SAKAPHEN®

Your perfect partner for corrosion protection

HEAT-CURED COATINGS

INTRO

SÄKAPHEN® sets standards in the field of corrosion protection. The SÄKAPHEN® coating technology stands for protection of equipment and security for processes and enterprises. During more than 60 years, coating materials and process technologies have been developed complying with all requirements of reliable corrosion protection. They prevent dangerous incrustation and fouling in tube bundle heat exchangers and other types of coolers and have earned the brand name SÄKAPHEN® a worldwide reputation. Furthermore, SÄKAPHEN® also protects other equipment such as ISO tank containers, process vessels, silos, turbines and vents, pipes, ship coolers and many more.

SÄKAPHEN® coating materials are manufactured as heat-cured thermosetting plastics and cold-cured resin combinations according to own recipes. They are applied in multiple layers in special process technologies either by methods of flooding or spraying.

This brochure focuses on one component thermally hardening coatings, also called heat-cured coatings, which are applied in a multilayer process and cured in special polymerization ovens at temperatures up to 220°C. This technology is applied only in SÄKAPHEN®'s own plant as well as in Authorized Applicators' plants.

The thermal treatment in the polymerization oven forms homogeneous, hard but flexible, nonporous, and chemically highly resistant protective layers. Thermal SÄKAPHEN® coatings, in particular, are durable at temperatures up to 200°C.

Your perfect partner for corrosion protection

SÄKAPHEN®

Your perfect partner for corrosion protection

Content

LABORATORY

In its own laboratory, SÄKAPHEN® conducts on-going resistance tests to further develop the best possible coating systems. These products are used for individually tailored coating solutions to meet our customer needs and requirements.

The SÄKAPHEN® business goal is the lasting quality of the coating materials and their continuous development and refinement.

Important pillar of SÄKAPHEN®'s corporate structure is research and development in its business area and professional adaptation of the products to technical and legal requirements.

AUTHORIZED APPLICATORS

SÄKAPHEN® cooperates with powerful partners, offering expert advice, service and reliability when it comes to optimum corrosion protection.

Below you can find global Authorized Applicators for our coating systems, in particular the heat-cured coatings.

Norway
Germany
Austria
Great Britain
Italy
Spain

Saudi Arabia
Oman
Pakistan

China
India
Malaysia
South Korea

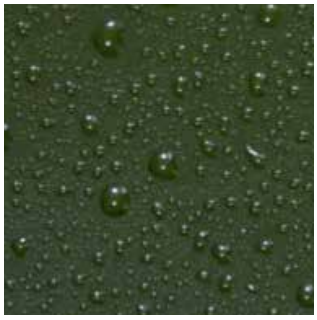
USA

Contact details of our Authorized Applicators can be found under www.saekaphen.de.

At this point in the brochure, you will find a brief presentation of the entire process of planning and realizing high-grade corrosion protection from analysing the conditions over preparing the quoation to applying the coating and subsequent maintenance. The description will continue over the next pages.

Si 14 E

SÄKAPHEN® Si 14® E



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PHENOLIC-BASED HYDROPHOBIC HEAT-CURED COATING FOR STRONGLY ACIDIC TO WEAKLY ALKALINE MEDIA. DARK GREEN, HIGH GLOSS.

SÄKAPHEN® Si 14® E is a high-quality **hydrophobic phenolic**-based thermosetting heat-cured coating.

The coating is chemically resistant to **organic** and **inorganic** acids, salt solutions, **aliphatic** and **aromatic** hydrocarbons, **fume gases**, alcohols, cooling water, including brackish, river and sea water as well as deionized water.

The surface is hard elastic with hydrophobic properties and prevents caking, fouling and incrustation.

Fields of application: For the coating of heat exchangers, air coolers, condensers, turbines and compressor rotors, impellers, salt dissolving installations, pipeworks, prover loops, centrifuges, tank containers.

SÄKAPHEN® Si 14® E, the coating that started it all… and still up to date.

Phenoplasts are among the first commercial plastics. The first large-scale produced phenol resin is the phenol-formaldehyde condensation resin. Phenoplasts are thermosetting plastics, produced on the basis of phenolic resins by curing.

Product Data

SÄKAPHEN® Si 14® E

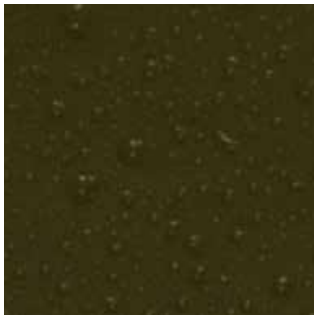
Number of components	1
Color	Dark Green
pH Range	1 - 8 pH
Total dry film thickness	180-200 µm
Temperature resistance dry (dry air oven)	-20°C - +180°C/200°C
Temperature resistance wet (water)	-20°C - +180°C/200°C
Resistance to water vapor diffusion	≤ ΔT 30°C
Overcoating Waiting Time	No limitations
Chemical Curing	After final bake
Linear Thermal Expansion	n/a
Pore testing	67,5 Volt
Pendulum hardness acc. to König	213 sec (6°)
Shore D Hardness	94 Shore D
Adhesion Test	> 20 N/mm² [MPa]
Salt spray test	1400 hours
Impact Strength	> 1000 mm (1 kg)
Surface smoothness (Ra)	0,89 µm Ø 3 readings
Surface tension	> 28 < 35 mN/m
Crosscut	Class 0
Heat conductivity Ø 12,7x2,0mm on C-Steel with 67,37 w/mK	2,65

Product certificates are available for download on www.saekaphen.de.

SÄKAPHEN® will always offer a tailor-made, individual solution from its extensive range of products, thanks to the detailed recording of all relevant criteria, in particular the general chemical/thermal load, the mechanical requirements, the local conditions, etc.

Si 14 BK

SÄKAPHEN® Si 14® E BKW



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PHENOLIC-BASED HYDROPHOBIC HEAT-CURED COATING AS TOP COAT FOR SI 14® E FOR STRONGLY ACIDIC TO WEAKLY ALKALINE MEDIA, ESPECIALLY FOR CHLORINATED HYDROCARBONS. CLEAR TOPCOAT ON GREEN, HIGH GLOSS.

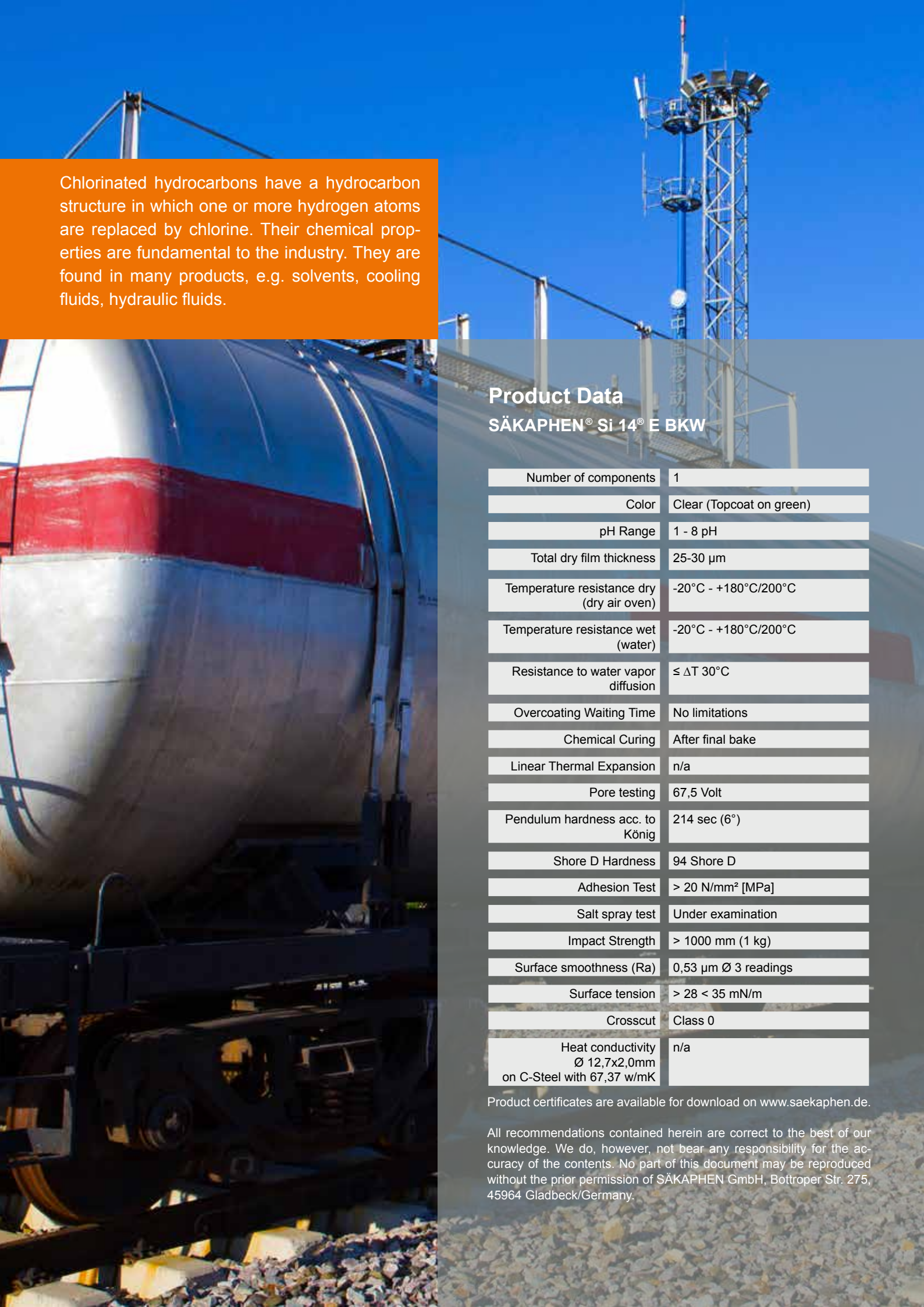
SÄKAPHEN® Si 14® E BKW is a high quality **hydrophobic phenolic**-based thermosetting heat-cured coating as **top coat for Si 14® E**.

The coating is chemically resistant to **organic** and **inorganic** acids, salt solutions, **aliphatic** and **aromatic chlorinated** hydrocarbons.

The surface is hard elastic with hydrophobic properties and prevents caking, fouling and incrustation.

Fields of application: Filler-free and pigment-free top coat for SÄKAPHEN® Si 14® E, especially for the use inside tank containers, vessels and containers carrying chlorinated hydrocarbons.

SÄKAPHEN® - know-how derived from 60 years of practical experience.



Chlorinated hydrocarbons have a hydrocarbon structure in which one or more hydrogen atoms are replaced by chlorine. Their chemical properties are fundamental to the industry. They are found in many products, e.g. solvents, cooling fluids, hydraulic fluids.

Product Data

SÄKAPHEN® Si 14® E BKW

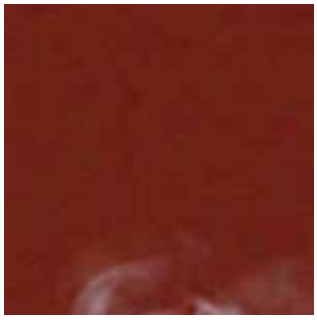
Number of components	1
Color	Clear (Topcoat on green)
pH Range	1 - 8 pH
Total dry film thickness	25-30 µm
Temperature resistance dry (dry air oven)	-20°C - +180°C/200°C
Temperature resistance wet (water)	-20°C - +180°C/200°C
Resistance to water vapor diffusion	≤ ΔT 30°C
Overcoating Waiting Time	No limitations
Chemical Curing	After final bake
Linear Thermal Expansion	n/a
Pore testing	67,5 Volt
Pendulum hardness acc. to König	214 sec (6°)
Shore D Hardness	94 Shore D
Adhesion Test	> 20 N/mm² [MPa]
Salt spray test	Under examination
Impact Strength	> 1000 mm (1 kg)
Surface smoothness (Ra)	0,53 µm Ø 3 readings
Surface tension	> 28 < 35 mN/m
Crosscut	Class 0
Heat conductivity Ø 12,7x2,0mm on C-Steel with 67,37 w/mK	n/a

Product certificates are available for download on www.saekaphen.de.

In a technical questionnaire, the aforementioned criteria are recorded and then evaluated by the application engineering. This selection process is backed by laboratory tests, years of practical testing and experienced staff who see corrosion protection as an engineering task.

Si 14 EG

SÄKAPHEN® Si 14® EG



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PHENOLIC-BASED HEAT-CURED COATING RESISTANT AGAINST WATER VAPOR DIFFUSION FOR WEAK ACIDIC TO WEAKLY ALKALINE MEDIA. RED, MATT.

SÄKAPHEN® Si 14® EG is a high quality **phenolic**-based heat-cured thermosetting coating, **resistant** to **water vapor diffusion (≤ ΔT 85°C)**.

The coating is chemically resistant to various **weakly acidic** to **weakly alkaline** aqueous liquids and vapors, **fume gases, organic** and **inorganic** acids, **aromatic** and **aliphatic** solvents, all types of cooling water, including brackish, river and sea water.

The surface is hard elastic.

Fields of application: For the coating of condensers, condensate receivers, evaporators, thermal degassers, hot water and steam stressed plant parts, uninsulated tanks. Especially suitable for plant parts that are exposed to hot water and steam in neutral and acidic environment. The coating is resistant to water vapor diffusion.

Extended customer value applied as coating.

If the warm side of non-insulated equipment is coated, a ΔT > 30°C may cause water vapor diffusion. Through a complex mix of fillers a membrane is created to allow diffusion resistance even with dry film thickness below 1.000 microns.

Product Data

SÄKAPHEN® Si 14® EG

Number of components	1
Color	Red
pH Range	3 - 8 pH
Total dry film thickness	250 µm
Temperature resistance dry (dry air oven)	-20°C - +180°C/200°C
Temperature resistance wet (water)	-20°C - +180°C/200°C
Resistance to water vapor diffusion	≤ ΔT 85°C
Overcoating Waiting Time	No limitations
Chemical Curing	After final bake
Linear Thermal Expansion	n/a
Pore testing	67,5 Volt
Pendulum hardness acc. to König	134 sec (6°)
Shore D Hardness	94 Shore D
Adhesion Test	> 20 N/mm² [MPa]
Salt spray test	Under examination
Impact Strength	> 1000 mm (1 kg)
Surface smoothness (Ra)	2,00 µm Ø 3 readings
Surface tension	n/a
Crosscut	Class 1
Heat conductivity Ø 12,7x2,0mm on C-Steel with 67,37 w/mK	3,46 W/mK

Product certificates are available for download on www.saekaphen.de.

With the material recommendation, the sales department will write a quoation that allows the customer to assess the investment for proper corrosion protection of his equipment with a SÄKAPHEN coating in addition to the comparison with other suppliers.

Si 17 E

SÄKAPHEN® Si 17® E

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PHENOLIC-BASED HYDROPHOBIC ELECTRICALLY CONDUCTIVE HEAT-CURED COATING FOR STRONGLY ACIDIC TO WEAKLY ALKALINE MEDIA. OFFERS EXCELLENT ABRASION AND IMPACT RESISTANCE. OLIVE, SATIN FINISH.

SÄKAPHEN® Si 17® E is a high-quality **hydrophobic, electrically conductive phenolic**-based thermosetting heat-cured coating.

The coating is chemically resistant to various **liquid** and **gaseous aliphatic** and **aromatic** hydrocarbons, **organic** and **inorganic** acids, salt solutions, oils and greases, **acidic** to **weakly alkaline** liquids up to max. pH 8.

SÄKAPHEN® Si 17® E also provides high impact resistance and abrasion resistance. The surface has hydrophobic properties and prevents caking, fouling and incrustation. The coating is **resistant to water vapor diffusion (≤ ΔT 85°C)**.

Fields of application: Suitable for the coating of steel containers for storage and transportation of inflammable liquids classified as dangerous according to class AI / AII and B as well as for water endangering flammable liquids (aliphatic and aromatic chlorinated hydrocarbons) due to an electrical volume resistance below $10^7\Omega$.

SÄKAPHEN® sets benchmarks in processes and plant safety.

According to TRBS 2153 / WHG / TRbF, statically conductive coatings, resistant to water-endangering inflammable liquids, permanently have to provide a specific resistance of $\rho < 10^7\ \Omega$ in order to prevent electrostatic charge. Maybe caused through repeated filling and emptying. This does increase operational safety.

Product Data

SÄKAPHEN® Si 17® E

Number of components	1
Color	Olive
pH Range	1 - 8 pH
Total dry film thickness	180 µm
Temperature resistance dry (dry air oven)	-20°C - +180°C/200°C
Temperature resistance wet (water)	-20°C - +180°C/200°C
Resistance to water vapor diffusion	≤ ΔT 85°C
Overcoating Waiting Time	No limitations
Chemical Curing	After final bake
Linear Thermal Expansion	n/a
Pore testing	9 Volt
Pendulum hardness acc. to König	134 sec (6°)
Shore D Hardness	95 Shore D
Adhesion Test	> 30 N/mm² [MPa]
Salt spray test	1250 hours
Impact Strength	> 1000 mm (1 kg)
Surface smoothness (Ra)	2,8 µm Ø 3 readings
Surface tension	> 38 < 41 mN/m
Crosscut	Class 0
Heat conductivity Ø 12,7x2,0mm on C-Steel with 67,37 w/mK	9,24 W/mK

Product certificates are available for download on www.saekaphen.de.

SÄKAPHEN® will always offer a system solution that is understood as a synthesis of technical requirements and economic conditions. The extensive SÄKAPHEN® product range can be taken from this brochure.

Si 17 TC

SÄKAPHEN® Si 17® TC

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PHENOLIC-BASED HYDROPHOBIC COATING FOR ACIDIC TO WEAKLY ALKALINE MEDIA. OFFERS EXCELLENT ABRASION AND IMPACT RESISTANCE AS WELL AS ENHANCED PERMEATION RESISTANCE. ANTHRACITE, SATIN FINISH.

SÄKAPHEN® Si 17® TC is a high-quality **abrasion** and **impact-resistant hydrophobic phenolic**-based thermosetting heat-cured coating, with **enhanced permeation resistance (≤ ΔT 65°C)**.

The coating is chemically resistant to various mediums ranging from **strongly acidic** to **weakly alkaline** aqueous liquids and vapors, **fume gases**, **organic** and **inorganic** acids, **chlorinated aromatic** and **alphatic** hydrocarbon, all types of cooling water, including brackish, river and sea water as well as deionized water, oils and greases.

The surface has hydrophobic properties and prevents caking, fouling and incrustation.

Fields of application: For the coating of ISO tank containers, process vessels, pipe works, rotating equipment and other equipment where excellent chemical resistance as well as abrasion resistance is needed.

If perfect corrosion protection against acids and hydrocarbons is required.

Matching filler complexes based on high-performance ceramics increases the abrasion and scratch resistance of coatings. At the same time, the chemically inert material group of the ceramics boosts the overall performance of a coating.

Product Data

SÄKAPHEN® Si 17® TC

Number of components	1
Color	Anthracite
pH Range	1 - 8 pH
Total dry film thickness	180 µm
Temperature resistance dry (dry air oven)	-20°C - +180°C/200°C
Temperature resistance wet (water)	-20°C - +180°C/200°C
Resistance to water vapor diffusion	≤ ΔT 65°C
Overcoating Waiting Time	No limitations
Chemical Curing	After final bake
Linear Thermal Expansion	n/a
Pore testing	67,5 Volt
Pendulum hardness acc. to König	153 sec (6°)
Shore D Hardness	95 Shore D
Adhesion Test	> 30 N/mm² [MPa]
Salt spray test	1250 hours
Impact Strength	> 1000 mm (1 kg)
Surface smoothness (Ra)	1,27 µm Ø 3 readings
Surface tension	> 38 < 41 mN/m
Crosscut	Class 0
Heat conductivity Ø 12,7x2,0mm on C-Steel with 67,37 w/mK	n/a

Product certificates are available for download on www.saekaphen.de.

Special material combinations enable SÄKAPHEN® to rehabilitate already heavily corroded surfaces that are no longer in accordance with coating standards, and thus offer a particularly economical alternative to a replacement by a new build.

Si 17 TC

SÄKAPHEN® Si 17® TC Antibacterial

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PHENOLIC-BASED HYDROPHOBIC FOOD GRADE COATING FOR ACIDIC TO WEAKLY ALKALINE MEDIA. ACTIVELY GERMICIDAL. OFFERS EXCELLENT ABRASION AND IMPACT RESISTANCE AS WELL AS ENHANCED PERMEATION RESISTANCE. REDDISH, SATIN FINISH.

SÄKAPHEN® Si 17® TC Antibacterial is a high-quality **abrasion** and **impact-resistant hydrophobic phenolic**-based thermosetting heat-cured coating. The coating has **active germicidal** properties. The coating is approved as **food grade** as per **§§ 30, 31 (1) German Food Law (LFGB)** and **EU guideline Art. 3 (EG) Nr. 1935/2004**.

The coating is chemically resistant to various mediums ranging from **strongly acidic** to **weakly alkaline** aqueous liquids and vapors, **fume gases**, **organic** and **inorganic** acids, **chlorinated aromatic** and **alphatic** hydrocarbon, all types of cooling water, including brackish, river and sea water as well as deionized water, oils and greases.

The surface has hydrophobic properties and prevents caking, fouling and incrustation.

Fields of application: For the coating of ISO tank containers, process vessels, pipe works, rotating equipment and other equipment where excellent chemical resistance as well as abrasion resistance is needed in combination with antibacterial properties of the coating.

SÄKAPHEN® is breaking new ground - with high performance innovative functional coatings.

The germicidal ceramic filler complex is highly effective and unique on the market with its bacteria reduction rate of > 99%. Due to the special filler composition, the coating does not fall under the biocide regulation.

Product Data

SÄKAPHEN® Si 17® TC Antibacterial

Number of components	1
Color	Reddish
pH Range	1 - 8 pH
Total dry film thickness	180 µm
Temperature resistance dry (dry air oven)	-20°C - +180°C/200°C
Temperature resistance wet (water)	-20°C - +180°C/200°C
Resistance to water vapor diffusion	≤ ΔT 65°C
Overcoating Waiting Time	No limitations
Chemical Curing	After final bake
Linear Thermal Expansion	n/a
Pore testing	67,5 Volt
Pendulum hardness acc. to König	153 sec (6°)
Shore D Hardness	95 Shore D
Adhesion Test	> 30 N/mm² [MPa]
Salt spray test	1250 hours
Impact Strength	> 1000 mm (1 kg)
Surface smoothness (Ra)	1,27 µm Ø 3 readings
Surface tension	> 38 < 41 mN/m
Crosscut	Class 0
Heat conductivity Ø 12,7x2,0mm on C-Steel with 67,37 w/mK	n/a

Product certificates are available for download on www.saekaphen.de.

The qualified customer consultants for SÄKAPHEN® coating materials carry out on-site assessments as well as remote diagnostics by means of pictures, drawings and descriptions.

Si 17 N

SÄKAPHEN® Si 17® N

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PHENOLIC-BASED HYDROPHOBIC COATING FOR STRONGLY ACIDIC TO WEAKLY ALKALINE MEDIA AND METAL OXICHLORIDES. OFFERS EXCELLENT ABRASION AND IMPACT RESISTANCE. GREY-OLIVE, SATIN FINISH.

SÄKAPHEN® Si 17® N is a high-quality **abrasion** and **impact-resistant hydrophobic phenolic**-based thermosetting heat-cured coating.

The coating is chemically resistant to **metal oxichlorides (VOCL3), 40% hydroflouric acid**, various mediums ranging from **strongly acidic** to **weakly alkaline** aqueous liquids and vapors, **fume gases**, **organic** and **inorganic** acids, **chlorinated aromatic** and **alphatic** hydrocarbon, oils and greases.

The surface has hydrophobic properties and prevents caking, fouling and incrustation. The coating is **resistant to water vapor diffusion (≤ ΔT 85°C)**.

Fields of application: For the coating of storage, transportation and process vessels, pipe works, rotating equipment and other equipment where excellent chemical resistance as well as enhanced abrasion resistance and/or resistance against diffusion is needed.

Extensive know-how and longterm experience for individual coating solutions.

Filler complexes with a crystalline structure, similar to diamonds, lead to a unique mechanical stability due to their covalent bonding. This does increase the mechanical and chemical resistance of a coating.

Product Data

SÄKAPHEN® Si 17® N

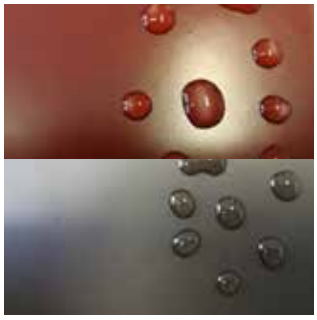
Number of components	1
Color	Grey - olive
pH Range	1 - 8 pH
Total dry film thickness	180 µm
Temperature resistance dry (dry air oven)	-20°C - +180°C/200°C
Temperature resistance wet (water)	-20°C - +180°C/200°C
Resistance to water vapor diffusion	≤ ΔT 85°C
Overcoating Waiting Time	no limitations
Chemical Curing	after final bake
Linear Thermal Expansion	n/a
Pore testing	67,5 Volt
Pendulum hardness acc. to König	153 sec (6°)
Shore D Hardness	95 Shore D
Adhesion Test	> 30 N/mm² [MPa]
Salt spray test	1250 hours
Impact Strength	> 1000 mm (1 kg)
Surface smoothness (Ra)	1,27 µm Ø 3 readings
Surface tension	> 38 < 41 mN/m
Crosscut	Class 0
Heat conductivity Ø 12,7x2,0mm on C-Steel with 67,37 w/mK	n/a

Product certificates are available for download on www.saekaphen.de.

During the execution of the coating job, the work is documented according to the current SÄKAPHEN® quality guidelines. The quality guidelines are based on relevant DIN, ASTM and NACE standards. This ensures a consistent quality.

TC LIN-

SÄKAPHEN® TC-Lining



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HYDROPHOBIC HEAT-CURED COATING, THREE-DIMENSIONAL CROSS-LINKED, CERTIFIED BY BUREAU VERITAS. BASED ON THERMOSETTING POLYMERS FOR STRONGLY ACIDIC TO WEAKLY ALKALINE MEDIA. RED, MATT.

SÄKAPHEN® TC-Lining Grund & Deck is a high-quality, hydrophobic, **high build,** one-component **coating system,** consisting of a **base coat** and a **topcoat,** chemically based on various **thermosetting polymers** with **three-dimensional cross-linking**.

The coating is chemically resistant to various **strongly acidic** to **weakly alkaline** media, **aliphatic** and **aromatic chlorinated** hydrocarbons, as well as **organic** and **inorganic** salt solutions - **certified** by **Bureau Veritas**.

The surface is **hard-elastic** and has **hydrophobic** properties. With its **high** dry film **thickness** of about **400µm**, the coating offers long-lasting protection against **abrasion**, **caking** and **incrustation**.

Fields of application: For the coating of various transportation and storage containers, in particular ISO tank containers, but also process vessels, pipework and impellers.

SÄKAPHEN® - over 60 years of know-how and practical experience – third party proven!

Due to the three-dimensional chemical compound of the resin, the coating TC-Lining is highly crosslinked after a thermal treatment. In combination with various fillers and pigments in different compositions extraordinary properties of the coating are achieved.

Product Data

SÄKAPHEN® TC-Lining Grund & Deck

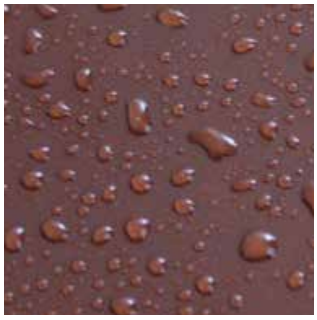
Number of components	1
Color	Red (Top coat)
pH Range	1 - 13 pH
Total dry film thickness	400 - 450 µm
Temperature resistance dry (dry air oven)	-20°C - +180°C/200°C
Temperature resistance wet (water)	-20°C - +180°C/200°C
Resistance to water vapor diffusion	≤ ΔT 30°C
Overcoating Waiting Time	No limitations
Chemical Curing	After final bake
Linear Thermal Expansion	n/a
Pore testing	67,5 Volt
Pendulum hardness acc. to König	195 sec (6°)
Shore D Hardness	93 Shore D
Adhesion Test	> 30 N/mm² [MPa]
Salt spray test	n/a
Impact Strength	> 1000 mm (1 kg)
Surface smoothness (Ra)	<1 µm Ø 3 readings
Surface tension	<28 mN/m
Crosscut	Class 1
Heat conductivity Ø 12,7x2,0mm on C-Steel with 67,37 w/mK	n/a

Product certificates are available for download on www.saekaphen.de.

Together with the coated workpiece, the customer will receive a test certificate, certifying the quality of the applied coating and at the same time ensuring the functionality of the coating.

Si 57 E

SÄKAPHEN® Si 57® E



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PHENOLIC EPOXY-BASED HYDROPHOBIC HEAT-CURED COATING FOR WEAKLY ACIDIC TO STRONGLY ALKALINE MEDIA. BROWN, HIGH GLOSS.

SÄKAPHEN® Si 57® E is a high quality **hydrophobic phenolic epoxy**-based thermosetting heat-cured coating.

The coating is chemically resistant to various substances ranging from **strongly alkaline** to **weakly acidic** media, all types of cooling water, including brackish, river and sea water as well as deionized water, salt solutions, greases, oils and gases.

The surface is hard-elastic with hydrophobic properties and prevents caking, fouling and incrustation.

Fields of application: For coating of heat exchangers, impellers, turbines, fans, compressors, tanks, containers, parts of water treatment, centrifuges, piping and proover loops.

SÄKAPHEN® applied on carbon steel for cost efficient plant operation.

Phenolic epoxy hybrid systems are characterized by a greatly improved alkalinity resistance. In addition, the adhesive strength increases significantly, also on very smooth surfaces. Pull-off adhesion values greater 40 MPA are achievable.

Product Data

SÄKAPHEN® Si 57® E

Number of components	1
Color	Brown
pH Range	3 - 14 pH
Total dry film thickness	180 µm
Temperature resistance dry (dry air oven)	-20°C - +180°C/200°C
Temperature resistance wet (water)	-20°C - +180°C/200°C
Resistance to water vapor diffusion	≤ ΔT 30°C
Overcoating Waiting Time	No limitations
Chemical Curing	After final bake
Linear Thermal Expansion	n/a
Pore testing	67,5 Volt
Pendulum hardness acc. to König	200 sec (6°)
Shore D Hardness	94 Shore D
Adhesion Test	> 30 N/mm² [MPa]
Salt spray test	1400 hours
Impact Strength	> 1000 mm (1 kg)
Surface smoothness (Ra)	1,11 µm Ø 3 readings
Surface tension	> 28 mN/m
Crosscut	Class 0
Heat conductivity Ø 12,7x2,0mm on C-Steel with 67,37 w/mK	2,51 W/mK

Product certificates are available for download on www.saekaphen.de.

If necessary, the actual condition of the coating is recorded in a report and handed over to the customer with a repair recommendation as well as a cost estimate. In this way, type and scope as well as the timely requirements of possible rehabilitation measures can be planned and assessed.

SÄKAPHEN® Si 57® EL

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PHENOLIC EPOXY-BASED HYDROPHOBIC HEAT-CURED COATING FOR WEAKLY ACIDIC TO STRONGLY ALKALINE MEDIA. FOR THE COATING OF FINNED AIR COOLERS. DARK BROWN, HIGH GLOSS.

SÄKAPHEN® Si 57® EL is a high quality **hydrophobic phenolic epoxy**-based heat-cured thermosetting coating **optimized** for the coating of **finned air coolers**, especially with a small fin pitch.

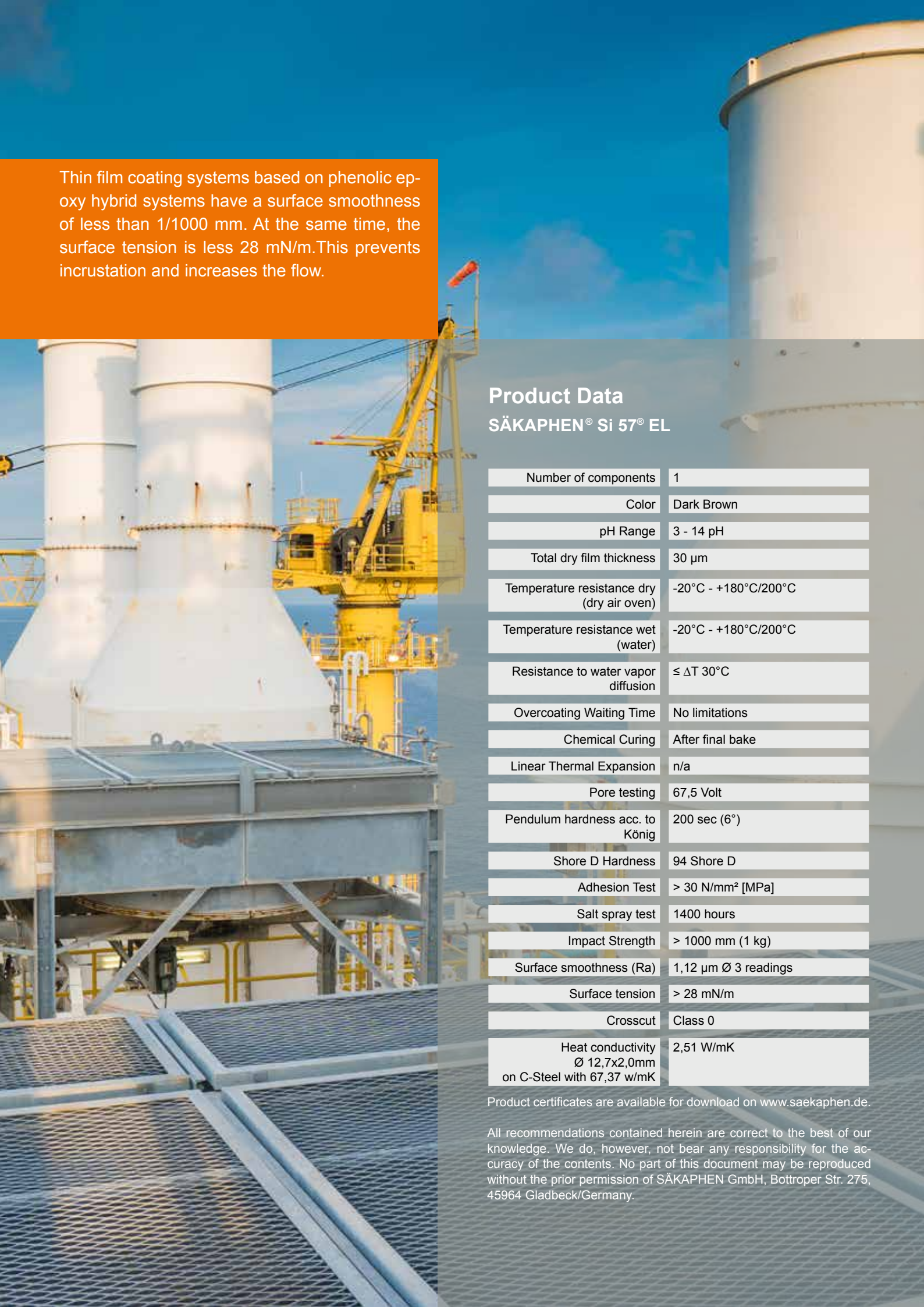
The coating is chemically resistant to fumes and mist also in droplets of **strongly alkaline** to **weakly acidic** media, all types of cooling water, including brackish, river and sea water as well as deionized water, salt solutions, greases, oils and gases.

The surface is hard-elastic with hydrophobic properties and prevents caking, fouling and incrustation.

Fields of application: Optimized for the application on finned air coolers. Due to a particular low viscosity finned air coolers with a fin pitch from 1 mm upwards can be protected.

Extended life time for HVAC-R equipment under harshest conditions.

Thin film coating systems based on phenolic epoxy hybrid systems have a surface smoothness of less than 1/1000 mm. At the same time, the surface tension is less 28 mN/m.This prevents incrustation and increases the flow.



Product Data

SÄKAPHEN® Si 57® EL

Number of components	1
Color	Dark Brown
pH Range	3 - 14 pH
Total dry film thickness	30 µm
Temperature resistance dry (dry air oven)	-20°C - +180°C/200°C
Temperature resistance wet (water)	-20°C - +180°C/200°C
Resistance to water vapor diffusion	≤ ΔT 30°C
Overcoating Waiting Time	No limitations
Chemical Curing	After final bake
Linear Thermal Expansion	n/a
Pore testing	67,5 Volt
Pendulum hardness acc. to König	200 sec (6°)
Shore D Hardness	94 Shore D
Adhesion Test	> 30 N/mm² [MPa]
Salt spray test	1400 hours
Impact Strength	> 1000 mm (1 kg)
Surface smoothness (Ra)	1,12 µm Ø 3 readings
Surface tension	> 28 mN/m
Crosscut	Class 0
Heat conductivity Ø 12,7x2,0mm on C-Steel with 67,37 w/mK	2,51 W/mK

Product certificates are available for download on www.saekaphen.de.

In addition to selecting suitable coating systems for heavy corrosion protection, the careful maintenance of the applied systems is of particular importance in order to achieve an optimal coating life span.

Si 57 EG

SÄKAPHEN® Si 57® EG

The images are for illustration purposes only and may differ from the actual appearance of the product.

PHENOLIC EPOXY-BASED HEAT-CURED COATING RESISTANT AGAINST WATER VAPOR DIFFUSION FOR WEAKLY ACIDIC TO STRONGLY ALKALINE MEDIA. BROWN, MATT.

SÄKAPHEN® Si 57® EG is a high quality **phenolic epoxy**-based heat-cured thermosetting coating, resistant to **water vapor diffusion (≤ ΔT 85°C)**.

The coating is chemically resistant to various substances from **aqueous alkaline** to **weakly acidic** media and vapors of all types of cooling water, including brackish, river and sea water.

The surface is hard-elastic.

Fields of application: For coating of heat exchangers, air coolers, condensers and evaporators, housings of turbo machinery, uninsulated tanks and process tanks, condensate tanks, desalination, thermal degasifiers and pipelines. Especially suitable for plant parts that are exposed to hot water and steam in neutral and alkaline environment. The coating is resistant to water vapor diffusion.

SÄKAPHEN® Ideal long-term protection against incrustation and corrosion.

If the warm side of non-insulated equipment is coated, a ΔT > 30°C may cause water vapor diffusion. With EG type SÄKAPHEN® coatings a high temperature-resistant thin film lining can be applied, even if there is a temperature divergence.

Product Data

SÄKAPHEN® Si 57® EG

Number of components	1
Color	Brown
pH Range	4 - 13 pH
Total dry film thickness	250 µm
Temperature resistance dry (dry air oven)	-20°C - +180°C/200°C
Temperature resistance wet (water)	-20°C - +180°C/200°C
Resistance to water vapor diffusion	≤ ΔT 85°C
Overcoating Waiting Time	No limitations
Chemical Curing	After final bake
Linear Thermal Expansion	n/a
Pore testing	67,5 Volt
Pendulum hardness acc. to König	112 sec (6°)
Shore D Hardness	94 Shore D
Adhesion Test	> 20 N/mm² [MPa]
Salt spray test	Under examination
Impact Strength	> 1000 mm (1 kg)
Surface smoothness (Ra)	1,95 µm Ø 3 readings
Surface tension	n/a
Crosscut	Class 0
Heat conductivity Ø 12,7x2,0mm on C-Steel with 67,37 w/mK	3,12 W/mK

Product certificates are available for download on www.saekaphen.de.

In case of placing an order for refurbishing an existing coating, the aforementioned report is taken as a basis for documenting the entire work. The complete documentation is handed over to the customer.

Si 570 A

SÄKAPHEN® Si 570 AR

The images are for illustration purposes only and may differ from the actual appearance of the product.

PHENOLIC EPOXY-BASED HYDROPHOBIC COATING FOR STRONGLY ALKALINE TO WEAKLY ACIDIC MEDIA. OFFERS EXCELLENT ABRASION RESISTANCE. DARK GREY, SATIN FINISH.

SÄKAPHEN® Si 570 AR is a high-quality **hydrophobic phenolic epoxy**-based heat-cured thermosetting coating.

The coating is chemically resistant to liquids, fumes and mist (also in droplets) of **strongly alkaline** to **weakly acidic** media, all types of cooling water, including brackish, river and sea water as well as deionized water, salt solutions, greases, oils and gases.

SÄKAPHEN® Si 570 AR offers excellent abrasion resistance especially for rotating equipment.

The coating offers twice the heat conductivity of SÄKAPHEN® Si 57® E - confirmed by 3M®.

Fields of application: In particular for the coating of impellers and parts that are exposed to aggressive and abrasive alkaline substances at high temperature.

30% enhanced heat conductivity - 3rd party tested.

Oxidation-resistant fillers with a thermal conductivity of > 100W /m·K and the melting point well above 2000°C, originally used in semiconductor production, improve the heat transfer of the thermosetting coatings. Positive side effect: Abrasion resistance increases.

Product Data

SÄKAPHEN® Si 570 AR

Number of components	1
Color	Dark Grey
pH Range	4 - 13 pH
Total dry film thickness	180 µm
Temperature resistance dry (dry air oven)	-20°C - +180°C/200°C
Temperature resistance wet (water)	-20°C - +180°C/200°C
Resistance to water vapor diffusion	≤ ΔT 30°C
Overcoating Waiting Time	No limitations
Chemical Curing	After final bake
Linear Thermal Expansion	n/a
Pore testing	67,5 Volt
Pendulum hardness acc. to König	132 sec (6°)
Shore D Hardness	94 Shore D
Adhesion Test	> 30 N/mm² [MPa]
Salt spray test	n/a
Impact Strength	> 1000 mm (1 kg)
Surface smoothness (Ra)	1,94 µm Ø 3 readings
Surface tension	< 28 mN/m
Crosscut	Class 0
Heat conductivity Ø 12,7x2,0mm on C-Steel with 67,37 w/mK	4,65 w/mK

Product certificates are available for download on www.saekaphen.de.

SÄKAPHEN®

Your perfect partner for corrosion protection

SÄKAPHEN GmbH

Bottroper Straße 275
D-45964 Gladbeck
Germany

Tel. +49 2043 947 0
Fax. +49 2043 947 130
Email info@saekaphen.de

www.saekaphen.de