



Great Wall S Series Washable Support Sheets For Reliable Support Properties

Great Wall S series is a new type of washable, reusable support sheet for pre-coat filtration in diatomaceous earth frame filters that you can use to achieve particularly high performance in the food and beverage industry.

It is a reliable partner for classic solid liquid separation to retain any filter aids which have been applied both as a pre-coat and as a body feed addition to the main unfiltered product. Not providing a considerable degree of clarification of their own, these filter sheets only serve as precoat support, while the kieselguhr or any other filter aid deposit represents the effective filter medium.

Its high wet strength and optimized surface enable a service life up to 30 precoat cycles, depending on the liquid to be filtered and the filter aid used. The sheets' total throughput is determined by the quality of the filtering aids deposit.

Applications

Great Wall support sheets work for the food and beverage industry and other applications like sugar filtration, basically anywhere where strength, product safety and durability are a key factor.

Main applications: Beer, food, fine/specialty chemistry, cosmetics.

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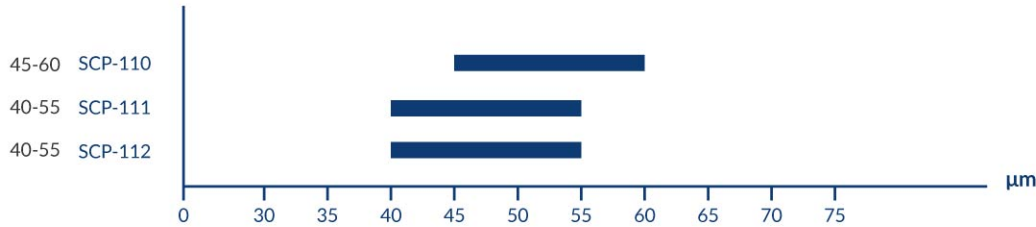
Specific Advantages

- Robust sheet surface for increased sheet life and heavy duty use
- Innovative sheet surface for improved cake release
- Extremely durable and flexible
- Perfect powder retention capacity and lowest drip-loss values
- Available as folded or single sheets to fit any of the filter press sizes and type
- Very tolerant of pressure transients during the filtration cycle
- Flexible collocation with various filter aids which include, kieselguhr, perlites, activated carbon, polyvinylpyrrolidone (PVPP) and other specialist treatment powders

Main Constituents

Great Wall S series depth filter medium is made only of high purity cellulose materials.

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 | Mass per unit area (g/m ²) | Flow time (s) ^① | Thickness (mm) | Nominal retention rate (µm) | Water permeability ^② (L/m ² /min Δ=100kPa) | Wet bursting strength (kPa≥) | Ash content % |
|---------|--|----------------------------|----------------|-----------------------------|--|------------------------------|---------------|
| SCP-110 | 950-1200 | 30"-1'30" | 3.6-4.0 | 45-60 | 8180-11300 | 700 | 1 |
| SCP-111 | 1100-1350 | 1'-2' | 3.6-4.0 | 40-55 | 4150-6700 | 1000 | 1 |
| SCP-112 | 1000-1100 | 1'-1'40" | 3.4-3.7 | 40-55 | 4380-7000 | 900 | 1 |

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 cm² 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 ³ | CFU/g | 40 | PASS | Refer to "Chinese Pharmacopoeia" (2020 edition) Four General Principles (1105) pour method |
| Total number of molds and yeasts | 10 ² | CFU/g | <10 | PASS | |

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□ 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 ² | <0.1mg/inch ² | PASS |
| 8% Ethanol | 2.0hr(s) | 150°F | 0.5mg/inch ² | <0.1mg/inch ² | PASS |
| 50% Ethanol | 2.0hr(s) | 150°F | 0.5mg/inch ² | <0.1mg/inch ² | PASS |
| N-Heptane | 0.5 hr(s) | 150°F | 0.5mg/inch ² | <0.1mg/inch ² | 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 ² | <10 | N.D | PASS | GB 31604.1-2015&GB 31604.8-2016 |
| Consumption of potassium permanganate | mg/kg | <40 | 9.6 | PASS | GB 31604.2-2016 |
| formaldehyde | mg/dm ² | <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 ² | Not Detected | N.D | PASS | GB 14934-2016 |
| Salmonella | /50cm ² | 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

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▫ Insertion of the Support Sheet

Great Wall support sheets have a smooth outlet side and a rough inlet side. The smooth outlet sides should be against the filter plate outlet side for filtered liquid. The rough side is the feed side, and it should point in the direction of the diatomite frame. Support sheets must be fully moist before closing the diatomaceous earth frame filter. Support sheets have a sensitive structure and require very careful handling during transportation, storage and insertion in the filter. Therefore, before the sheets are finally used in the diatomite frame filter, you should always ensure that the filter sheets are intact without damage.

Filter Preparation

Before the first filtration, we recommend pre-rinsing the closed filter with 1.23 gal/ft² (50 L/m²) 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 be 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/ft² (50 l/m²) 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.

Contact Us

Because of technological developments related to the products, systems, and/or services described herein, the data and procedures are subject to change without notice.

Great Wall has strong sales team throughout the world. Please consult your Great Wall representative or visit www.filtersheets.com for more information.