Kontain

TECHNICAL DATA SHEET

# Natural sodium bentonite GCL

0.50 mm LDPE laminate

Needle-punched GCL specifying natural sodium bentonite granules with no polymer addition and PE bonded to the cover nonwoven. Codes below carry the HDL-GCL prefix.

**Specified supply requirements. Confirm the exact grade, source and production evidence before supply. Independent qualification of the finished laminates remains pending.**

| Property | Test method or basis | Unit | Standard 37 S37U-050 | Standard 40 S40U-050 | Heavy Duty 37 H37U-050 | Heavy Duty 40 H40U-050 |
|---|---|---|---|---|---|---|
| **GCL components and PE laminate** | | | | | | |
| Cover nonwoven PP mass | ASTM D5261 | g/m² | ≥200 | | | |
| Carrier woven PP mass | ASTM D5261 | g/m² | ≥100 | | | |
| Carrier nonwoven PP mass | ASTM D5261 | g/m² | Not included | | ≥200 | |
| Total carrier mass | Component minima | g/m² | ≥100 | | ≥300 | |
| Dry bentonite mass at 0% moisture[1] | ASTM D5993 and records | g/m² | ≥3,700 | ≥4,000 | ≥3,700 | ≥4,000 |
| PE film thickness and resin | Nominal construction | mm | 0.50 LDPE | | | |
| **Bentonite properties** | | | | | | |
| Polymer addition | Formulation declaration | - | None | | | |
| Swell in reagent water[2] | ASTM D5890 | mL/2 g | ≥24 | | | |
| Fluid loss[2] | ASTM D5891 | mL | ≤18 | | ≤16 | |
| Moisture content | ASTM D5993 | % | ≤13 | | | |
| Montmorillonite in parent bentonite | Quantitative XRD | wt% | >70 | | | |
| Carbonate minerals in parent bentonite | Quantified mineral phases | wt% | <5 | | | |
| Cation exchange capacity | Declared laboratory method | meq/100 g | ≥70 | | | |
| **GCL properties** | | | | | | |
| Tensile strength MD and CMD | ASTM D6768 | kN/m | ≥10 / ≥10 | | | |
| Internal GCL peel strength | ASTM D6496 | N/m | ≥360 | | | |
| Static puncture strength CBR | EN ISO 12236 | N | ≥1,600 | | ≥2,500 | |
| Hydrated peak internal shear at 10 kPa normal stress | ASTM D6243 | kPa | ≥30 | | ≥35 | |
| PE to cover peel in bonded areas | Agreed PE/NW procedure | N/m | ≥300 | | | |
| **Hydraulic properties of the GCL core[3]** | | | | | | |
| Hydraulic conductivity in fresh water | ASTM D5084 GCL setup | m/s | $\leq 5.0 \times 10^{-11}$ | | $\leq 3.0 \times 10^{-11}$ | |
| Fresh water index flux q10[4] | ASTM D5887 | m³/m²/s | $\leq 2.7 \times 10^{-9}$ | | | |
| **Longitudinal joints and supply dimensions** | | | | | | |
| Released PE zone at long edges | Specified edge detail | mm | 400 | | | |
| Direct GCL contact and PE overlap | Separate minimum widths | mm | ≥300 / ≥300 | | | |
| Roll width and length | Common supply format | m | 5 × 30 | | | |

1 Specified lower and upper limits, not MARV. Dry bentonite excludes polymer, geotextiles, adhesive and PE; verify the clay fraction. Film thickness is nominal. Verify each construction; added clay mass does not establish higher performance.

2 ASTM D5890: reagent water (distilled/deionised), at least 16 h after the final increment; extend/report as the method requires. Natural sodium origin and no polymer addition require source and batch declarations. Saline swell and saline conductivity are not declared.

3 GCL core values exclude PE and joints. Agree confinement, gradient, hydration, liquid and equilibrium criteria. For chemicals, use ASTM D6766 within scope and report adaptations. Durability, cycling and protection qualification is pending. Landfill compliance is not declared.

4 The Standard-grade fresh-water flux limit is adopted from Heavy Duty on a same-bentonite assumption and requires ASTM D5887 verification. Hydraulic behaviour also depends on construction and confinement.

Select for compatible low-salinity rainwater or subgrade moisture. Consider the polymer grade for greater drying resistance or aggressive hydration liquids, with formulation-specific testing. Cover promptly; permanent exposed service requires separate design.

The 0.50 mm manufacture and extrusion sealing require qualification for the actual film, filler and assembly. No wedge welding. Use issued end-joint and repair details. GM13/GM17 compliance is not declared. Agree order dimensions and cores.