

FILTRABILITY INDEX

Description

DANMIL FILTRABILITY INDEX (DANMIL F.I.) is an automatic precision instrument used to analyse the filtrability of musts, wines and all beverages. The instrument is equipped with a USB port for connection to a PC necessary for the management of the analyses carried out, data processing, storage and printing of results.

The clogging index is a semiempirical parameter that allows for the filtration of a liquid matrix, such as wine, to be evaluated, in order to predict the performance of a “final filtration” system for

pre-bottling, into which the wine will be fed.

DANMIL F.I. is able to evaluate the **filtrability of both extremely clogging liquids and microfiltered liquids with low clogging levels.** The P.F.T. analysis (Pre-Filtration Test) of clogging liquids is performed using a method developed by DANMIL which allows to obtain an evaluation of **filtrability of raw wines and musts.**

THE FILTRABILITY TEST

The filtrability test consists in determining the time required to filter a certain volume of wine with a reference membrane 3 times in a row. From the 3 times measured, the following values are obtained using simple empirical formulas:

- **Clogging Index (C.I.)**
- **Modified Clogging Index (M.C.I.)**
- **Maximum Filterable Volume (Vmax).**

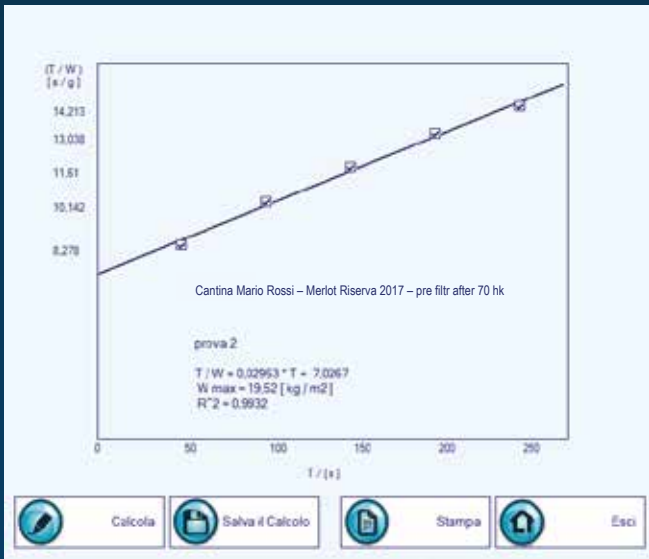
The test is carried out using mixed cellulose ester membranes with a 0.65 micron porosity and a 25 mm diameter, in the operating conditions indicated in the table to the side.

Filtration pressure	2.0 bar
Temperature	20 °C
Test volume	200 mL
Start volume	100 - 150 mL

OPERATION

- The instrument starts the test by opening pressure relief valve of the bottle containing the sample to be filtered. In this way, the filtration system, consisting of a housing containing the filter membrane and a scale that determines the amount of filtered product, is fed at constant pressure.
- A PC, connected to the instrument via a USB cable, records the amount of filtered product over time.
- At the end of the test, the instrument automatically closes the pressure relief valve and calculates the clogging parameters.
- The operator can save the results of each test in the memory of the PC connected to the instrument (PC not supplied).

The software supplied with DANMIL F.I. provides the results of each filtrability test.



Date: 1/9/2020 ID: 15
 Operator: FP
 Sample Name: TAV 3

Test Parameters
 Method: IC Test Metodo 1
 Start Threshold / [g]: 1 Weight W0 / [g]: 20
 Weight W1, W2, W3 / [g]: 200 Max Time / [sec]: 200

Test Results
 T1 / [sec]: 29,3 IC: 2,89
 T2 / [sec]: 61,49 ICM: 1,38
 T3 / [sec]: 95,06 W.F. / [kg]: 4455,4

Remarks: 0/250

WINE PRE-FILTRATION TEST (P.F.T.)

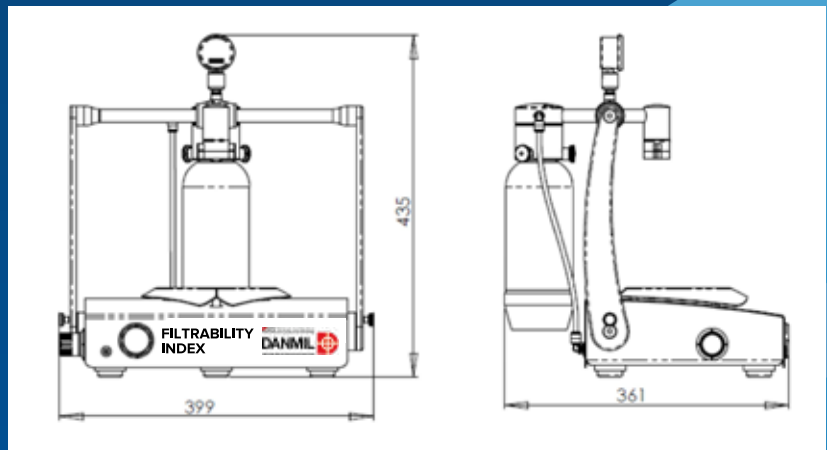
The methods currently available are used to evaluate the “filtrability” of wine that has already been “filtered” with a tangential filter, with a flour filter or with DANMIL filter elements. In other words, they are used for wine samples that have already been “prepared” for aseptic bottling, while there are no methods that allow for the filtrability of “raw” wine to be evaluated.

The P.F.T. is an innovative test that allows for the filtrability of a “raw” wine to be evaluated before being subjected to filtration using DANMIL filter elements, or another filtration system. The test was developed by DANMIL’s R&D Department by processing the experimental data collected during countless filtration tests.

The test is performed automatically by DANMIL F.I., appropriately equipped with a housing for EMC (mixed cellulose ester) membranes with a 47 mm diameter and a 1.0 micron filtration degree, and requires a volume of raw wine equal to 1 litre. The test consists in measuring the amount of wine filtered at constant pressure (2.0 bar) and at a temperature of 20°C in 50 seconds.

TECHNICAL SPECIFICATIONS

Dimensions (LxPxH)
400x360x150 mm
Weight
15 kg
Feeder
Input: 100 - 240 Vac 50/60 Hz
Output: 24Vdc 1.25 A





Components

The instrument **DANMIL F.I.**, used to determine the clogging index of wines, includes:

- a weighing system (scale) with a maximum capacity of 3 kg
- a type-A female USB port
- No.1 pressure gauge with 0-4 bar scale
- No.1 pressure regulator
- Gas inlet (compressed air or nitrogen) with 8 mm quick coupling
- No.1 24Vdc feeder compatible with the main European and American sockets
- No.1 pack of 100 hydrophilic mixed cellulose ester membrane filters, with a 0.65 µm filtering degree, 25mm diameter (filtration surface area 3.9 cm²)
- No.1 pack of 100 hydrophilic mixed cellulose ester membrane filters, with a 1 µm filtering degree, 47mm diameter (filtration surface area 17.3 cm²)
- No.1 PP housing (filter holder) for 25mm membranes
- No.1 PP housing (filter holder) for 47mm membranes
- No.2 sample holder bottles with a volume of 1000 ml
- No.1 USB cable
- No.1 DANMIL FILTRABILITY INDEX software for instrument management

Optional accessories

- Instrument transport/storage case with wheels, made of high-strength shockproof plastic material, with watertight closure, complete with shaped internal foam padding to hold the instrument and up to 4 sample holder bottles.

DANMIL reserves the right to make any changes deemed necessary to improve its product at any time.