PCC Exol

HoReCa

Efficient Cleaning Solutions for the Hospitality Industry

We are **PCC**

About Us

PCC Exol SA is an important actor on the European surfactant market. It is the unquestionable leader in its industry in the Eastern and East-Central Europe. Most of its production facilities and the company headquarters are located in Brzeg Dolny near Wrocław. It is here that we design, test, and manufacture a wide range of anionic, non-ionic, amphoteric surfactants and specialized industrial formulations. In 2011, the Company completed one of the largest investment projects in recent years by launching a modern ethoxylate plant in Płock. This gave us exibility in terms of production, which allowed us to expand the oer of anionic and non-ionic surfactants used in many specialized industry applications. The company's product portfolio is updated on an ongoing basis – new items are added depending on current market trends and individual needs of our Customers. The surfactants produced in the plants are widely used in industrial applications. In addition to household chemicals, personal care products, and the textile industry, they are widely used as wetting agents, emulsiers, auxiliary agents in the paper industry, metallurgy, and many other areas.

The strategic goal of the companies which comprise the international PCC SE concern is to invest in the most eective production lines. As one of the leading manufacturers of chemical products, by using modern technologies and acting based on the sustainable development principle, the company undertakes investment activities with due care for the environment.

Table of contents

HOTEL LINE

CATERING LINE

LAUNDRY

Hotel line

Reception, lobby, rooms

CONCENTRATED MULTI-SURFACE LIQUID CLEANER

Ingredient	Percentage [%]	Function
ROKAnol NL8/GA7/ID7	4,0	Cleaning / wetting / degreasing agent
ROKAnol LP3135	3,0	Cleaning / wetting / degreasing agent
Methoxydipropanol	8,0	Solubiliser
Water and additives*	up to 100%	Solvent

* Additives: preservatives, dyes, fragrances and others.

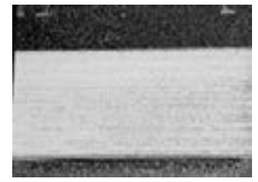
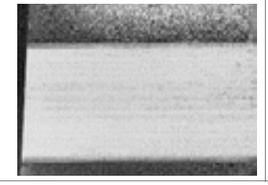
PREPARATION PROCEDURE

Weigh out the specified amount of water. Then add surfactants one at a time, i.e. **ROKAnol LP3135** and **ROKAnol NL8/GA7/ID7**. Mix until a homogeneous solution is obtained. In the next step, add methoxydipropanol and mix until uniform.

PARAMETERS

Appearance at 20–25°C	Clear liquid
pH at 25°C	8-9
Viscosity at 20°C, cP	<100
Solidification point, °C	-3÷0
Compliance with Nordic Swan	√

A formulation containing: ROKAnol NL8

Cleaning on hard surface		|dL*|
0 g/l		42,7
2 g/l		28,2
5 g/l		21,5

| dL*| - represents the absolute value of the difference between the brightness (luminance) of the tested surface after cleaning and the brightness of the clean fibreboard before soiling.

The smaller the |dL*| parameter, the better the cleaning properties.

The dL* parameter is a component of the CIE LAB trichromatic colour model.

CLEANING ON HARD SURFACE

The efficiency of cleaning hard surfaces was evaluated using a scrub tester. An HDF fibreboard, lacquered and soiled with standard dirt consisting of lard, vegetable margarine, rapeseed oil, and black dye, was used. The experiment also involved using cellulose sponges soaked with 15 g of the test solution containing surfactants at concentrations of 2 g/l and 5 g/l in the specified formulation. The device performs 5 cleaning cycles at a speed of 30 strokes per minute. After cleaning, the reflectance measurement is taken, which indicates the intensity of light reflected from the surface of the fibreboard.

ALL-PURPOSE CLEANING SPRAY

Ingredient	Percentage [%]	Function
ROKAnol LP100/LP700/LP2023	3,0	Cleaning / wetting / degreasing agent
EXOlat ZA	2,0	Sequestrant
Butyldiglycol	4,0	Solvent / stabiliser
Water and additives*	up to 100%	Solvent

* Additives: preservatives, dyes, fragrances and others.

PREPARATION PROCEDURE

Weigh out the specified amount of water. Then add a surfactant, i.e. **ROKAnol LP100/LP700/LP2023**. Mix until uniform. Then add the sequestering polymer, i.e. **EXOlat ZA** and mix until a homogeneous solution is obtained. In the final step, add butyldiglycol and mix.

PARAMETERS

Appearance at 20–25°C	Clear liquid
pH at 25°C	6-7
Viscosity at 20°C, cP	<50
Solidification point, °C	-1÷1
Compliance with Nordic Swan	√

GLASS AND MIRROR CLEANER

Ingredient	Percentage [%]	Function
ROKAnol LP2855	0,5	Cleaning / wetting / degreasing agent
EXOlat C40	0,5	Sequestrant
Isopropyl alcohol (40%), ethyl alcohol (60%)	5,0	Solvent
Water and additives*	up to 100%	Solvent

* Additives: preservatives, dyes, fragrances and others.

PREPARATION PROCEDURE

Weigh out the specified amount of water. Dissolve **ROKAnol LP2855** and **EXOlat C40** in water. Mix the whole mixture vigorously. Then add a mixture of isopropyl alcohol and ethyl alcohol. Mix until uniform.

PARAMETERS

Appearance at 20–25°C	Clear liquid
pH at 25°C	7-9
Viscosity at 20°C, cP	<10
Solidification point, °C	-2
Compliance with Nordic Swan	√

ALL-PURPOSE CLEANING FOAM

Ingredient	Percentage [%]	Function
ROKAnol NL8P4/GA8	2,0	Cleaning / wetting / degreasing agent
EXOlat MC60	5,0	Sequestrant
Water and additives*	up to 100%	Solvent

* Additives: preservatives, dyes, fragrances and others.

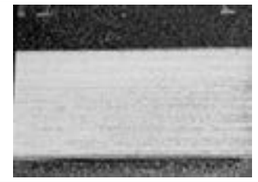
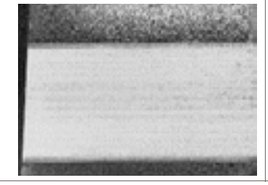
PREPARATION PROCEDURE

Weigh out the specified amount of water. Dissolve **ROKAnol NL8P4/GA8** in water. Then add the sequestering polymer, i.e. **EXOlat MC60** and mix until uniform.

PARAMETERS

Appearance at 20–25°C	Clear liquid
pH at 25°C	9-11
Viscosity at 20°C, cP	<10
Solidification point, °C	0÷2
Compliance with Nordic Swan	√

A formulation containing: ROKAnol L5P5

Cleaning on hard surface		|dL*|
0 g/l		42,5
2 g/l		34,1
5 g/l		32,3

| dL*| - represents the absolute value of the difference between the brightness (luminance) of the tested surface after cleaning and the brightness of the clean fibreboard before soiling.

The smaller the |dL*| parameter, the better the cleaning properties.

The dL* parameter is a component of the CIE LAB trichromatic colour model.

MULTIPURPOSE SPRAY CLEANER

Ingredient	Percentage [%]	Function
ROKAnol LP3135/LP3943	2,0	Cleaning / wetting / degreasing agent
EXOlat C40	0,5	Sequestrant
Isopropyl alcohol (40%), ethyl alcohol (60%)	2,0	Solvent
Water and additives*	up to 100%	Solvent

* Additives: preservatives, dyes, fragrances and others.

PREPARATION PROCEDURE

Weigh out the specified amount of water. Then add surfactants one at a time, i.e. **ROKAnol LP3135/LP3943** and **EXOlat C40**. Mix the whole thing vigorously. In the next step, add a mixture of isopropyl alcohol and ethyl alcohol. Mix until uniform.

PARAMETERS

Appearance at 20–25°C	Clear liquid
pH at 25°C	8-10
Viscosity at 20°C, cP	<10
Solidification point, °C	0÷1
Compliance with Nordic Swan	√

Hotel line

Bathrooms

ECONOMICAL CLEANER FOR WALL AND FLOOR TILES

Ingredient	Percentage [%]	Function
ROKAnol L5P5/GA3	2,0	Cleaning / wetting / degreasing agent
EXOlat ZA	1,0	Sequestrant
Water and additives*	up to 100%	Solvent

* Additives: preservatives, dyes, fragrances and others.

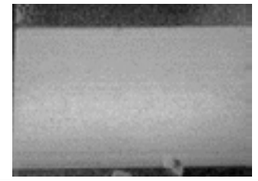
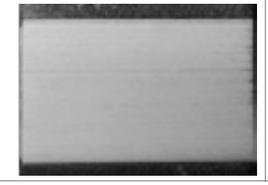
PREPARATION PROCEDURE

Weigh out the specified amount of water. Then add surfactants one at a time, i.e. **ROKAnol L5P5/GA3** and **EXOlat ZA**. Mix the whole thing vigorously.

PARAMETERS

Appearance at 20–25°C	Clear liquid
pH at 25°C	6-8
Viscosity at 20°C, cP	<50
Solidification point, °C	-1÷1
Compliance with Nordic Swan	√

A formulation containing: ROKAnol NL8P4

Cleaning on hard surface	|dL*|
0 g/l	 42,6
2 g/l	 32,4
5 g/l	 30,1

| dL*| - represents the absolute value of the difference between the brightness (luminance) of the tested surface after cleaning and the brightness of the clean fibreboard before soiling.

The smaller the |dL*| parameter, the better the cleaning properties.

The dL* parameter is a component of the CIE LAB trichromatic colour model.

ECONOMICAL SANITARY CLEANING SPRAY

Ingredient	Percentage [%]	Function
ROKAnol GA8/ NL6+NL3 (50:50)	2,0	Cleaning / wetting / degreasing agent
EXOlat MC60	2,0	Sequestrant
Citric acid	4,0	Descaler / pH adjuster
Water and additives*	up to 100%	Solvent

* Additives: preservatives, dyes, fragrances and others.

PREPARATION PROCEDURE

Weigh out the specified amount of water. Then add a surfactant, i.e. **ROKAnol GA8/NL6+NL3** and mix. Then add the sequestering polymer, i.e. **EXOlat MC60** and mix until uniform. Finally, add citric acid. Mix the whole thing vigorously each time.

PARAMETERS

Appearance at 20–25°C	Clear liquid
pH at 25°C	6-7
Viscosity at 20°C, cP	<50
Solidification point, °C	-1÷1
Compliance with Nordic Swan	√

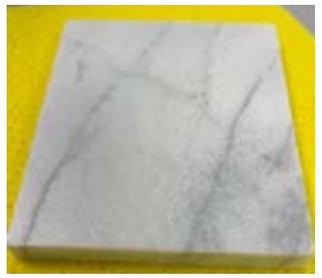
PRACTICAL TESTS

Before cleaning

After cleaning

To verify the cleaning and descaling properties, practical tests were conducted on equipment. A shower cabin was used for the test. Photos were taken before cleaning and after applying the product.

DETERMINATION OF DESCALING CAPACITY



Descaling capacity $D_{CAP} = I_m - F_m$ [mg] I_m - initial mass, F_m - final mass

Descaling capacity for the economical cleaning spray is **410 mg**

The descaling capacity test was carried out according to the IKW method. This method involves the gravimetric determination of the mass loss of a marble sample after being treated with the tested product. A degreased, weighed marble tile measuring 10x10x2 cm was horizontally immersed in the test sample for 10 minutes. It was then rinsed with cold water, brushed clean, and dried to constant mass at a temperature of 105°C.

ACID-BASED DESCALER FOR BATHROOMS / TOILETS

Ingredient	Percentage [%]	Function
ROKAnol LP700	3,0	Cleaning / wetting / degreasing agent
Citric acid	7,0	Descaler / pH adjuster
Sodium citrate	2,0	Descaler / pH adjuster
Water and additives*	up to 100%	Solvent

* Additives: preservatives, dyes, fragrances and others.

PREPARATION PROCEDURE

Weigh out the specified amount of water. Dissolve **ROKAnol LP700** in water. Then add citric acid and sodium citrate and mix vigorously.

PARAMETERS

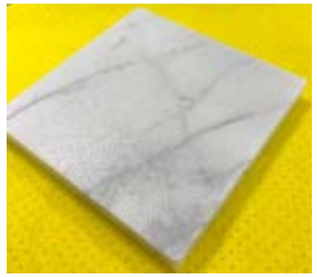
Appearance at 20–25°C	Clear liquid
pH at 25°C	2-4
Viscosity at 20°C, cP	<10
Solidification point, °C	0
Compliance with Nordic Swan	√

PRACTICAL TESTS

Before cleaning

After cleaning

DETERMINATION OF DESCALING CAPACITY



Descaling capacity $D_{CAP} = I_m - F_m$ [mg]

Descaling capacity for the descaler for bathrooms is **1900 mg**

The descaling capacity test was carried out according to the IKW method. This method involves the gravimetric determination of the mass loss of a marble sample after being treated with the tested product. A degreased, weighed marble tile measuring 10x10x2 cm was horizontally immersed in the test sample for 10 minutes. It was then rinsed with cold water, brushed clean, and dried to constant mass at a temperature of 105°C.

TAP
CLEANING FOAM

Ingredient	Percentage [%]	Function
ROKAnol LP2227/ ID7	2,0	Cleaning / wetting / degreasing agent
Citric acid	1,0	Descaler / pH adjuster
Lactic acid	5,0	Descaler / pH adjuster
Sodium citrate	1,0	Descaler / pH adjuster
Water and additives*	up to 100%	Solvent

* Additives: preservatives, dyes, fragrances and others.

PREPARATION PROCEDURE

Weigh out the specified amount of water. Dissolve **ROKAnol LP2227/ ID7** in water. Then add citric acid, lactic acid and sodium citrate and mix vigorously.

PARAMETERS

Appearance at 20–25°C	Clear liquid
pH at 25°C	2-4
Viscosity at 20°C, cP	<10
Solidification point, °C	-1÷2
Compliance with Nordic Swan	√

PRACTICAL TESTS

Before cleaning

After cleaning

To verify the cleaning and descaling properties, practical tests were conducted on equipment. A shower cabin was used for the test. Photos were taken before cleaning and after applying the product.

DETERMINATION OF DESCALING CAPACITY

Descaling capacity $D_{CAP} = I_m - F_m$ [mg]

Descaling capacity for the tap cleaning foam is **1050 mg**

The descaling capacity test was carried out according to the IKW method. This method involves the gravimetric determination of the mass loss of a marble sample after being treated with the tested product. A degreased, weighed marble tile measuring 10x10x2 cm was horizontally immersed in the test sample for 10 minutes. It was then rinsed with cold water, brushed clean, and dried to constant mass at a temperature of 105°C.

Hotel line

Kitchenettes

METAL SURFACE CLEANER

Ingredient	Percentage [%]	Function
ROKAnol TMP5/NL6	4,0	Cleaning / wetting / degreasing agent
EXOlat C40	3,0	Sequestrant
Methoxydipropanol	4,0	Solubiliser
Water and additives*	up to 100%	Solvent

* Additives: preservatives, dyes, fragrances and others.

PREPARATION PROCEDURE

Weigh out the specified amount of water. Then add a surfactant, i.e. **ROKAnol TMP5/NL6**. Mix the whole thing vigorously. Then add the sequestering polymer, i.e. **EXOlat C40** and mix until uniform. Then add methoxydipropanol and mix.

PARAMETERS

Appearance at 20–25°C	Clear liquid
pH at 25°C	7-9
Viscosity at 20°C, cP	<10
Solidification point, °C	-1÷1
Compliance with Nordic Swan	√

DEGREASING FLOOR CLEANER

Ingredient	Percentage [%]	Function
ROKAnol LP2024W/95	3,0	Cleaning / wetting / degreasing agent
ROKAnol IT9	0,5	D-Limonene solubiliser
D-Limonene	1,0	Degreasing agent
Monoethanolamine	0,5	pH regulator
Tetrasodium EDTA	3,0	Complexing compound
Water and additives*	up to 100%	Solvent

* Additives: preservatives, dyes, fragrances and others.

PREPARATION PROCEDURE

Weigh out the specified amount of water. Then add surfactants one at a time, i.e. **ROKAnol LP2024W/95** and **ROKAnol IT9**. Then add D-Limonene. Mix the whole thing vigorously each time. Then add monoeatnolamine and EDTA. Mix until uniform.

PARAMETERS

Appearance at 20–25°C	Clear liquid
pH at 25°C	10-13
Viscosity at 20°C, cP	<10
Solidification point, °C	1
Compliance with Nordic Swan	√

GREASE STAIN REMOVER SPRAY

Ingredient	Percentage [%]	Function
ROKAnol GA7/NL8/IT8	3,0	Cleaning / wetting / degreasing agent
ROKAnol GA3	1,0	Cleaning / wetting / degreasing agent
Butylglycol	5,0	Solvent
Isopropanol	2,0	Catalysts for the decomposition of organic components of dirt
NaOH	1,0	pH regulator
Water and additives*	up to 100%	Solvent

* Additives: preservatives, dyes, fragrances and others.

PREPARATION PROCEDURE

Weigh out the specified amount of water. Then add surfactants one at a time, i.e. **Rokanol GA9/NL8/IT8** and **ROKAnol GA3**. Mix the whole mixture vigorously. Then add bytulglycol and isopropanol. Mix until uniform. Finally, add NaOH to adjust the pH to 12.5 and mix.

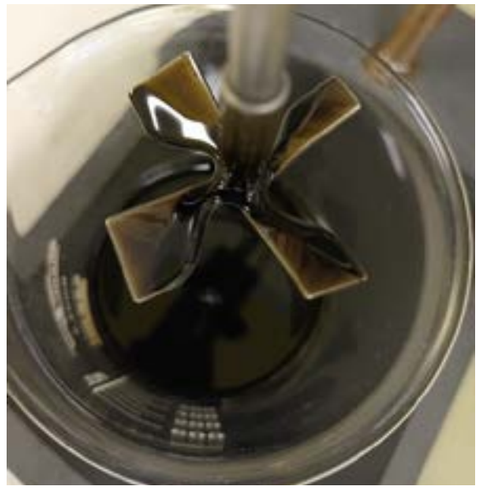
PARAMETERS

Appearance at 20–25°C	Clear liquid
pH at 25°C	12-14
Viscosity at 20°C, cP	<10
Solidification point, °C	-3÷1
Compliance with Nordic Swan	√

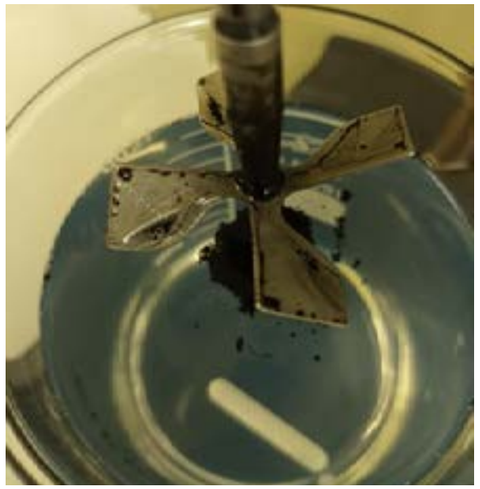
DYNAMIC DEGREASING

This method tests the effective degreasing of a stirrer during mechanical mixing. The stirrer is first placed in used oil for 5 minutes, and then in a solution with a concentration of 2 g/l of surfactants contained in the formulation. The mixing is then initiated at a speed of 200 rpm. The degreasing effects are checked after 2 and 5 minutes.

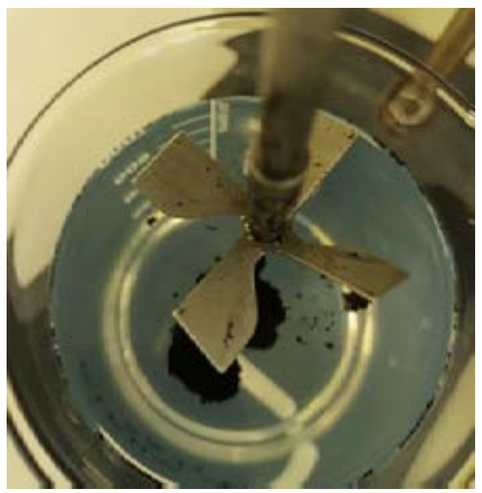
A formulation containing: ROKAnol GA9



Before



After 2 minutes



After 5 minutes

ECONOMICAL DEGREASING AGENT

Ingredient	Percentage [%]	Function
EXOclean BCK	3,0	Cleaning / wetting / degreasing agent
EXOlat ZA	3,0	Sequestrant
Sodium carbonate	0,5	Cleaning additive
Water and additives*	up to 100%	Solvent

* Additives: preservatives, dyes, fragrances and others.

PREPARATION PROCEDURE

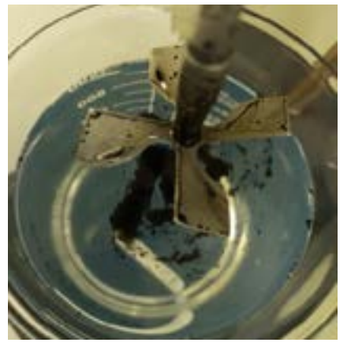
Weigh out the specified amount of water. Then add a surfactant, i.e. **EXOclean BCK** and mix until uniform. Then add the sequestering polymer, i.e. **EXOlat ZA**. Mix the whole mixture vigorously. Then add sodium carbonate and mix.

PARAMETERS

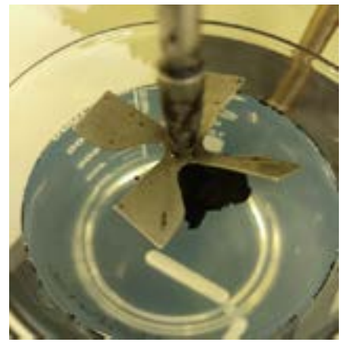
Appearance at 20–25°C	Clear liquid
pH at 25°C	10-12
Viscosity at 20°C, cP	<10
Solidification point, °C	2
Compliance with Nordic Swan	√

DYNAMIC DEGREASING

Before



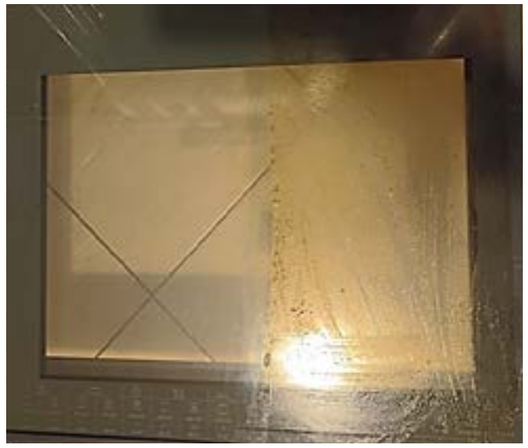
After 2 minutes



After 5 minutes

PRACTICAL TESTS

Before cleaning



After cleaning

To verify the cleaning and descaling properties, practical tests were conducted on kitchen appliances. A kitchen oven was used for the test. The photos show the oven before cleaning and after applying the formulation prepared in the laboratory.

MICROWAVE CLEANER

Ingredient	Percentage [%]	Function
ROKAnol LP2024W/95	3,0	Cleaning / wetting / degreasing agent
EXOlat C40A	2,0	Sequestrant
Methoxydipropanol	3,0	Solubiliser
Water and additives*	up to 100%	Solvent

* Additives: preservatives, dyes, fragrances and others.

PREPARATION PROCEDURE

Weigh out the specified amount of water. Dissolve **ROKAnol LP2024W/95** in water. Then add the sequestering polymer, i.e. **EXOlat C40A** and mix until uniform. Finally, add methoxydipropanol and mix vigorously.

PARAMETERS

Appearance at 20–25°C	Clear liquid
pH at 25°C	10-12
Viscosity at 20°C, cP	<10
Solidification point, °C	2
Compliance with Nordic Swan	√

Hotel line

Disinfection

BIOCIDAL SPRAY WITH GLYCOLIC AND AMIDOSULFONIC ACID MIXTURE

Ingredient	Percentage [%]	Function
ROKAnol GA7/ NL8/ ID7	4,0	Cleaning / wetting / degreasing agent
ROKAnol IT8	1,0	Cleaning / wetting / degreasing agent
Glycolic acid	3,0	pH regulator / active substance
Amidosulfonic acid	1,5	pH regulator
Water and additives*	up to 100%	Solvent

* Additives: preservatives, dyes, fragrances and others.

PREPARATION PROCEDURE

Weigh out the specified amount of water. Then add surfactants one at a time, i.e. **ROKAnol GA7/NL8/ID7** and **ROKAnol IT8**. Mix until a homogeneous solution is obtained. In the next step, add glycolic acid and amidosulfonic acid, and mix until uniform. Finally, check the pH.

PARAMETERS

Appearance at 20–25°C	Clear liquid
pH at 25°C	1-2
Viscosity at 20°C, cP	<10
Solidification point, °C	-1

BIOCIDAL SPRAY WITH GLYCOLIC ACID

Ingredient	Percentage [%]	Function
ROKAmin K15K	3,0	Cleaning / wetting / degreasing agent
ROKAnol ID7/TMP7/NL8	4,0	Cleaning / wetting / degreasing agent
Glycolic acid	5,0	pH regulator / active substance
Water and additives*	up to 100%	Solvent

* Additives: preservatives, dyes, fragrances and others.

PREPARATION PROCEDURE

Weigh out the specified amount of water. Then add surfactants, i.e. **ROKAmin K15K** and **ROKAnol ID7/TMP7/NL8**. Mix until uniform. Then add glycolic acid and mix until a homogeneous solution is obtained. Finally, check the pH.

PARAMETERS

Appearance at 20–25°C	Clear liquid
pH at 25°C	1-3
Viscosity at 20°C, cP	<10
Solidification point, °C	0

BIOCIDAL SPRAY WITH LACTIC AND AMIDOSULFONIC ACID MIXTURE

Ingredient	Percentage [%]	Function
ROKAnol GA7/IT8/ NL3+NL6(50:50)	6,0	Cleaning / wetting / degreasing agent
Lactic acid	4,0	pH regulator / active substance
Amidosulfonic acid	4,0	pH regulator
Water and additives*	up to 100%	Solvent

* Additives: preservatives, dyes, fragrances and others.

PREPARATION PROCEDURE

Weigh out the specified amount of water. Dissolve **ROKAnol GA7/IT8/NL3+NL6** in water. Then add lactic acid and amidosulfonic acid, and mix until uniform. Finally, check the pH.

PARAMETERS

Appearance at 20–25°C	Clear liquid
pH at 25°C	1-2
Viscosity at 20°C, cP	<10
Solidification point, °C	-1

BIOCIDAL SPRAY WITH LACTIC AND AMIDOSULFONIC ACID MIXTURE

Ingredient	Percentage [%]	Function
ROKAnol GA7/ID7/TMP7	2,0	Cleaning / wetting / degreasing agent
SULFOROKAnol L270/1	4,0	Cleaning agent
Lactic acid	6,0	pH regulator / active substance
Water and additives*	up to 100%	Solvent

* Additives: preservatives, dyes, fragrances and others.

PREPARATION PROCEDURE

Weigh out the specified amount of water. Dissolve **ROKAnol GA7/ID7/TMP7** and **SULFOROKAnol L270/1** in water. Mix the whole thing vigorously each time. Then add lactic acid. Mix until uniform. Finally, check the pH.

PARAMETERS

Appearance at 20–25°C	Clear liquid
pH at 25°C	1-3
Viscosity at 20°C, cP	<10
Solidification point, °C	0

BIOCIDAL SPRAY WITH SALICYLIC AND AMIDOSULFONIC ACID MIXTURE

Ingredient	Percentage [%]	Function
ROKAnol TMP7/NL8/GA7	3,0	Cleaning / wetting / degreasing agent
ROKAnol ID7	4,0	Cleaning / wetting / degreasing agent
Amidosulfonic acid	2,0	pH regulator
Salicylic acid	1,0	pH regulator / active substance
Isopropyl alcohol (40%), ethyl alcohol (60%)	6,0	Solvent
Water and additives*	up to 100%	Solvent

* Additives: preservatives, dyes, fragrances and others.

PREPARATION PROCEDURE

Weigh out the specified amount of water. Then add surfactants one at a time, i.e. **ROKAnol TMP7/NL8/GA7** and **ROKAnol ID7**. Mix the whole thing vigorously each time. Then add amidosulfonic acid. Combine salicylic acid with a mixture of isopropyl alcohol and ethyl alcohol in a separate container. Then add the alcohol and acid solution to the other ingredients. Mix until uniform. Finally, check the pH.

PARAMETERS

Appearance at 20–25°C	Clear liquid
pH at 25°C	1-3
Viscosity at 20°C, cP	<10
Solidification point, °C	-4

BIOCIDAL SPRAY WITH SALICYLIC AND AMIDOSULFONIC ACID MIXTURE

Ingredient	Percentage [%]	Function
ROKAmin K15	3,0	Cleaning / wetting / degreasing agent
ROKAnol ID7	5,0	Cleaning / wetting / degreasing agent
Amidosulfonic acid	2,0	pH regulator
Salicylic acid	1,0	pH regulator / active substance
Isopropyl alcohol (40%), ethyl alcohol (60%)	4,0	Solvent
Water and additives*	up to 100%	Solvent

* Additives: preservatives, dyes, fragrances and others.

PREPARATION PROCEDURE

Weigh out the specified amount of water. Then add surfactants one at a time, i.e. **ROKAmin K15** and **ROKAnol ID7**. Mix the whole thing vigorously each time. Then add amidosulfonic acid. Combine salicylic acid with a mixture of isopropyl alcohol and ethyl alcohol in a separate container. Then add the alcohol and acid solution to the other ingredients. Mix until uniform. Finally, check the pH.

PARAMETERS

Appearance at 20–25°C	Clear liquid
pH at 25°C	1-3
Viscosity at 20°C, cP	<10
Solidification point, °C	-4

BIOCIDAL SPRAY WITH SALICYLIC AND AMIDOSULFONIC ACID MIXTURE

Ingredient	Percentage [%]	Function
ROKAnol TMP7/ NL3+NL6 (50:50)	3,0	Cleaning / wetting / degreasing agent
ROKAnol IT8	5,0	Cleaning / wetting/ degreasing agent
Amidosulfonic acid	2,0	pH regulator
Salicylic acid	1,0	pH regulator / active substance
Isopropyl alcohol (40%), ethyl alcohol (60%)	4,0	Solvent
Water and additives*	up to 100%	Solvent

* Additives: preservatives, dyes, fragrances and others.

PREPARATION PROCEDURE

Weigh out the specified amount of water. Then add surfactants one at a time, i.e. **ROKAnol IT8** and **ROKAnol TMP7/NL3+NL6(50:50)**. Mix the whole thing vigorously each time. Then add amidosulfonic acid. Combine salicylic acid with a mixture of isopropyl alcohol and ethyl alcohol in a separate container. Then add the alcohol and acid solution to the other ingredients. Mix until uniform. Finally, check the pH.

PARAMETERS

Appearance at 20–25°C	Clear liquid
pH at 25°C	1-3
Viscosity at 20°C, cP	<10
Solidification point, °C	-4

Catering line

Worktops and wall tiles

CLEANER FOR WORKTOPS AND CERAMIC TILES

Ingredient	Percentage [%]	Function
ROKAnol NL6	7,0	Cleaning agent
SULFOROKAnol L270/1 / ABSNa 30	5,0	Cleaning agent
Sodium carbonate	2,0	pH regulator
Water and additives*	up to 100%	Solvent

* Additives: preservatives, dyes, fragrances and others.

PREPARATION PROCEDURE

Weigh out the specified amount of water. Then add surfactants one at a time, i.e. **ROKAnol NL6** and **SULFOROKAnol L270/1 / ABSNa 30**. Mix the whole thing vigorously each time. Then add sodium carbonate and mix the whole thing thoroughly to homogenise. Finally, check the pH.

PARAMETERS

Appearance at 20–25°C	Clear liquid
pH at 25°C	10-11
Viscosity at 20°C, cP	<10
Solidification point, °C	-1÷1
Compliance with Nordic Swan	√

APPLICATION TEST

The method involves assessing the degree of detergency on a ceramic tile surface. The tile is soiled with a prepared kitchen grime consisting of a mixture of vegetable and animal fats and soot. The soiled tile is then cleaned by placing it in BYK's Gardner-Scrub ECE scrub tester. A cellulose sponge is coated with 15 grams of a solution of the product at a concentration of 5 g/L. The sponge, saturated with the solution and attached to an arm, moves five times over the tile surface at a specified speed to clean the surface. The detergency evaluation involves a visual inspection and spectroscopic analysis of the reflectance difference before and after cleaning.

Before cleaning

After cleaning
Formulation with **SULFOROKAnol l270/1**

After cleaning
Formulation with **ABSNa 30**

GEL FOR CLEANING CERAMIC TILES

Ingredient	Percentage [%]	Function
ROKAnol TMP7	7,0	Cleaning agent
SULFOROKAnol L270/1	5,0	Cleaning agent
Sodium carbonate	2,0	pH regulator
Water and additives*	up to 100%	Solvent

* Additives: preservatives, dyes, fragrances and others.

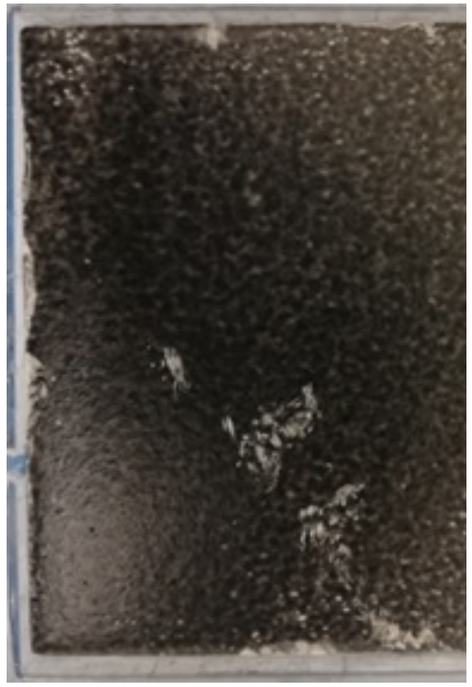
PREPARATION PROCEDURE

Weigh out the specified amount of water. Then add surfactants one at a time, i.e. **ROKAnol TMP7** and **SULFOROKAnol L270/1**. Mix the whole thing vigorously each time. Then add sodium carbonate and mix the whole thing thoroughly to homogenise. Finally, check the pH.

PARAMETERS

Appearance at 20–25°C	Clear liquid
pH at 25°C	10-11
Viscosity at 20°C, cP	400-700
Solidification point, °C	-10
Compliance with Nordic Swan	√

APPLICATION TEST



Before cleaning

After cleaning

ENVIRONMENTALLY FRIENDLY ALL-PURPOSE KITCHEN SURFACE CLEANER

Ingredient	Percentage [%]	Function
ROKAnol IT8	5,0	Cleaning agent
EXOlat ZA / GLDA	3,0	Sequestrant
Water and additives*	up to 100%	Solvent

* Additives: preservatives, dyes, fragrances and others.

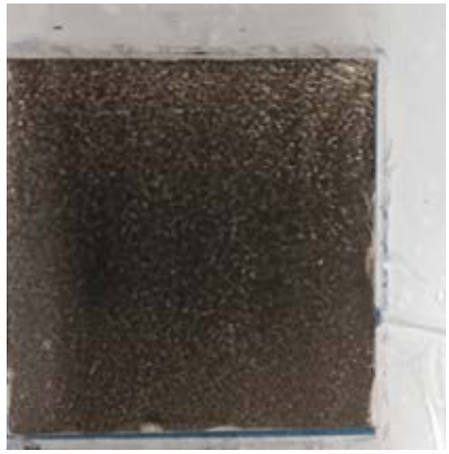
PREPARATION PROCEDURE

Weigh out the specified amount of water. Then add surfactants one at a time, i.e. **ROKAnol IT8** and **EXOlat ZA/GLDA**. Mix the whole thing vigorously each time. Mix until uniform. Finally, check the pH.

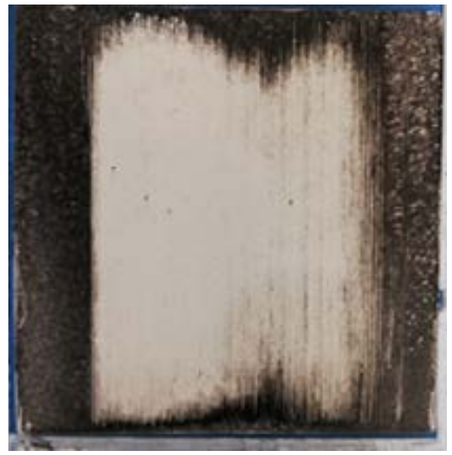
PARAMETRY

Appearance at 20–25°C	Clear liquid
pH at 25°C	6-7[1]/11-12[2]
Viscosity at 20°C, cP	<10
Solidification point, °C	1÷2
Clarification temperature, °C	3÷4
Compliance with Nordic Swan	√

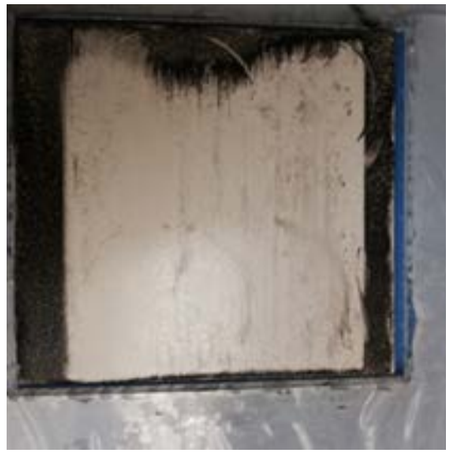
APPLICATION TEST



Before cleaning



After cleaning
Formulation with **EXOlat ZA**



After cleaning
Formulation with **GLDA**

ENVIRONMENTALLY FRIENDLY, NATURAL ALL-PURPOSE CLEANER (high pH)

Proposal 1

Ingredient	Percentage [%]	Function
ROKAnol L7	5,0	Cleaning agent
EXOlat ZA	3,0	Sequestrant
Sodium carbonate	1,5	pH regulator
Water and additives*	up to 100%	Solvent

* Additives: preservatives, dyes, fragrances and others.

Proposal 2

Ingredient	Percentage [%]	Function
ROKAnol L7	2,5	Cleaning agent
ROSULfan A	9,0	Cleaning agent
EXOlat ZA	3,0	Sequestrant
Sodium carbonate	0,5	pH regulator
Water and additives*	up to 100%	Solvent

* Additives: preservatives, dyes, fragrances and others.

PREPARATION PROCEDURE

Weigh out the specified amount of water. Then add surfactants one at a time, i.e. **ROKAnol L7** or mixture (**ROKAnol L7** + **ROSULfan A**) and **EXOlat ZA**. Mix the whole thing vigorously each time. Then add sodium carbonate. Mix until uniform. Finally, check the pH.

PARAMETERS

Appearance at 20–25°C	Clear liquid
pH at 25°C	8-11
Viscosity at 20°C, cP	<10
Solidification point, °C	0÷1
Clarification temperature, °C	2÷4
Compliance with Nordic Swan	√

ENVIRONMENTALLY FRIENDLY, NATURAL ALL-PURPOSE CLEANER (low pH)

Ingredient	Percentage [%]	Function
ROSULfan A	18,5	Cleaning agent
EXOlat ZA	3,0	Sequestrant
Water and additives*	up to 100%	Solvent

* Additives: preservatives, dyes, fragrances and others.

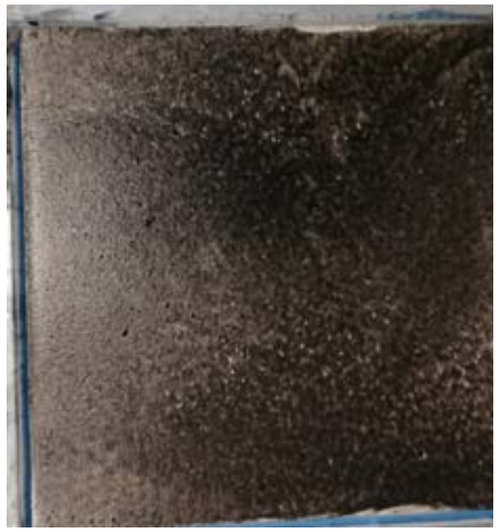
PREPARATION PROCEDURE

Weigh out the specified amount of water. Then add **ROSULfan A** and **EXOlat ZA**. Mix the whole thing vigorously each time. Mix until uniform. Finally, check the pH.

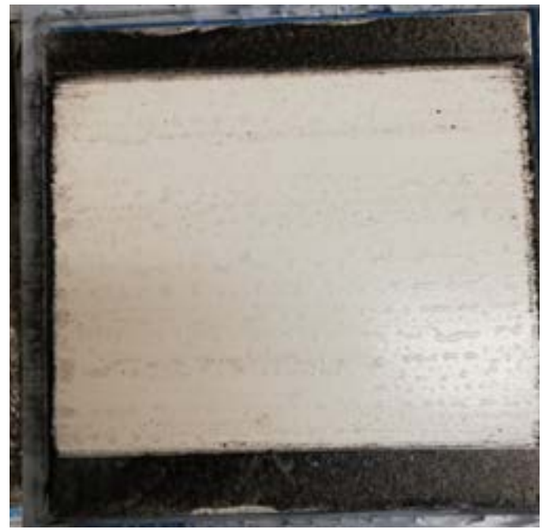
PARAMETERS

Appearance at 20–25°C	Clear liquid
pH w temperaturze 25°C	5-7
Viscosity at 20°C, cP	<10
Solidification point, °C	2
Clarification temperature, °C	10
Compliance with Nordic Swan	√

APPLICATION TEST



Before cleaning



After cleaning

Catering line

Floors

FLOOR CLEANER (high pH)

Ingredient	Percentage [%]	Function
ROKAnol IT8/NL8/GA8	3,0	Cleaning agent
Methoxydipropanol	2,0	Solvent
Sodium hydroxide	0,5	pH regulator
Water and additives*	up to 100%	Solvent

* Additives: preservatives, dyes, fragrances and others.

PREPARATION PROCEDURE

Weigh out the specified amount of water. Then add methoxydipropanol and **ROKAnol IT8/NL8/GA8**. Mix until a homogeneous solution is obtained. Then add sodium hydroxide to determine the pH.

PARAMETERS

Appearance at 20–25°C	Clear liquid
pH at 25°C	12-13
Viscosity at 20°C, cP	<10
Solidification point, °C	-8÷0
Clarification temperature, °C	-5÷6
Compliance with Nordic Swan	√

PRACTICAL TESTS

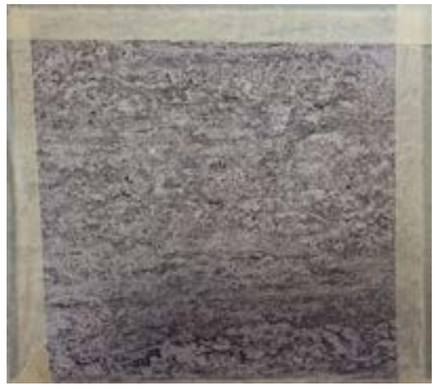
The test was conducted using a concentration of 2 g/l of active substance of each product. This concentration was determined according to the recommended usage for market products. Approximately 30 ml of the tested product was applied to a pre-rinsed and wrung sponge, and a cleaning test was performed on tiles by making 25 strokes from top to bottom, washing each half of the tile separately. One half was cleaned with a reference product, and the other half with the selected preparation. Detergency was evaluated through visual assessment.

Market preparation

Before cleaning

After cleaning

Floor cleaner – high pH



Before cleaning

After cleaning

ENVIRONMENTALLY FRIENDLY FLOOR CLEANER (high pH)

Ingredient	Percentage [%]	Function
ROKAnol NL6/TMP7	2,0	Cleaning agent
ROSULfan E	3,0	Cleaning agent
GLDA	1,0	Chelating agent
Water and additives*	up to 100%	Solvent

* Additives: preservatives, dyes, fragrances and others.

PREPARATION PROCEDURE

Weigh out the specified amount of water. Add **ROKAnol NL6/TMP7** and **ROSULfan E** to the water. Mix, then add GLDA and mix until uniform. Finally, check the pH.

PARAMETERS

Appearance at 20–25°C	Clear liquid
pH at 25°C	11-12
Viscosity at 20°C, cP	<10
Solidification point, °C	1÷2
Clarification temperature, °C	3÷4
Compliance with Nordic Swan	√

PRACTICAL TESTS

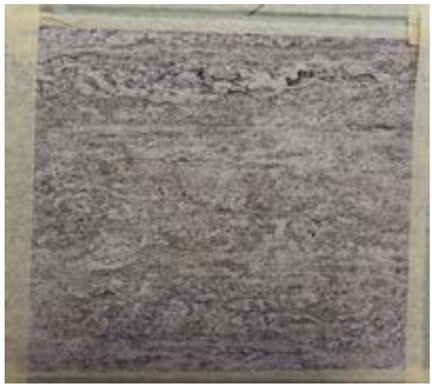
The test was conducted using a concentration of 2 g/l of active substance of each product. This concentration was determined according to the recommended usage for market products. Approximately 30 ml of the tested product was applied to a pre-rinsed and wrung sponge, and a cleaning test was performed on tiles by making 25 strokes from top to bottom, washing each half of the tile separately. One half was cleaned with a reference product, and the other half with the selected preparation. Detergency was evaluated through visual assessment.

Market preparation

Before cleaning

After cleaning

Environmentally friendly floor cleaner – high pH



Before cleaning

After cleaning

ENVIRONMENTALLY FRIENDLY FLOOR CLEANER (neutral pH)

Ingredient	Percentage [%]	Function
ROKAnol NL6/TMP7	2,0	Cleaning agent
ROSULfan E	3,0	Cleaning agent
EXOlat ZA	1,0	Sequestrant
Water and additives*	up to 100%	Solvent and additives

* Additives: preservatives, dyes, fragrances and others.

PREPARATION PROCEDURE

Weigh out the specified amount of water. Add the surfactants **ROKAnol NL6/TMP7** and **ROSULfan E** to the water. Mix, then add **EXOlat ZA** and mix until uniform. Finally, check the pH.

PARAMETERS

Appearance at 20–25°C	Clear liquid
pH at 25°C	6-7
Viscosity at 20°C, cP	<10
Solidification point, °C	1÷2
Clarification temperature, °C	3÷4
Compliance with Nordic Swan	√

PRACTICAL TESTS

The test was conducted using a concentration of 2 g/l of active substance of each product. This concentration was determined according to the recommended usage for market products. Approximately 30 ml of the tested product was applied to a pre-rinsed and wrung sponge, and a cleaning test was performed on tiles by making 25 strokes from top to bottom, washing each half of the tile separately. One half was cleaned with a reference product, and the other half with the selected preparation. Detergency was evaluated through visual assessment.

Market preparation

Before cleaning

After cleaning

Environmentally friendly floor cleaner – neutral pH

Before cleaning

After cleaning

FLOOR CLEANING CONCENTRATE

Ingredient	Percentage [%]	Function
ROKAnol IT8/NL8/GA8/TMP7	5,0	Cleaning agent
Propan 2-ol	10,0	Solvent
APG	5,0	Cleaning agent
Water and additives*	do 100%	Solvent and additives

* Additives: preservatives, dyes, fragrances and others.

PREPARATION PROCEDURE

Weigh out the specified amount of water. Then add surfactants, i.e. **ROKAnol IT8/NL8/GA8/TMP7** and APG. Mix until uniform. Then add propanol and mix the whole thing until a homogeneous solution is obtained.

PARAMETERS

Appearance at 20–25°C	Clear liquid
pH at 25°C	10-12
Viscosity at 20°C, cP	<10
Solidification point, °C	-12÷3
Compliance with Nordic Swan	√

PRACTICAL TESTS

The test was conducted using a concentration of 2 g/l of active substance of each product. This concentration was determined according to the recommended usage for market products. Approximately 30 ml of the tested product was applied to a pre-rinsed and wrung sponge, and a cleaning test was performed on tiles by making 25 strokes from top to bottom, washing each half of the tile separately. One half was cleaned with a reference product, and the other half with the selected preparation. Detergency was evaluated through visual assessment.

Market preparation

Before cleaning

After cleaning

Floor cleaning concentrate

Before cleaning

After cleaning

FLOOR CLEANER

Ingredient	Percentage [%]	Function
ROKAnol NL6	2,0	Cleaning agent
Methoxydipropanol	1,0	Solvent
Ethanol	1,0	Solvent
Sodium carbonate	1,0	pH Regulator
MEA	1,0	pH regulator
Water and additives*	up to 100%	Solvent

* Additives: preservatives, dyes, fragrances and others.

PREPARATION PROCEDURE

Weigh out the specified amount of water. Mix **Rokanol NL6**, methoxydipropanol and ethanol in water. Mix the whole thing vigorously each time. Then add sodium carbonate. Mix until uniform. Then slowly add MEA to determine the pH.

PARAMETERS

Appearance at 20–25°C	Clear liquid
pH at 25°C	11-12
Viscosity at 20°C, cP	<10
Solidification point, °C	0
Clarification temperature, °C	2
Compliance with Nordic Swan	√

PRACTICAL TESTS

The test was conducted using a concentration of 2 g/l of active substance of each product. This concentration was determined according to the recommended usage for market products. Approximately 30 ml of the tested product was applied to a pre-rinsed and wrung sponge, and a cleaning test was performed on tiles by making 25 strokes from top to bottom, washing each half of the tile separately. One half was cleaned with a reference product, and the other half with the selected preparation. Detergency was evaluated through visual assessment.

Market preparation

Before cleaning

After cleaning

Floor cleaner

Before cleaning

After cleaning

Catering line

Cookers, grills, ovens

CLEANER FOR COOKERS IN THE RESTAURANT INDUSTRY

Ingredient	Percentage [%]	Function
ROKAnol IT8/NL8/GA8/TMP7	4,0	Cleaning / wetting / degreasing agent
APG	3,0	Cleaning agent
Methoxydipropanol	5,0	Solvent
Tetrasodium EDTA	2,0	Complexing compound
Sodium hydroxide	0,8	pH regulator
Water and additives*	up to 100%	Solvent

* Additives: preservatives, dyes, fragrances and others.

PREPARATION PROCEDURE

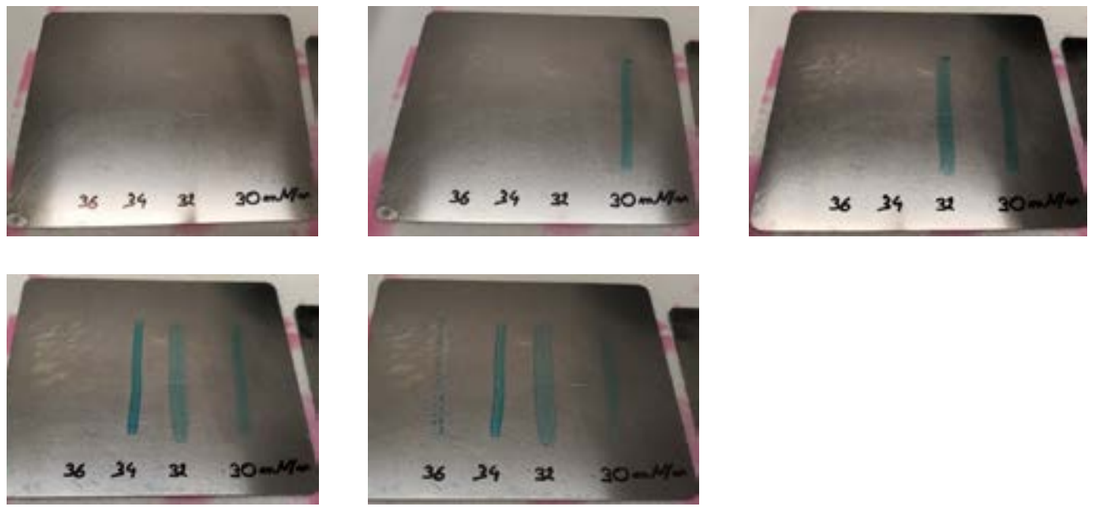
Weigh out the specified amount of water. Then add surfactants one at a time, i.e. **ROKAnol IT8/NL8/GA8/TMP7** and APG. Mix until a homogeneous solution is obtained. In the next step, add Methoxydipropanol and EDTA mix until uniform. Then add sodium hydroxide to determine the pH.

PARAMETERS

Appearance at 20–25°C	Clear liquid
pH at 25°C	12-13
Viscosity at 20°C, cP	<10
Solidification point, °C	-1
Compliance with Nordic Swan	√

MARKER TEST

Marker test on a degreased plate using preparation for cleaning cookers.



PREPARATIONS WITH THE FOLLOWING SURFACTANTS	30 mN/m	32 mN/m	34 mN/m	36 mN/m	38 mN/m	40 mN/m
ROKAnolem NL8	OK	OK	OK	-	-	-
ROKAnolem IT9	OK	OK	OK	-	-	-
ROKAnolem TMP7	OK	OK	OK	-	-	-
ROKAnolem GA8	OK	OK	OK	-	-	-
REFERENCE PRODUCT	OK	OK	OK	-	-	-

The images present 4 formulations designed for cleaning cookers and the reference product. The results show that the developed formulations remove grease at a level of 34 mN/m, similar to the market product.

METHOD OF CHECKING THE EFFICIENCY OF DEGREASING AND CLEANING USING THE TESTED PREPARATIONS BY MEANS OF WETTABILITY TESTERS

Measurement stages:

1. Application of dirt: A red-coloured sunflower oil preparation was applied to a metal plate with a brush and left to dry for 24 hours. .

2. Degreasing dirty plates: Weigh a cellulose sponge, rinse it using demineralised water and squeeze it so that a maximum of 5 g of water remains in it. Then, apply 5 g of the tested formulation, surfactant or its solution to the sponge. Distribute the liquid evenly using a Pasteur pipette. Clean the soiled plate with a soaked sponge, making approximately 15 circular movements for 10 seconds. Then, rinse the plate with demineralised water and let it dry at ambient temperature.

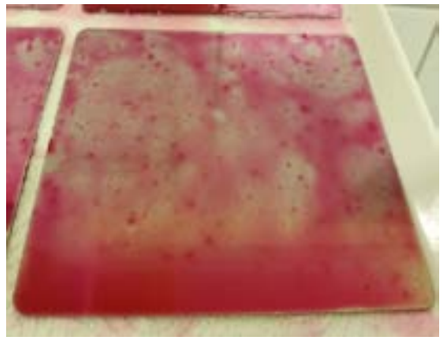
3. Measurement of surface wettability using pen testers: Before the measurement, the degree of degreasing of the plate should be visually assessed. If oil residues are visible on the surface, it is assumed that the test agent has poor degreasing ability and the surface wettability measurement is not proceeded with as this may damage the testers. Testing should start with the tester with the lowest value. Apply the test liquid to the degreased plate in the form of a line of approx. 6 cm. If the preparation creates an unbroken line lasting longer than two seconds, an analogous measurement should be performed with a tester with a higher value. The wettability of the degreased plate corresponds to the highest value of the tester at which the liquid remains in the form of an unbroken line for more than two seconds.

4. Presentation of results: the result of the tests is the wettability of the degreased surface (in mN/m), which is the basis for assessing the degree of degreasing. To reference the obtained value, measure the surface tension of a clean steel plate. Before measuring, wash the plate with acetone. Then, determine the surface tension using pen testers. The closer the value obtained for a plate degreased with the tested liquid is to the value obtained for a clean plate degreased with acetone, the higher the ability of the tested liquid to degrease the steel surface.

APPLICATION OF DIRT

Metal surface soiled with red-coloured sunflower oil using Sudan Red 7B dye.

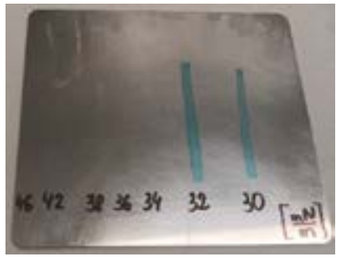
Directly after oil application

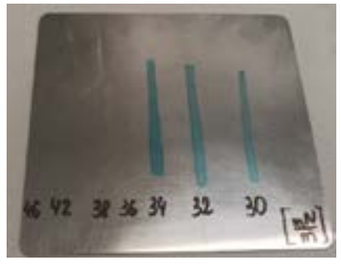


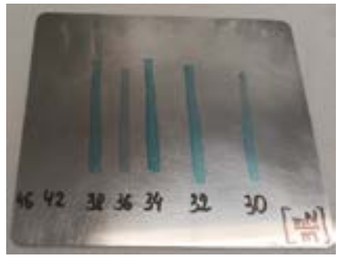
After 24h

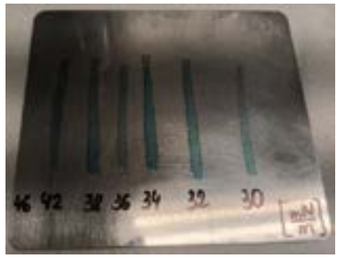
MARKER TEST

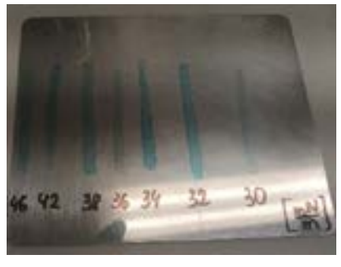
Marker test on a clean plate degreased with acetone.

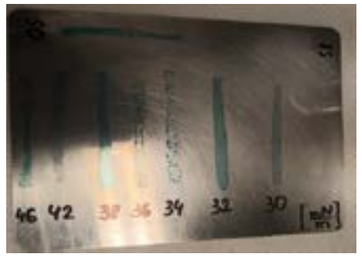












Result: 42 mN/m

PRACTICAL TESTS

To test the degreasing and cleaning properties, practical tests were conducted using the version with **ROKAnol IT8** for professional kitchen appliances. A restaurant industry cooker was used for the test. The images show the cooker before cleaning, after applying the developed product, and the final result after cleaning the cooker.


Before cleaning


During cleaning

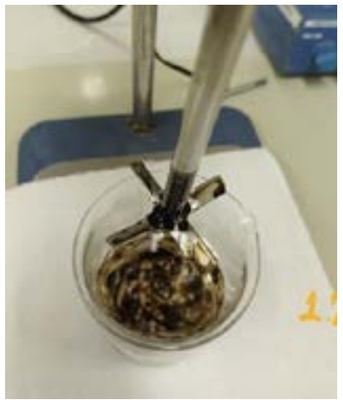

After cleaning

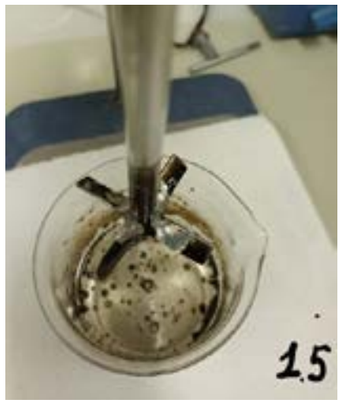
DYNAMIC DEGREASING

This method tests the effective degreasing of a stirrer during mechanical mixing. For that purpose, the stirrer is first placed in the used oil for 5 minutes and then in a solution with a concentration of 2 g/l of surfactants contained in the formulation. The mixing is then initiated at a speed of 200 rpm. The degreasing effects are checked after 2 and 5 minutes.

1. Version with ROKAnol NL8

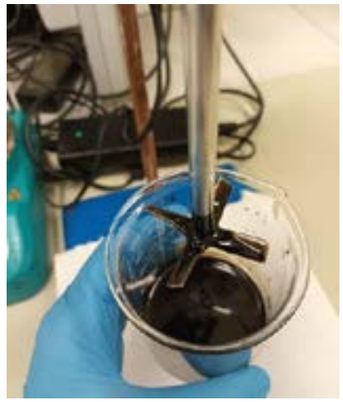

Before

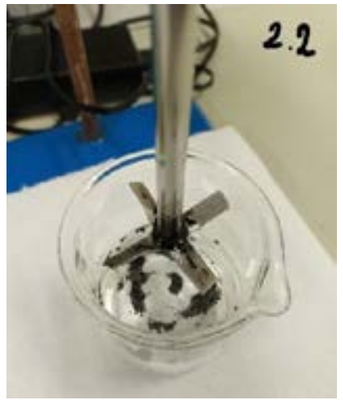

After 2 minutes



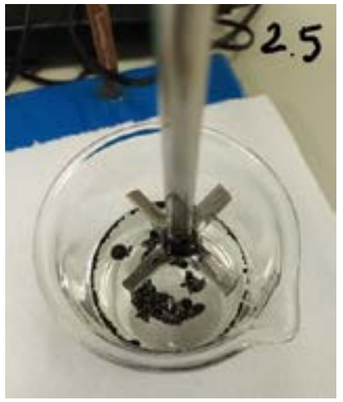
After 5 minutes

2. Version with ROKAnol IT8


Before

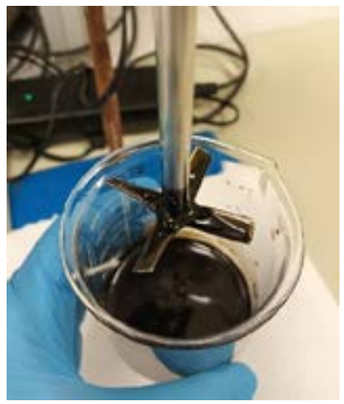


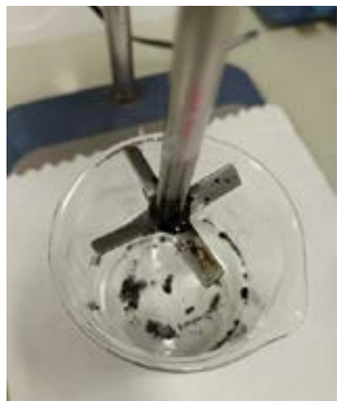
After 2 minutes

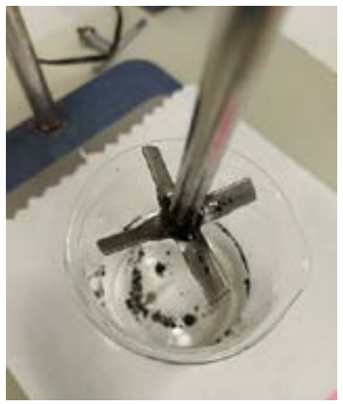


After 5 minutes

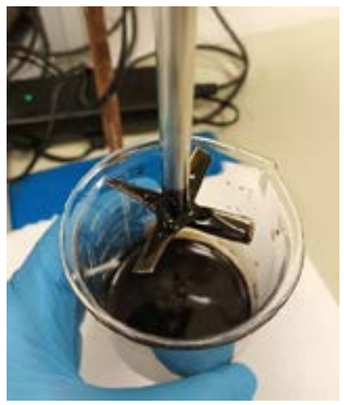
3. Version with ROKAnol TMP7

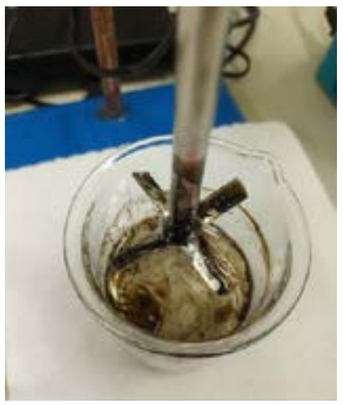

Before


After 2 minutes


After 5 minutes

4. Version with ROKAnol GA8


Before


After 2 minutes


After 5 minutes

CLEANER FOR OVENS IN THE RESTAURANT INDUSTRY

Proposal 1

Ingredient	Percentage [%]	Function
ROKAnol NL8/GA8/TMP7	2,0	Cleaning / wetting / degreasing agent
EXOclean BCK	4,0	Cleaning agent
ROKAnol IT9	0,5	D-Limonene solubiliser
D-Limonene	1,0	Degreasing agent
APG	1,0	Cleaning agent
BDG	5,0	Solvent/stabiliser
Sodium hydroxide	0,8	pH regulator
Water and additives*	up to 100%	Solvent

* Additives: preservatives, dyes, fragrances and others.

PREPARATION PROCEDURE

Weigh out the specified amount of water. Then add surfactants one at a time, i.e. **Rokanol NL8/GA8/TMP7**, **EXOclean BCK** and APG. Then add D-Limonene and **ROKAnol IT9**. Mix the whole thing vigorously each time. Add, one by one, BDG and sodium hydroxide to regulate the pH. Mix until uniform.

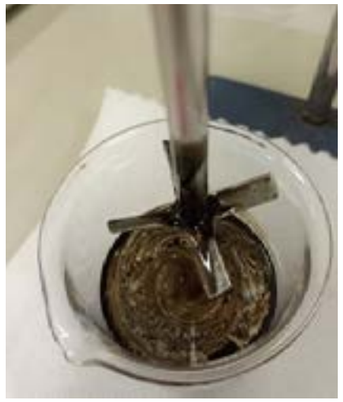
PARAMETERS

Appearance at 20–25°C	Clear liquid
pH at 25°C	12-13
Viscosity at 20°C, cP	<10
Solidification point, °C	-2÷1
Compliance with Nordic Swan	√

DYNAMIC DEGREASING

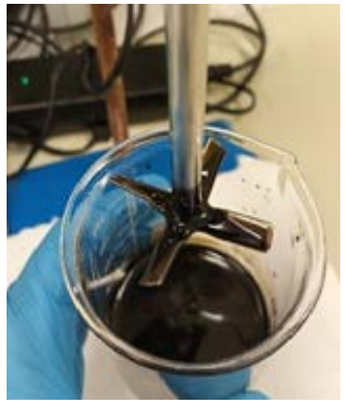
1. Version with ROKAnol NL8

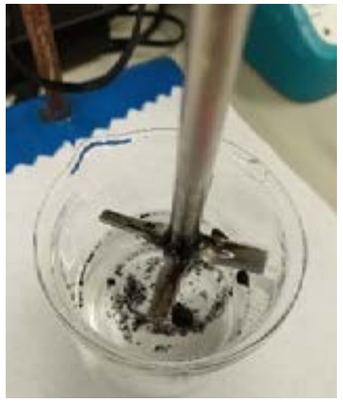

Before


After 2 minutes


After 5 minutes

2. Version with ROKAnol TMP7


Before

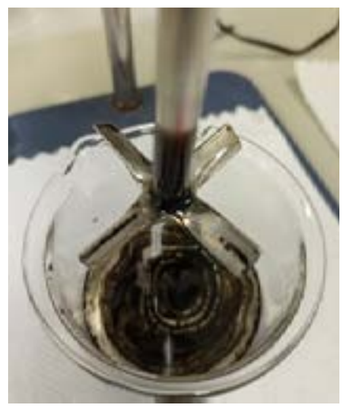

After 2 minutes


After 5 minutes

3. Version with ROKAnol GA8


Before


After 2 minutes


After 5 minutes

CLEANER FOR OVENS IN THE RESTAURANT INDUSTRY

Proposal 2

Ingredient	Percentage [%]	Function
ROKAnol L7/NL8/IT8	2,0	Cleaning / wetting / degreasing agent
EXOfos PB-136	4,0	Cleaning agent
APG	2,0	Cleaning agent
Hexylene glycol	2,0	Solvent / stabiliser
Sodium hydroxide	10,0	pH regulator
Water and additives*	up to 100%	Solvent

* Additives: preservatives, dyes, fragrances and others.

PREPARATION PROCEDURE

Weigh out the specified amount of water. Then add surfactants one at a time, i.e. **ROKAnol L7/NL8/IT8**, **EXOfos PB-136** and APG. Mix until a homogeneous solution is obtained. Then, add hexylene glycol. Then add sodium hydroxide to determine the pH.

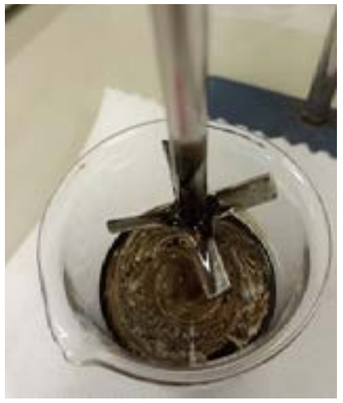
PARAMETERS

Appearance at 20–25°C	Clear liquid
pH at 25°C	12-13
Viscosity at 20°C, cP	<10
Solidification point, °C	-2÷1
Compliance with Nordic Swan	√

DYNAMIC DEGREASING

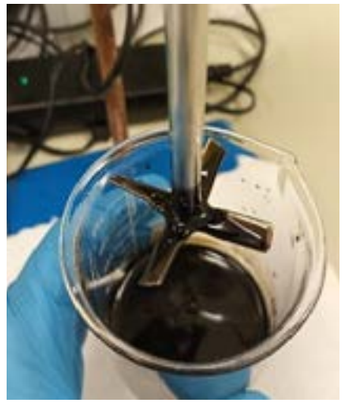
1. Version with ROKAnol NL7


Before

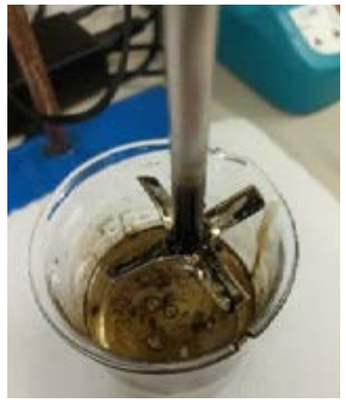

After 2 minutes


After 5 minutes

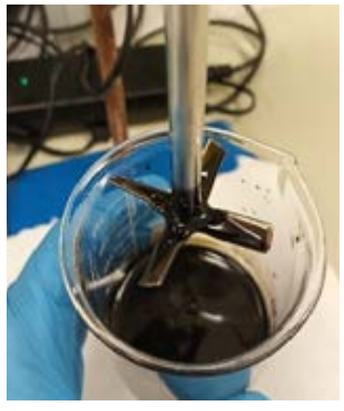
2. Version with ROKAnol NL8


Before

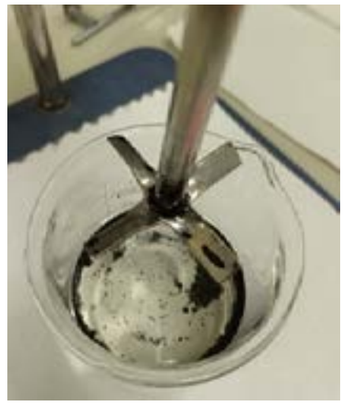

After 2 minutes


After 5 minutes

3. Version with ROKAnol IT8

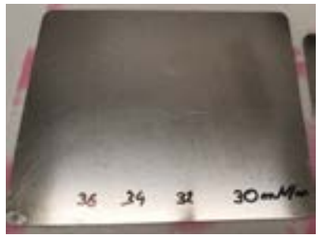

Before

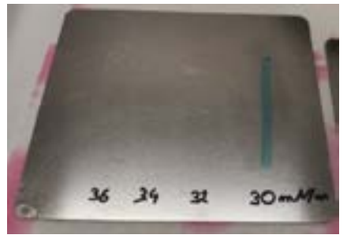

After 2 minutes

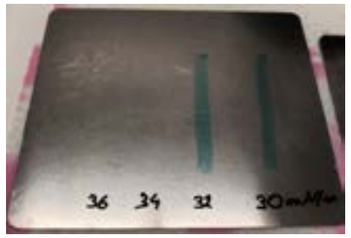

After 5 minutes

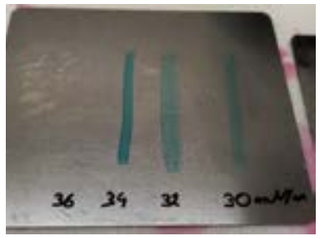
MARKER TEST

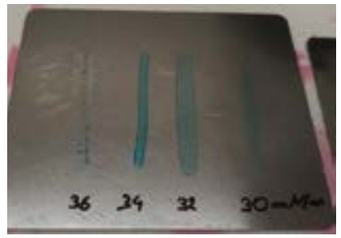
Marker test on a degreased plate using preparation for cleaning ovens at the same level.











PREPARATIONS WITH THE FOLLOWING SURFACTANTS	30 mN/m	32 mN/m	34 mN/m	36 mN/m	38 mN/m	40 mN/m
ROKAnol L7	OK	OK	OK	-	-	-
ROKAnol NL8 (1)	OK	OK	OK	-	-	-
ROKAnol IT8	OK	OK	OK	-	-	-
ROKAnol NL8 (2)	OK	OK	OK	-	-	-
ROKAnol TMP7	OK	OK	OK	-	-	-
ROKAnol GA8	OK	OK	OK	-	-	-
REFERENCE PRODUCT	OK	OK	OK	-	-	-

The images present all 6 formulations designed for ovens and the market product.

PRACTICAL TESTS

A professional restaurant oven was used for the test. The photos show the oven before cleaning, after applying the developed product with **ROKAnol GA8** , and the final result after cleaning the oven.

Before cleaning

After cleaning

CLEANER FOR GRILLS IN THE RESTAURANT INDUSTRY

Proposal 1

Ingredient	Percentage [%]	Function
ROKAnol GA3/GT3	5,0	Cleaning / wetting / degreasing agent
EXOclean BCK	4,0	Cleaning agent
APG	7,0	Cleaning agent
Methoxydipropanol	5,0	Solvent
Sodium hydroxide	2,0	pH regulator
Water and additives*	up to 100%	Solvent

* Additives: preservatives, dyes, fragrances and others.

PREPARATION PROCEDURE

Weigh out the specified amount of water. Then add surfactants one at a time, i.e. **Rokanol GA3/ GT3**, **EXOclean BCK** and APG. Mix the whole thing vigorously each time. Add, one by one, methoxydipropanol and sodium hydroxide to adjust the pH. Mix until uniform.

PARAMETERS

Appearance at 20–25°C	Clear liquid
pH at 25°C	12-13
Viscosity at 20°C, cP	<10
Solidification point, °C	-2
Compliance with Nordic Swan	√

Proposal 2

Ingredient	Percentage [%]	Function
ROKAnol NL3	5,0	Cleaning / wetting / degreasing agent
EXOclean BCK	4,0	Cleaning agent
APG	3,0	Cleaning agent
Methoxydipropanol	5,0	Solvent
Sodium hydroxide	2,0	pH regulator
Water and additives*	up to 100%	Solvent

* Additives: preservatives, dyes, fragrances and others.

PREPARATION PROCEDURE

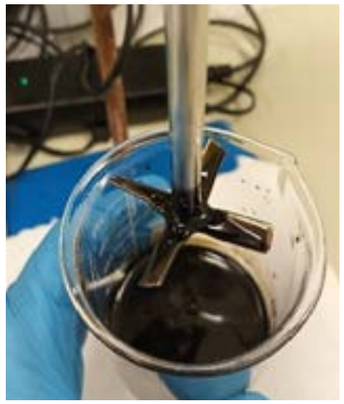
Weigh out the specified amount of water. Then add surfactants one at a time, i.e. **Rokanol NL3**, **EXOclean BCK** and APG. Mix the whole thing vigorously each time. Add, one by one, methoxydipropanol and sodium hydroxide to adjust the pH. Mix until uniform.

PARAMETERS

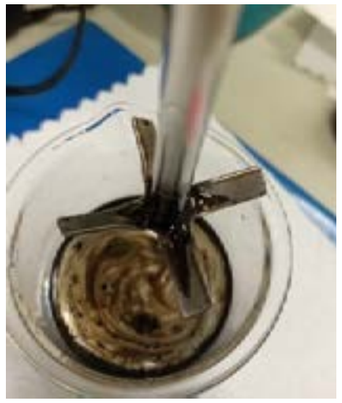
Appearance at 20–25°C	Clear liquid
pH at 25°C	12-13
Viscosity at 20°C, cP	<10
Solidification point, °C	0
Compliance with Nordic Swan	√

DYNAMIC DEGREASING

1. Version with ROKAnol GA3



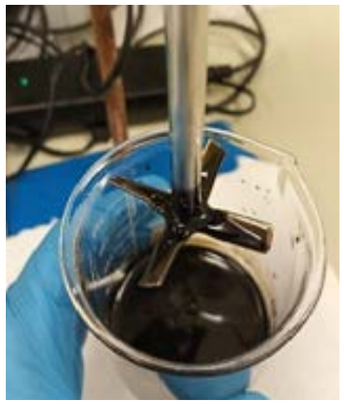
Before



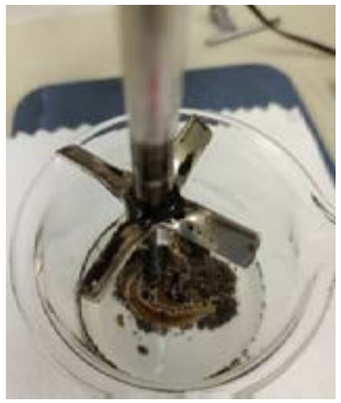
After 2 minutes

After 5 minutes

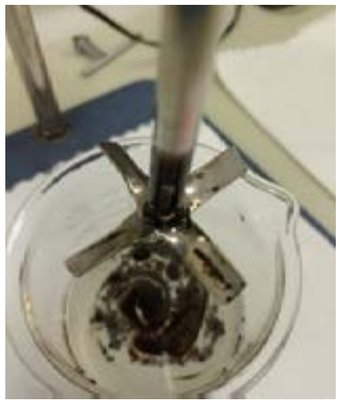
2. Version with ROKAnol GT3



Before



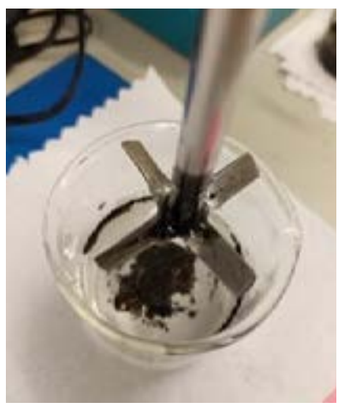
After 2 minutes



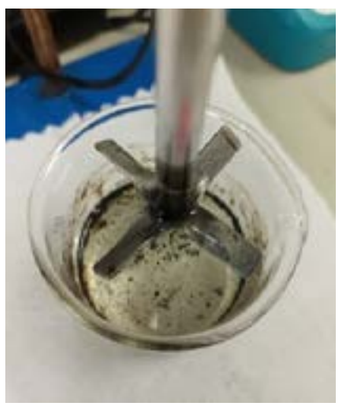
After 5 minutes

3. Version with ROKAnol NL3

Before



After 2 minutes



After 5 minutes

CLEANER FOR GRILLS IN THE RESTAURANT INDUSTRY

Proposal 1

Ingredient	Percentage [%]	Function
ROKAnol TMP7	6,0	Cleaning / wetting / degreasing agent
ROKAnol IT9	0,5	D-Limonene solubiliser
D-Limonene	1,0	Degreasing agent
APG	8,0	Cleaning agent
Tetrasodium EDTA	2,0	Complexing agent
Sodium hydroxide	2,0	pH regulator
Water and additives*	up to 100%	Solvent

* Additives: preservatives, dyes, fragrances and others.

PREPARATION PROCEDURE

Weigh out the specified amount of water. Then add surfactants one at a time, i.e. **Rokanol TMP7** and APG. Mix the whole thing vigorously each time. Then add D-Limonene and **ROKAnol IT9**. Add, one by one, EDTA 4-Na and sodium hydroxide to adjust the pH. Mix until uniform.

PARAMETERS

Appearance at 20–25°C	Clear liquid
pH at 25°C	12-13
Viscosity at 20°C, cP	<10
Solidification point, °C	0
Compliance with Nordic Swan	√

CLEANER FOR GRILLS IN THE RESTAURANT INDUSTRY

Proposal 2

Ingredient	Percentage [%]	Function
ROKAnol GA8	6,0	Cleaning / wetting / degreasing agent
ROKAnol IT7	3,5	Cleaning / wetting / degreasing agent
D-Limonene	1,0	Degreasing agent
Tetrasodium EDTA	2,0	Complexing agent
Sodium hydroxide	2,0	pH regulator
Water and additives*	up to 100%	Solvent

* Additives: preservatives, dyes, fragrances and others.

Proposal 3

Ingredient	Percentage [%]	Function
ROKAnol IT7	9,0	Cleaning / wetting / degreasing agent
D-Limonene	1,0	Degreasing agent
Tetrasodium EDTA	2,0	Complexing agent
Sodium hydroxide	2,0	pH regulator
Water and additives*	up to 100%	Solvent

* Additives: preservatives, dyes, fragrances and others.

PREPARATION PROCEDURE

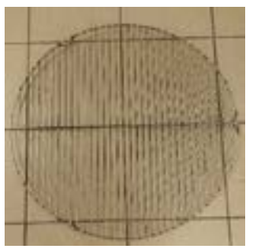
Weigh out the specified amount of water. Then add surfactants one at a time, i.e. **ROKAnol IT7** or a mixture of **ROKAnol IT7** and **ROKAnol GA8**. Mix the whole thing vigorously each time. Then add D-Limonene. Then add EDTA 4-Na and sodium hydroxide, one by one, to regulate pH. Mix until uniform.

PARAMETERS

Appearance at 20–25°C	Clear liquid
pH at 25°C	12-13
Viscosity at 20°C, cP	<10
Solidification point, °C	0
Compliance with Nordic Swan	√

PRACTICAL TESTS

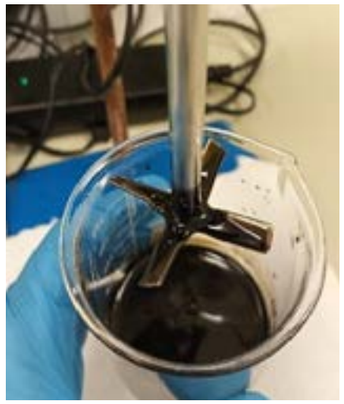
Before cleaning



After cleaning

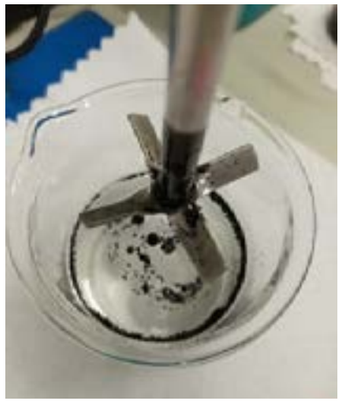
DYNAMIC DEGREASING

1. Version with ROKAnol TMP7



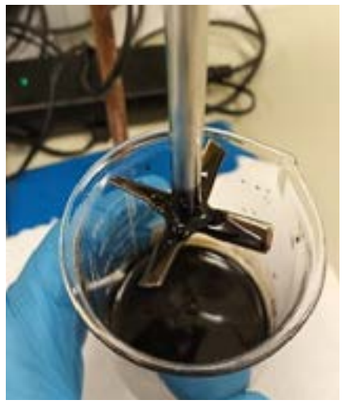
Before

After 2 minutes



After 5 minutes

2. Version with ROKAnol GA8

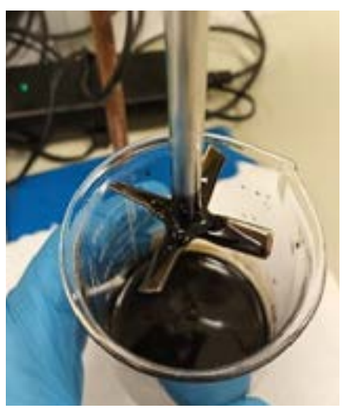


Before

After 2 minutes

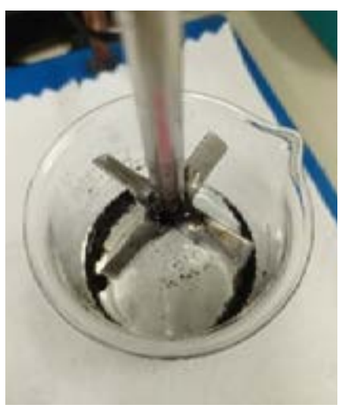
After 5 minutes

3. Version with ROKAnol IT7



Before

After 2 minutes

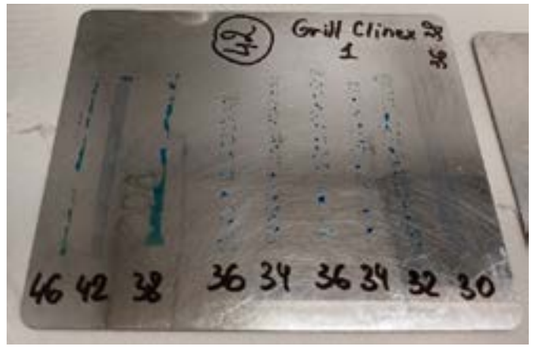


After 5 minutes

MARKER TEST

Marker test on a degreased plate with the developed oven cleaning preparation.

Version with **ROKAnol TMP7**



Result: 42 mN/m

Version with **ROKAnol IT7**

Result: 36 mN/m

PREPARATIONS WITH THE FOLLOWING SURFACTANTS	30 mN/m	32 mN/m	34 mN/m	36 mN/m	38 mN/m	40 mN/m	42 mN/m
ROKAnol GA3	OK	OK	OK	-	-	-	-
ROKAnol GT3	OK	OK	OK	-	-	-	-
ROKAnol NL3	OK	OK	OK	-	-	-	-
ROKAnol TMP7	OK	OK	OK	OK	OK	OK	-
ROKAnol GA8	OK	OK	OK	-	-	-	-
ROKAnol IT7	OK	OK	OK	OK	-	-	-
REFERENCE PRODUCT	OK	OK	OK	-	-	-	-

Laundry

Pre-wash precedes the main wash stage. The program is dedicated to the removal of the most difficult dirt from clothes. After the compliction of the stage, the dirty water is pumped out, and the next wash cycle is run using fresh, clean water.

PRE-WASH LIQUID

Ingredient	Percentage [%]	Function
ROKAnol LP2024w/95	10,0	Washing / wetting / degreasing agent
ROKAnol GA7LAw	10,0	Washing / wetting / degreasing agent
EXOlat C40	4,0	Sequestrant
Methoxydipropanol	2,0	Solubiliser
Propylene glycol	2,0	Solvent
Potassium hydrogen carbonate	4,0	pH regulator / Active filler
Optical brightener	0,05	-
Water and additives*	up to 100%	Solvent

* Additives: preservatives, dyes, fragrances and others.

PREPARATION PROCEDURE

Mix the optical brightener with 50% water until dissolved. Then add propylene glycol, methoxydipropanol and stir. Add **ROKAnol LP2024w/95** and **ROKAnol GA7LAW**, stir until a homogeneous solution is obtained. Then add **EXOlat C40**, stir. In a separate container, dissolve potassium bicarbonate in the remaining water. Add the obtained solution to the preparation and stir.

PRE-WASH PREPARATION - ECO-FRIENDLY**

Ingredient	A	B	C	D	E	Function
ROKAnol TMP7	10,0	10,0	10,0	10,0	10,0	Washing / wetting / degreasing agent
ROKAnol LP100	10,0	5,0	5,0	5,0	5,0	Washing / wetting / low-foaming agent
ROKAnol LP700	-	5,0	-	-	-	Washing / wetting / low-foaming agent
ROKAnol LP3943	-	-	5,0	-	-	Washing / wetting / low-foaming agent
ROKAnol LP3135	-	-	-	5,0	-	Washing / wetting / low-foaming agent
ROKAnol LP2855	-	-	-	-	5,0	Washing / wetting / low-foaming agent
Sodium cumensulfonate	3,0	3,0	3,0	3,0	3,0	Solubiliser
Propylene glycol	20,0	20,0	20,0	20,0	20,0	Solvent
Enzymes	0,8	0,8	0,8	0,8	0,8	Active agent / removes dirt
Water and additives*	up tp 100%	up tp 100%	up tp 100%	up tp 100%	up tp 100%	Solvent

* Additives: preservatives, dyes, fragrances and others.
** Ecological in the sense of meeting the criteria of the Nordic Swan Ecolabel certification.

DETERGENCE TEST METHODOLOGY

Laundry efficiency testing

Model test fabric MON-PCC02 (cotton) - soiled with 15 different types of dirt. The dirt was divided into three categories depending on the removal mechanism: enzymatic, bleaching and greasy. Prepare detergent compositions in the amount of 30 ml, which should be poured on the test fabric before washing. Place the test fabric and 2kg of white cotton towels into an automatic washing machine. Run the program dedicated to cotton "40°C". The washing time is 2h 50 min. Once the rinse cycle is complete, remove the cloths from the solution, gently squeeze and leave to dry or tumble dry. After washing, spectrophotometric measurement of the parameter of total colour difference dE* is performed, the difference before and after washing, according to the CIELab method.

The total colour difference dE* is determined as follows:

$$dE^* = \sqrt{dL^{*2} + da^{*2} + db^{*2}}$$

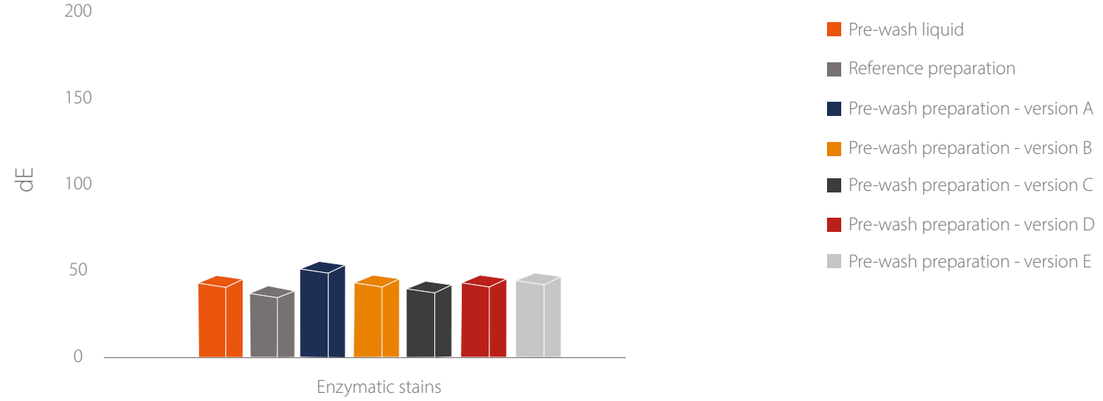
dL^* - luminance (brightness) difference = $L^*_{AFTER} - L^*_{BEFORE}$

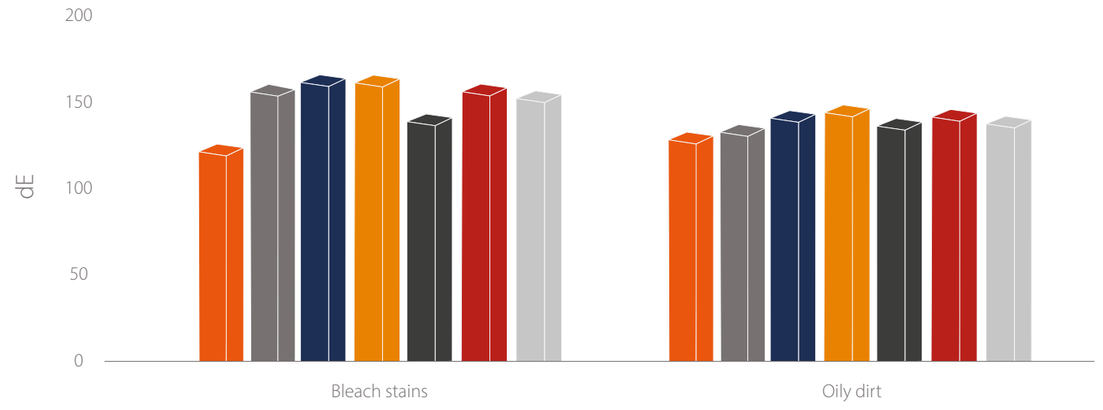
da^* - difference of colour parameter, from green to magentic = $a^*_{AFTER} - a^*_{BEFORE}$

db^* - difference of colour parameter, from blue to yellow = $b^*_{AFTER} - b^*_{BEFORE}$

Dirt category	Type of dirt
Enzymatic stains	Dried blood Chocolate dessert
Bleach stains	Curry, Dried wine, Mud with grass, Tea, Grass, Clay, Beta carotene, Baby porridge
Oily dirt	Make-up, Spaghettit sauce, Butter, Beef fat, Engine oil

Parameters	Pre-wash liquid	Reference preparation	Pre-wash preparation				
			A	B	C	D	E
External appearance	Clear liquid with slight opalescence	Slightly cloudy liquid	Clear liquid				
Solidification point [°C]	-15÷-1						
pH (20°C)	8-9	14	4-5				
Viscosity [cP] (20°C)	<10	<100					





Laundry

Basic washing, also known as deep or intensive washing, is the process of cleaning fabrics to remove deep-seated dirt, stains, bacteria and unpleasant odours.

MAIN WASH PREPARATION

Ingredient	Percentage [%]	Function
ABSNa 30	5,0	Washing / wetting / degreasing agent
ROKAnol LP160	10,0	Washing / wetting / degreasing agent
ROKAnol GA9LA	10,0	Washing / wetting / degreasing agent
EXOsoft PC 35	14,9	Washing / wetting / degreasing agent
EXOlat C40	5,0	Sequestrant
Metakrzemian sodu	0,2	pH regulator / Active filler
Enzymy z rozjaśniaczem optycznym	1,0	Catalysts for the decomposition of organic components of dirt
Water and additives*	up to 100%	Solvent

* Additives: preservatives, dyes, fragrances and others.

PREPARATION PROCEDURE

Mix the optical brightener with 60% water until dissolved. Then add propylene glycol, methoxydipropanol and stir. Add **ROKAnol LP 160** and **ROKAnol GA9LA**, then add **EXOsoft PC35** and **ABSNa 30** stir each time. Then add **EXOlat C40**, stir. In a separate container, dissolve sodium metasilicate in the remaining water. Add the obtained solution to the preparation and stir.

MAIN WASH PREPARATION - ECO-FRIENDLY**

Ingredient	A	B	C	D	Function
ROKAnol NL9	2,0	2,0	2,0	2,0	Washing / wetting / degreasing agent
EXOlat C40	2,0	2,0	2,0	2,0	Washing / wetting / low-foaming agent
ROKAnol LP100	5,0	-	-	-	Washing / wetting / low-foaming agent
ROKAnol LP700	-	5,0	-	-	Washing / wetting / low-foaming agent
ROKAnol LP3135	-	-	5,0	-	Washing / wetting / low-foaming agent
ROKAnol LP2855	-	-	-	5,0	Washing / wetting / low-foaming agent
Sodium cumensulfonate	2,0	2,0	2,0	2,0	Solubiliser
Potassium carbonate	3,0	1,5	1,5	1,5	pH regulator / prevents freezing
Sodium hydrogen carbonate	3,0	1,5	1,5	1,5	cleaner / pH adjuster
Water and additives*	up to 100%	up to 100%	up to 100%	up to 100%	Solvent

* Additives: preservatives, dyes, fragrances and others.
** Ecological in the sense of meeting the criteria of the Nordic Swan Ecolabel certification.

DETERGENCE TEST METHODOLOGY

Laundry efficiency testing

Model test fabric MON-PCC02 (cotton) - soiled with 15 different types of dirt. The dirt was divided into three categories depending on the removal mechanism: enzymatic, bleaching and greasy. Prepare detergent compositions in the amount of 30 ml, which should be poured on the test fabric before washing. Place the test fabric and 2kg of white cotton towels into an automatic washing machine. Run the program dedicated to cotton "40°C". The washing time is 2h 50 min. Once the rinse cycle is complete, remove the cloths from the solution, gently squeeze and leave to dry or tumble dry. After washing, spectrophotometric measurement of the parameter of total colour difference dE* is performed, the difference before and after washing, according to the CIELab method.

The total colour difference dE* is determined as follows:

$$dE^* = \sqrt{dL^{*2} + da^{*2} + db^{*2}}$$

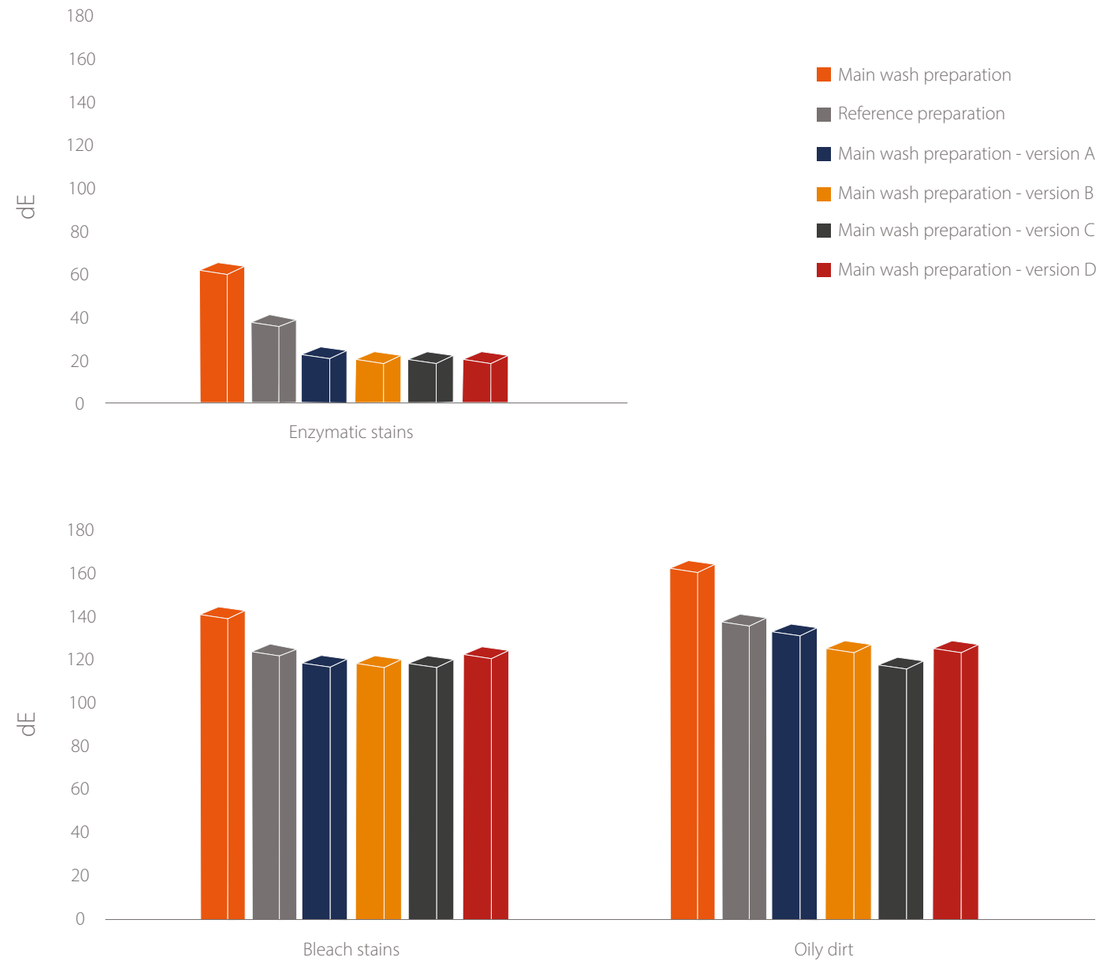
dL^* - luminance (brightness) difference = $L^*_{AFTER} - L^*_{BEFORE}$

da^* - difference of colour parameter, from green to magentic = $a^*_{AFTER} - a^*_{BEFORE}$

db^* - difference of colour parameter, from blue to yellow = $b^*_{AFTER} - b^*_{BEFORE}$

Dirt category	Type of dirt
Enzymatic stains	Dried blood Chocolate dessert
Bleach stains	Curry, Dried wine, Mud with grass, Tea, Grass, Clay, Beta carotene, Baby porridge
Oily dirt	Make-up, Spaghettit sauce, Butter, Beef fat, Engine oil

Parameters	Main wash preparation	Reference preparation	Main wash preparation			
			A	B	C	D
External appearance	Clear liquid					
Solidification point [°C]	<0					
pH (20°C)	9-11					
Viscosity [cP] (20°C)	<10					



Laundry

A laundry booster is a detergent that is usually added to another type of surfactant (e.g. all-purpose laundry liquid) to improve washing power.

LAUNDRY BOOSTER

Ingredient	Percentage [%]	Function
EXOlat C40	10,0	Sequestrant
EXOlat ZA	5,0	Sequestrant
NaOH	20,0	pH regulator
Water and additives*	up to 100%	Solvent

* Additives: preservatives, dyes, fragrances and others.

PREPARATION PROCEDURE

Weigh out the appropriate amount of water. Then add **EXOlat C40** and **EXOlat ZA,** stir. Add NaOH and stir.

LAUNDRY BOOSTER - ECO-FRIENDLY**

Ingredient	A	B	C	D	E	Function
ROKAnol L7A	30,0	30,0	30,0	30,0	30,0	Washing / wetting / degreasing agent
ROKAnol LP2227	10,0	10,0	10,0	10,0	10,0	Washing / wetting / low-foaming agent
ROKAnol LP100	5,0	-	-	-	-	Washing / wetting / low-foaming agent
ROKAnol LP700	-	5,0	-	-	-	Washing / wetting / low-foaming agent
ROKAnol LP3943	-	-	5,0	-	-	Washing / wetting / low-foaming agent
ROKAnol LP3135	-	-	-	5,0	-	Washing / wetting / low-foaming agent
ROKAnol LP2855	-	-	-	-	5,0	Washing / wetting / low-foaming agent
Methoxydipropanol	7,0	7,0	7,0	7,0	7,0	Solvent
Propylene glycol	10,0	10,0	10,0	10,0	10,0	Solvent
Citric acid	0,5	0,5	0,5	0,5	0,5	pH regulator
Water and additives*	up to 100%	up to 100%	up to 100%	up to 100%	up to 100%	Solvent

* Additives: preservatives, dyes, fragrances and others.
** Ecological in the sense of meeting the criteria of the Nordic Swan Ecolabel certification.

DETERGENCE TEST METHODOLOGY

Laundry efficiency testing

Model test fabric MON-PCC02 (cotton) - soiled with 15 different types of dirt. The dirt was divided into three categories depending on the removal mechanism: enzymatic, bleaching and greasy. Prepare detergent compositions in the amount of 30 ml, which should be poured on the test fabric before washing. Place the test fabric and 2kg of white cotton towels into an automatic washing machine. Run the program dedicated to cotton "40°C". The washing time is 2h 50 min. Once the rinse cycle is complete, remove the cloths from the solution, gently squeeze and leave to dry or tumble dry. After washing, spectrophotometric measurement of the parameter of total colour difference dE* is performed, the difference before and after washing, according to the CIELab method.

The total colour difference dE* is determined as follows:

$$dE^* = \sqrt{dL^{*2} + da^{*2} + db^{*2}}$$

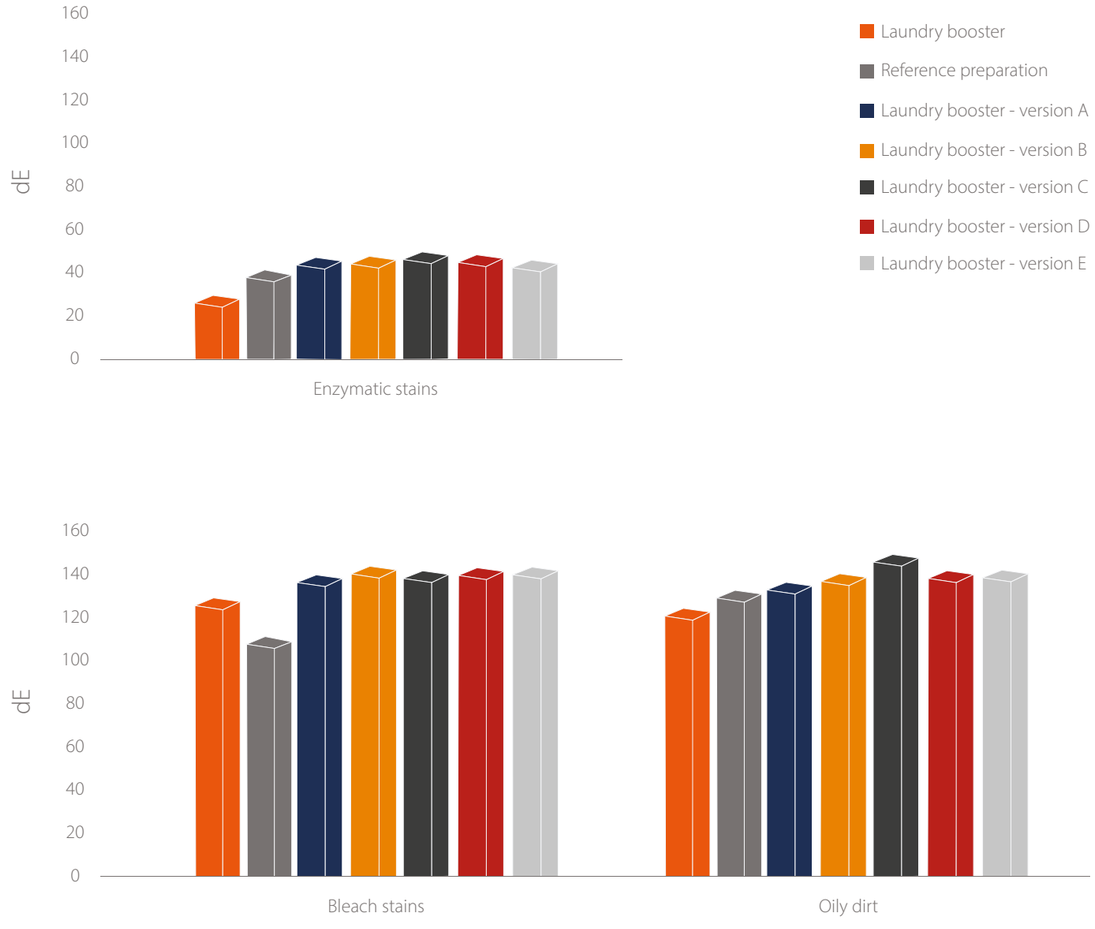
dL^* - luminance (brightness) difference = $L^*_{AFTER} - L^*_{BEFORE}$

da^* - difference of colour parameter, from green to magentic = $a^*_{AFTER} - a^*_{BEFORE}$

db^* - difference of colour parameter, from blue to yellow = $b^*_{AFTER} - b^*_{BEFORE}$

Dirt category	Type of dirt
Enzymatic stains	Dried blood Chocolate dessert
Bleach stains	Curry, Dried wine, Mud with grass, Tea, Grass, Clay, Beta carotene, Baby porridge
Oily dirt	Make-up, Spaghettit sauce, Butter, Beef fat, Engine oil

Parameters	Laundry booster	Reference preparation	Laundry booster				
			A	B	C	D	E
External appearance	Clear liquid						
Solidification point [°C]	<-20	<-5	<-20				
pH (20°C)	3-4	7-8	3-4				
Viscosity [cP] (20°C)	approx. 10	approx. 1300	100-130				



Laundry

Washing liquid for **coloured fabrics** protects colours against fading. It prevents the transfer of pigments between fabrics, thus protecting fabric colours even better.

COLOURED FABRICS
LAUNDRY DETERGENT

Ingredient	Percentage [%]	Function
ABSNa 30	7,0	Washing / wetting / degreasing agent
EXOdet DNT	7,0	Washing / wetting / degreasing agent
EXOsoft PC 35	14,9	Washing / wetting / degreasing agent
ROKAnol LP3135	10,0	Washing / wetting / degreasing agent
EXOlat C40	5,0	Sequestrant
Enzymes	1,0	Catalysts for the decomposition of organic components of dirt
Polymer preventing colour migration	0,2	pH regulator / Active filler
Water and additives*	up to 100%	Solvent

* Additives: preservatives, dyes, fragrances and others.

PREPARATION PROCEDURE

Weigh out the appropriate amount of water. Then add **ABSna 30**, **EXOdet DNT, ROKAnol LP3135** one by one, then add **EXOsoft PC35**, stir intensively each time, then add **EXOlat C40**, stir. Then add polymer preventing colour migration, enzymes and stir.

COLOURED FABRICS
LAUNDRY DETERGENT
- ECO-FRIENDLY**

Ingredient	A	B	C	Function
EXOsoft PC35	15,0	15,0	15,0	Washing / wetting / degreasing agent
ROKAnol GA7	8,5	8,5	8,5	Washing / wetting / low-foaming agent
ROKAnol LP100	5,0	3,0	3,0	Washing / wetting / low-foaming agent
ROKAnol LP3943	-	2,0	-	Washing / wetting / low-foaming agent
ROKAnol LP2855	-	-	2,0	Washing / wetting / low-foaming agent
EXOlat C40	3,0	3,0	3,0	Washing / wetting / low-foaming agent
Propylene glycol	1,0	1,0	1,0	Solubiliser / solvent
Vinylpyrrolidone /vinylimidazole copolymer	0,3	0,3	0,3	Polymer preventing colour migration
Enzymes	0,5	0,5	0,5	Active agent / removes dirt
Water and additives*	up to 100%	up to 100%	up to 100%	Solvent

* Additives: preservatives, dyes, fragrances and others.
** Ecological in the sense of meeting the criteria of the Nordic Swan Ecolabel certification.

DETERGENCE TEST METHODOLOGY

Laundry efficiency testing

Model test fabric MON-PCC02 (cotton) - soiled with 15 different types of dirt. The dirt was divided into three categories depending on the removal mechanism: enzymatic, bleaching and greasy. Prepare detergent compositions in the amount of 30 ml, which should be poured on the test fabric before washing. Place the test fabric and 2kg of white cotton towels into an automatic washing machine. Run the program dedicated to cotton "40°C". The washing time is 2h 50 min. Once the rinse cycle is complete, remove the cloths from the solution, gently squeeze and leave to dry or tumble dry. After washing, spectrophotometric measurement of the parameter of total colour difference dE* is performed, the difference before and after washing, according to the CIELab method.

The total colour difference dE* is determined as follows:

$$dE^* = \sqrt{dL^{*2} + da^{*2} + db^{*2}}$$

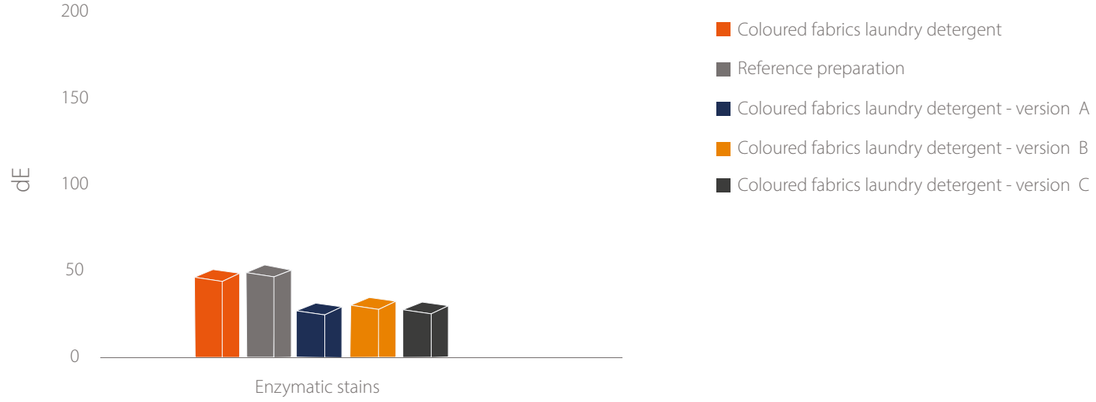
dL^* - luminance (brightness) difference = $L^*_{AFTER} - L^*_{BEFORE}$

da^* - difference of colour parameter, from green to magentic = $a^*_{AFTER} - a^*_{BEFORE}$

db^* - difference of colour parameter, from blue to yellow = $b^*_{AFTER} - b^*_{BEFORE}$

Dirt category	Type of dirt
Enzymatic stains	Dried blood Chocolate dessert
Bleach stains	Curry, Dried wine, Mud with grass, Tea, Grass, Clay, Beta carotene, Baby porridge
Oily dirt	Make-up, Spaghettit sauce, Butter, Beef fat, Engine oil

Parameters	Coloured fabrics laundry detergent	Reference preparation	Coloured fabrics laundry detergent		
			A	B	C
External appearance	Clear liquid	Cloudy green liquid	Clear liquid		
Solidification point [°C]	<0				
pH (20°C)	9-11				
Viscosity [cP] (20°C)	<10	no data	<10		



Laundry

On **white fabrics,** any stains are immediately visible and removing some of them, e.g. tomato sauce or blueberries, is extremely difficult. To remove them, you need to use special detergents, which are not only effective but also eco-friendly. Apart from the removal of difficult dirt, an important feature of such preparations is the optical whitening of washed fabrics by covering the surface of the material with the appropriate bleaching agent.

WHITE FABRICS
LAUNDRY DETERGENT

Ingredient	Percentage [%]	Function
ABSNa 30	7,0	Washing / wetting / degreasing agent
ROKAnol MT7e/ ROKAnol C7/ROKAnol L7	2,0	Washing / wetting / degreasing agent
EXOsoft PC 35	15,0	Washing / wetting / degreasing agent
ROKAnol LP700	5,0	Washing / wetting / degreasing agent
EXOlat ZA	3,0	Sequestrant
Sodium metasilicate	0,5	pH regulator / Active filler
Enzymes	1,0	Catalysts for the decomposition sof organic components of dirt
Optical brightener	0,1	-
Water and additives*	up to 100%	Solvent

* Additives: preservatives, dyes, fragrances and others.

PREPARATION PROCEDURE

Weigh out the specified amount of water. Dissolve optical brightener and sodium metasilicate in water by stirring intensively. Then add **ABSna 30**, **ROKAnol LP700** and **ROKAnol C7/L7/MT7e** one by one. Then add **EXOsoft PC35**, mix intensively and add **EXOlat ZA**, mix until uniform. Add enzymes and stir.

WHITE FABRICS
LAUNDRY DETERGENT
- ECO-FRIENDLY**

Ingredient	A	B	Function
EXOsoft PC35	10,0	10,0	Washing / wetting / degreasing agent
ROKAnol LP2227	7,0	7,0	Washing / wetting / low-foaming agent
SULFOROKAnol L227/1	15,0	15,0	Washing / wetting / high-foaming agent
EXOlat ZA	3,0	3,0	Washing / wetting / low-foaming agent
ROKAnol LP3135	5,0	-	Washing / wetting / low-foaming agent
ROKAnol LP2855	-	5,0	Washing / wetting / low-foaming agent
Propylene glycol	1,0	-	Solvent
Enzymes	0,5	0,5	Active agent / removes dirt
Water and additives*	up to 100%	up to 100%	Solvent

* Additives: preservatives, dyes, fragrances and others.
** Ecological in the sense of meeting the criteria of the Nordic Swan Ecolabel certification.

DETERGENCE TEST METHODOLOGY

Laundry efficiency testing

Model test fabric MON-PCC02 (cotton) - soiled with 15 different types of dirt. The dirt was divided into three categories depending on the removal mechanism: enzymatic, bleaching and greasy. Prepare detergent compositions in the amount of 30 ml, which should be poured on the test fabric before washing. Place the test fabric and 2kg of white cotton towels into an automatic washing machine. Run the program dedicated to cotton "40°C". The washing time is 2h 50 min. Once the rinse cycle is complete, remove the cloths from the solution, gently squeeze and leave to dry or tumble dry. After washing, spectrophotometric measurement of the parameter of total colour difference dE* is performed, the difference before and after washing, according to the CIELab method.

The total colour difference dE* is determined as follows:

$$dE^* = \sqrt{dL^{*2} + da^{*2} + db^{*2}}$$

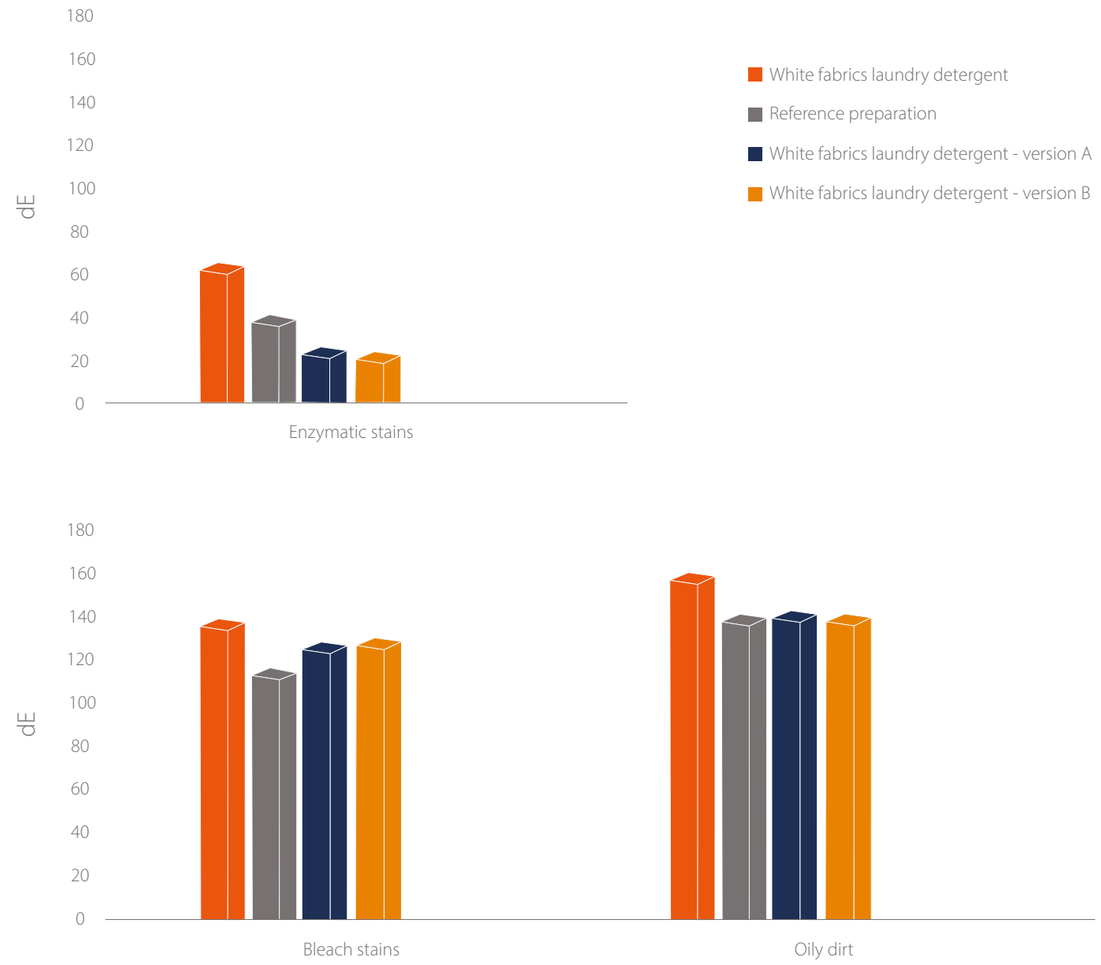
dL^* - luminance (brightness) difference = $L^*_{AFTER} - L^*_{BEFORE}$

da^* - difference of colour parameter, from green to magentic = $a^*_{AFTER} - a^*_{BEFORE}$

db^* - difference of colour parameter, from blue to yellow = $b^*_{AFTER} - b^*_{BEFORE}$

Dirt category	Type of dirt
Enzymatic stains	Dried blood Chocolate dessert
Bleach stains	Curry, Dried wine, Mud with grass, Tea, Grass, Clay, Beta carotene, Baby porridge
Oily dirt	Make-up, Spaghettit sauce, Butter, Beef fat, Engine oil

Parameters	White fabrics laundry detergent	Reference preparation	White fabrics laundry detergent	
			A	B
External appearance	Clear liquid	Cloudy blue liquid	Clear liquid	
Solidification point [°C]	<0			
pH (20°C)	9-11		7-8	
Viscosity [cP] (20°C)	approx. 10	no data	10-30	



Laundry

Wool is a natural material obtained primarily from sheep hair but also from the hair of alpacas, camels and rabbits. It is also worth taking a look at the structure of the fibres. Thanks to its scaly structure, wool fibres do not absorb odours. Such a structure also means that woollen things do not get soiled as quickly as, for example, cotton.

To wash woollen sweaters, use detergents intended for this particular material. Most woollen or delicate fabrics can be washed by hand or using a gentle program in a washing machine. Wool detergents are characterised by the fact that they effectively remove dirt even at low temperatures. The water temperature should not exceed 30°C.

LIQUID FOR WASHING WOOLLEN FABRICS

Składnik	Zawartość procentowa [%]	Funkcja
SULFOROKAnol L227/1	18,0	Washing / wetting / degreasing agent
ABSNa 30	6,0	Washing / wetting / degreasing agent
EXOsoft PC 35	7,0	Washing / wetting / degreasing agent
ROKAnol L5P5	1,5	Washing / wetting / degreasing agent
ROKAnol LN75/50	6,0	Washing / wetting / degreasing agent
EXOlat C40	3,0	Sequestrant
Cellulase	1,0	pH regulator / Active filler
Polyvinylpyrrolidone	0,7	Agent that keeps natural wool fibres unchanged by properly moisturising them
Vinylpyrrolidone /vinylimidazole copolymer	0,1	Polymer preventing colour migration
Water and additives*	up to 100%	Solvent

* Additives: preservatives, dyes, fragrances and others.

PREPARATION PROCEDURE

Weigh out the specified amount of water. Then add **ABSna 30**, **SULFOROKAnol L227/1**, one at a time, stirring until a homogeneous solution is obtained. Then add **EXOsoft PC35**, **ROKAnol L5P5**, **ROKAnol LN75/50** and **EXOlat C40**. Stir each time until a homogeneous solution is obtained. Add polyvinylpyrrolidone, polymer preventing colour migration, cellulase - one by one, and stir.

PREPARATION FOR WASHING DELICATE AND WOOLLEN FABRICS- ECO-FRIENDLY**

Ingredient	A	B	C	D	E	Function
ROKAnol LP2227	1,5	1,5	1,5	1,5	1,5	Washing / wetting / degreasing agent
SULFOROKAnol L227/1	18,0	18,0	18,0	18,0	18,0	Washing / wetting / high-foaming agent
EXOsoft PO30	15,0	15,0	15,0	15,0	15,0	Washing / foaming agent
ROKAnol LP100	5,0	-	-	-	-	Washing / wetting / low-foaming agent
ROKAnol LP700	-	5,0	-	-	-	Washing / wetting / low-foaming agent
ROKAnol LP3943	-	-	5,0	-	-	Washing / wetting / low-foaming agent
ROKAnol LP3135	-	-	-	5,0	-	Washing / wetting / low-foaming agent
ROKAnol LP2855	-	-	-	-	5,0	Washing / wetting / low-foaming agent
EXOlat C40	3,0	3,0	3,0	3,0	3,0	Washing agent / dispersant
Cellulase	0,5	0,5	0,5	0,5	0,5	Active agent / removes dirt
Vinylpyrrolidone / vinylimidazole copolymer	0,1	0,1	0,1	0,1	0,1	Polymer preventing colour migration
Water and additives*	up to 100%	up to 100%	up to 100%	up to 100%	up to 100%	Solvent

* Additives: preservatives, dyes, fragrances and others.
** Ecological in the sense of meeting the criteria of the Nordic Swan Ecolabel certification.

DETERGENCE TEST METHODOLOGY

Laundry efficiency testing

Model test fabric MON-PCC02 (cotton) - soiled with 15 different types of dirt. The dirt was divided into three categories depending on the removal mechanism: enzymatic, bleaching and greasy. Prepare detergent compositions in the amount of 30 ml, which should be poured on the test fabric before washing. Place the test fabric and 2kg of white cotton towels into an automatic washing machine. Run the program dedicated to cotton "40°C". The washing time is 2h 50 min. Once the rinse cycle is complete, remove the cloths from the solution, gently squeeze and leave to dry or tumble dry. After washing, spectrophotometric measurement of the parameter of total colour difference dE* is performed, the difference before and after washing, according to the CIELab method.

The total colour difference dE* is determined as follows:

$$dE^* = \sqrt{dL^{*2} + da^{*2} + db^{*2}}$$

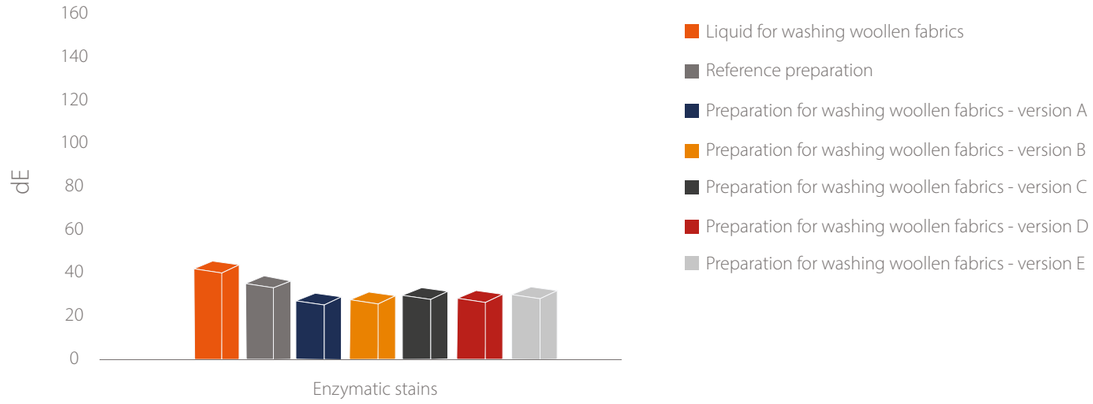
dL^* - luminance (brightness) difference = $L^*_{AFTER} - L^*_{BEFORE}$

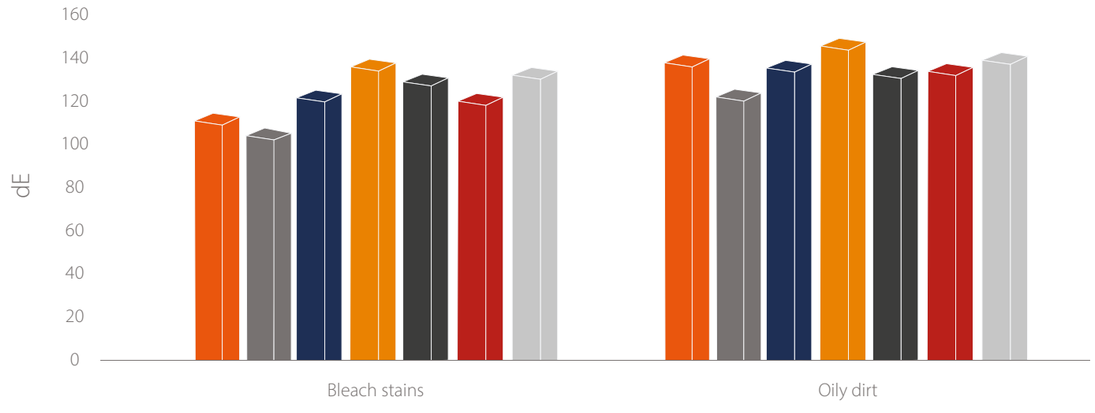
da^* - difference of colour parameter, from green to magentic = $a^*_{AFTER} - a^*_{BEFORE}$

db^* - difference of colour parameter, from blue to yellow = $b^*_{AFTER} - b^*_{BEFORE}$

Dirt category	Type of dirt
Enzymatic stains	Dried blood Chocolate dessert
Bleach stains	Curry, Dried wine, Mud with grass, Tea, Grass, Clay, Beta carotene, Baby porridge
Oily dirt	Make-up, Spaghettit sauce, Butter, Beef fat, Engine oil

Parameters	Liquid for washing woolen fabrics	Reference preparation	Wool fabrics preparation				
			A	B	C	D	E
External appearance	Clear liquid						
Solidification point [°C]	<0						
pH (20°C)	9-11		8-10				
Viscosity [cP] (20°C)	approx. 10	no data	approx. 100	10-30	10-30	<10	<10





Laundry

Washing stubborn stains

STAIN REMOVER - ECOLOGICAL**

Ingredient	Percentage [%]	Function
ROKAnol DB7	15,0	Washing / wetting / degreasing agent
ROKAnol L7/MT7E	15,0	Washing / wetting / degreasing agent
ROKAnol LP2024w/95	5,0	Washing / wetting / degreasing agent
Glycerine	5,0	Solvent / Humectant
Enzymes	1,0	Catalyst for decomposition of organic components of dirt
Water and additives*	do 100%	Solvent

* Additives: preservatives, dyes, fragrances and others.
** Ecological in the sense of meeting the criteria of the Nordic Swan Ecolabel certification.

PREPARATION PROCEDURE

Weigh out the specified amount of water. Then add **ROKAnol DB7**, **ROKAnol L7/MT7E** and **ROKAnol LP2024w/95** one by one, stirring each time until a homogeneous solution is obtained. Then add glycerin and enzymes, stirring after adding each of the ingredients.

PARAMETERS

Appearance at 20–25°C	Clear liquid
pH at 25°C	7-9
Viscosity at 20°C, cP	<10
Solidification point, °C	-1÷2
Compliance with Nordic Swan	√

DETERGENCE TEST METHODOLOGY

Laundry efficiency testing

Model test fabric MON-PCC02 (cotton) - soiled with 15 different types of dirt. The dirt was divided into three categories depending on the removal mechanism: enzymatic, bleaching and greasy. Prepare detergent compositions in the amount of 30 ml, which should be poured on the test fabric before washing. Place the test fabric and 2kg of white cotton towels into an automatic washing machine. Run the program dedicated to cotton "40°C". The washing time is 2h 50 min. Once the rinse cycle is complete, remove the cloths from the solution, gently squeeze and leave to dry or tumble dry. After washing, spectrophotometric measurement of the parameter of total colour difference dE* is performed, the difference before and after washing, according to the CIELab method.

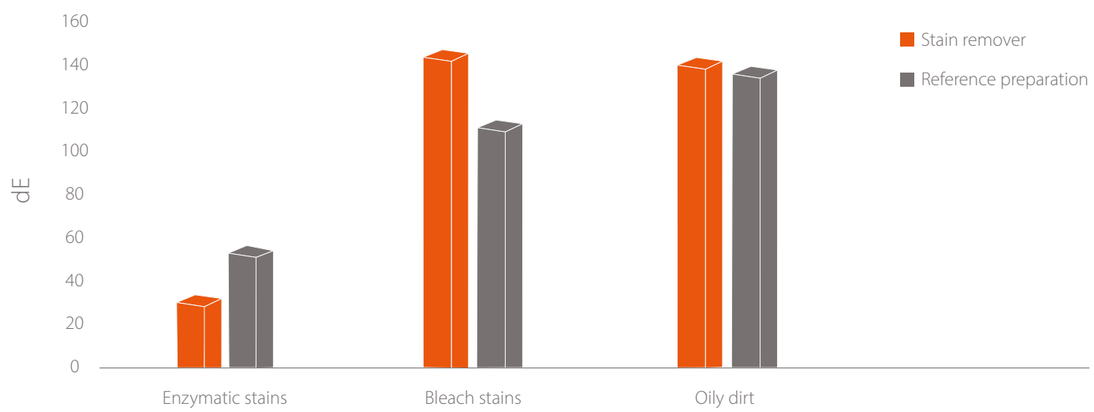
The total colour difference dE* is determined as follows:

$$dE^* = \sqrt{dL^{*2} + da^{*2} + db^{*2}}$$

dL^* - luminance (brightness) difference = $L^*_{AFTER} - L^*_{BEFORE}$

da^* - difference of colour parameter, from green to magentic = $a^*_{AFTER} - a^*_{BEFORE}$

db^* - difference of colour parameter, from blue to yellow = $b^*_{AFTER} - b^*_{BEFORE}$



PCC Exol SA

Sienkiewicza St. 4

56-120 Brzeg Dolny

Poland

Please visit our capital group business platform:

www.products.pcc.eu