POMPDIRECT

Pumpen Intelligenz.

The one-of-a-kind Ceram coating from Wilo.

Information leaflet.

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Technical data.

Description
Sprayable, solvent-free, 2-component polymer coating material with portions of aluminum oxide: for corrosion protection of our products even when under great mechanical stress.

Composition
Solvent-free epoxy polymer with solvent-free polyamine hardener and various extenders.

Properties
- Tough and hard, durable coating with high mechanical and chemical resistance, as well as good wear resistance
- Excellent wet adhesion as single- or multi-layered coating on steel surfaces
- Replaces tar-containing coatings
- Cost-savings thanks to the long service life, low maintenance and easy reparability.
- Tested by the "Bundesanstalt für Wasserbau" (German Federal Institute for Hydraulic Engineering) (BAW).
- Solvent-free.
- High gloss finish after hardening
- Later coating and repair possible

Technical data Ceram C0

Designation	Standard	Value	Unit
Density (mixture)	ASTM D 792	1.4	g/cm³
Solid content (volume)		97	%
Solid content (weight)		98	%
Adhesive strength, steel	ISO 4624	15	N/mm²
Impact strength	DIN EN ISO 6272	9	J
Temperature resistance			
Dry, continually		60	°C
Dry, for short periods		120	°C
Moist/liquid	depends on fluid, on request		

Technical data Ceram C0

Designation	Temperature range	Resistance
Sewage, alkaline (PH 11)	+20 °C/+40 °C	1/1
Sewage, weakly acidic (PH 6)	+20 °C/+40 °C	1/1
Sewage, strongly acidic (PH 1)	+20 °C/+40 °C	2/3
Ammonium hydroxide (5 %)	+40 °C	3
Decanol (fatty alcohol)	+20 °C/+50 °C	1/1
Ethanol (40 %)	+20 °C	1
Ethanol (96%)	+20 °C	3
Ethylene glycol	+20 °C	1
Heating oil, diesel	+20 °C	1
Compressor oil	+20 °C	1
Methyl ethyl ketone (MEK)	+20 °C	3
Caustic soda (5 %)	+20 °C/+50 °C	1/2
Sodium chloride solution (10 %)	+20 °C	1
Hydrochloric acid (5/10/20%)	+20 °C	2/2/3
Sulphuric acid (10/20 %)	+20 °C	2/3
Nitric acid (5 %)	+20 °C	3
Toluene	+20 °C	2
Cooling and industrial water	+50 °C	1
Xylene	+20 °C	1

Key: 1 = resistant, 2 = resistant for 40 days, 3 = spill resistant (immediate cleaning recommended)
Total layer thickness: at least 400 µm

Technical data for C1, C2, C3 on request

Long-lasting protection.

Wilo Ceram offers all-round protection for all unit components, whether they are inside or on the surface. Depending on the field of application, different Wilo Ceram coatings are offered, which are applied using various methods. For use in special fluids, the individual Ceram versions can also be combined with each other.

Ceram C0 is used both for the outer coating as well as for the interior coating. This is applied using the airless method in one layer with a thickness of 0.4 mm.

Ceram C1 is used for the interior coating of pump parts, especially for the impeller and suction port coating. This is applied in up to three layers with a total thickness of 0.8 mm.

Ceram C2 is used for the interior coating of pump parts, especially for the impeller and suction port coating. This is applied mechanically in one layer with a thickness of 1.5 mm.

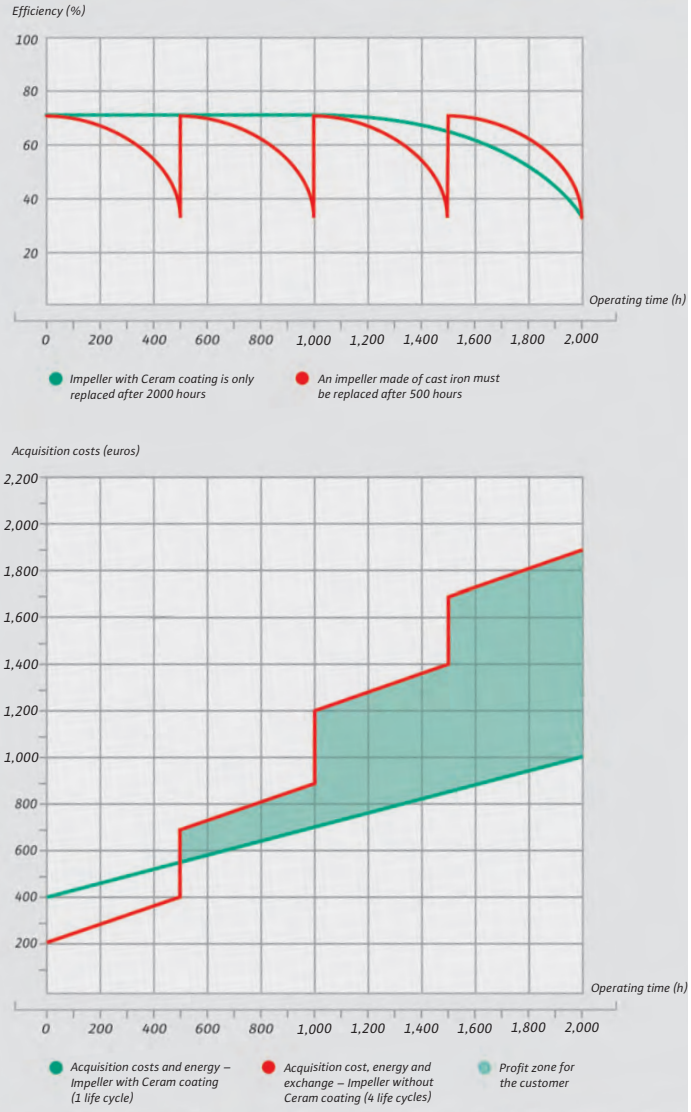
Ceram C3 is also used for the interior coating of pump parts, usually for the pump housing. This is applied in one layer with a thickness of up to 3 mm. In the case of narrow gaps or play, mechanical processing is required.

Outer and interior coating
- To protect against heavy corrosion
- Increased efficiency thanks to lower friction losses

Impeller and suction port coating
- A perfect combination, e.g. C2 + C1 against strong abrasive corrosion in the case of moderately stressed pump components
- Can also be used in seawater and brackish water, as well as in industrial sewage areas

Pump housing, inside
- A perfect combination, e.g. C3 + C1 as a cost-effective alternative compared to special materials
- Later coating/repairs possible

Long-term process safety



Operating times over a test period of 15 months

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Highest efficiency thanks to optimised durability.

Sewage and sewage treatment plant pumps are constantly being exposed to aggressive fluids. Corrosion and abrasion, as well as UV light, heat, cold, salt, condensate and the alkalinity influence the surfaces and material structures of the units, sometimes with considerable impairment to the performance. This significantly reduces the hydraulic efficiency of a pump (see graph). This not only results in a higher energy consumption, but also leads to a greatly reduced service life due to the displacement of the load locus for the motor and hydraulics.

A specific application case uses just the example of an impeller coated with Ceram – to illustrate the performance and the associated potential for savings. In a kaolin plant, the fluid is so abrasive due to the large amount of very small-grain sand that a cast-iron impeller, which normally has an operating time of about 100,000 h with no problems, already had to be replaced after 500 hours of operation.

In a test period of 15 months, a total of four cast iron impellers were therefore replaced. This resulted in the following:

- Acquisition costs
- Loss in efficiency due to the corroded material
- This resulted in increasing energy costs
- Downtimes due to removal and installation

Under the same conditions in exactly the same time period, an impeller coated with Ceram was used. This impeller only had to be replaced after about 2000 hours of operation. The coating could withstand the high mechanical load for four times as long.

If one takes the overall costs over the entire service life of the pump into account, the investment costs for a unit coated with Ceram are less than 11 % and thus negligible. In addition, there is a high savings potential due to fewer repairs being required, resulting in fewer system downtimes. Therefore, a Ceram coating already pays for itself within the first 500 hours of operation, i.e. within the first year.

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