

Diffusive Flow & Bubble Point Test

Hydrophobic Capsule

Preface

Hydrophobic filters are normally integrity testing using the Water Intrusion Test method. This does not require fully wetting out the membrane and makes it easier to drain and dry the filter before placing into service. In some cases, it may be desirable to perform a Diffusive Flow test or Bubble Point test on a hydrophobic filter. This can be accomplished by pre-wetting the filter with a low surface tension test fluid - such as 60/40 or 70/30 IPA/Water.

Introduction

With the exception of the wetting fluid, Diffusive Flow and Bubble Point testing require the same equipment set up and follow the same procedures as those required to test hydrophilic filters.

If using an automated integrity test system for measuring Diffusive Flow or Bubble Point is used, make sure the test parameters are properly set up for the filter to be tested. NOTE: These parameters are not necessarily the same for all membrane filters from different manufacturers.

If necessary, contact
CustomerService@criticalprocess.com for
appropriate parameters for your system.

Diffusive Flow Test Procedure

1. Install and wet out the capsule as per Capsule Wetting instructions. Make sure to use the appropriate low surface tension wetting fluid.

NOTE: In some cases, it may be possible to wet out the membrane by filling the capsule with the test fluid through the core with the outlet facing up. This requires the upper vent to be open. Fill slowly until the

liquid exits the vent. Then close the vent and seal the outlet. Allow the capsule to soak a minimum of 30 minute then drain.

2. Follow the instructions for Diffusive Flow Test for hydrophilic capsules.
3. Record the diffusional airflow.
4. Purge the capsule with air to remove excess wetting fluid.

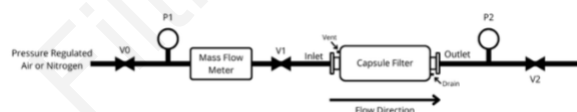


Figure 1: Capsule Diffusion Testing

A diffusional flow (diffusion rate) reading higher than the specification indicates that the system is not integral. This may be due to incomplete filter wetting, a leak in the test system or a defect in the filter.

Procedure Note

If the capsule appears to fail the initial diffusion test, repeat the Capsule Wetting procedure and increase the rinse or soak time to twice the initial amount to assure that the media has been properly wetted. Then retest. If necessary, check the capsule connections to make sure there are no leaks.

Bubble Point Test Procedure

1. Install and wet out the capsule as per Capsule Wetting instructions. Make sure to use the appropriate low surface tension wetting fluid.

NOTE: In some cases, it may be possible to wet out the membrane by filling the capsule with the test fluid through the core with the outlet facing up. This requires the upper vent to be open. Fill slowly until the

liquid exits the vent. Then close the vent and seal the outlet. Allow the capsule to soak a minimum of 30 minute then drain.

2. Follow the instructions for Bubble Point Test for hydrophilic cartridges.
3. Record the BUBBLE POINT.
4. Purge the capsule with air to remove excess wetting fluid.

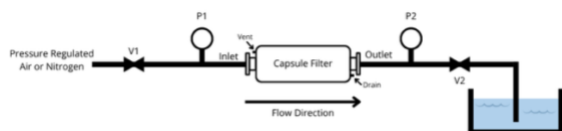


Figure 2a: Capsule Bubble Point Testing

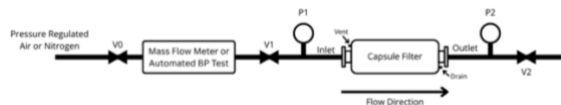


Figure 2b: Capsule Bubble Point Testing Using an Automated System

A bubble point reading lower than the specification indicates that the system is not integral. This may be due to incomplete filter wetting, a leak in the test system or a defect in the filter.

Procedure Note

If the capsule appears to fail the initial bubble point test, repeat the Capsule Wetting procedure and increase the rinse or soak time to twice the initial amount to assure that the media has been properly wetted. Then retest. If necessary, check the capsule connections to make sure there are no leaks.

Any Questions?

For help determining the test values or additional information, contact customerservice@criticalprocess.com or call us at (603) 880-4420.

Critical Process Filtration, Inc. is an ISO-9001 certified manufacturer of process filters. We have been helping customers for over 25 years to build and improve process filtration systems. Our comprehensive testing, analysis, and validation services support your team whenever needed. Partnering with you and your process team is how we deliver your company's solution right the first time.

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