

**IR 4020**

**Main characteristics (technical specifications)**

Mineral coating to protect the structures against fire.  
 Creation of a thermal step at the protection/support interface, about 100 °C from 60 to 120 min.

**Can be washed:**  Low/medium/high pressure **Can be painted:**

**Information on the composition**

Mineral coating consisting in hydraulic micro porous cement and chalk binders added with light mineral fillers.

**Fire Test reports (cross the relevant boxes)**

ISO (1050°C 2h 1160°C 4h) <input type="checkbox"/>	HC (1100°C, ref. EC1.1.2) <input type="checkbox"/>	HCM (1300°C, HC*1300/1100) <input type="checkbox"/>
RABT/ZTV (Germany) (1200°C) <input type="checkbox"/>	RWS (1350°C) <input type="checkbox"/>	Others : <input type="checkbox"/>

Characteristics of the tested samples, report number and possible comments:

- CSTB : concrete structure SF 6 hours with 40 mm protection under fire ISO 834 (testing report n°43349 dated 1997)
- CSTB : report on concrete wall and sprayed protection 40 mm IR 4020 under fire ISO (March 1998) with calculation of interface temperatures over 6 hours (with 25 cm and 15 cm walls)
- CSTB HCM fire in 2002 (report n°RS02-134) : 50mm protection IR 4020-TUN on a 15cm concrete slab, loaded to 14kN.m/ml according to EN 13381-3. The test was performed after complete drying according to weight loss measurements. Protection was deteriorated but remained stable.

**Application procedures** **Board**  **Mortar**

Thickness 10 to 50mm depending on requirements

Spraying by 20 mm thick lengths  
 Application on support: 2 steel wire meshes for a total protection thickness of 40 mm

Possibility to apply protection via watertightness (IR 4010 in 3 mn ). This seems to restrict cracking (CSTB test)

Possibility to apply a primary layer « IR 4010 » to increase bonding.

Cleansing and dust removing of the support is necessary.

**Present application field**

Basins, retention walls, reinforced and/or pre-stressed concrete structures and walls, conventional masonry, steel carpentry,...

Resources, territories and habitats  
 Energy and climate Sustainable development  
 Risk prevention Infrastructures, transports and sea

**Here for the future**

Possible use in tunnels	Civil engineering works references
Physical and thermal data	
<p><u>Reaction to fire</u> (French/European classification):</p> <p><u>Main thermal data: (at 20°C and possibly variation with temperature)</u></p> <ul style="list-style-type: none"> <li>• Thermal conductivity <math>\lambda</math> (W.m<sup>-1</sup>.K<sup>-1</sup>) = <b>0.26</b></li> <li>• 2 out of the 4 following values</li> <li>○ Specific heat <math>c</math> (J. kg<sup>-1</sup>.K<sup>-1</sup>) = <b>880</b></li> <li>○ Density <math>\rho</math> (kg/m<sup>3</sup>) = <b>850</b></li> <li>○ Volumic specific heat <math>C</math> (J.m<sup>-3</sup>.K<sup>-1</sup>) = <math>\rho c =</math></li> <li>○ Diffusivity <math>a</math> (en m<sup>2</sup>.s<sup>-1</sup>) = <math>\lambda/\rho c =</math></li> <li>• Resulting emissivity (adimensionnal) : <math>\epsilon_{res} =</math></li> </ul>	<p><u>Other thermal data :</u> Reflection coefficient (adimensionnal) : or Absorption coefficient (adimensionnal) :</p> <p><u>Main mechanical data:</u> E modulus (Mpa) = Compressive strength (Mpa) =</p> <p><u>Complementary data:</u> Porosity : Shore hardness : Bonding: <b>4.17MPa</b> Mass content of water <b>10%</b></p>
Durability	
Product and company identification/Commercial name/ Applicators	
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Documentation/References	

