



# PFP PEDRINI s.r.l.

## Commercio materiali ed attrezzature di perforazione.

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Capitale Sociale € 48.000 i.v.

## Termoplast PLUS®

Termoplast PLUS® is a premixed specially designed for the filling of geothermal wells. According to the VDI 4640/parte 2, Termoplast PLUS® is a special blend of blast furnace cement binders, bentonite high value plastic and selected sands.

### Characteristics of the components

**Binding component:** the exclusive cementitious binding components used allow for excellent workability in the first four hours, a high sulphate resistance (DIN 1164/ sec. 10) and finally a strong resistance to freezing without the use of additives, until -15 ° C (VDI 4640).

**Bentonite:** the high performance bentonites specially selected for use in geothermal wells allow the achievement of the required performance with a limited quantity, still maintaining the necessary characteristics of swelling, as required by many of the requirements of local legislation in Germany.

**Selected sands** with high fineness (<0.25 mm) and high thermal conductivity allow a good fluidity during pumping operations of the cement mixture.

### Properties and Benefits

- **Absence of cavities:** the well is completely sealed preventing the formation of internal cavities;
- **Fast hardening:** high thixotropy of the product ensures the filling of any cavity;
- **Plasticity:** it allows the structural safety of the GSHP (Ground System Heat Pump) in the presence of natural settling of the subsoil;
- **High conductivity and thermal efficiency over time:** the specific components used in Termoplast PLUS® allow a high thermal conductivity (up to 2.3 W / mK under laboratory conditions). The thermal efficiency of the GSHP is based on the maximum reduction of the losses of the whole system (composed of the probes and the well);
- **Ready to use:** fast, error free and inventories of unused materials;
- **Environment friendly:** Termoplast PLUS® contains only natural ingredients, and can be considered free of chromates (EU guideline 2003/53/EG).

### EXAMPLES OF FORMULATIONS

#### Thermal Conductivity $\lambda$ 2.3 W/mK\*

Composition of mixture Soft water **780 l** - Termoplast PLUS **875 Kg**

Ratio powder / water per m<sup>3</sup> 1,1

Number of bags per m<sup>3</sup> of mud 35 ca

Mixture that can be produced with a 25 kg bag 28-30 l

#### Thermal Conductivity $\lambda$ 2.0 W/mK\*

Composition of mixture Soft water **705 l** - Termoplast PLUS **705 Kg**

Ratio powder / water per m<sup>3</sup> 1,0

Number of bags per m<sup>3</sup> of mud 28 ca

Mixture that can be produced with a 25 kg bag 34-36 l

#### Thermal Conductivity $\lambda$ 1,6 W/mK\*

Composition of mixture Soft water **720 l** - Termoplast PLUS **585 Kg**

Ratio powder / water per m<sup>3</sup> 0,8

Number of bags per m<sup>3</sup> of mud 23 ca

Mixture that can be produced with a 25 kg bag 42-44 l

(\*) determination method UNI EN 12664

The information in this data sheet are believed to be accurate but they are not covered by the guarantee. These

specifications are subject to change without notice. Update January 2012