Geo-Loc
Made by Rubisco®

# PRODUCT DATA AND SPECIFICATIONS

***Vital Chemical is proud to be the exclusive Australian supplier of VE Geo-Loc Made by Rubisco, a New Zealand grown and manufactured non-woven needle punched geotextile.***

MADE FROM rubisco® NATURAL MATERIALS

EN 15804 COMPLIANT EPD Environmental Product Declaration Global GreenTag International

## KEY BENEFITS

Natural and free from microplastics, plastics and chemicals

Biodegradable and fully compostable

Low maintenance and reduced labour with no post project removal

Strong and durable

Service life of 18–24 months

Precision-needled for consistent surface quality

Suppresses weeds without harmful herbicides

Contains wool, natural fire-resistant properties

Insulation properties deliver protection against frost

Holds moisture, reducing watering and supporting vegetation growth

## CORE APPLICATIONS

VE Geo-Loc Made by Rubisco provides transitional stabilisation through installation and vegetation phases. Typical uses include:

Land stabilisation

Slopes and embankments

Riparian margins

Restoration planting

Council land development

Forestry establishment

Horticultural weed suppression

Public green infrastructure

Landscape separation layers

Sediment control zones near waterways

Site subject to high wind or heavy rainfall events

Highly erodible areas

These uses support municipal procurement, civil contracting, conservation, horticulture, and landscape design where synthetic geotextiles are environmentally unsuitable or incompatible with long-term ecological goals.

### Natural Fibres

Hemp sequesters carbon during growth and provides the structural component of the product. Wool absorbs moisture, moderates temperature and releases nutrients as it biodegrades.

### Fibre Process

Entirely mechanically processed, no synthetic fibre or chemical inputs.

### Fibre Blend

Mechanical performance and biological soil conditioning working together in a single product, combining what each fibre brings to the nonwoven.

### Market Position

The only EPD-certified natural fibre geotextile in Australia. Carbon-negative performance.

# FIBRE COMPOSITION AND FUNCTIONAL PROPERTIES

VE Geo-Loc Made by Rubisco incorporates a 100% wool composition or a blend of hemp and wool fibres, engineered to complement each other's strengths.


### THE HEMP PLANT

- Cannabis sativa L. is an annual bast fibre crop that grows to harvest in 90 to 120 days. It needs minimal water, no pesticides and its deep root system conditions the soil while it grows.
- During growth, hemp pulls significant $CO_2$ out of the atmosphere and stores it as biomass.
- That stored carbon carries into the finished product, and is the reason the EPD shows a carbon-negative result at the production stage.

### FIBRE EXTRACTION

- Once harvested, the hemp stalks go through retting, a controlled decomposition where fibres are released from the woody outer, called hurd.
- Our hemp fibre, only mechanically treated, retains desirable lignocellulosic properties perfect for geotechnical applications.
- Residual lignin contributes stiffness to the fibre, resistance to moisture absorption and UV resistance.


### FIBRE CHARACTERISTICS

- Wool is a keratin protein fibre from sheep fleece.
- VE Geo-Loc Made by Rubisco uses strong wool, coarser thicker fibres (>25µm) contributing to the felt's abrasion and puncture resistance.
- Natural crimp of wool contributes stretch and tensile strength to the felt ideal for topographic contours.
- Wool absorbs up to 30% of its weight in moisture which supports soil moisture buffering in the field.

### BIOLOGICAL ACTIVITY

- Wool contains approximately 16% nitrogen by weight, sulphur and trace elements.
- As is biodegrades in soil, these nutrients release slowly.
- Nitrogen becomes available to plants and soil biology.
- The wool actively feeds the ground it was installed to protect.

## WHY HEMP AND WOOL TOGETHER?

**100% Wool Geotextile**

- Weed suppression and landscaping work
- Moisture management properties
- Prioritises nutrient return to the soil
- Well suited to
  - Horticulture
  - Amenity planting
  - Garden bed establishment

**Hemp & Wool Blend Geotextile**

- Erosion control
- Structural performance capabilities
- Biological soil conditioning
- Designed for
  - Civil construction
  - Infrastructure slope work
  - Revegetation projects

VE Geo-Loc Made by Rubisco geotextiles use blended hemp and wool fibres, engineered to complement each other's strengths.

| Requirement | Hemp Contribution | Wool Contribution |
|---|---|---|
| Mechanical Structure | High tensile strength | High tensile strength |
| Moisture Retention | Minimal | Excellent absorption and release |
| Temperature Buffering | Minimal | Strong thermal insulation |
| Textile Structure | Dense fibre network | Opacity and mat thickness |
| Soil Nutrition | Increases organic matter | Nitrogen and potassium release |
| Biodegration | Slow | Early-stage breakdown |

## THE ONLY EPD-CERTIFIED NATURAL FIBRE GEOTEXTILE IN AUSTRALIA

VE Geo-Loc Made by Rubisco Wool & Hemp Geotextiles holds a Global GreenTag EPD certification, validating both environmental performance and health criteria. This EPD confirms independent lifecycle assessment and provides robust disclosure aligned with international sustainability rating tools.
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Key lifecycle elements typically include:

- $CO_2$ emissions and biogenic sequestration
- Water footprint
- Resource use
- End-of-life decomposition
- Waste avoidance
- System boundaries
- Functional unit definition
- Compliance with international EPD program methodology

# PRODUCT SPECIFICATION

## GSM Selection and Guide

| GSM | Lifetime* | Erosion Control | Weed Suppression | Application |
|---|---|---|---|---|
| 300 - 500 | 12 – 18 months | Short Term | Short Term | Lighter landscape and amenity<br>Garden beds |
| 500 - 900 | 18 – 24 months | Medium Term | Medium Term | Revegetation support<br>Moderate slope erosion control |
| 900 - 1,200 | 24 – 30 months | Long Term | Long Term | Riparian zones<br>High flow environments<br>Steep slopes |

*Subject to individual site conditions

| Product Dimensions | | GSM | SPECIFICATION |
|---|---|---|---|
|  ROLLS | VE Geo-Loc Made by Rubisco (Wool Geotextile) | 300 | 100% Wool 2m x 30m Roll |
| | | 500 | |
| | VE Geo-Loc Made by Rubisco (Wool/Hemp Geotextile) | 300 | 50% Wool + 50% Hemp 2m x 30m Roll |
|  TILES | VE Geo-Loc Made by Rubisco (Wool) Tile | 300 | 100% Wool 40cm x 40cm Pad |
| | VE Geo-Loc Made by Rubisco (Wool/Hemp) Tile | | 50% Wool + 50% Hemp 40cm x 40cm Pad |

# PRODUCT LIFE CYCLE

1

**Installation**

Matting laid on prepared soil surface, pinned or staked. Immediate surface protection from rain impact and water flow begins at day one.

2

**Early Weeks**

The needle-punched matrix slows surface flow velocity and reduces erosive energy while wallowing water to pass through. Plant germination begins within the fibre matrix.

3

**Months 1-6**

Root systems develop within and beneath the matting, supported rather than completed with. Wool begins biodegrading, releasing nitrogen, potassium and sulphur slowly into surrounding soil.

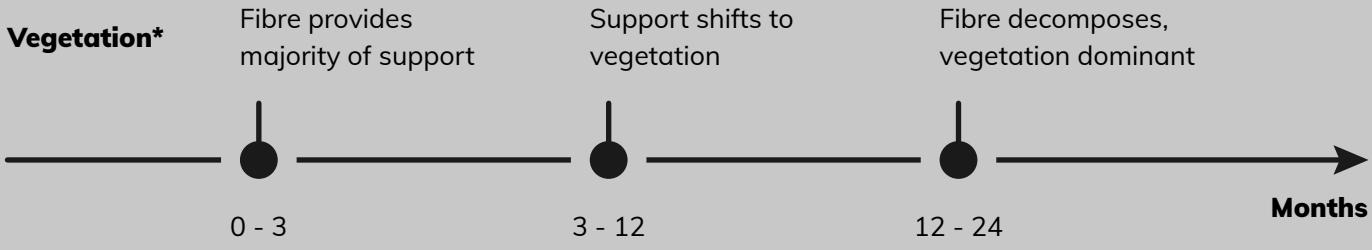
4

**Long Term**

The product transitions from erosion control to active soil improvement. No microplastic contamination, no disposal requirement - fundamentally different from synthetics.

# VEGETATION ESTABLISHMENT

Vegetation is the ultimate stabilisation system. Fibre architecture provides early-phase mechanical support and moisture control until vegetation roots develop. Wool decomposition releases nitrogen and potassium which support root development and microbial activity in nutrient-limited soils.



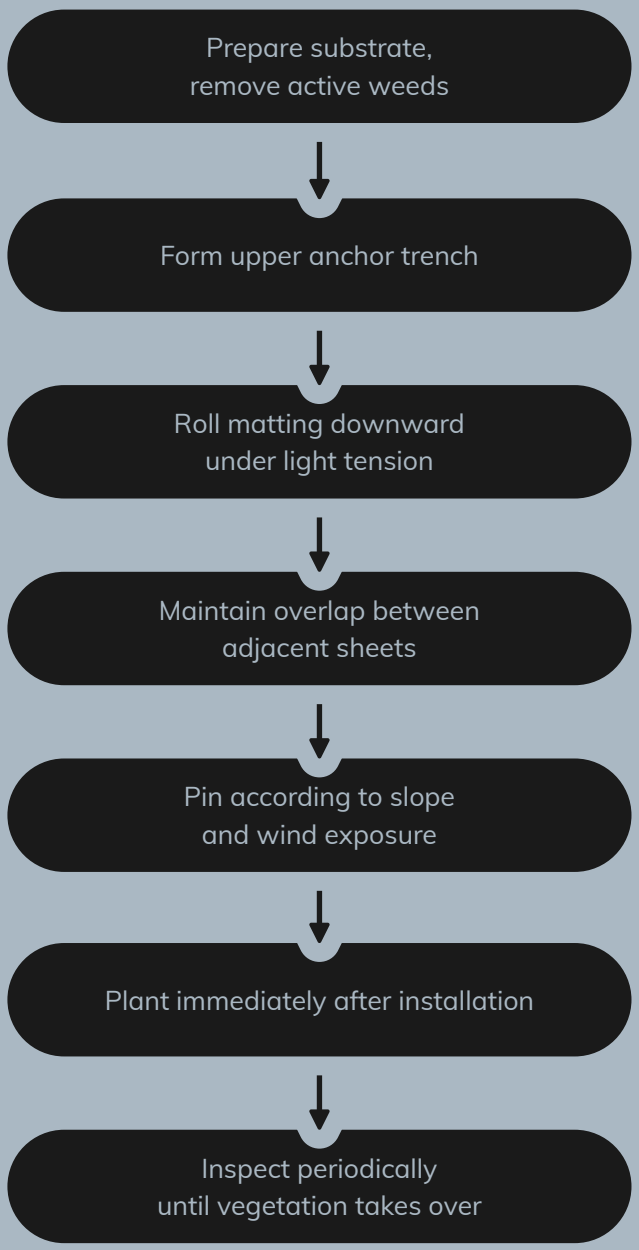

***Planting should occur immediately after installation, ideally within 1-2 weeks. Where immediate planting is not possible, heavier GSM material should be considered to extend the stabilisation window.

# USAGE GUIDELINES

## Installation Principles

Successful installation depends on full soil contact, correct anchoring, appropriate overlaps and pin spacing matched to slope and hydrology. The geotextile must lie against the soil surface rather than bridging surface irregularities. Install from the upper boundary downward and secure the crest using an anchor trench.

Installation sequence:




Correct installation significantly affects performance by preventing under-cutting, wind uplift and premature degradation caused by constant moisture beneath lifted areas.

## Slope Installation

Slope stability depends on anchoring at the crest and pinning density over the slope surface. A trench of 150–200 mm is typically required at the upper boundary. The mat is placed inside the trench, backfilled and compacted before unrolling down-slope. Overlaps between sheets must be a minimum of 100 mm.

| Angle | Spacing |
|---|---|
| ≤ 15° | 600 mm |
| 15 - 30° | 300 - 450 mm |
| > 30° | 150 - 300 mm |


In steep terrain, additional engineering measures may be required including denser pin patterns, soil nails or temporary surface stabilisation until vegetation is established.

If wind uplift risk is present, closer spacing and heavier pins should be used.

Thickness increases in proportion to GSM, with heavier structures providing extended temporal performance and enhanced soil protection.

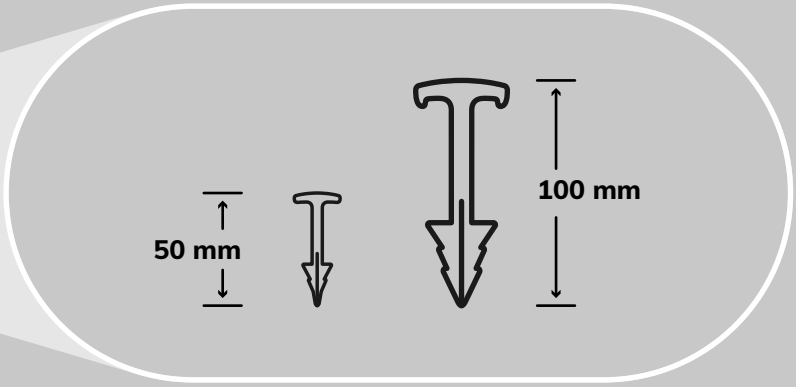
Roll length varies from approximately 20m to 60m depending on GSM, allowing contractors to optimise logistics, installation labour and waste reduction on site.

# GreenStake™ PLASTIC FREE BIODEGRADABLE STAPLES

GreenStake™ biodegradable stakes are manufactured from plant based materials derived from wheat and potato starch, enhanced with biodegradable pigments. Featuring a high performance retention design, the GreenStake™ biodegradable stakes deliver exceptional holding strength, outperforming wood and steel alternatives while offering a more sustainable solution.

- 100% Biodegradable: Comply with ASTM6400 and EN13432.
- Super Strong and Durable.
- Approved: Specified by governments, engineer, conservation bodies & DOTs.

True Biodegradability
ASTM DS400 COMPLIANT

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