

## Product data sheet

### COLETANCHE ES4 HFA

#### Description

Coletanche ES4 HFA is an elastomeric modified bituminous geomembrane.

#### Use

Extreme level of mechanical constraints, exposed or covered (aggressive materials, reinforced precautions). For example:

- Storage of harmful waste,
- Large dams,
- Railways (use directly under ballast),
- Railway bridges.

The membrane has the same friction angle on both sides.

The product use must be validated by consultation.

#### Application method

By torch welding or other similar process.

#### Storage

Rolls must not be stored directly on the ground. Provide suitable supports (blocks, slides, wooden planks) with a minimum height of 1.2 ft to be placed under the ends of the mandrel.

#### Composition (indicative)

Reinforcement:	Geotextile	11.8 oz/yd <sup>2</sup>
Reinforcement:	Glass fleece	1.5 oz/yd <sup>2</sup>
Binder:	Elastomeric bitumen	159.3 oz/yd <sup>2</sup>
Surface finish:	Sand	7.4 oz/yd <sup>2</sup>
Underside finish:	Peel-off silicone coated film	1.2 oz/yd <sup>2</sup>

#### Characteristics

		Standards	Units	Average	Minimum
Dimensions	Length	-	ft	180	177
	Width		ft	16.70	16.40
Thickness (on finished product)		ASTM D5199	mil	220.50	189.00
Surface mass		ASTM D5261	oz/yd <sup>2</sup>	188.80	174.00
Tear resistance	Longitudinal direction	ASTM D4073	lbf	275	207
	Cross direction			230	173
Tensile properties: Strength	Longitudinal direction	ASTM D7275	lbf/in	200	167
	Cross direction			171	132
Tensile properties: Elongation	Longitudinal direction		%	60	45
	Cross direction			60	45
Static puncture		ASTM D4833	lbf	146	132
Flexibility at low temperature	Longitudinal direction	ASTM D5147	°F	-4	5
	Cross direction			-4	5
Water permeability		ASTM E96	m/s	6.10 <sup>-14</sup>	<
Gas permeability		ASTM D1434-82	m <sup>3</sup> /(m <sup>2</sup> .d.atm)	2.10 <sup>-4</sup>	<

The manufacturer reserves the right to modify, at any time, the characteristics of its products.