



## **Technologic description of the Hőpajzs4 (HP4) heat insulation and heat-reflective coating.**

Usage in construction industry:

- The HP4 coating is the solution for straightening indoor wall surfaces and improvement of thermal comfort, on concrete and lime-cement walls, lime-cement plasters, on brick walls, thermal bridges, behind the radiators (where the moist condensation causes mould growth) and in every other building with the poor thermal insulation, where the wall width limitation does not allow implementation of other insulation methods.
- Possible HP4 applications: follow-up heat insulation of industrial halls, school buildings, day care centers, hospitals, private houses, apartments, holiday-houses, garages, offices, warehouses, institutes and monuments, especially where implementation of other insulation methods is not possible (due to monument protection, architectural restrictions or , etc.). The HP4 coating provides even heat distribution, lessens moist condensation and mould growth (creates healthier environment).

Main characteristics of the HP4 heat insulation and heat-reflective coating:

- Thanks to its unique — based on heat reflection — operating principle, it reduces heat absorption.
- Its heat insulation efficiency is equivalent to a 5-cm polystyrene external thermal insulation.
- ÉMI-TÜV test results confirmed, that the inside surfaces of the walls, coated with HP4 coating reflect back into the room 85% of inside thermal radiation (warm or cold), which may result 20-30% heating/cooling energy savings. Therefore the payback time of the HP4 coating technology implementation cost, depending on the buildings parameters (like other insulation applied, heating system, windows , etc.) is approximately 3-4 years.
- Makes possible heat insulation of individual apartments within buildings and it is applicable in all kind of buildings, even in historical monuments, as the thickness of the coating on the inside walls is only 0,5-1 mm. The application of HP4 coating does not require scaffolding, which means further cost saving.
- Thanks to its structure and low vapour diffusion resistance it stops mould growth. When applied on mouldy walls — after treating the mould with mould prevention chemicals and drying the wall - HP4 eliminates the mould problem for good.

HP4 is equally suitable for heat insulation of walls and ceilings. Thanks to the easy application method, the HP4 can be easily applied even by non-professionals. The application can be done any time in the year, in wintertime (in closed and heated rooms, above 5 °C temperature) and in the summertime too.

HP4 can be applied on indoor plasters, concrete surfaces and gips carton. For wood, metal and glass surfaces additional bonding material is requested.

Usage:

The HP4 coating is an off-white colour, paste viscosity, easily mixable with water based paints (quantity of paint should not be more than 10% of HP4 quantity).

- When applied on mouldy walls — after treating the mould with mould prevention chemicals and drying the wall - HP4 eliminates the mould problem for good. Ground coating needed!
- The HP4 coating can be applied to wall by smoothing or — if properly diluted — by sprayer gun. When using sprayer pay attention to the pressure, it must be kept below 5 bars, higher pressure may cause harm to the ingredients. Further painting or grinding of the coating is possible after 4 hours drying (depends on the temperature). When grinding, usage of respirator (against breathing in powder dust) is strongly recommended.

The HP4 coating must be applied on a clean, solid and dry surface. If it has been painted earlier, degreasing of the surface is also required. Before applying the coating repair of the ruggedness and cracks in the wall is also recommended.

#### Specifications:

- surface: off-white colour
- density: 0,25g/cm<sup>3</sup>
- tensile adhesion: >0,4 N/mm<sup>2</sup>
- thermal conduction: 0,041 W/(mK)
- vapour transmission rate (permeability), V: 300-350g/m<sup>2</sup>/day
- sd value: 0,07 m
- drying time (1mm thick coating): 30 minutes
- touch-dry state time: 30 minutes
- through-dry state time: 4 hours
- time needed before further painting or grinding: 4 hours
- coverage: 0,4 kg/m<sup>2</sup>/mm
- min. layer thickness needed: 0,5 mm
- thinner: water (max. 2-7%, will loose its heat-reflective properties if over diluted)
- recommended application temperature: between +5°C and +50°C
- packaging: 5 and 10 litre plastic cans
- min. durability: 15 years
- recommended usage: where environment temp is between -30°C and +100°C

#### Coverage:

1-1,5 m<sup>2</sup>/liter depending on application method.

#### Important:

The coating must be stirred at low revs. Being water based it can be diluted with water (2-25%) too, but may loose its adhesive properties if over diluted.

The HP4 coating works even in extreme temperatures (between -30°C and +100°C), can be covered with additional 30 layers of paint without loosing its thermal properties.

#### Packaging, storage and transport:

Packaging in 5, 10 and 18 litre plastic cans. In its original packaging it can be stored for 1 year.

Protect from cold, keep in temperature between 5 °C and +65 °C.

#### Warranty:

1 year (from the date of manufacturing, only if unopened). If opened, should be used within short time.

#### Health and environmental safety:

HP4 is a non-polluting , non-hazardous to the environment product, it is not classified as hazardous to health. The HP4 indoor coating is fire and explosion proof.

#### Safety cautions:

- keep out of reach of children
- do not pour HP4 down the drain or into sewage system
- in case of fire use water or fire extinguisher

#### Health precautions:

- avoid contact with eyes , if HP4 gets into eye, wash it with water for a period of 15 minutes and contact your eye specialist
- If swallowed, contact physician or local poison control center immediately

#### Disposal:

Do dispose of remaining HP4 and/or packaging according to the local laws and regulations of your region.

#### Packaging:

Recycling is possible only after the HP4 residues are removed, washed out. Food must not be stored in HP4 plastic cans.

The above specification is provided by the manufacturer. Improper.

We shall not be liable for any claims, expenses, environmental and ecological damages (including direct, indirect, special or consequential damages) arising from the improper application of our product.

The marketing of HP4 heat-reflective coating material was preceded by meticulous research and development.

#### Distributor:

#### **HÓPAJZS KFT**

**2831.TARJÁN. ROZMARING ÚT 4.**

[www.hopajzskft.hu](http://www.hopajzskft.hu) [hopajzskft@gmail.com](mailto:hopajzskft@gmail.com).

ID: JA-001/2010-1

Place of examination: TÜV SÜD KERMI kft Vegyészeti osztály

Address: 1043 Budapest, Dugonics U. 11

First examination ref.: R-212134

Production and product inspection: according to related standards

