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# Toilet Care

UFARYL®



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UFARYL®

The UFARYL® product range is a high-active LAS product range for toilet care. UFARYL® products assist in developing toilet care products, achieving a clean appearance, long-lasting aroma, and rich foam.

UFARYL® products are free flowing powders with excellent detergency and wetting properties.



## UFARYL®

# World's largest high active LAS portfolio

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### Why choose UFARYL®?

- High foaming and cleaning properties
- Good solubility even at lower temperatures
- Unger's production process makes dense and flat particles for stable and consistent toilet block formulations, well suited for extrusion and production.
- Compatible with all common dyes and colours in formulated WC-blocks (high load capacity for perfumes)
- All UFARYL® products are available as EcoSmart, REDcert<sup>2</sup> approved

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*This information is based upon Unger Fabrikker's experience and knowledge in this field. The information is only a guide for application of the products and Unger Fabrikker give no guarantee for the results from the application of the product, which lies outside Unger Fabrikker's control. Unger Fabrikker's responsibility and guarantee in selling this products are covered at all times by the relevant general sales conditions.*

## Product portfolio

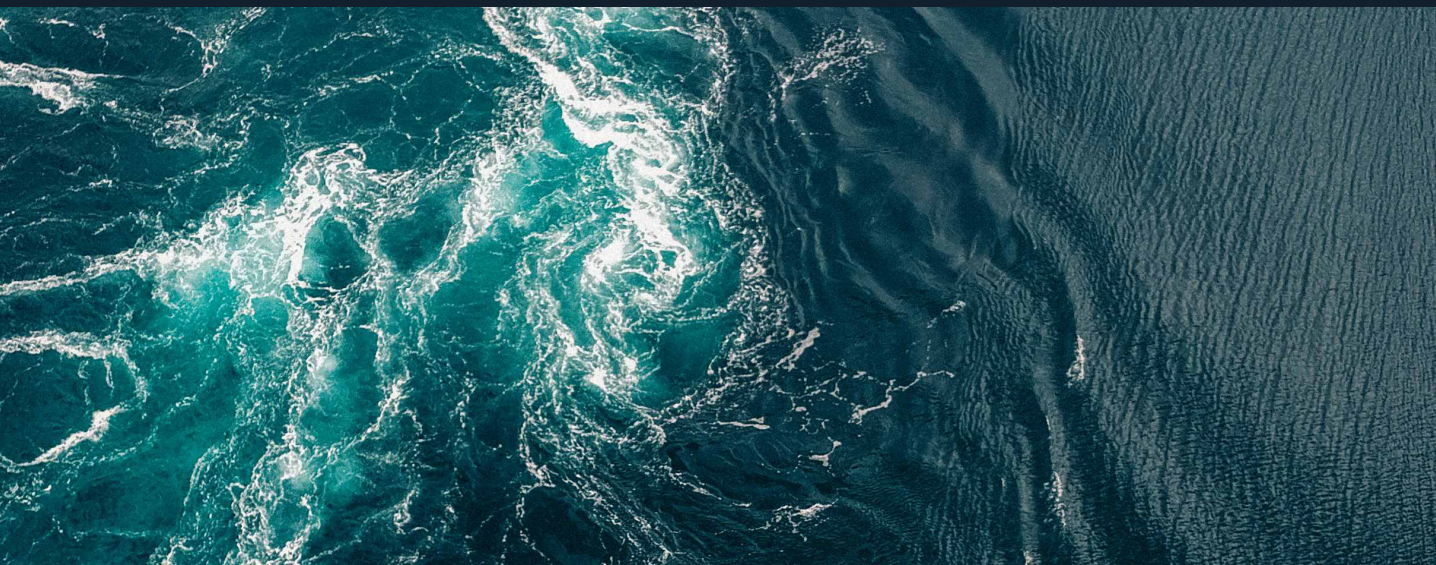
| Trade name       | Anionic Active content | pH    | Chelating agents |
|------------------|------------------------|-------|------------------|
| UFARYL® DL 80    | 80 %                   | 10-11 |                  |
| UFARYL® DL 80 CW | 80 %                   | 7-9   | x                |
| UFARYL® DL 85    | 85 %                   | 10-11 |                  |
| UFARYL® DL 85 CJ | 85 %                   | 7-9   | x                |
| UFARYL® DL 90    | 90%                    | 7-9   |                  |
| UFARYL® DL 90 C  | 90%                    | 7-9   | x                |
| UFARYL® G 80 C   | 80%                    | 7-9   | x                |
| UFARYL® DL 80 P  | 80%                    | 7-9   | x                |
| UFARYL® C3       | 82%                    | 7-9   | x                |
| UFARYL® C4       | 82%                    | 7-9   | x                |

|                             |                                                                                 |
|-----------------------------|---------------------------------------------------------------------------------|
| <b>Chemical composition</b> | Linear sodium alkylbenzene sulphonate - LAS                                     |
| <b>Chemical structure</b>   | R – Ar – SO <sub>3</sub> Na<br>Total number of carbons in alkyl chain: R= 10-13 |
| <b>Physical form</b>        | Ivory white, free flowing powder                                                |
| <b>Raw material origin</b>  | Petrochemical                                                                   |

## Packaging standards

| Trade name | Bags          |              |                |                |
|------------|---------------|--------------|----------------|----------------|
| UFARYL®    | 20 kg PE Bag* | 50 lb PE Bag | 600 kg Big Bag | 800 kg Big Bag |
| 1 pallet   | 600 kg        | 900 lb       | 600 kg         | 800 kg         |

\*UFARYL® DL 90 C is the only product available in 20kg PE Bag.



## UFARYL® EcoSmart

UFARYL® EcoSmart the first-ever high active Linear Alkylbenzene Sulfonate (LAS) product range that achieves a minimum **38% reduction in fossil-derived content** – a significant step forward in our global decarbonization journey.

First-ever high active LAS product  
range designed with 38% reduced  
fossil-derived content



Designed with the same trusted formulation, UFARYL® EcoSmart provides up to **20% reduced carbon emission** without compromising on foam and cleaning performance.

By choosing UFARYL® EcoSmart, you're not just reducing your carbon footprint – you're driving a change that has a global impact.

### With UFARYL® EcoSmart, you are:

- Contributing to a 20% reduction in carbon emissions compared to conventional products.
- Supporting a significant decrease in fossil-derived content – a bold step toward a more sustainable future.
- Joining a global decarbonization effort that challenges the status quo in the cleaning products industry.

## Unique features of UFARYL®

### Solubility

The solubility of UFARYL® is excellent in a wide temperature range and the content of salts will contribute to this property. The particles blends easily and homogenously with other ingredients, ready for extrusion or in finished products.



Figure shows solubility of UFARYL® from good to best.

### Free flow

The UFARYL® series offers a free flowing powder to ease the handling in production.

### Colour

High quality requirements of raw materials, an optimized production process and process control yields a high quality product as an ivory white powder. The light colour gives an advantage when adding dye or pigment to the toilet block, discoloration is avoided. It is also an advantage when the toilet application is white without any colours added.

### Detergency

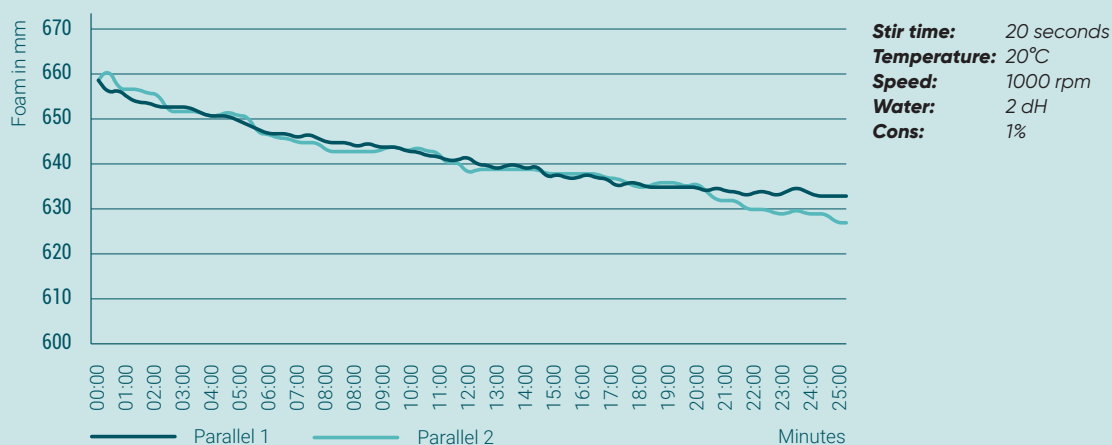
UFARYL® is a very effective hard surface surfactant when powerful and excellent detergency is needed in toilet cleaning.

### Foam

UFARYL® has excellent foam properties and creates a high, rich foam. It indicates that an active cleaning substance is present and the foam is created efficiently even at low temperatures. The curve of foam decay is made from a Sita Foam tester and it shows a typical foam decay for UFARYL® at given parameters.

### Foam decay

Figure shows a typical Foam Decay for UFARYL®



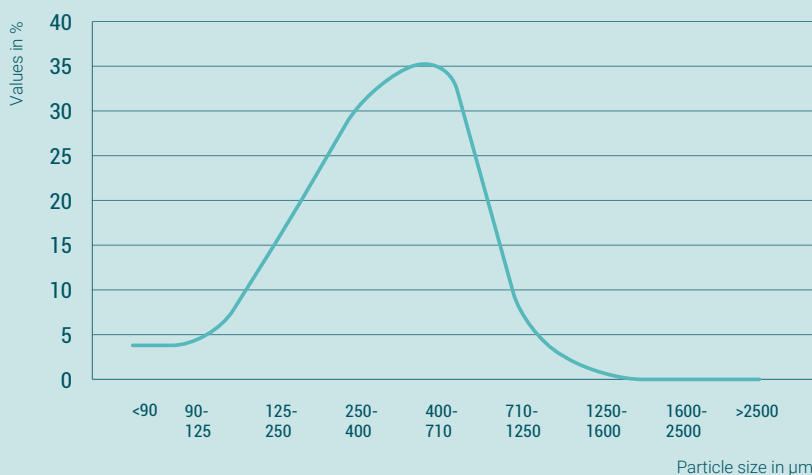
## Typical properties

| Specification             |                                  |
|---------------------------|----------------------------------|
| Physical form             | Ivory white, free flowing powder |
| Active material w/w%      | 80-90                            |
| Molecular weight g/mol    | 339-345                          |
| Volume weight g/l         | 370-550                          |
| Water w/w%                | 2                                |
| Mean value, $\mu\text{m}$ | 363                              |

| Particle range, typical values for UFARYL® |      |
|--------------------------------------------|------|
| Sieve, $\mu\text{m}$                       | %    |
| >2500                                      | 0    |
| 1600-2500                                  | 0    |
| 1250-1600                                  | 0    |
| 710-1250                                   | 5,2  |
| 400-710                                    | 36,8 |
| 250-400                                    | 32,7 |
| 125-250                                    | 17,7 |
| 90-125                                     | 3,8  |
| <90                                        | 3,8  |

### Particle size distribution

Figure shows a typical Particle Size Distribution for **UFARYL®**



## UFARYL® in toilet care application

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Unger's production process makes dense and flat particles for stable and consistent toilet block formulations, well suited for extrusion and production.



## UFARYL® – a must have surfactant for the optimal detergent WC block

The main application area for UFARYL® is toilet care. It's designed to achieve the product characteristics of customer's demands.



Figure shows different types of hardness in a given toilet block formulation

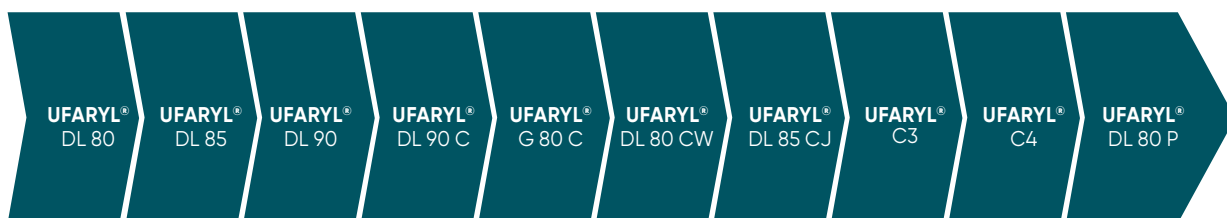
**UFARYL® is used in solid rim-blocks, in cistern blocks, urinal blocks and strips.**

### Lifetime adjustment

The **UFARYL®** product line have different characteristics, which will influence the lifetime of the finished toilet care application. **UFARYL®** is hygroscopic. This will in effect make a film around the toilet block, which maintains the shape of the block and gives a longer lifetime.

### Hardness

The use of **UFARYL®** helps to achieve different hardness levels of the toilet care block.



*Figure shows UFARYL® graded from low to high for anti limescale*

### **Detergency properties and shine**

The detergency is very important for the performance of all toilet care products. The content of **UFARYL®** in toilet care formulations will help to maintain toilets nice and clean.

### **Foam**

**UFARYL®** is an effective foam creator and forms a crispy, solid and long lasting foam in the toilet.

### **Limescale prevention**

In areas with hard water you will experience a chalky off-white crust that stains your toilet bowl. Hard water contains a higher concentration of dissolved minerals like calcium and magnesium. When the water evaporates, it leaves behind calcium carbonate deposits which can be hard to remove or difficult to prevent. **UFARYL®** prevents lime-scale build up.

### **Colour**

**UFARYL®** is compatible with all common dyes and colours used. It achieves homogeneous toilet care blocks with a long lasting colour.

**UFARYL®** has two different pH ranges, neutral and alkaline. It's important to select the quality with the right pH range that will not affect the colour of the final product.

## Fragrance

**UFARYL®** is a contributor to slow release of fragrance during the lifetime of the toilet block.

### Solvents in fragrances

The most common solvents used in fragrances are:

- Propylene Glycol
- Dipropylene Glycol
- Isopropyl Myristate
- Di(Propylene Glycol) Methyl Ether

All the **UFARYL®** are compatible with these solvents.

### Influence of lifetime

The solvent base of the fragrance is important for the performance of the toilet block. The solvent and the components in the fragrance affect the hardness, appearance and lifetime of the block. It also affects the process during production of the block.

An example of how much the composition of the fragrance will influence on the lifetime is given by the graph below:

This has the same toilet block formulation, it is just the fragrance or the solvent that have been changed.

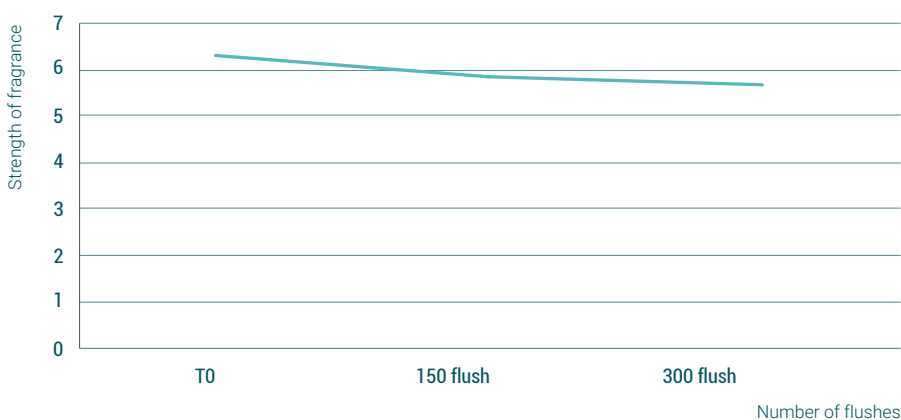


### Stability of fragrance

The consumer of toilet blocks want the perfume to last throughout the life of the block.

**UFARYL®** is a contributor to slow release of fragrance during the lifetime. The graph shows that the strength of fragrance will not be much reduced from time 0, at start, and at 150 and 300 flushes. This is a typical curve for characterization of fragrance strength in

**UFARYL®**

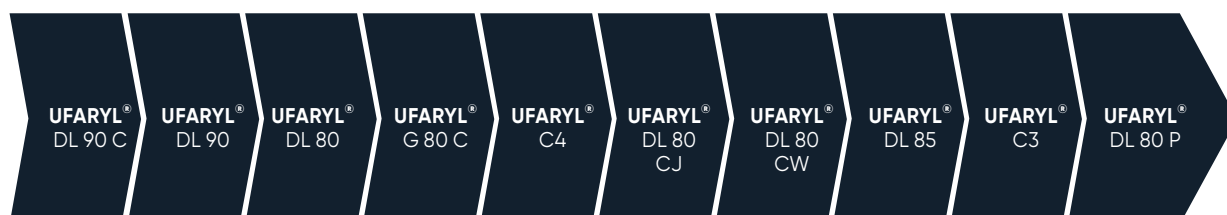


*Figure shows strength of fragrance during the lifetime of the toilet care block*

### Adsorption of fragrance

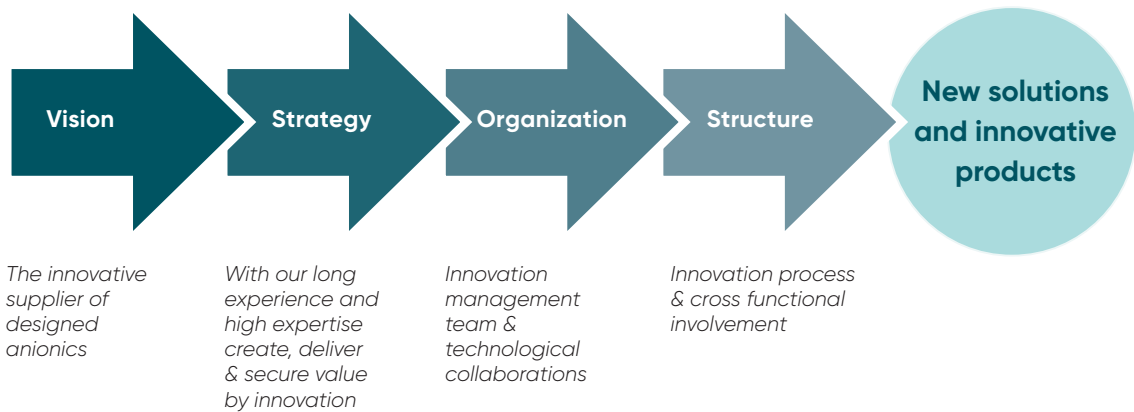
Differences in adsorption of fragrance in the mix before extrusion or press will give a freedom to formulate. **UFARYL®** that contains a high level of chelating agent tolerates more fragrance/fluid.

The table shows an illustration of adsorption of fragrance from good to best.



## Innovation and R&D

The main application area for **UFARYL®** is toilet care. It's designed to achieve the product characteristics of customer's demands.



*Our technical team will guide you with knowledge of products and formulations. We invite you to an innovative partnership.*

### From the start to the end

- Technical assistance and support
- Formulation and process counselling
- Laboratory trials
- Joint development projects
- Pilot and test facilities
- Customized product development

## Get to know Unger surfactants and the UFARYL<sup>®</sup> product line

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### Regulatory compliance and environment

- ✓ Unger is **ISO 9001:2015, 14001:2015** and **45001:2018** certified.
- ✓ Unger operates in accordance to REACH requirements.
- ✓ REACH registrations numbers are identified in the SDSs.
- ✓ UFARYL<sup>®</sup> is readily biodegradable.
- ✓ Product carbon footprint (PCF) numbers can be provided for all UFARYL<sup>®</sup> products upon request.
- ✓ UFARYL<sup>®</sup> product range is available as **Safer Choice** approved.
- ✓ All UFARYL<sup>®</sup> products are available as EcoSmart, REDcert<sup>2</sup> approved.

### Storage and handling

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We recommend storing **UFARYL<sup>®</sup>** cool and dry. The powder is very hygroscopic so the packaging needs to be closed during storage.

Normal safety precautions should be taken when handling **UFARYL<sup>®</sup>**, with the use of dust mask, goggles and gloves.

For instruction on safe and proper handling and disposal, please refer to the safety data sheet (SDS).



## Sustainability is central in our culture, being a key element in our strategy for future development and growth.

Unger have defined three focus areas; climate footprint, respect for the human being and innovative and environmentally friendly solutions – then chosen five from the United Nations sustainable development goals to give extra attention across these focus areas. Unger pursue solutions and products that are climate-friendly, maintain biodiversity and showing a transparent value chain.

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*Unger firmly believe that the successful use of a product in any application derives from a comprehensive and mutual understanding of the possibilities in the technology offered, the purpose of the end-use as well as total transparency within our sustainable efforts. Therefore, we offer a life cycle analysis (LCA) on all the products in our portfolio upon request.*



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**Pure  
Nordic  
Quality**

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