

Customer

XIAMEN WAIN ELECTRICAL Co., Ltd.  
759-3 # Chengbei industry zone  
Datong town, Tong'an District, Xiamen  
China



Environmental Lab



Materials Lab



Fire Lab



New Technologies

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**Test report no. P60-15-4078en****Fire testing**

Order number: 60-15-0087  
Date: 09.03.2015  
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Documentation: bu

This report consists of  
4 pages und 0 enclosure.

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**Delivery date specimen:** 17.02.2015**Test date:** 06.03.2015

**Test specimen:** polycarbonate glass reinforced  
Order number: answer  
Order date: 17.02.2015

**Relevant specification:** Testing according DIN EN 45545-2 (08/2013), T10.03  
DIN EN ISO 5659-2 (03/2013)

**Objective:** Evaluation according to DIN EN 45545-2 (08/23013)  
Requirement R22/R23 (Table 5– Material requirement)

**Test results:** The following values results from the detected smoke densities:

max(D<sub>s</sub>) 282

The detected smoke density result in a D<sub>s</sub>(max) value of 282.  
This ensures the requirements for smoke density corresponding to the  
target of hazard level HL2 for R22 and hazard level HL3 for R23.



**Gert Schmidt**  
Head of Fire Lab

The results refer only to the specimens mentioned above.  
This Test Report must always be copied entirely. Any copying of extracts and publication require the prior consent of the Laboratory.

## 1 Details about the specimens

### Material or combination of materials:

polycarbonate glass reinforced

### Manufacturer:

XIAMEN WAIN ELECTRICAL Co., Ltd.  
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### Dimensions of sample:

75mm x 75mm x 4mm

### Side of specimen to be tested by flame:

Sides identical

### Environmental conditions:


temperature [°C]: 20  
rel. humidity [%]: 38  
pressure [hPa]: 1029

Before the tests were carried out the specimen stored 48 h at 23 °C and 50 % relative humidity.

## 2 Test equipment:

The test and measuring instruments as well as the calibrations status were checked before using.

Test instruments	Id.-No.
Smoke Box according DIN EN ISO 5659-2	79930758

Sign  
Test engineer: 

### 3 Evaluation of smoke production

The tests are carried out according to DIN EN ISO 5659-2. The time dependent transmission is measured. From this the smoke density and the parameters for the evaluation are calculated from the measured time profile of transmission and the resulting smoke density required for the assessment parameters are determined  $D_s(4)$ , VOF4 and maximum of ( $D_s$ ).

### 4 Summary of the test result


Average value of the specific optical density of smoke at $t = 4$ min	$D_s(4)$	54
Cumulative value of specific optical densities in the first 4 minutes of the test	VOF4[ $\mu\text{m}$ ]	44
Average value of the maximum of the specific optical density of smoke	$D_s(\text{max})$	282

### 5 Test results

Irradiance	25 kW/m <sup>2</sup>				
	Yes				
Direct impingement of flame	Yes				
Specimen	1	2	3	Average	
Testing with wire grid	No				
Thickness in mm	4,0	4,0	4,0	4,0	
Cf	10,02				
Clear beam correction factor	$D_c$	27,58	33,17	31,11	entf.
Specific optical density of smoke after 4 minutes	$D_s(4)$	30	68	62	54
Specific optical density of smoke after 10 minutes	$D_s(10)$	250	298	298	282
Maximal specific optical density of smoke	$D_s(\text{max})$	251	298	298	282
Cumulative value of specific optical densities in the first 4 minutes of the test	VOF4 [min]	27	56	49	44
Test time, acc. DIN EN 45545-2, tab.6	[s]	600	600	600	600

#### Observation:

Specimen	1	2	3	Average
Ignition time [s]	138	132	138	136
Extinguishing time [s]	-	-	-	-

Sign  
Test engineer: 

## 6 Visual documentation



Fig. 1 - specimen before testing

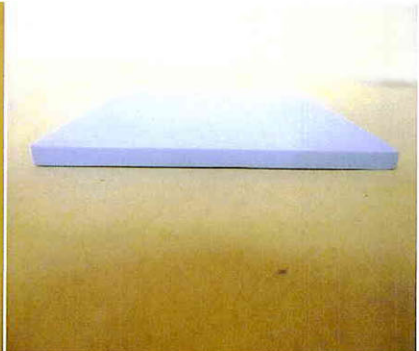


Fig. 2 - specimen before testing (side)

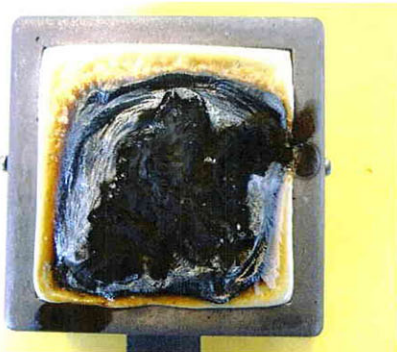


Fig. 3 - specimen after testing

Sign  
Test engineer: 