

PCC

Machine floor cleaning

Formulation Guide

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About Us

PCC Exol SA is a major player in the European surfactants market. In the eastern and central-eastern part of the continent, it is the undisputed leader in its industry. Most of the production facilities and the company's headquarters are located in Brzeg Dolny, Poland. Here we develop, test and manufacture a wide range of anionic, non-ionic and amphoteric surfactants and speciality industrial formulations.

New products are continuously added to the portfolio in response to market trends and individual customer requirements. The surfactants produced at the plants have a very wide range of industrial applications. They are used as wetting agents, emulsifiers, auxiliaries in paper, metallurgy and many other industries, as well as in household chemicals, personal care products and textiles.

Sustainable development is an important element of PCC EXOL's business approach. The company develops its management practices and processes to address environmental, social and ethical challenges. The scope of these activities is determined by the company's strategic priorities, operational capabilities and available, verifiable supporting documentation. Among other areas, PCC EXOL undertakes initiatives aimed at supporting the circular economy, improving energy and resource efficiency, enhancing safety performance, and promoting sustainability-related practices within selected elements of its value chain through cooperation with suppliers and customers.

PCC ROKITA SA
PCC PCG
OXYALKYLATES
IRPC

Polyols

- Polyether polyols
- Polyester polyols
- Prepolymers
- Polyurethane Systems

PCC
ROKITA SA

Chlorine

- Chlorine
- MCAA
- Other Chlorine Downstream Product

PCC
ROKITA SA

Phosphorus

- Phosphorus derivatives
- Naphthalene derivatives
- Polycarboxyethers (PCE)

PCC EXOL SA
PCC CHEMAX INC
PCC PCG OXYALKYLATES

Surfactants

- Anionic surfactants
- Cationic surfactants
- Nonionic surfactants
- Amphoteric surfactants (betaines)
- Chemical formulation

PCC
SYNTEZA

Alkylphenols

- Nonylphenol
- Dodecylphenol
- Tristyrylphenol

PCC CONSUMER PRODUCTS SA

Consumer Products

- Household & industrial Cleaners, Detergents and Personal Care Products

PCC
ROKITA SA

Energy

- Energy Production

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INTERMODAL SA

Logistics

- Intermodal transport
- Road Haulage
- Rail Transport

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BAKKISILICON HF.

Silicon

- Microsillica
- Silicon Metal

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SE

Holding & Projects

- Portfolio Management
- Project Development



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01 / Introduction

Machine floor cleaning

Machine floor cleaning is a method of maintaining hard surface cleanliness using automatic or semi-automatic scrubber dryers equipped with rotating or oscillating brushes. This cleaning technology enables washing, scrubbing, and recovery of dirt and used cleaning solution in a single operation, ensuring high cleaning efficiency while significantly reducing the time and effort required compared to manual cleaning methods.

Floor cleaning machines are widely used wherever large hard surfaces require regular and efficient maintenance. Typical applications include production facilities, warehouses, logistics centers, shopping malls, retail stores, public buildings, healthcare facilities, educational institutions, and other high-traffic areas.

The effectiveness of the cleaning process depends not only on the performance of the equipment but also on the proper selection of the cleaning formulation. Professional machine cleaning products are specifically developed to deliver outstanding cleaning performance while ensuring efficient machine operation and compatibility with a wide variety of floor surfaces. Properly formulated products help achieve streak-free results, minimize residue, and support the reliable operation of scrubber dryers in demanding cleaning applications.

Key Characteristics

- **Low-foaming**
  Specially designed for use in scrubber dryers, ensuring efficient operation without excessive foam generation.
- **Highly concentrated formula**
  Provides excellent cleaning performance at low dosage, reducing product consumption and improving cost efficiency.
- **Fast-drying**
  Leaves surfaces clean and ready for use in a short time, minimizing downtime and reducing the risk of slips.
- **Optimized for different substrate materials**
  Suitable for a wide range of hard floor surfaces, ensuring effective cleaning while helping to protect the treated substrate.

Applications

- Manufacturing facilities
- Warehouses & Logistics centers
- Retail stores & Shopping malls
- Office buildings
- Educational facilities
- Healthcare facilities
- Public buildings
- Parking garages

02 / Power Formulation

The Power Formulation is a concentrated alkaline cleaner designed for the effective removal of stubborn grease, oil, and burnt-on residues.

At the recommended working concentrations of 1–10%, the product is suitable for cleaning:

- Protected concrete surfaces (impregnated, coated, or hardened)
- Epoxy flooring
- Polyurethane flooring
- Industrial resin floors
- Porcelain stoneware, ceramic tiles, and terrazzo
- Engineered stone
- Alkali-resistant industrial PVC flooring
- Warehouse and workshop floors with heavy-duty soiling



Preparation Procedure

With continuous stirring, add the raw materials sequentially according to the formulation, beginning with the highest-concentration ingredient and ending with the lowest-concentration ingredient.

Component	Concentration [%]	Function
Water	94	Solvent
ROKAnol LP220	2	Detergency, low-foaming
ROKAnol ID3	2	Wetting, soil penetration
ROKAnol L5P5	0.8	Detergency
ROSULfan E	0.3	Solubilization, enhanced detergency
NaOH (25%)	0.5	pH adjustment
GLDA (39%)	0.5	Sequestrant, prevents hard water deposits

Parameters	Value
Appearance	Clear solution
pH	12–13

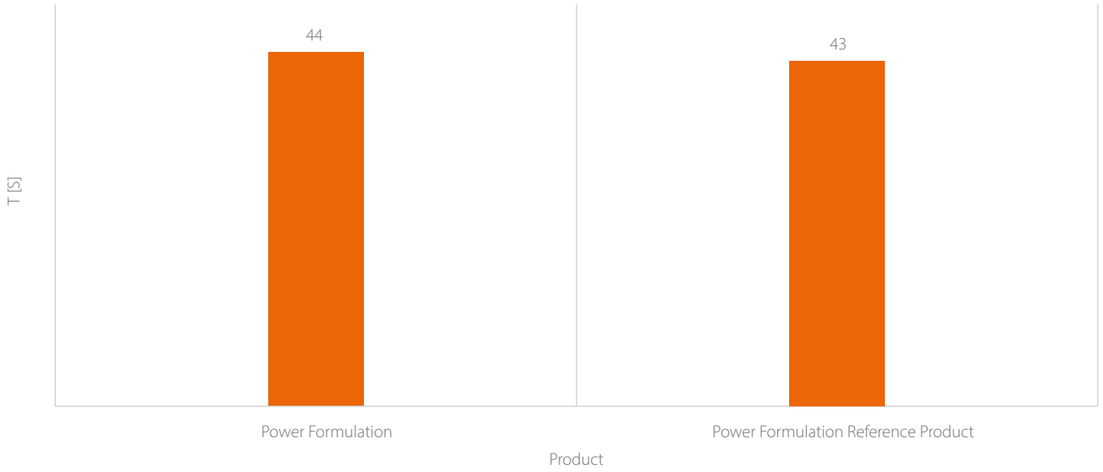
Power Formulation Reference Product

Composition	Concentration [%]
Water	83
Fatty alcohol alkoxylate	2
C6–12 ethoxylated alcohols	2–3
Ethanol	2–3
2-(2-Butoxyethoxy)ethanol	3–4
Sodium hydroxide	4
Etidronic acid	2
Tetrasodium EDTA	1



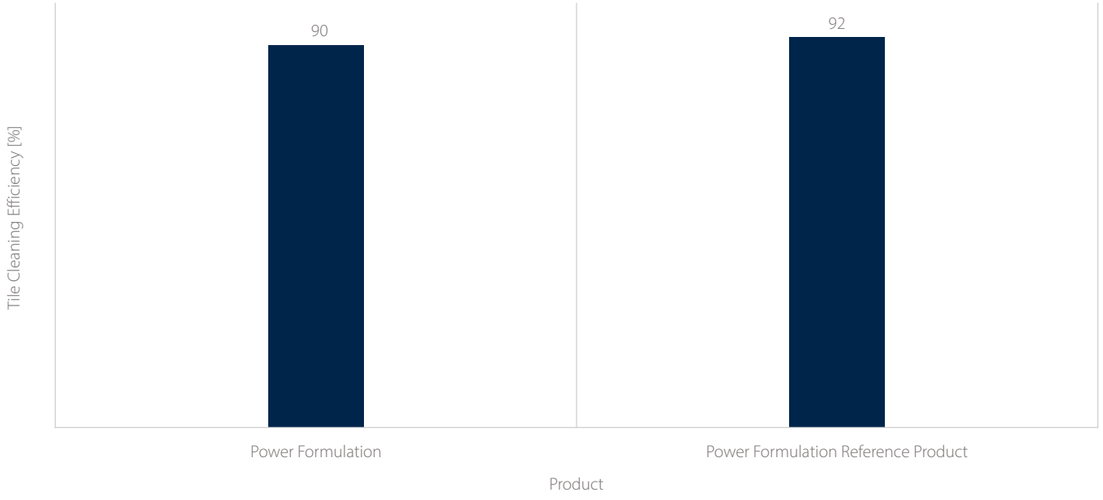
Power Formulation vs. Reference Product – Application Test Results

Wettability (10 g/L)



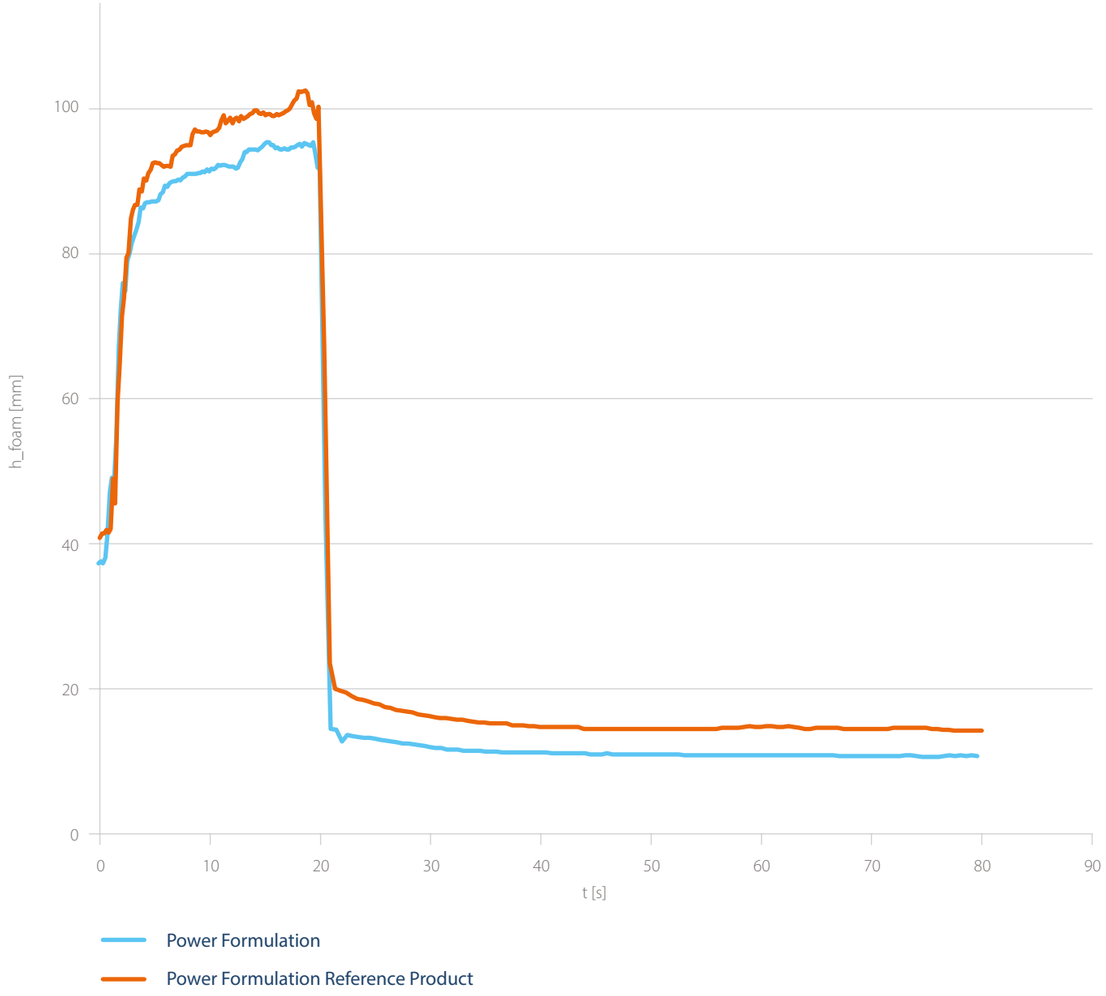
Wettability was evaluated by measuring the sinking time of a cotton disc immersed in a 10 g/L test solution.

Detergency on hard surfaces



Hard surface detergency was evaluated according to the IKW All Purpose Cleaner test method. A standard soil was applied to a ceramic tile and baked onto the surface. The contaminated tile was then cleaned using a scrub tester. The test was performed using the formulations in their undiluted form.

Foaming (1% Solution)



Foaming properties were evaluated using a KRÜSS DFA100 Foam Analyzer equipped with a rotor module. The formulations were subjected to foaming for 20 seconds, after which the foam height and stability were recorded. These parameters were monitored for an additional 60 seconds, allowing for a precise evaluation of foam generation and decay dynamics.

Power Formulation vs. Reference Product – Application Test Results

Manual Cleaning

Practical application performance was evaluated by manually cleaning a concrete warehouse floor using a sponge saturated with 10 mL of a 1% formulation solution. The test soil consisted of a mixture of grease, oil, dust, and tire marks. The surface was cleaned using 25 circular wiping motions, after which the cleaning performance was assessed.

	Before cleaning	After cleaning
Power Formulation		
Power Formulation Reference Product		

Scrubber Dryer Cleaning

The formulations were also evaluated using a COMAC Simpla 45 BT scrubber dryer under real warehouse conditions. A 10% formulation solution was prepared in the machine, and the solution flow rate was set to the maximum level. The warehouse floor was contaminated with mixed soils, including grease, oil, dust, and tire marks. The cleaning test consisted of one forward and one return pass over the test area.

	Before cleaning	After cleaning
Power Formulation		
Power Formulation Reference Product		

03 / Sport Anti-Slip Formulation

The Sport Anti-Slip Formulation is specifically developed for cleaning sports facilities and sports flooring. It provides excellent degreasing performance while offering fast drying properties.

By effectively removing grease and incorporating an acrylic polymer, the formulation creates an anti-slip protective layer that helps maintain the required level of surface traction.

At the recommended working concentrations of 1–10%, the product is suitable for cleaning:

- Varnished wooden sports floors (sports parquet and lacquered wooden flooring)
- Water-resistant laminate flooring
- Epoxy and polyurethane resin floors
- Ceramic tiles, porcelain stoneware, and terrazzo
- Protected concrete surfaces (impregnated or coated)
- PVC flooring and alkali-resistant linoleum



Precautions

Do not use on: Untreated or unsealed wood, Water-sensitive surfaces

Preparation Procedure

While stirring continuously, add the raw materials in the order specified in the formulation, starting with the ingredient present at the highest concentration and ending with the one at the lowest concentration.

Component	Concentration [%]	Function
Water	85	Solvent
Ethanol	6	Accelerates evaporation, prevents streaking
Isopropanol	4	Dissolves grease, removes shoe marks, disinfecting action
ROKAnol GA9	2	Degreasing, low-foaming
EXOlat C40	1	Forms a polymer protective film
Dibutyl glycol	1	Enhances soil dissolving
EXOtrope SCS40	1	Sequestrant

Parameters	Value
Appearance	Clear solution
pH	9–10

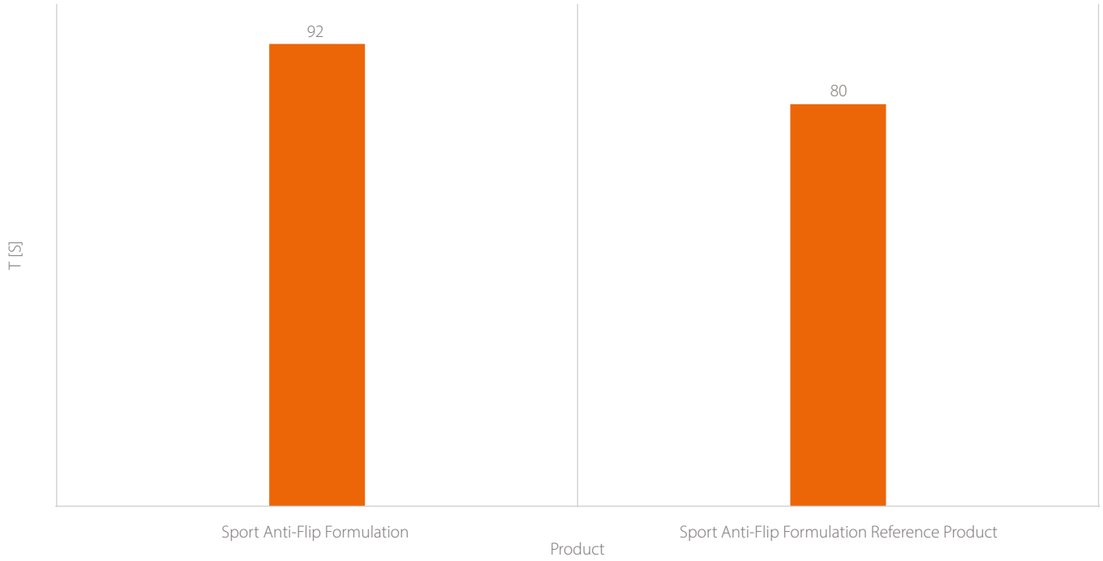
Sport Anti-Slip Formulation Reference Product

Composition	Concentration [%]
Water	Up to 100
Trideceth-8	1–5
Polyacrylate	1–5
Deceth-8	1–5
Ethoxypropanol	1–5
Methylchloroisothiazolinone, methylisothiazolinone	< 0.0015



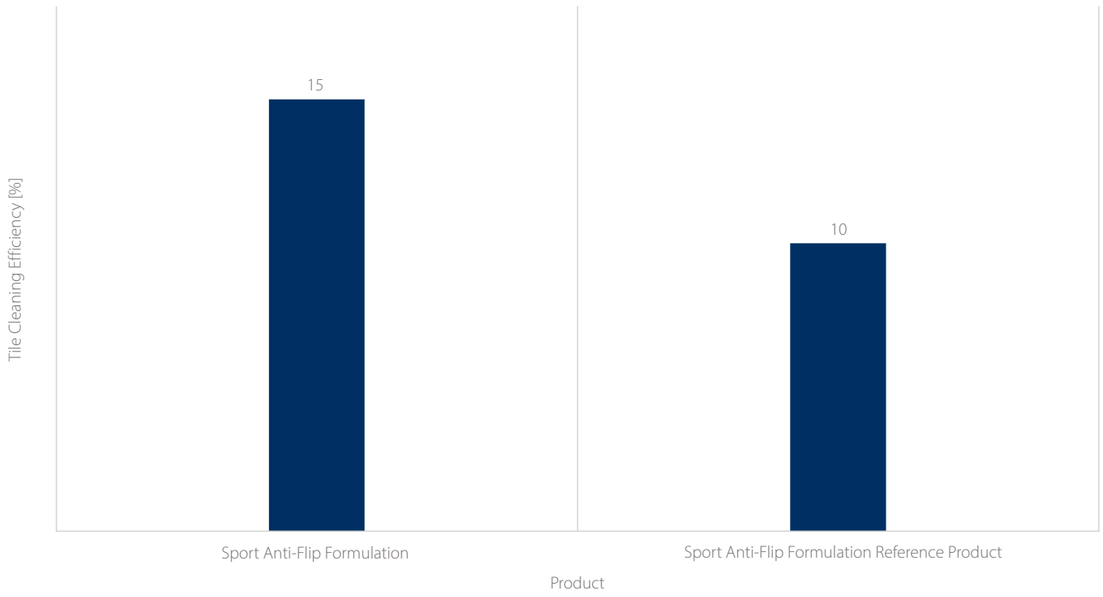
Sport Anti-Slip Formulation vs. Reference Product – Application Test Results

Wettability (10 g/L)



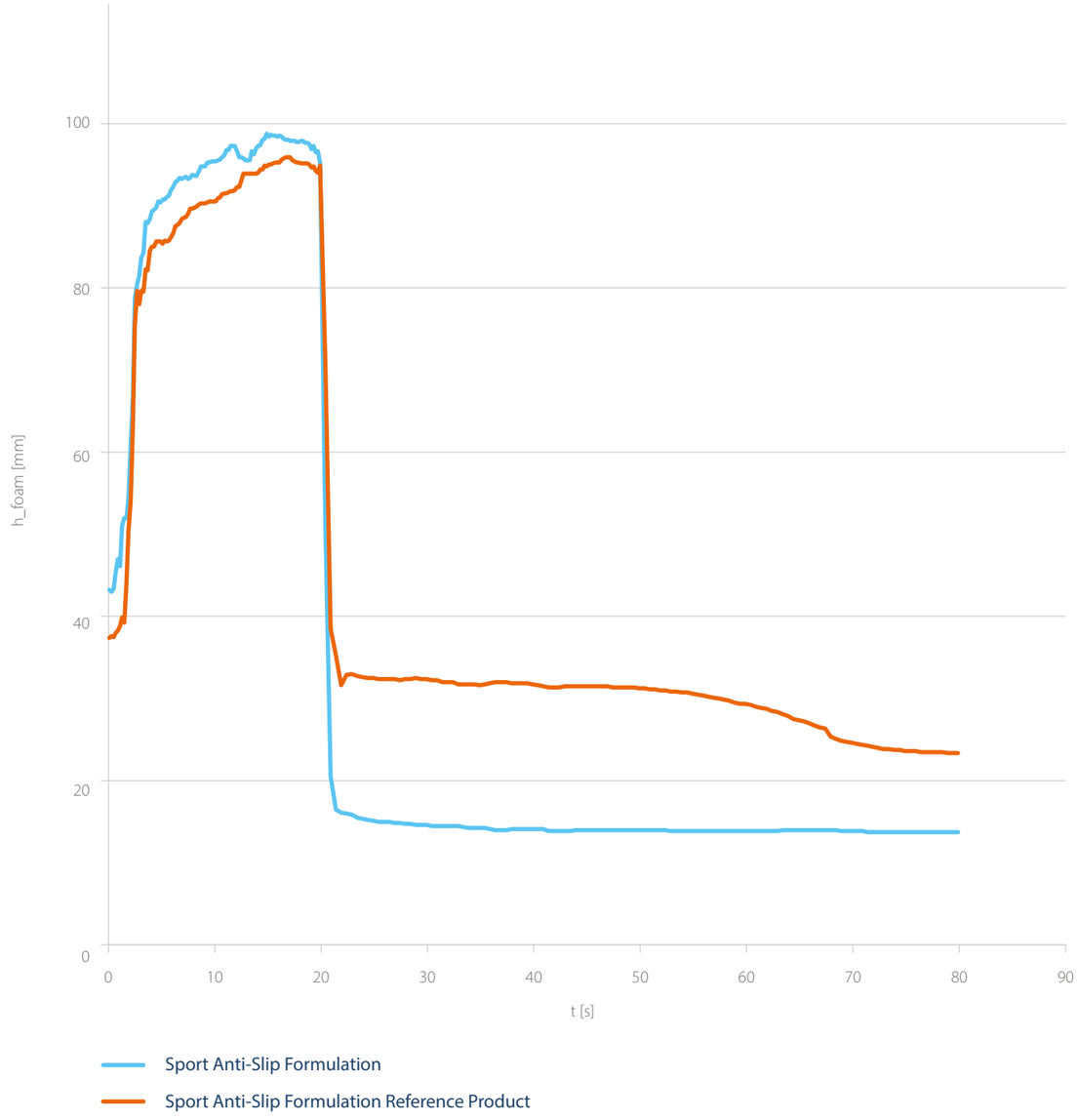
Wettability was evaluated by measuring the sinking time of a cotton disc immersed in a 10 g/L test solution.

Hard surface detergency



Hard surface detergency was evaluated according to the IKW All Purpose Cleaner test method. A standard soil was applied to a ceramic tile and baked onto the surface. The contaminated tile was then cleaned using a scrub tester. The test was performed using the formulations in their undiluted form.

Foaming (1% Solution)



Foaming properties were evaluated using a KRÜSS DFA100 Foam Analyzer equipped with a rotor module. The formulations were foamed for 20 seconds, after which the foam height and stability were recorded. Both parameters were monitored for an additional 60 seconds, allowing the evaluation of the formulations' foam generation capability and foam decay over time.

Sport Anti-Slip Formulation vs. Reference Product – Performance Test Results

Manual Cleaning

Practical application performance was evaluated by manually cleaning a concrete warehouse floor using a sponge saturated with 10 mL of a 1% formulation solution. The test soil consisted of a mixture of grease, oil, dust, and tire marks. The surface was cleaned using 25 circular wiping motions, after which the cleaning performance was assessed.

	Before cleaning	After cleaning
Sport Anti-Slip Formulation		
Sport Anti-Slip Formulation Reference Product		

Scrubber Dryer Cleaning

The formulations were also evaluated using a COMAC Simpla 45 BT scrubber dryer under real warehouse conditions. A 10% formulation solution was prepared in the machine, and the solution flow rate was set to the maximum level. The warehouse floor was contaminated with mixed soils, including grease, oil, dust, and tire marks. The cleaning test consisted of one forward and one return pass over the test area.

	Before cleaning	After cleaning
Sport Anti-Slip Formulation		
Sport Anti-Slip Formulation Reference Product		

04 / Delicate Formulation

The Delicate Formulation features a neutral pH, making it suitable for cleaning sensitive surfaces. It dries quickly and leaves surfaces streak-free, making it ideal for use in public facilities and other areas requiring gentle yet effective cleaning.

At the recommended working concentrations of 1–10%, the product is suitable for cleaning:

- Laminate flooring
- LVT, PVC, and rubber flooring
- Varnished wooden floors
- Sports floors
- Other sensitive surfaces



Preparation Procedure

While stirring continuously, add the raw materials in the order specified in the formulation, starting with the ingredient at the highest concentration and proceeding to the ingredient at the lowest concentration.

Component	Concentration [%]	Function
Water	93	Solvent
ROKAmid KAD	1	Wetting, gloss enhancement
ROKAnol L5P5	1	Detergency
EXOlat C40	0.5	Sequestrant
EXOtrope SCS40	1	Hydrotrope
Isopropanol	2	Accelerates drying
Citric acid (50%)	0.022	pH adjustment

Parameters	Value
Appearance	Clear solution
pH	8–9

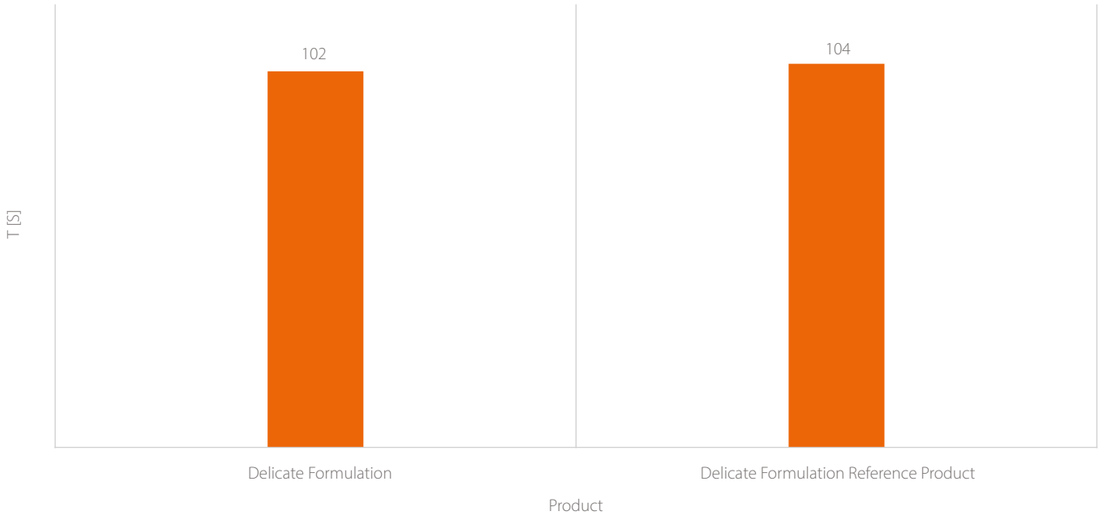
Delicate Formulation Reference Product

Composition	Concentration [%]
Water	88
Alcohol Denat	6
Isopropyl Alcohol	4
c11-13 Pareth-9	2
Etidronic Acid	0.3
Parfum	0.1
Colorant	0.1

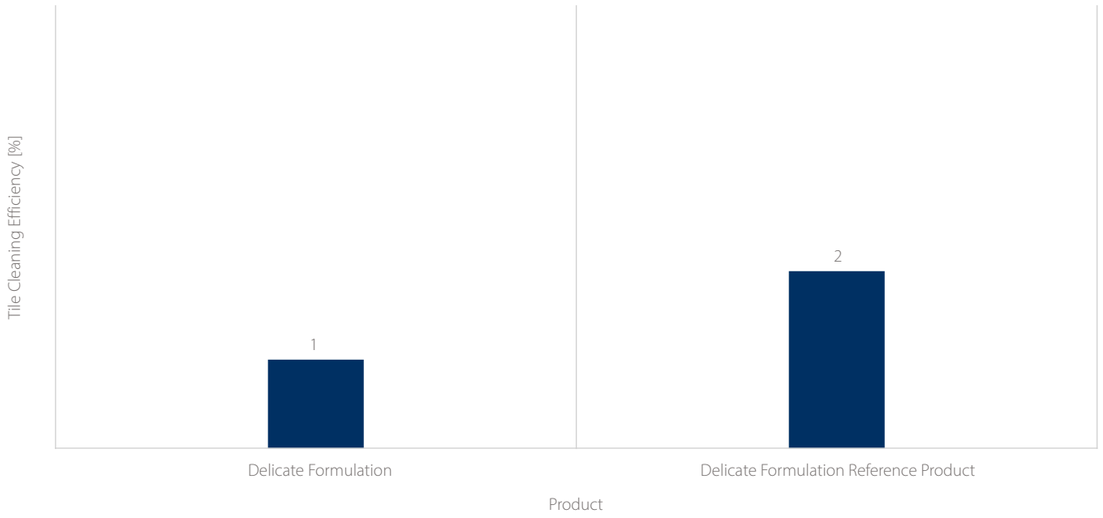


Delicate Formulation vs. Reference Product – Application Test Results

Wettability (10 g/L)

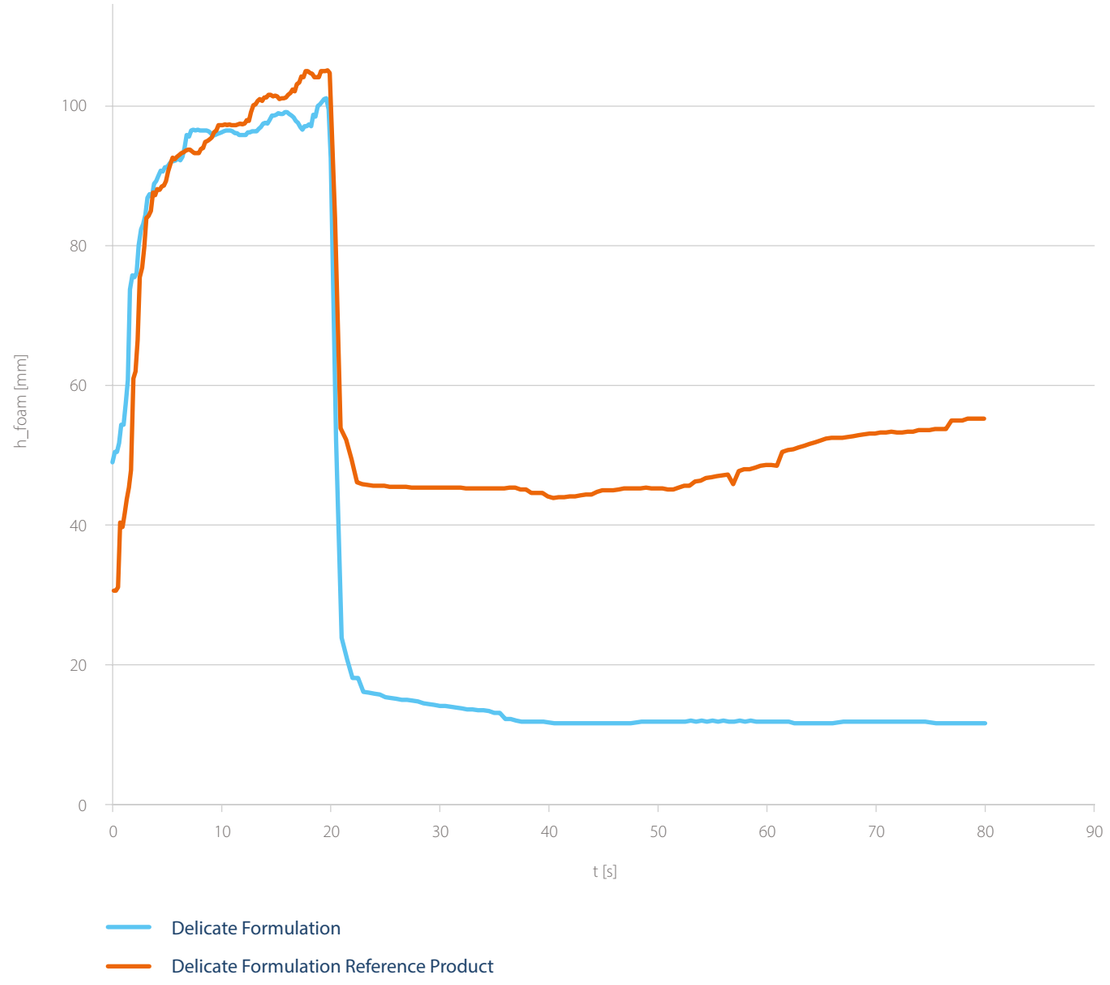


Hard surface detergency



Hard surface detergency was evaluated according to the IKW All Purpose Cleaner test method. A standard soil was applied to a ceramic tile and baked onto the surface. The contaminated tile was then cleaned using a scrub tester. The test was performed using the formulations in their undiluted form.

Foaming (1% Solution)



Foaming properties were evaluated using a KRÜSS DFA100 Foam Analyzer equipped with a rotor module. The formulations were foamed for 20 seconds, after which the foam height and stability were recorded. Both parameters were monitored for an additional 60 seconds, allowing the evaluation of the formulations' foam generation capability and foam decay over time.

Delicate Formulation vs. Reference Product – Performance Test Results

Manual Cleaning

Practical application performance was evaluated by manually cleaning a concrete warehouse floor using a sponge saturated with 10 mL of a 1% formulation solution. The test soil consisted of a mixture of grease, oil, dust, and tire marks. The surface was cleaned using 25 circular wiping motions, after which the cleaning performance was assessed.

	Before cleaning	After cleaning
Delicate Formulation		
Delicate Formulation Reference Product		

Scrubber Dryer Cleaning

The formulations were also evaluated using a COMAC Simpla 45 BT scrubber dryer under real warehouse conditions. A 10% formulation solution was prepared in the machine, and the solution flow rate was set to the maximum level. The warehouse floor was contaminated with mixed soils, including grease, oil, dust, and tire marks. The cleaning test consisted of one forward and one return pass over the test area.

	Before cleaning	After cleaning
Delicate Formulation		
Delicate Formulation Reference Product		

05 / Rubber Scrubber Formulation

The formulation is designed for removing tire marks from floors in warehouses and workshops. It contains solvents that dissolve rubber deposits and a short-chain surfactant with excellent penetrating properties.

At the recommended working concentrations (1–10%), the product is suitable for cleaning:

- Protected concrete (impregnated, coated, or hardened),
- Epoxy and polyurethane flooring,
- Industrial resin floors,
- Porcelain stoneware, ceramic tiles, terrazzo, and engineered stone,
- Warehouse, workshop, and production facility floors with heavy soiling.



Preparation Procedure

While continuously stirring the batch, add the raw materials in the order specified in the formulation, from the highest to the lowest concentration.

Component	Concentration [%]	Function
Water	93	Solvent
Dibutyl glycol	3	Solvent
Izopropanol	1	Solvent, accelerated drying
ROKAnol LP220	2	Detergency, low foaming
ROKAnol H5	2	Penetrating properties, detergency
ROKAnol IT8	2	Wetting
NaOH (18%)	5.74	pH

Parameters	Value
Appearance	Clear solution
pH	12–13

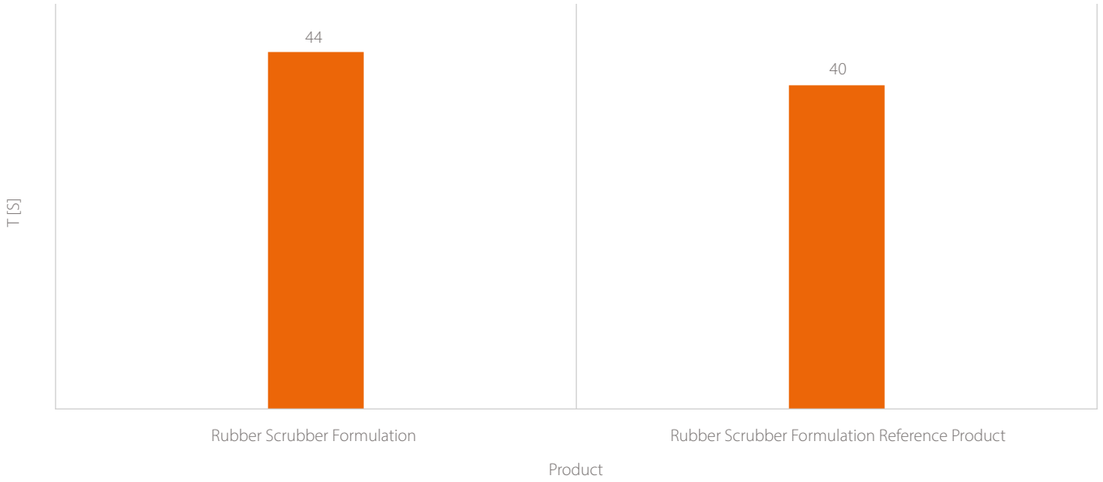
Rubber Scrubber Formulation Reference Product

Composition	Concentration [%]
Water	Up to 100
Benzyl Alcohol	<10
Ethanolamine	<5
Isotrideceth-8	<5
Sodium p-Cumenesulphonate	<5

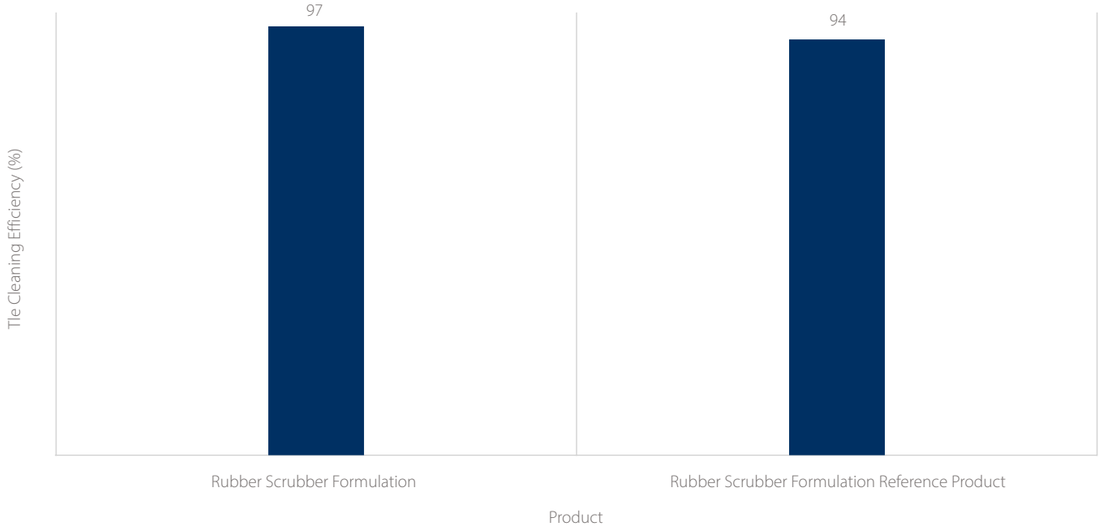


Rubber Scrubber Formulation vs. Reference – Application Test Result

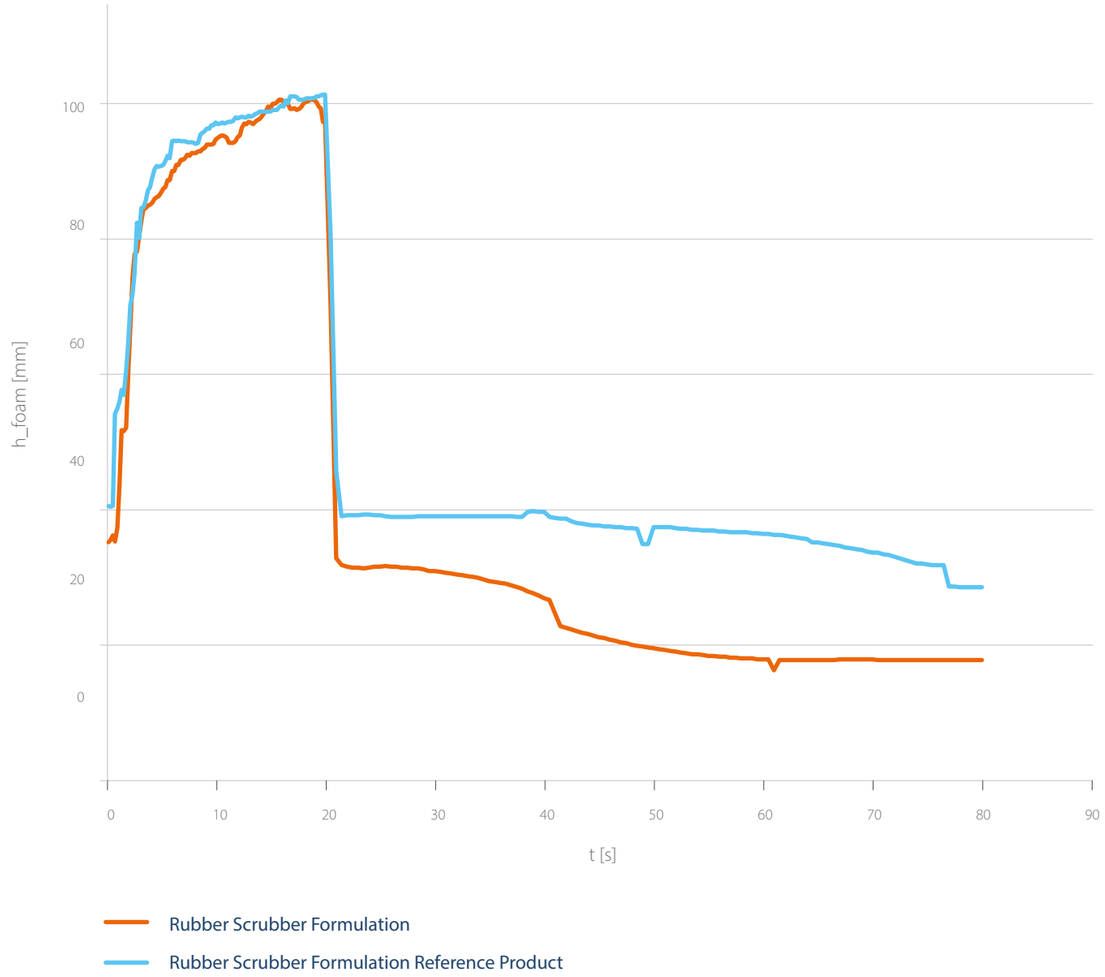
Wettability (10 g/L)



Detergency on hard surfaces



Foaming (1% Solution)



Foaming properties were evaluated using a KRÜSS DFA100 Foam Analyzer equipped with a rotor module. The formulations were foamed for 20 seconds, after which the foam height and stability were recorded. Both parameters were monitored for an additional 60 seconds, allowing the evaluation of the formulations' foam generation capability and foam decay over time.

Rubber Scrubber Formulation vs. Reference – perfomance tests

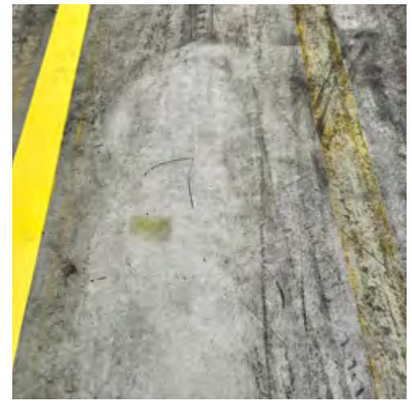
Manual Cleaning

Practical application performance was evaluated by manually cleaning a concrete warehouse floor using a sponge saturated with 10 mL of a 1% formulation solution. The test soil consisted of a mixture of grease, oil, dust, and tire marks. The surface was cleaned using 25 circular wiping motions, after which the cleaning performance was assessed.

	Before cleaning	After cleaning
Rubber Scrubber Formulation		
Rubber Scrubber Formulation Reference Product		

Scrubber Dryer Cleaning

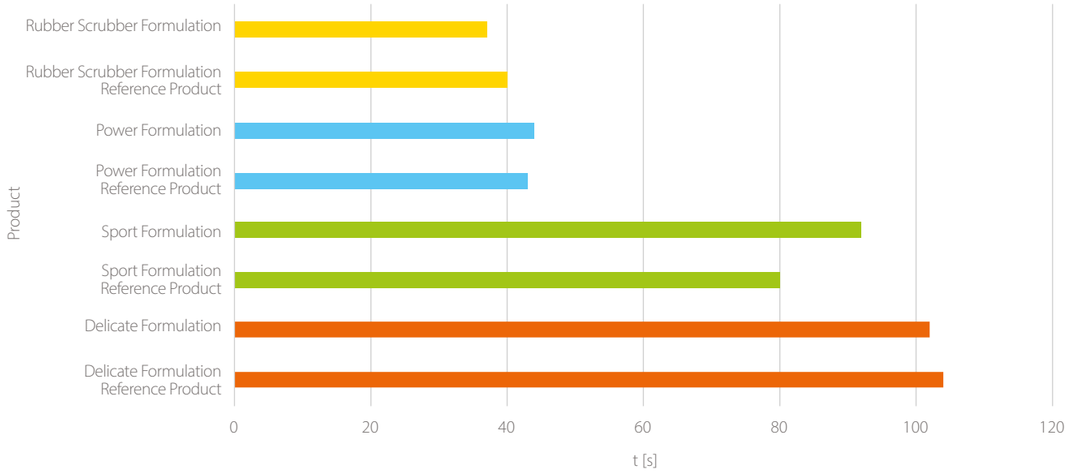
The formulations were also evaluated using a COMAC Simpla 45 BT scrubber dryer under real warehouse conditions. A 10% formulation solution was prepared in the machine, and the solution flow rate was set to the maximum level. The warehouse floor was contaminated with mixed soils, including grease, oil, dust, and tire marks. The cleaning test consisted of one forward and one return pass over the test area.

	Before cleaning	After cleaning
Rubber Scrubber Formulation		
Rubber Scrubber Formulation Reference Product		

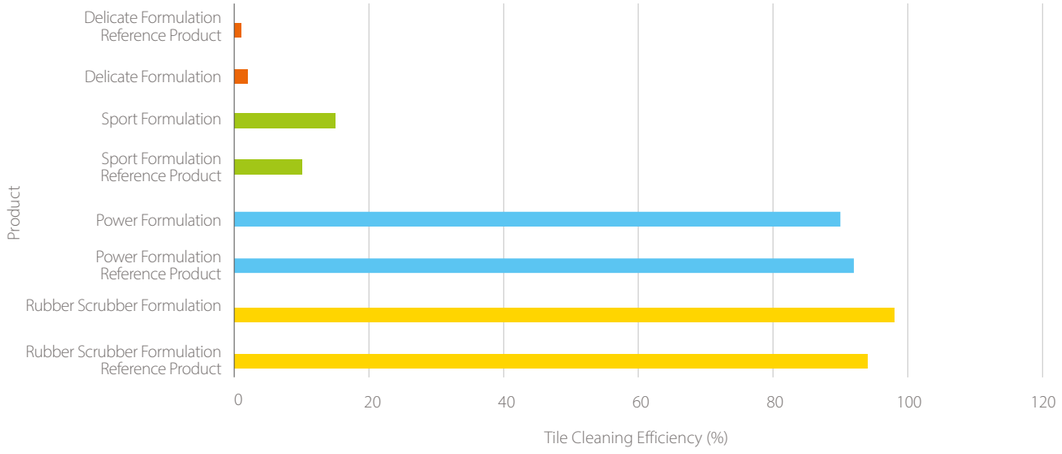
06 / Summary of Application Test Results

Application and Performance Testing

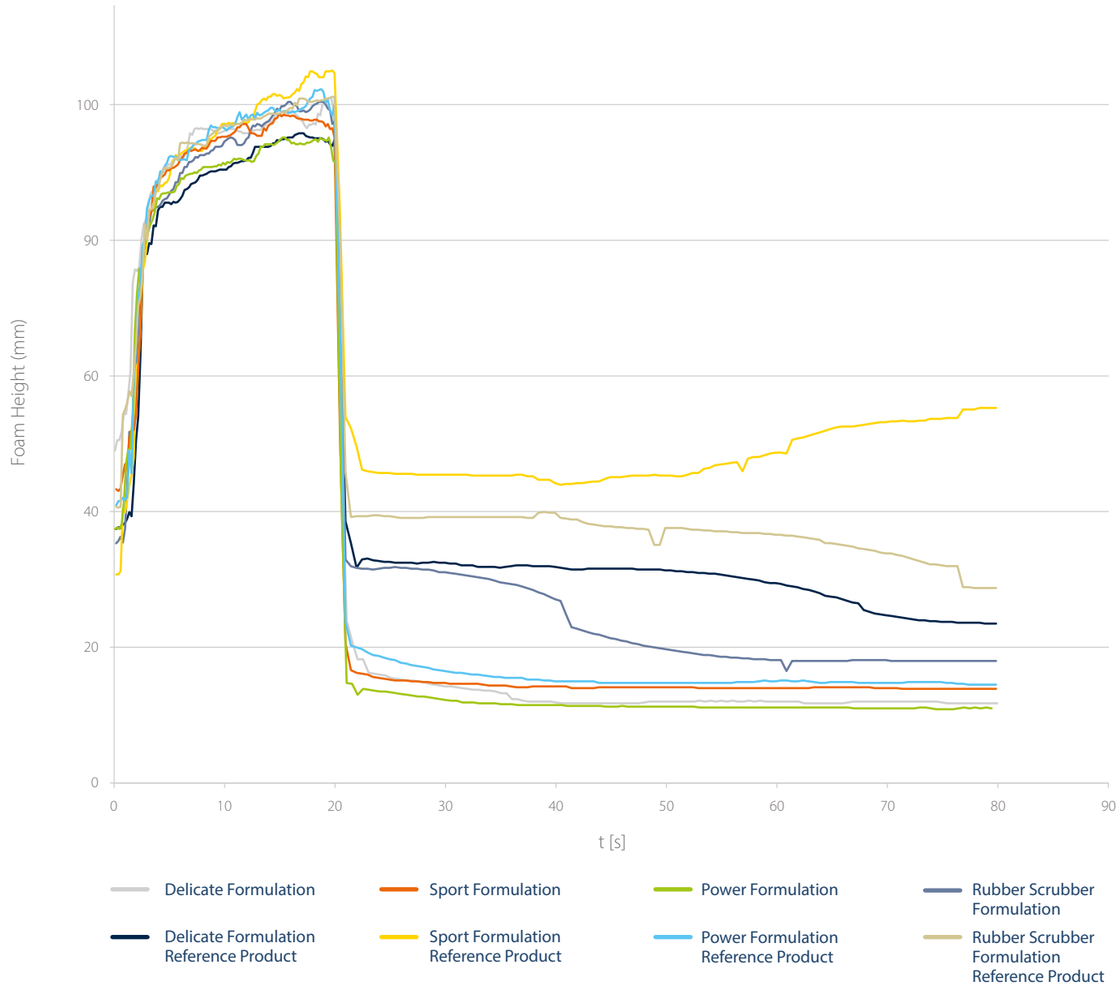
Wettability (10 g/L)

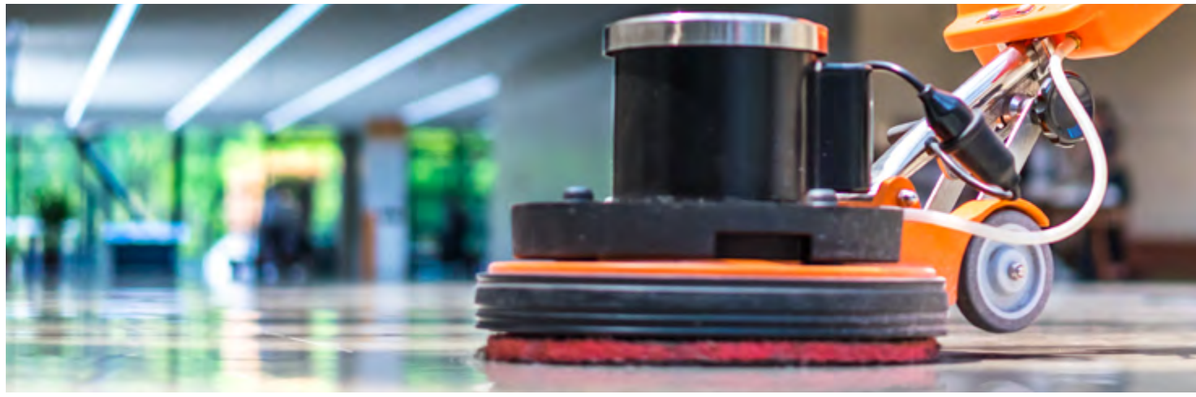


Hard Surface Detergency



Foaming







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September 2026

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