and doing it with confidence.



*Paul Vandeveld and Geoff Deakin.*



*Paul and Rosa Vandeveld.*

## RINA TEST LABORATORY, ITALY

### AUTHOR

Massimo Dinale



RINA Test Laboratory, Genova, Italy.

RINA is one of the oldest ship classification societies in the world. It was founded in 1861 under the name of Registro Italiano Navale, as a technical body for the control and inspection of ships and for safety of life at sea. Nowadays RINA is a holding company with a workforce of over 2000 people and serves a wide range of sectors.

The RINA Test Laboratory, located in the harbour of Genoa and in which 10 people are employed, was established in 1965 as the Fire Research Laboratory with the purpose of giving the industry, mainly Italian at that time, a site where materials involved in the structural fire protection of ships could be tested in accordance with the applicable national and international testing procedures and standards.

Following the international development of RINA activities, the Fire Research Laboratory has gained, during these years, a worldwide reputation for the performance of fire tests for marine applications. Its field of interest has also expanded during this time. In addition to fire tests in the ship and building field, it also carries out tests on personal lifesaving appliances, personal protective equipment and calibration of testing machines.

The RINA Test Laboratory is one of the first laboratories to have introduced the use of finite element mathematical modelling to predict the behaviour of complex structures, such as panelling, ceilings, doors, etc., when subjected to fire.

Massimo Dinale is RINA's Laboratory representative and principal contact for EGOLF.



## ■ CERIB

CERIB is a public-sector establishment which was created in 1967 at the request of the precast concrete products industry and placed under the responsibility of the Minister of Ecology, Energy, Sustainable and National Development. It employs about 160 staff, a third of whom work outside the headquarters complex. For more than ten years CERIB has had its own unit specializing in fire engineering and characterization of buildings subjected to fire, at different scales of analysis. The Promethee full-scale fire-resistance testing laboratory is the latest addition to the unit.

Promethee contributes toward a global approach to the level of structural safety by introducing numerical modelling. The furnace capable of generating several fire scenarios is fitted with a mechanical loading structure that reproduces the interaction of the parts of the building tested under fire conditions with others not subject to fire. These interactions are generated by controlled,

quantifiable multidirectional loading of the test specimen, thereby allowing real appraisal of the effects of confinement and the role of connections.

In addition to testing for research purposes, by virtue of modular equipment, Promethee can be used to test any kind of structural element against common normative benchmarks.

Since it came into service in 2008 the Promethee laboratory has undertaken accreditation procedures. In addition, under a partnership with Warringtonfire Gent, CERIB became France's third laboratory to be certified for fire-resistance testing when, in 2011, it was approved by the French Ministry of the Interior's committee for the study and classification of construction materials and components with respect to fire risks (CECMI).

*Fabienne Robert is CERIB's representative and main contact for EGOLF.*

# CERIB

Centre d'Études et de Recherches  
de l'Industrie du Béton



# ROUND ROBIN REPORT ON THE NON-COMBUSTIBILITY TEST EN ISO 1182

## AUTHORS

Anne Steen-Hansen (SINTEF NBL)

Bart Sette (Exova Warringtonfiregent)

## 1. Introduction

### 1.1. Background

Results from testing according to the *EN ISO 1182 Reaction to fire tests for products – Non-combustibility test* are used to document products in class A1 and A2 according to the classification standard EN 13501-1, i.e. products with very limited combustibility. The test apparatus is shown in the figures below.

During 2006 a round robin exercise on the EN ISO 1182 test was performed by EGOLF. The chosen test material resulted in flaming in some of the laboratories, while no flames were observed in other laboratories. Whilst flaming is one of the classification criteria, these differences made it difficult to draw conclusions about repeatability and reproducibility of the tests, and the test results gave no good basis for conclusions as to how well EGOLF laboratories are able to

run standardised tests according to EN ISO 1182. EGOLF therefore decided to perform a new round robin on this test method and the exercise was carried out during 2010 and 2011.

### 1.2. Organization

The second EN ISO 1182 round robin was at first organized by Niall Rowan, Exova Warringtonfire UK and Anne Steen-Hansen, SINTEF NBL, Norway. When Niall Rowan left to join EAPFP, Bart Sette from Exova Warringtonfiregent, Belgium, assumed his role in the project group.

28 laboratories took part in the round robin exercise. Test results from the participating laboratories were sent to the Secretary General of EGOLF who was responsible for distributing these to the group members, whilst ensuring complete anonymity so that no laboratories could be identified in the analysis.

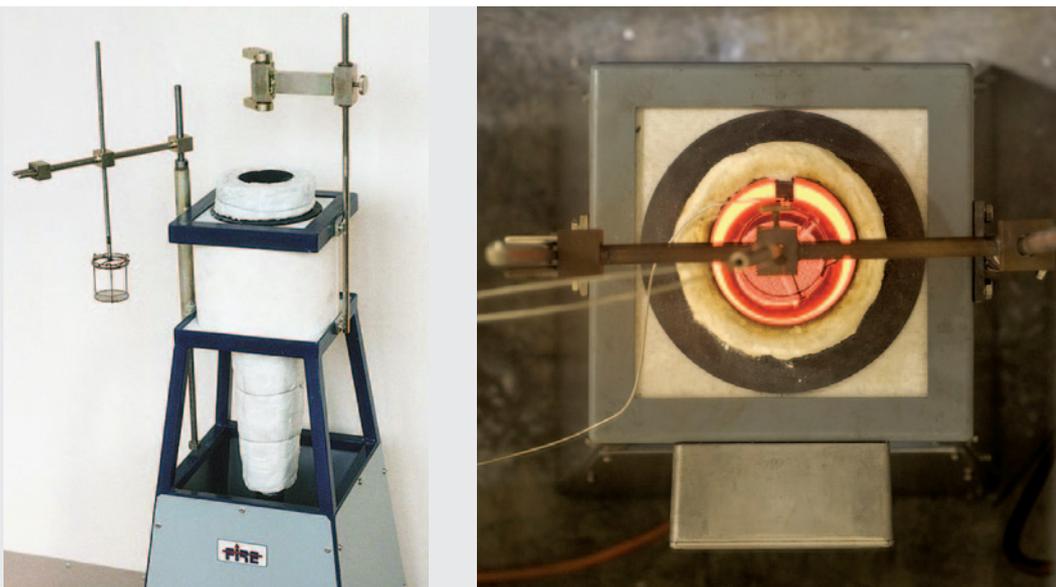


Fig. 1 and 2: The test furnace according to EN ISO 1182 Non combustibility test. The photo on the left shows a front view of the furnace, with the specimen holder on the left hand side. The photo on the right is taken from the top, and shows the furnace with a specimen during test.

### 1.3. Purpose of the round robin

The aims of this round robin exercise have been:

- to confirm that EGOLF laboratories are able to perform the EN ISO 1182 test properly
- to provide information about the reproducibility and repeatability for EN ISO 1182
- to give an indication for each participating laboratory concerning its performance when performing tests according to EN ISO 1182
- to provide an indication of the variability in equipment, procedures and tools

## 2. Test procedure

The tests in the round robin should be performed according to the procedure described in EN ISO 1182, the non-combustibility test.

The following test results were reported:

$T_s$  = temperature difference in the furnace [K]

$T_s$  = temperature difference on the sample surface [K]

$m$  = mass loss [%]

$t_f$  = duration of sustained flaming [s]

The participants were also requested to determine the organic content of the mineral wool according to EN 13820.

## 3. Materials tested

2 different products were tested:

- Calcium silicate board, thickness 12 mm, nominal density 870 kg/m<sup>3</sup>.
- Mineral wool, thickness 50 mm, nominal density 160 kg/m<sup>3</sup>, binder content of 4% w/w corresponding to a PCS of 1.1 to 1.2 MJ/kg; typical  $T_f$  of between 17° and 20° C (n=5) according to the manufacturer.

Cylindrical test specimens were prepared as described in clause 5 in EN ISO 1182, with the required 50 mm height and 45 mm diameter. The specimens of the calcium silicate board were made by putting together 4 layers until the required

specimen height was reached. Examples of test specimens are shown in the figure below.

5 specimens of each product were tested.

## 4. Calibration results

Before the testing of the calcium silicate board and the mineral wool took place, all laboratories performed a calibration of their furnaces according to clause 7.3 in EN ISO 1182. The results from these tests showed that although almost every laboratory fulfilled the criteria given in clause 7.3.1.2 in the standard regarding variation, the spread in the shape of the temperature profiles was quite large. There were also some variations regarding the equipment used in the calibration procedure.

## 5. Test results

All measured and calculated test results according to EN ISO 1182



Fig. 3 and 4: A typical test specimen of the calcium silicate board to the left, and of the mineral wool to the right.

were delivered anonymously by the participants. 19 of the 28 laboratories measured the surface specimen temperature (this is not a requirement in EN ISO 1182).

21 of the laboratories determined the organic content of the mineral wool according to EN 13820, and the average value of organic content was calculated to be 3.75 %, with a standard deviation of 0.34 (i.e. 9.1 % of the average value). This is in line with the manufacturer's specification.

## 6. Statistical analysis

The test results were analysed according to *ISO 5725-2. Accuracy (trueness and precision) of measurement methods and results – Part 2: Basic method for the determination of repeatability and reproducibility of a standard measurement method.*

Test results identified as outliers were removed from the test results before repeatability and reproducibility were determined. The analysis showed that both repeatability and reproducibility for this test method are rather poor, even after identified outliers are removed from the data set. The repeatability and reproducibility are, however, mainly at the same level as for round robin data presented in the standard for the different measured parameters.

## 7. Discussion

### 7.1. Differences in equipment

The photos from the calibration procedure previous to the round robin tests showed that there are some differences in test equipment for measuring the wall- and furnace temperatures.

The calibration tests before the round robin was started showed that the temperature profiles of the furnace may have many shapes and still fulfill the calibration criteria in the standard. The tests also showed that there are different types of equipment for measuring temperature in use. These differences may lead to differences in the thermal conditions in the furnace that may impact test results.

### 7.2. Choice of test material

The two chosen products are considered to represent typical materials to be tested according to EN ISO 1182, and with a more or less predictable behaviour in the test.

### 7.3. Repeatability and reproducibility

Both the repeatability standard deviations and the reproducibility standard deviations are relatively high for the temperature measurements for both test materials. This may be a problem for products which give results close to the classification criteria limits for temperature measurements. However, the repeatability standard deviations and the reproducibility standard deviations are at the same level as values calculated based on the statistical model given in EN ISO 1182, Annex A. For the mass loss measurements in this round robin exercise, the repeatability and reproducibility are even better than for the examples reported in the standard.

This means that the participants in the EGOLF round robin have performed the tests satisfactorily, with results within acceptable limits. The problem lies in the test itself, since there are many factors that may affect the thermal conditions in the test furnace significantly and which are difficult to control, i.e. positioning of thermocouples during

calibration and testing, the influence of the specimen on temperature measurements etc.

## 8. Conclusions and recommendations

The EGOLF round robin exercise on the EN ISO 1182 test has shown that most of the participants performed the test in a satisfactory way, with results within the expected level. However, these results and the results presented in the standard show that the repeatability and reproducibility of this test method are generally poor. We assess that this is mainly caused by weaknesses in the test method and test equipment, and to a lesser degree by variations introduced by the operators or by non-homogeneous test materials.

The non-combustibility test method is an old and internationally highly recognized test method with widespread use. We would, however, recommend that the possibility to revise the test method be assessed, in order to obtain improved repeatability and reproducibility of the test results.



## ONLINE HELPDESK FORUM FOR EGOLF MEMBERS

### AUTHOR

Christine Roszykiewicz

The EGOLF website (<http://www.egolf.org.uk>) recently underwent a facelift. It also now offers Members access to an online helpdesk forum.

On average, thirty of the fire testing issues or problems which are raised each year by EGOLF Members require the intervention of expert advisors and/or formal discussion within the relevant Technical Committees. These queries generally relate to a specific aspect of testing which may not be explained in sufficient detail in the relevant standard, or a very

practical aspect of testing that can be difficult for a specific material or product, especially if a new product is developed.

In the past, the majority of these questions were directed to the EGOLF Secretary General by email, just prior to the bi-annual Technical Committee meetings. Now Members are encouraged to share their problems as soon as they arise. There are three folders, or discussion strands, in the Forum: Reaction to Fire (TC1), Fire Resistance (TC2) and Certification, Inspection and Accreditation (TC4).

Subscribers to each of the folders receive a notification with link to the new helpdesk queries, as and when these are posted. They have the opportunity to comment or propose solutions. Nominated

Helpdesk Experts also keep a close eye on those queries which relate to standards that come under their specific area of expertise. In the event that the Helpdesk Expert is unable to propose a solution, there will be a discussion thread for a period of six weeks (or one week after the last reply, whichever comes later).

The Chairmen of the respective TCs act as forum moderators. Once a question has been closed, they may add a note to indicate that further discussion is required at a TC meeting. In some cases, the solution may lead to a formal EGOLF Recommendation (an EGR). These recommendations are publicly available on the EGOLF website (<http://www.egolf.org.uk/documents.html>) and are sometimes included in future revisions of the relevant ENs.

The screenshot shows a web browser window displaying the EGOLF Forums page. The browser address bar shows <http://www.egolf.org.uk/helpdesk/default.html>. The page features a navigation menu with links: Home, About EGOLF, News, Activities, Documents, Join EGOLF, Member Profiles, Test Search, Contact, and Members Area. Below the menu, the breadcrumb path is 'You are here: Home » EGOLF Forums'. The main heading is 'EGOLF Forums'. A table lists forum threads:

Forum Name	Last Post	Threads	Posts
<b>TC1 Helpdesk</b> Helpdesk to discuss TC1 issues Sub forums: <a href="#">Annual Helpdesk Reports</a> , <a href="#">TC1 Archive</a>	EN ISO 1716 : 2010 - new validity of test results Christine Roszykiewicz (EGOLF Secretary) 30/05/2012 11:34	5	6
<b>TC2 Helpdesk</b> Helpdesk to discuss TC2 issues Sub forums: <a href="#">Annual Helpdesk Reports</a> , <a href="#">TC2 Archive</a>	-	0	0
<b>TC4 Helpdesk</b> TC4 Helpdesk Description Sub forums: <a href="#">Annual Helpdesk Reports</a> , <a href="#">TC4 Archive</a>	2011-01 Test Certificates Christine Roszykiewicz (EGOLF Secretary) 10/02/2012 11:24	1	1

At the bottom of the page, there is a 'Select Language' dropdown menu, a 'Powered by Google Translate' logo, and social media icons for Facebook and Twitter. The browser's taskbar at the bottom shows several open applications, including 'Boîte de réception', 'Reminders', 'EGOLF Forums - Int...', 'handover to CR', and 'Microsoft Office'.

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