



Fonterra References New Zealand

Dairy Effluent Ponds



Introduction

Livestock effluent is likely to have a major environmental impact if not correctly managed. The storage pond must, therefore, guarantee a maximum degree of waterproofing.

Firestone GeoGard™ EPDM has been used for more than 20 years to store slurry in exposed conditions with great success. The reasons of this success are linked to its exceptional durability, good chemical resistance to livestock effluents and excellent mechanical properties such as flexibility, elasticity and puncture resistance.

Fonterra references

The Fonterra Co-operative Group Limited is a New Zealand multinational dairy co-operative owned by 10,600 New Zealand farmers. The company is responsible for approximately 30% of the world's dairy exports.

In New Zealand, milk is supplied to Fonterra by privately owned farms that are shareholders of Fonterra. The authorised Firestone Building Products distributor and contractors are not directly dealing with Fonterra but with private farmers, who in turn are Fonterra suppliers.

Today, approximately 219 dairy effluent ponds have been installed in New Zealand by Firestone Building Products trained contractors using Firestone GeoGard™ EPDM. Around 90% of those farmers are Fonterra suppliers. The other farmers deal with a few smaller milk companies.

Common dairy effluent ponds in NZ

The average dairy herd in NZ for the 2012/13 season was 402 cows, and the average effluent pond size ranges between 2500-3500 m³.

Typical pond sizes:

- Surface: 40 m x 30 m; 50 m x 40 m; 54 m x 54 m
- Depth: 3.5 m (varies)
- Slope: 1 v / 2 h (varies)

Recently installed ponds for Fonterra suppliers

1. Royden Hooker Parangi Farm/ Te Awamutu, Waikato/ Fonterra Supply N° 73634
2. Phillip Taylor – Morrinsville, Waikato/ Fonterra Supplier N° 76860
3. Burton Trust Farm #1/ Hamilton, Waikato/ Fonterra Supplier N° 72869
4. Burton Trust Farm #2/ Hamilton, Waikato/ Fonterra Supplier N° 72874
5. Alan Rogers/ Otorohanga, Waikato/ Fonterra Supplier Number 74339

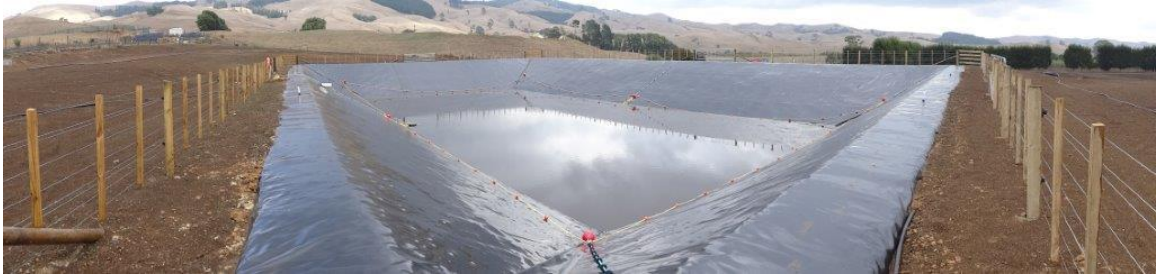


**1. Royden Hooker Parangi Farm / Te Awamutu, Waikato /
Fonterra Supply N° 73634**



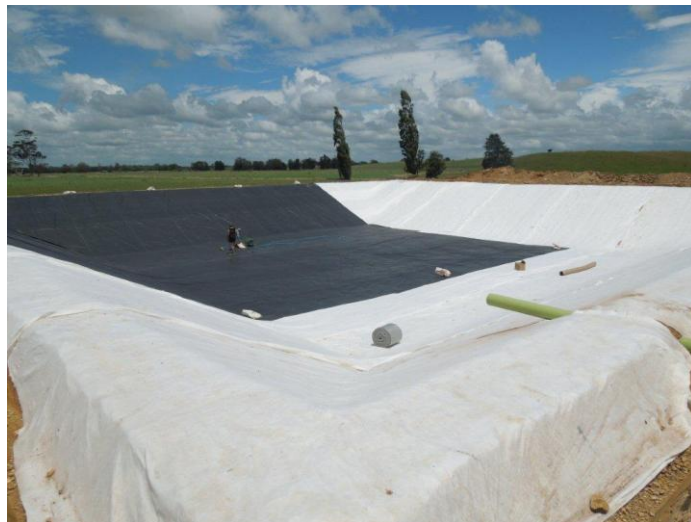


2. Phillip Taylor – Morrinsville, Waikato / Fonterra Supplier N° 76860





3. Burton Trust Farm #1 / Hamilton, Waikato / Fonterra Supplier N° 72869





4. Burton Trust Farm #2 / Hamilton, Waikato / Fonterra Supplier N° 72874





**5. Alan Rogers / Otorohanga, Waikato /
Fonterra Supplier Number 74339**



Firestone

BUILDING PRODUCTS

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Firestone GeoGard™ EPDM 1,1 mm and 1,5 mm – Technical Specifications

Physical Properties	Test Method	Declared Value - 1.1 mm	Declared Value - 1.5 mm	Tolerance	Unit
Mass per unit area	EN 1849-2	1288	1695	± 5%	g/m ²
Tensile strength (MD/CD)	ISO R 527	9	10	- 1	N/mm ²
Elongation (MD/CD)	ISO R 527	≥ 300	≥ 300		%
Dimensional stability	EN 1107-2	≤ 0.5	≤ 0.5		%
Flexibility at low temperature	EN 495-5	≤ -45	≤ -45		°C
Resistance to static puncture	EN ISO 12236	0.7	0.9	- 0.1	kN
Liquid tightness under high pressure (4 bar = 40 m depth)	EN 1928:2000 Method B	Watertight	Watertight		
Water permeability (Liquid tightness)	EN 14150	3.0 10 ⁻⁶	3.0 10 ⁻⁶	± 10 ⁻⁶	m ³ /m ² d
Methane permeability (Gas tightness)	ASTM D1434	2.25 10 ⁻³	2.25 10 ⁻³		m ³ /m ² d
Durability - weathering (25y)	EN 12224	Pass	Pass		
Durability - oxidation	EN 14575	Pass	Pass		
Friction angle	EN ISO 12957-2	27,5	27,5	± 1	°

