AFG ANALYTIC GMBH

DFA

DYNAMIC FILTRATION ANALYZER

Determination of the influence of chemicals on the filtration characteristics of fiber suspensions

ADVANTAGES

- automatic measurement of
  - drainage
  - total retention
  - filler retention
  - pH value
- quick and accurate
- different mesh screen sizes
- transportation case available
- optional: very fast dosing of up to three different chemicals using syringes

USERS

- chemical suppliers
- pulp producers
- paper / board producers
- waste water treatment plants
- universities and institutes

The DFA Dynamic Filtration Analyzer determines retention and drainage behavior of fibers and pigments in aqueous solutions. This knowledge enables the correct and effective dosing of chemical additives.

BASIC

Additives like starch, pigments, brighteners, wet strength agents and flocculation agents react with the fibers in a complex manner. Usually, retention aids increase drainage, but in some cases, they even decrease it. The investigation of the interaction between retention aids and other additives is therefore mandatory.

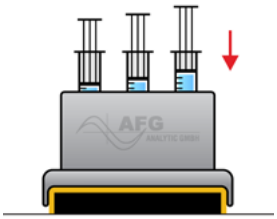
The DFA enables a quick and accurate determination of the drainage by filtering the suspension on a screen (e.g. standardized Schopper-Riegler) and displaying the filtrate amount on a scale. The dosage of chemicals during the stirring process is possible.

The retention measurement is performed according to the acknowledged “Dynamic Drainage Jar” method. Different practical filtration conditions can be simulated by a magnetic valve and different mixing gears to gain the total retention or filler retention (SCAN-CM 66:05). In order to simulate different process conditions, all relevant data to configure a mixing profile is stored and used for automatic measurements.

DFA | DYNAMIC FILTRATION ANALYZER

MEASURING PRINCIPLE

First, a mixing profile must be selected or programmed. At the start of the **drainage measurement**, the fiber suspension is filled into the stirring chamber and subjected to the shear forces by the stirrer according to the mixing profile. During this process, chemicals can be dosed, including the very fast dosing of up to three different additives by syringes.



Adapter option:
quick and easy addition
of up to three chemicals
in succession

The suspension is then filtered through a screen. The filtrate amount is determined by means of a curve over the drainage time.

Benefits of knowing the drainage behavior:
higher dry content after wire, higher production (machine) speed, lower vacuum in suction boxes, higher dilution in head box, higher initial wet strength

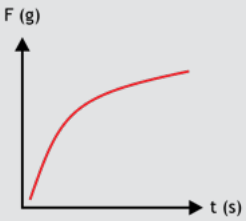
For **retention determination**, the pulp is drained on a screen with constant stirring without forming a filter layer. Different practical filtration conditions can be simulated by a magnetic valve and different mixing gears. The software then calculates the total or filler retention by determining the solid content of the filtrate and the pulp sample (according to SCAN-CM 66:05).

Benefits of knowing the retention behavior:
clean water circuits, reduced wire abrasion, better performance of additives, improved waste water quality, reduced chemical consumption

APPLICATION AREAS

r&d and troubleshooting
process & quality control
process & product optimization
waste water treatment
sludge drainage optimization

MEASURING RESULTS



drainage result

	Sample	Filtrate	Retention
total solids content	200 g	10 g	50 %
filler content	50 g	2 g	60 %
volume	1000 ml	100 ml	

retention result

TECHNICAL DATA

device dimensions	50.1 x 18.9 x 25.5 cm (H x W x D)
device weight	17.5 kg
	with transportation case approx. 29 kg
power supply	85-264 V AC, 47-63 Hz
sample specification	500 - 1000 ml
	solid matter consistency approx. 0.5-2 %
mesh screens	60 mesh screen with 0.16mm wire size (Schopper-Riegler Standard)
	50 mesh screen with 0.20mm wire size
	40 mesh screen with 0.22mm wire size
	25 mesh screen with 0.30mm wire size
	18 mesh screen with 0.40mm wire size

SOFTWARE

AFG Measurement System

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