

## Great Wall High Performance Series Depth Filter Sheets For More Challenging Applications

---

Great Wall H series depth filter sheets have increased sediment absorption capacity, and were developed to meet the requirements of production needs larger filtration flux.

The sheets with outstanding clarification performance are widely used in specialist and challenging applications. Due to sheets' stability combined with long sheet life, sterility and integrity, this series covers a wide retention range which enables precise adaptation to each respective filtration task.

### Specific Advantages

- Homogenous and consistent media, available in multiple grades
- Media stability due to high wet strength
- A combination of surface, depth and adsorptive filtration
- Ideal pore structure for reliable retention of the components to be separated
- Use of high-quality raw materials for high clarification performance
- Economic service life through high dirt holding capacity
- Comprehensive quality control of all raw and auxiliary materials
- In-process monitoring ensures consistent quality

## Great Wall High Performance Series Depth Filter Sheets For More Challenging Applications



### Applications

- ▣ Clarifying filtration
- ▣ Fine filtration
- ▣ Germ reducing filtration
- ▣ Germ removing filtration

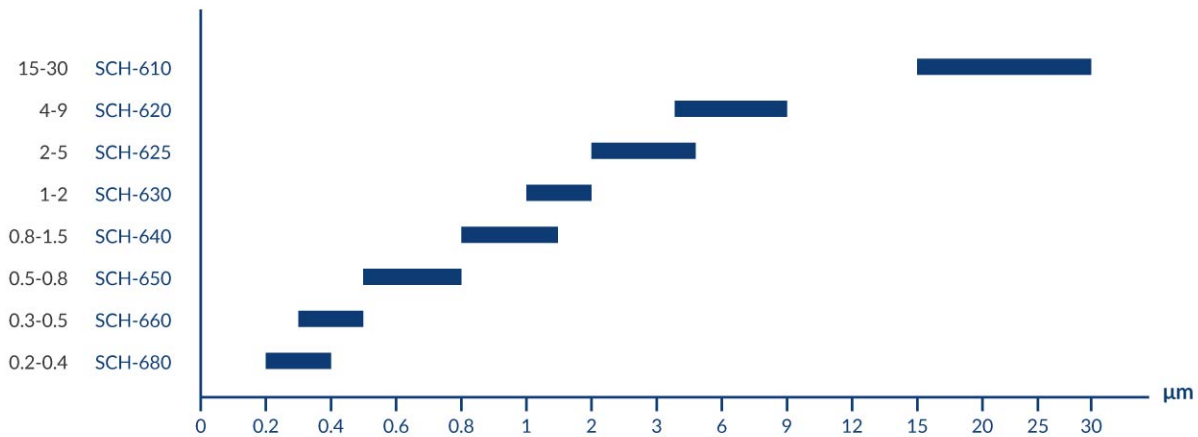
H series products have found wide acceptance in the filtration of spirits, beers, syrups for soft drinks, gelatines and cosmetics, plus a diverse spread of chemical and pharmaceutical intermediates and final products.

### Main Constituents

The H series depth filter sheets are made from particularly pure natural materials:

- Cellulose
- Natural filter aid diatomaceous earth (DE, Kieselguhr)
- Wet strength resin

## Relative Retention Rating



- \* These figures have been determined in accordance with in-house test methods.
- \* Effective removal performance of filter sheets is dependent on process conditions.

## Physical Data

This information is intended as a guideline for the selection of Great Wall depth filter sheets.

Model	Flow time (s)①	Thickness (mm)	Nominal retention rate (µm)	Water permeability② (L/m <sup>2</sup> /min Δ=100kPa)	Dry bursting strength (kPa≥)	Wet bursting strength (kPa≥)	Ash content %
SCH-610	20"-55"	3.4-4.0	15-30	3100-3620	550	160	32
SCH-620	2'-5'	3.4-4.0	4-9	240-320	550	180	35
SCH-625	5'-15'	3.4-4.0	2-5	170-280	550	180	40
SCH-630	15'-25'	3.4-4.0	1-2	95-146	500	200	40
SCH-640	25'-35'	3.4-4.0	0.8-1.5	89-126	500	200	43
SCH-650	35'-45'	3.4-4.0	0.5-0.8	68-92	500	180	48
SCH-660	45'-55'	3.4-4.0	0.3-0.5	23-38	450	180	51
SCH-680	55'-65'	3.4-4.0	0.2-0.4	23-33	450	160	52

① Flow time is a time indicator used to evaluate the filtering accuracy of the filter sheets. It is equal to the time it takes for 50 ml of distilled water to pass 10 cm<sup>2</sup> of filter sheets under the conditions of 3 kPa pressure and 25°C.

② The permeability was measured under test conditions with clean water at 25°C (77°F) and 100kPa, 1bar (Δ14.5psi) pressure.

These figures have been determined in accordance with in-house test methods and the methods of the Chinese National Standard. The water throughput is a laboratory value characterizing the different Great Wall depth filter sheets. It is not the recommended flow rate.

## Chemical Data

### ▣ Microbial Detection and Analysis

Great Wall depth filter medium meets the requirements of Chinese Pharmacopoeia (2020 edition) Four General Principles (1107).

Test Item	Limit Requirements	Unit	Test Result	Conclusion	Test Method
Total aerobic bacteria	10 <sup>3</sup>	CFU/g	90	PASS	Refer to "Chinese Pharmacopoeia" (2020 edition) Four General Principles (1105) pour method
Total number of molds and yeasts	10 <sup>2</sup>	CFU/g	< 10	PASS	

### ▣ US FDA Guidelines CFR 176. 170-Chloroform Soluble Extractives

Great Wall depth filter medium meets the requirements of US FDA 21 CFR (Food and Drug Administration).

Simulant Used	Time	Temperature	Max. Permissible Limit	Result of 001 Chloroform-soluble extractives	Conclusion
Distilled water	2.0hr(s)	250°F	0.5mg/inch <sup>2</sup>	<0.1mg/inch <sup>2</sup>	PASS
8% Ethanol	2.0hr(s)	150°F	0.5mg/inch <sup>2</sup>	<0.1mg/inch <sup>2</sup>	PASS
50% Ethanol	2.0hr(s)	150°F	0.5mg/inch <sup>2</sup>	<0.1mg/inch <sup>2</sup>	PASS
N-Heptane	0.5 hr(s)	150°F	0.5mg/inch <sup>2</sup>	<0.1mg/inch <sup>2</sup>	PASS

### ▣ GB4806.8-2016 Standard (General Safety Requirements for Food-Contact Materials and Articles)

Great Wall depth filter medium meets the requirements of the GB4806.8-2016 standard.

Test Item	Unit	Standard requirements	Test Result	Conclusion	Reference standard
Sensory test	-	Normal color, no peculiar smell, mildew or other contaminants	PASS	PASS	GB 4806.8-2016
Soaking liquid	-	The soaking liquid obtained from the migration test should not have sensory deterioration such as coloring and peculiar smell	PASS	PASS	GB 4806.8-2016
(Pb)	mg/kg	<3.0	N.D	PASS	GB 31604.34-2016
(As)	mg/kg	<1.0	N.D	PASS	GB 31604.38-2016
Overall Migration	mg/dm <sup>2</sup>	<10	N.D	PASS	GB 31604.1-2015&GB 31604.8-2016
Consumption of potassium permanganate	mg/kg	<40	11	PASS	GB 31604.2-2016
formaldehyde	mg/dm <sup>2</sup>	<1.0	N.D	PASS	GB 4806.8-2016
Fluorescent substance wavelength 254nm and 365nm	-	Negative	Negative	PASS	GB 31604.47-2016
Heavy metals (calculated as Pb)	mg/kg	<1.0	<1.0	PASS	GB 31604.9-2016
Coliform	/50cm <sup>2</sup>	Not Detected	N.D	PASS	GB 14934-2016
Salmonella	/50cm <sup>2</sup>	Not Detected	N.D	PASS	GB 14934-2016
Mildew	CFU/g	≤50	<10	PASS	GB 4789.15-2016

## Instructions for Correct Use

Great Wall depth filter sheets need to be carefully handled when inserting them into the plate and frame filter. Avoid banging, bending, and rubbing the sheets. Do not use damaged depth filter sheets.

## Inserting

The depth filter sheets have a rough side and a smooth side. The rough side is the feed side, and the smooth side is the filtrate side. Always ensure that the filtrate side is in contact with the clear filtrate plate when inserting the sheets.

## Filter Preparation

Before the first filtration, we recommend pre-rinsing the closed filter with 1.23 gal/ft<sup>2</sup> (50 L/m<sup>2</sup>) of water at 1.25 times the flow rate prior to the first filtration. This usually needs a rinsing time of 10 – 20 minutes. The washing should continue until the water passes through the filter is clear and free of impurities. Test the leakage of the entire filter at maximum operating pressure.

High-proof alcoholic solutions and products that cannot be rinsed with water should be circulated with the product. Discard the rinsing solution after rinsing.

## Sterilization and Sanitization

Filter sheets may be sterilized with saturated steam or hot water. The pressed filter package should be slightly loosened. Make sure to sterilize the entire filter system thoroughly. Do not apply final pressure until after the filter package has cooled down. Actual time required may vary with process conditions.

### ▣ Sterilizing with Hot Water

- The flow velocity should at least equal the filtration capacity.
- The water should be softened and free of impurities.
- Temperature: 185 °F (85 °C) .
- Duration: 30 minutes after the temperature has reached 185 °F (85 °C) at all valves.
- Pressure: At least 7.2 psi (50 kPa, 0.5 bar) at the filter outlet.

### ▣ Sterilizing with Steam

- Quality: The steam must free of foreign particles and impurities.
- Temperature: Max. 249.8 °F (121 °C) (saturated steam).
- Duration: Approx. 20 minutes after steam escapes from all filter valves.
- Rinsing: After sterilizing with 1.23 gal/ft<sup>2</sup> (50 l/m<sup>2</sup>) at 1.25 times the flow rate.

## Quality Assurance

Great Wall's R&D, production and application of our products are based on more than 30 years of depth filter media experience. All of our staff are committed to ensuring and continuously improving the quality of products and services.

We fulfill this responsibility by ensuring that our products meet national and international quality standards, and manufacturing is in accordance with the rules of Quality Management System ISO 9001 and Environmental Management System ISO 14001.

This certification verifies that a fully functioning comprehensive Quality Assurance System covering product development, contract controls, supplier selection, receiving inspections, production, final inspection, inventory management, and shipment has been implemented. The raw materials used in production are submitted to specific controls. In addition, continuous and repeated tests are carried out during the manufacturing process. Stringent quality and environment control during manufacturing ensures high quality standards and cleanliness of the Great Wall filter media, thus meeting the special requirements of our customers. Our products are verified and certified by an independent external institute to demonstrate our suitability for the food industry.

The Great Wall welcomes factory audits to ensure that rigorous production practices and procedures are in place.

- GBT 25437-2010, GBT 25435-2010(Chinese national standard of filter sheets)
- GB4806.8-2016 standard (General Safety Requirements for Food-Contact Materials and Articles)
- Chinese Pharmacopoeia (2020 edition) Four General Principles (1107)
- SGS test report meets US FDA 21 CFR 176.170-Chloroform soluble extractives
- Quality Management System ISO 9001:2015
- Environmental Management System ISO 14001:2015

## Safety

When used and handled correctly, there are no known unfavorable effects associated with this product. For further safety information, contact GREAT WALL to request the relevant Material Safety Data Sheet.

## Waste Disposal

Due to their composition, Great Wall depth filter media is 100% biodegradable. Untainted sheets can be disposed of with normal household waste. Used sheets must be disposed of in accordance with the type of contamination.

## Storage Period and Conditions

The product must be handled carefully during shipping and storage. Do not expose support sheets to direct sunlight. The sheets must be preserved in their original packaging and stored in a dry, odor-free, and well-ventilated area. Under no circumstances, together with or in the vicinity of evaporating chemicals, oils, fuels, etc.

We recommend using the sheets within 36 months of the date of manufacture.

## Forms of Supply

Filter media can be manufactured in formats to fit your application, based on customers' requirements, the filter press sizes and types currently in use.

All customary dimensions and any other special formats are virtually available on request, like folded sheets, rectangular sheets, circular sheets, sheets with various holes, and other customized cuts.

## Packaging

Great Wall filter sheets are packaged in hygienic plastic bags and after that in cartons. Special packaging is available on request.