

## 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 35 cm to be placed under the ends of the mandrel.

#### Composition (indicative)

Reinforcement:	Geotextile	400 g/m <sup>2</sup>
Reinforcement:	Glass fleece	50 g/m <sup>2</sup>
Binder:	Elastomeric bitumen	5400 g/m <sup>2</sup>
Surface finish:	Sand	250 g/m <sup>2</sup>
Underside finish:	Peel-off silicone coated film	40 g/m <sup>2</sup>

#### Characteristics

		Standards	Units	Average	Minimum
Dimensions	Length	EN 1868-1	m	55	54
	Width		m	5,10	5,01
Thickness (on finished product)		EN 1869-1	mm	5,60	4,80
Surface mass		EN 1869-1	kg/m <sup>2</sup>	6,40	5,90
Tensile properties: Strength	Longitudinal direction	EN 12311-1	N/50 mm	1600	1150
	Cross direction			1400	1000
Tensile properties: Elongation	Longitudinal direction		%	45	30
	Cross direction			45	30
Flexibility at low temperature		EN 1109	°C	-20	-16
Static puncture	Resistance	EN ISO 12236	kN	4	3,5
	Displacement		mm	50	40
Water permeability		EN 14150	m <sup>3</sup> /m <sup>2</sup> /d	1.10 <sup>-6</sup>	<
Gas permeability		ASTM D1434-82	m <sup>3</sup> /(m <sup>2</sup> .d.atm)	2.10 <sup>-4</sup>	<
Dangerous substances according to the database "Dangerous substances" available on: <a href="http://europa.eu.int/comm/enterprise/construction/internal/dangsub/dangmain.htm">http://europa.eu.int/comm/enterprise/construction/internal/dangsub/dangmain.htm</a>		-	-	None	-

#### Durability

Oxidation	Tensile strength according to EN 12311-1	Maximum strength	EN 14575	%	100	75
		Maximum elongation			100	75
Weathering	Residual value according to EN 12226	Maximum strength	EN 12224	%	100	75
		Maximum elongation			100	75