FLOWTEX / DEWATERING TECHNOLOGY

Technical data & selection guide

Geotextile dewatering bags, tubes and composite systems. Manufactured in South Africa for project supply across Africa.

Start with the feed. Specify the complete system.

A useful specification links slurry characterisation, fabric selection, conditioning, container geometry and site operation. Fabric properties alone do not establish finished-bag seam strength, pressure, throughput or lifting capacity.

The FlowTex range

Three constructions

Range	Purpose and selection basis
HF woven	Polypropylene slit-film woven enclosure; HF45, HF60 and HF105 reference tensile classes.
Mono	Structured woven filtration in PP or PE; 180, 350 and 600 µm O90 reference openings.
Composite	Nonwoven PP filtration liner inside a structural woven enclosure; CF100, CF95, CF90 and CF85 liner options.

How to use this guide

Compare the published fabric data, then use a representative trial to confirm the feed/filter/conditioning combination. Agree fabrication, operating and quality requirements in the project technical submission. Any loaded lifting duty requires a separately validated design.

Document: TDS-FT-001 | Issue 02 | Revision 1 | 4 November 2026

Issued by Geosynthetics South Africa (Pty) Ltd for FlowTex Dewatering Technology, part of Geosynthetics Africa Group. This issue supersedes Issue 01, Rev. 0 of the supplied selection guide.

02 / REFERENCE PROPERTIES

Fabric data: Mono and HF woven

These are reference roll-fabric values, not finished-container operating ratings. MD/CD means machine and cross direction; confirm the current grade submission and tolerance basis.

Monofilament fabric properties

FlowTex grade	Polymer	O90 (µm)	Normal permeability (mm/s)	Tensile MD/CD (kN/m)	CBR puncture (kN)
Mono 180	PP	180	50	40 / 40	6
Mono 350	PE	350	300	44 / 35	4
Mono 600	PE	600	350	41 / 35	3.5

Reference fabric averages. O90: EN ISO 12956; normal permeability: EN ISO 11058; tensile: EN ISO 10319; puncture: EN ISO 12236. Not finished-bag pressure, throughput or lifting ratings. O90 is not an absolute particle cut-off.

High-flow woven fabric properties

FlowTex grade	Tensile MD/CD (kN/m)	O90 (µm)	Normal permeability (mm/s)	Mass (g/m²)
HF45	45 / 45	600	40	210
HF60	60 / 60	600	27	280
HF105	105 / 105	300	25	500

Nominal reference fabric values, subject to stated tolerances and the current project submission. Tensile: EN ISO 10319; O90: EN ISO 12956; normal permeability: EN ISO 11058; mass: EN ISO 9864. Fabric strength is not seam strength or allowable filling pressure.

Read the hydraulic data correctly

O90 is a characteristic opening-size result, not an absolute particle cut-off. Clean-water permeability describes a specified laboratory condition; it is not slurry throughput. Do not multiply clean-water permeability by nominal bag area to promise a pump flow or daily production rate.

No unsupported equivalence

Do not substitute grab tensile for wide-width tensile, O90 for a different apparent-opening-size method, or base-fabric strength for a finished-seam result. No generic UV lifetime is assigned to the Mono range in this guide.

03 / COMPOSITE SELECTION

Separate filtration from structural duty

The inner liner provides a separate filtration interface; the woven outer enclosure provides the structural shell. Our composite selection considers both layers, the seams and ports, and their combined drainage behaviour.

Composite filtration-liner options

FlowTex liner	O90 (µm)	Normal permeability (mm/s)	Tensile MD/CD (kN/m)	Mass (g/m²)	CBR puncture (kN)
CF100	100	85	16 / 16	200	2.35
CF95	95	70	20 / 20	250	3.00
CF90	90	55	25 / 25	300	3.85
CF85	85	55	30 / 30	385	4.50

Properties of the inner continuous-filament polypropylene nonwoven only, not the assembled composite. O90: EN ISO 12956; normal permeability at 50 mm head: EN ISO 11058; tensile: EN ISO 10319; mass: EN ISO 9864; CBR: EN ISO 12236. Values are indicative averages. Outer-shell and liner strengths must not be added. Verify the complete assembly in trials.

Balanced composite: CF100

Use the 100 µm liner as the initial balanced candidate for trials. Its reference normal permeability is 85 mm/s and its mass is 200 g/m². These are liner properties, not a composite throughput guarantee.

Fine-filtration composite: CF85

Evaluate the 85 µm liner where trials show a need for tighter filtration or a more robust inner layer. It has reference normal permeability of 55 mm/s and mass of 385 g/m². It does not guarantee retention of all particles above or below 85 µm.

Intermediate options

CF95 and CF90 allow further trial comparisons. Choose the construction that meets filtrate and drainage targets at acceptable cake formation and operating cost.

Material routes: trial candidates, not automatic selections

Feed description	Initial comparison
Coarse / granular	HF woven and suitable more-open Mono candidates; verify the fine fraction.
Medium / mixed sediment	Mono 180 and suitable HF grades; compare a composite if filtrate criteria require it.
Fine / biological / colloidal	Tighter Mono and composite candidates, with unconditioned and conditioned trials.

No fixed particle-size threshold, drainage duration or guaranteed filtrate turbidity is assigned to these categories. Characterise the actual feed.

04 / GEOMETRY AND SIZING

Tube dimensions and solids loading

The confirmed fabrication envelope is up to 15 m circumference × 30 m finished length, subject to review of the specified fabric and assembly.

Tube dimensions and fabrication envelope

Dimension	How to specify it
Maximum stated fabrication size	Up to 15 m circumference × 30 m finished length
Lay-flat width at 15 m circumference	Approximately 7.5 m before seam allowances; not filled width
Circular-equivalent diameter at 15 m circumference	Approximately 4.77 m; a geometric reference, not operating height
Working capacity	Determined from filled geometry, allowable height, slurry density and consolidation
Ports and connections	Specify diameter, quantity, spacing, hose connection and filling sequence
Handling	State pad-based emptying or a separately designed and validated lifting duty

Capability confirmed by FlowTex management. Availability of any size/fabric combination is subject to fabrication review. The maximum dimensions are not a guaranteed working volume, pump rating or approval to stack or lift.

Size from measured solids

Dry-solids mass = wet feed volume × slurry density × dry-solids mass fraction. If dry-solids concentration is measured in kg/m³, multiply wet feed volume directly by that concentration. State whether every percentage is by mass or by volume.

For an estimated final cake volume: cake mass = dry-solids mass / cake dry-solids mass fraction; cake volume = cake mass / measured or justified cake bulk density. Use trial results and an approved filled geometry to plan the number of units and filling/draining cycles.

Do not publish cylinder capacity as working capacity

A flexible tube on a pad is not an operating circular cylinder. No generic usable-volume percentage, filling pressure, pump rate, stacking approval or lifting load is established by the fabric tables.

05 / FLOCCULANTS

Choose conditioning with the filter

A flocculant is part of the dewatering process, not a universal ingredient. Compare the actual feed before selecting the product and operating programme.

Coagulation and flocculation

Coagulation destabilises a suspension; flocculation brings particles into larger aggregates. A project may need one, both or neither. Establish the sequence through testing rather than prescribing a coagulant for every feed.

Charge and molecular characteristics

Compare appropriate anionic, cationic and nonionic candidates. Charge density, molecular characteristics and product form influence response. Sludge chemistry and testing determine the choice; mine tailings or sewage labels alone do not select a grade.

Choose the fabric with the chemistry

Test the proposed Mono, HF woven or composite construction with the conditioned feed. Rapid settling in a jar does not prove suitable drainage through a fabric. Compare early filtrate, drainage over time and retained cake.

Make a controlled comparison

Use the same feed sample, known solids content, defined preparation and comparable active-polymer doses. Record controls and dose-response results. Do not choose from floc size alone.

Check downstream requirements

Consider filtrate treatment, residual reagents, receiving-water requirements and the cake disposal route. Obtain the selected product safety and technical documentation; do not describe every polymer as environmentally harmless.

What a trial must establish

Agree the required filtrate parameters and evaluation times, drainage behaviour, cake handling condition and relevant downstream constraints. Record an unconditioned control where practicable. A jar result is a screening step; confirm the selected fabric and scale-up arrangement.

06 / MASS BALANCE

Dosing: active polymer and dry solids

Use a dose established by representative testing. These calculations translate that result into units; they do not prescribe a suitable dose.

Use an explicit solids basis

Record feed flow Q in m³/h and dry-solids concentration C in kg/m³. Dry-solids mass flow is Q × C in kg/h. If solids are given as a mass fraction, convert with measured slurry density: C = density × dry-solids fraction. A percentage must have a stated measurement basis.

Separate active polymer from supplied product

For a trial-selected dose D in kg active polymer per dry tonne, active demand is Q × C × D / 1000 in kg/h. Divide by the supplied product active mass fraction to obtain kg product/h. Divide again by product density in kg/L for L product/h.

Prepared solution is a different flow

If the dosing solution contains S g active polymer/L, its required flow is active kg/h × 1000 / S in L/h. Add any dilution water to the water balance. A product concentration stated by mass is not automatically the same as g active/L.

Illustrative mass balance - not a dose recommendation

Input / result	Value
Feed flow	20 m³/h
Dry-solids concentration	20 kg/m³
Dry-solids mass flow	400 kg/h = 0.4 dry tonnes/h
Assumed trial-selected active dose	2 kg active/dry tonne
Calculated active polymer	0.8 kg/h
Hypothetical supplied product at 40% active by mass	2 kg product/h
Hypothetical prepared solution at 2 g active/L	400 L/h

The dose, active content and prepared concentration are illustrative assumptions only. Use the selected product documentation, representative trials and calibrated delivery. Do not adopt this example as an operating recipe.

Check the delivered dose

Calibrate chemical delivery and verify the feed flow, solids concentration, solution concentration and active-content basis. Reassess feed variation rather than treating a calculated flow as a permanent operating setting.

07 / PREPARATION AND MIXING

Prepare, meter, distribute, verify

Make-up and dosing must follow the selected chemical technical data and safety instructions. Generic fixed concentrations and maturation times are not supplied here.

Powder, emulsion and solution products

Powders require controlled wetting, dissolution and maturation; emulsions require the appropriate inversion and activation process; solution products have their own dilution requirements. Follow the selected product instructions. There is no universal make-up concentration or maturation time.

Preparation water and concentration

Confirm water quality, temperature and the required concentration basis. Check for undissolved material and inconsistent batches. Keep preparation and dosing records so a chemical-performance change can be distinguished from a make-up problem.

Distinguish preparation shear from floc shear

Some emulsion activation systems require strong initial dispersion. After conditioning, excessive shear may damage formed flocs. Specify preparation equipment, injection location and downstream mixing as separate parts of the process.

Injection and contact

Choose an injection point that distributes the prepared polymer and provides the contact required by the trial programme. Pumps, pipework, mixers and residence time can change the result. Confirm that the selected arrangement works before full production.

Commission at controlled conditions

Verify chemical delivery and feed measurements, then trial the proposed mixing arrangement with the fabricated container. Check drainage and filtrate against agreed criteria before increasing production. Any adjustment must remain within the container operating limits.

Two different mixing questions

Preparation may need energetic dispersion or inversion. After the sludge is conditioned, unnecessary shear can damage flocs. Define each stage rather than applying a single “high mixing” or “low mixing” instruction to the whole installation.

08 / TRIAL AND TROUBLESHOOTING

Measure the result, then diagnose

Set an agreed trial method and acceptance sheet. ASTM D7880/D7880M-22 addresses flow and suspended-solids retention through a closed geosynthetic bag; its results may not reproduce site conditions. ASTM D7701-11 was withdrawn in 2020.

Trial record checklist

Record	Details
Feed	Source/date, dry solids, density, grading, pH and relevant chemistry
Conditioning	Product reference, active basis, solution preparation, dose and mixing
Filter	FlowTex grade, liner/shell construction and test assembly
Measurements	Filtrate volume/time, TSS/turbidity, relevant chemistry and cake condition
Decision	Acceptance criteria, observations, limitations and pilot requirements

Trial results apply to the tested feed and configuration. Confirm scale-up and operating limits separately.

Troubleshooting observations - verify the cause before changing the process

Observation	Check first	Useful next step
Weak or inconsistent floc	Feed variation; chemical identity; active dose; preparation	Repeat controlled sample comparisons
Floc forms then breaks	Injection point; downstream pumping and mixing	Compare floc before and after the suspect stage
Cloudy early filtrate	Conditioning; filter selection; start-up cake formation	Collect early filtrate and measure agreed parameters
Slow drainage	Feed solids; cake accumulation; fabric/liner fit; conditioning	Review drainage against time and remaining capacity
Gel-like or stringy material	Preparation; concentration; mixing; possible excess dose	Check make-up and repeat a controlled dose-response trial
Clear water but failed water-quality result	Dissolved constituents; parameter tested; treatment route	Analyse the relevant contaminants and review treatment

These are diagnostic prompts, not confirmed causes. If a bag or tube shows distress or reaches its operating limit, stop filling under the agreed procedure; do not increase pressure to force drainage.

09 / MANUFACTURING AND OPERATION

Quality, exposure and safe handling

Specify the completed assembly and the records needed for the intended duty. Manufacturer fabric certificates are not automatically certification of FlowTex's fabricated product or facility.

Materials, seams and ports

Identify the selected grade and batch, panel direction, seam/thread construction, port reinforcement and drawing. Agree applicable seam tests, inspection frequency and acceptance requirements. ASTM D4884/D4884M concerns short-term seam strength; it is not a bag lifting certificate.

UV and weathering

Review test method, exposure duration, retained strength and cover/storage requirements for each grade. Laboratory hours are not outdoor service-life years. Buried-material durability is not an exposed-bag lifetime. Protect stock and unfitted units from unnecessary exposure.

Thread and chemicals

ePTFE is an outdoor sewing-thread option; qualify the selected thread and seam assembly. Evaluate chemicals, concentration, temperature, duration and mixtures for the outer fabric, liner, thread and connections. No blanket pH-range compatibility is assigned.

Support, filling and drainage

Use the project-approved support and filtrate route. Confirm operating limits and inspection access. Do not raise pressure to force drainage through a slow system. Any stacking arrangement needs its own foundation, stability and drainage assessment.

Lifting and end-of-life

Handles do not establish a safe working load. A loaded-lifting assembly needs a defined design, validation and instructions; ordinary tubes remain on their support. Assess contamination, mixed materials and recycler acceptance before declaring a used bag recyclable.

10 / ENQUIRY AND DOCUMENT CONTROL

Prepare a decision-ready specification

Use the checklist below to request stock, custom fabrication, trial scope and a project technical submission.

Project information checklist

Input	Required information
Feed and application	Source, wet volume/flow, solids basis, density, particle information, pH, chemistry and temperature.
Result	Filtrate collection/treatment/reuse route and criteria; required cake condition; observation times.
Conditioning	Current chemicals, trial history, preparation water, equipment and proposed mixing.
Container	Candidate fabric/liner, dimensions, port details, quantities and handling requirement.
Site and programme	Country/site, available footprint, support/drainage, access, required date and delivery terms.
Quality release	Drawing, material traceability, applicable tests and acceptance, inspection and operating instructions.

Stock and African supply

Stock is available for immediate supply, subject to confirming grade, dimensions, quantity and allocation. Custom construction requires a confirmed programme. Preferential export duty, where applicable, depends on the shipment, origin requirements and documents; VAT and other charges may remain.

Technical references and limits

Reference fabric data: technical sheets supplied for the selected constructions; sourcing identifiers remain confidential. Test methods: EN ISO 10319, 12956, 11058, 12236 and 9864; ASTM D4884/D4884M and D7880/D7880M as applicable. Obtain and follow the relevant current method for a standard-compliant test.

Conditioning background: SNF, Preparation of Organic Polymers and Sludge Dewatering; SUEZ Water Handbook, Chemical Conditioning; Ontario Design Guidelines for Sewage Works, Sludge Thickening and Dewatering. These are background references, not proof of performance of a FlowTex product.

The guide provides reference properties and selection information. It does not establish a finished-container pressure, flow, lifting or service-life rating. Confirm the supplied assembly, representative trials, engineering assessment and operating procedure for the actual project. No unsupported certification or universal performance claim is made.

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