

Porex<sup>®</sup> PTFE Materials

**INGRESS PROTECTION VENTS  
(IP65, IP66 & IP67)**

TEST CERTIFICATE AND REPORT  
ISSUED BY CSA GROUP  
TESTING UK LIMITED



CSA Group Testing UK Ltd, a CSA Group company, provides the following services:

- SAFETY TESTING
- ENVIRONMENTAL TESTING
- TRAINING
- HAZARDOUS AREA CLASSIFICATION
- PRODUCT CERTIFICATION SERVICES
- FUNCTIONAL SAFETY

CSA Group Testing UK Ltd,  
Unit 6, Hawarden Industrial Park,  
Hawarden, Deeside,  
CH5 3US

The company has UKAS (United Kingdom Accreditation Service) accredited facilities for testing.  
Certification and EU Notified Body activities are undertaken by Sira Certification Service.

**TESTS UNDERTAKEN AND REPORT PREPARED BY  
CSA GROUP TESTING UK LIMITED**

Opinions and interpretations expressed herein  
are outside the scope of UKAS Accreditation

Author:

**D Boyle**  
Laboratory Technician

Technical Approval:

**S Cork**  
Laboratory Manager

Date:

**1<sup>st</sup> December 2015**

**Ingress Protection tests on  
Porous PTFE materials  
on behalf of Porex Technologies Ltd**

**Report No: N70055499B**  
Commercially in Confidence

Copyright © CSA Group Testing UK Ltd  
The contents of this document are subject to the terms  
and conditions of CSA Group Testing UK Ltd available  
free on request.

## CONTENTS

| Section | Title                                    | Page |
|---------|--|------|
| 1       | Introduction                             | 3    |
| 2       | Description of test sample               | 4    |
| 3       | Test for first characteristic numeral 6  | 5    |
| 4       | Test for second characteristic numeral 5 | 5    |
| 5       | Test for second characteristic numeral 6 | 6    |
| 6       | Test for second characteristic numeral 7 | 6    |
| 7       | Conclusion                               | 6    |



UNIT6, HAWARDEN INDUSTRIAL PARK  
HAWARDEN, CH5 3US. UNITED KINGDOM  
TELEPHONE: 01244 670900

# TEST REPORT

ISSUED BY CSA GROUP TESTING UK LIMITED

Carried out by ST&C (Now CSA Group Testing UK Limited) for:

Porex Technologies Ltd  
Merlin House  
Alness Point Business Park  
Alness  
Ross-Shire  
IV17 0UP

Project No: 70055499

Commercially in confidence

*This report is supplementary to report 58D28613A, issued on 22<sup>nd</sup> October 2012*

*Reason for issue: To reflect the product numbers by which the samples are now known, see Section 1 for details*

## 1 INTRODUCTION

At the request of the customer the original report (58D28613A) has been updated to reflect that the original product numbers have been superseded with new designations, although these changes have not been checked by CSA. Hereonin reference is only made to the new product numbers.

This report refers to the performance of the test samples when tested against the agreed programme. It does not imply that any other samples or products necessarily comply with the requirements of the test programme. In addition, whilst this report maybe freely reproduced as a complete document it may not be abstracted.

**Samples provided by:** Porex Technologies Ltd

**Type identification:**  
PMV25 porous PTFE material  
PMV20 porous PTFE material  
PMV30 porous PTFE material  
PMG10/PMV10 porous PTFE material  
PMV15 porous PTFE material

**Serial numbers:** PMV25 given identifiers 58D28613 #1 and #2  
PMV20 given identifiers 58D28613 #3 and #4  
PMV30 given identifiers 58D28613 #7 and #8  
PMG10/PMV10 given identifiers 58D28613 #9 and #10  
PMV15 given identifiers 58D28613 #11 and #12

**Standard:** BS EN 60529:1992 Inc Amendments Nos 1 and 2

**Deviations from standard:** None

**Aim:** IP65 for PMV25 and PMV20  
IP66 for PMV30  
IP67 for PMG10/PMV10 and PMV15

**ST&C test procedure:** LOP 220

**ST&C internal test reports:** 12/0718

**Samples delivery date:** 3<sup>rd</sup> August 2012

**Tests conducted between:** 7<sup>th</sup> to 30<sup>th</sup> August 2012

## 2 DESCRIPTION OF TEST SAMPLES

For the purposes of the tests the sample membranes were supplied by the customer attached to test enclosures. The membranes were used to cover a pattern of three holes drilled by the customer in the enclosure wall, the diameter of the holes were 0.8 mm. See Figure 1 for details of a typical sample.



Figure 1 Typical sample

### 2.2 Dimensions

The approximate dimensions of the membranes were 17 mm diameter.

### 2.3 Sealing

For the purposes of the tests the enclosure lids were sealed so that any observed ingress could only have entered via the membranes.

### **3 TESTS FOR FIRST CHARACTERISTIC NUMERAL: 6**

Samples tested; #1 (PMV25), #3 (PMV20), #7 (PMV30), #9 (PMG10/PMV10) and #11 (PMV15)

#### **3.1 Test for protection against access to hazardous parts**

Reference BS EN 60529:1992 clause 12.

A rigid test wire Ø 1 mm and length to a stop face of 100 mm was pushed against the membranes with a force of 1 N ± 10%.

##### **3.1.1 Result**

As the apertures were a collection of three 0.8 mm diameter holes, see Figure 1, it was not possible for the 1 mm test wire to puncture the membranes. Additionally there were no visible signs of damage to the membranes.

#### **3.2 Test for protection against solid foreign objects**

Reference BS EN 60529:1992 clause 13.

Each test enclosure in turn, with the membrane attached, was supported in an orientation such that the membrane was on a vertical face. The enclosure was placed inside a chamber containing approximately 2 kg of test dust per cubic meter with maximum particle size 75 µm maintained in suspension. As required by the standard a connection was made to a vacuum pump to maintain an under-pressure inside the test enclosure which did not exceed 20 mbar.

As in practice it is not known what size of enclosure the membrane would be attached, the duration for each test was 8 hours, the maximum specified in the standard.

##### **3.2.1 Result**

On internal inspection of the test enclosures no dust was found for any test.

### **4 TEST FOR SECOND CHARACTERISTIC NUMERAL: 5**

Samples tested; #2 (PMV25) and #4 (PMV20)

#### **4.1 Test for protection against water**

Reference BS EN 60529:1992 clause 14.

Each test enclosure in turn was supported in an orientation such that the membrane was on a vertical face. Water from a standard water jet hose test nozzle with internal Ø 6.3 mm was directed at the membrane at a rate of 12.5 L/min from a distance between 2.5 to 3 metres.

The duration of each test was 3 minutes.

##### **4.1.1 Result**

On inspection no water was found in either of the enclosures.

## **5 TEST FOR SECOND CHARACTERISTIC NUMERAL: 6**

Sample tested; #8 (PMV30)

### **5.1 Test for protection against water**

Reference BS EN 60529:1992 clause 14.

The test enclosure was supported in an orientation such that the membrane was on a vertical face. Water from a standard water jet hose test nozzle with internal Ø 12.5 mm was directed at the membrane at a rate of 100 L/min from a distance between 2.5 to 3 metres.

The duration of each test was 3 minutes.

#### **5.1.1 Result**

On inspection no water was found in the enclosure.

## **6 TEST FOR SECOND CHARACTERISTIC NUMERAL: 7**

Samples tested; #10 (PMG10/PMV10) and #12 (PMV15)

### **6.1 Test for protection against water**

Reference BS EN 60529:1992 clause 14.

Each test enclosure in turn was completely immersed in water with the lowest point, the face with the membrane attached, being located 1000 mm below the water surface. The test duration for each sample was 30 mins.

#### **6.1.1 Result**

On inspection no water was found in either of the enclosures.

## **7 CONCLUSION**

The membranes described in sections 1 and 2 of this report, when tested in the manner described in sections 3 and 4, satisfied the following requirements of BS EN 60529:1992 Inc Amendments Nos 1 and 2.

PMV25 porous PTFE material – IP65 when tested in configuration described in Section 2

PMV20 porous PTFE material – IP65 when tested in configuration described in Section 2

PMV30 porous PTFE material – IP66 when tested in configuration described in Section 2

PMG10/PMV10 porous PTFE material – IP67 when tested in configuration described in Section 2

PMV15 porous PTFE material – IP67 when tested in configuration described in Section 2