

REWOFORM® RL 210

*Soft on fabrics, kind to the
most sensitive skin*

May 2025 | Cleaning Solutions



Agenda

Today's Cleaning Industry and the Ecological Challenges

Market Trends

Greenwashing and consumer's trust

REWOFORM® Biosurfactants - Powered by nature

Benefits beyond sustainability and cleaning

Introducing REWOFORM® RL 210



THE WORLD IS FACING RISING CHALLENGES

ESCALATING CONSUMPTION AND DECLINING RESOURCES

.....

If we would continue
consuming like this
we would need 1.75
earths.¹

1.75

INCREASED GREENHOUSE GAS EMISSIONS

.....

Emissions increase
exponentially due to
human activities



INCREASED GLOBAL WARMING

.....

A temperature increase of
2 °C compared to the pre-
industrial era has serious
negative impacts on the
natural environment and
on human health and
well-being²

2°C

Need for new
set up of
consumers
goods and
respective
ingredients

¹Global Footprint Network

²Climate Action



The Cleaning Industry has a large impact on the environment



Climate change



Deforestation



Toxic water

Time to act
now



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What are the global trends in the cleaning industry?

Value-for-money

Consumers have been willing to spend more on products that provide them value for their money.

- Multipurpose products
- New dosage forms and product formats
- Combination of performance & environmental sustainability



Self-care & Wellbeing

Anxieties around physical and mental health call for action: create products that are beneficial to mental wellbeing

- Scent plays a key role
- Products with dermatology-tested, skin sensitivity and hypoallergenic claims are more important



Willingness to learn

Consumers become more and more interested in information about product ingredients and their function

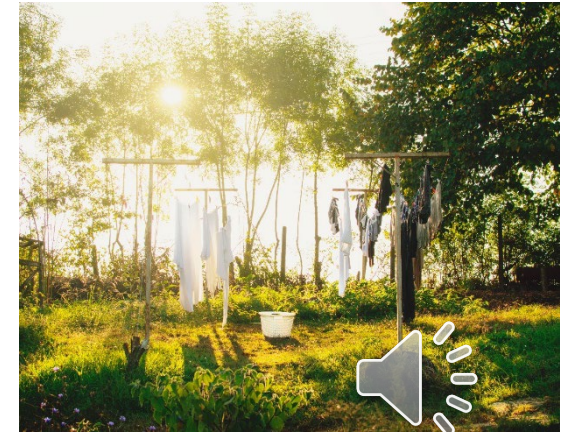
- Provide ingredients and their function and help consumers to better understand



Sustainability

Increasing environmental impacts, especially climate change and pollution becoming more and more important

- Water-consciousness behaviors
- Washing at lower water temperatures
- Natural and eco-friendly products will continue to grow



Source: Conclusions based on secondary analysis of data in Mintel & Euromonitor

The cleaning market strive to tackle the environmental challenges

Green claims are reflected in all market segments



Source: Company websites, MINTEL GNPD



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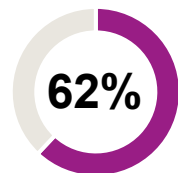
Introducing REWOFORM® RL 210



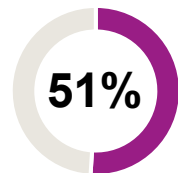
Majority of consumers is confused by vague and broad claims

Transparency is a needed feature for sustainable cleaning products

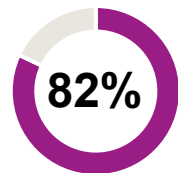
Consumers feel that...



it's **hard to know which products** are **safe for the environment**¹



it's **hard to know** what **eco-friendly means**²



brands should be more **transparent about the contents** of their products³

Source: Mintel report: Sustainable home care innovation in the pandemic era, 2020

¹Spanish home care buyers, ²French home care buyers, ³Italian home care buyers

Help consumers find specific value in their household cleaning product selection by providing clear communication about the product's sustainability and why it's important.

Consumer protection: Stopping Greenwashing

Emprendedores
¡Cuidado con el ‘greenwashing’! Te puede salir caro

Umwelt Bundesamt

Consumer protection: Success against greenwashing
Zalando removes misleading environmental claims from its website

Forbes
Koniec z greenwashingiem. Jest projekt nowej unijnej dyrektywy

Handelsblatt
Irreführende Werbung könnte für Unternehmen bald teuer werden

Europäische Kommission

PRESSEMITTEILUNG | 22. März 2023 | Vertretung in Deutschland | Lesedauer: 5 Min

Gegen „Greenwashing“: Kommission pocht auf verlässlichere Umweltangaben für Produkte und Dienstleistungen

>50%
of „Green Claims“ are
vague,
misleading
or not well-
founded*

How the EU regulates green claims



- Enable informed purchasing decisions by consumers to foster sustainable consumption
- Eliminate practices that mislead consumers away from sustainable consumption choices

The EU will ban:



- Generic environmental claims on products without proof
- Claims that a product has a neutral, reduced or positive impact on the environment because the producer is offsetting emissions
- Sustainability labels that are not based on approved certification schemes or established by public authorities

The EU will introduce:



- Verification system for companies that want to make environmental-related claims. Before using such claims for their products, companies would need to submit evidence for them and get preapproval from verifiers assigned by EU countries.
- Minimum standards in product development to make nearly all products on its market sustainable, durable and eco-friendly



Source: <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52022SC0085>
<https://www.europarl.europa.eu/topics/en/article/20240111STO16722/stopping-greenwashing-how-the-eu-regulates-green-claims>

Certificates can act as a proof of sustainable actions

Ecolabels and Certificates promote sustainable cleaning products



→ Building trust to consumers



The number of ecolabel certified products keep growing

Consumers are increasingly seeking evidence and label information amongst vague, misleading or confusing green claims.

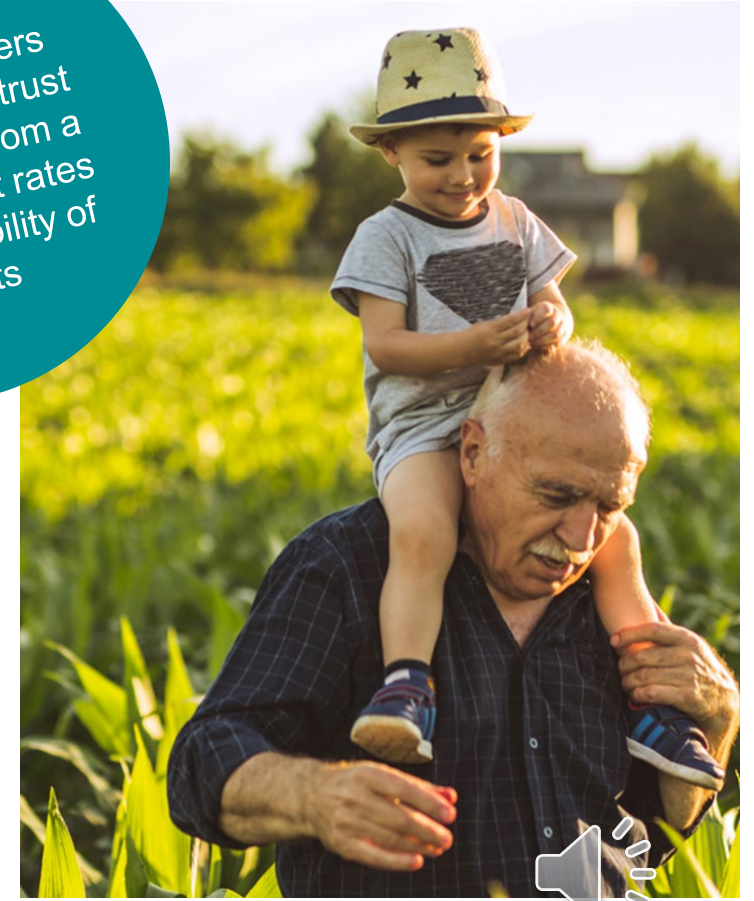


95.758
(goods & services)
awarded with EU Ecolabel
as of March 2024.
+8%
compared to 2023

A.I.S.E.
56%
of European fabric care
launches made reference to
A.I.S.E. or Cleanright in
the last 12 months

Source: MINTEL report, Use green certifications as proof of eco-friendliness, 2023

44%
of UK consumers
agree you can trust
certifications from a
third party that rates
the sustainability of
products



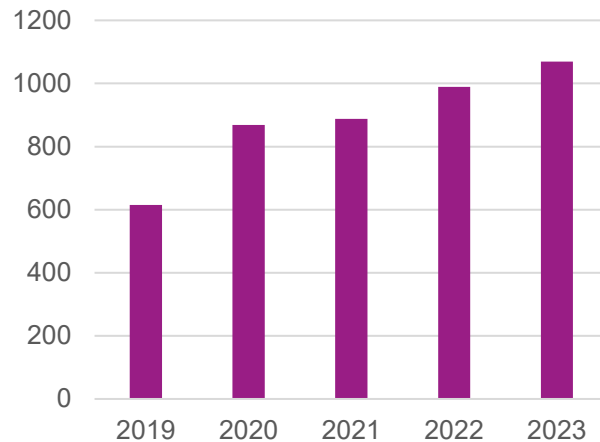
The trend to animal welfare and more natural formulations is leading to growth of vegan certified product launches



In 2023
10 % *
of global launches
in household
categories claim
vegan

Number of cleaning product launches claiming vegan is increasing

Number of global Launches*
(vegan claim)



Vegan claims are on the up as consumer concerns on the use of chemicals in household cleaning products has led to product developments and marketing promoting more natural formulations.



Spain, 2024



Italy, 2024

Sales of
**vegan cleaning
products at Tesco**
increased by
80%
in 2019**



Sources:

*Mintel, GNPD, Launches globally in the area of Household Care (Dishwash, Hard Surface, Toilet, Fabric Care, 2019 – 2023), Claim Vegan/no animal ingredients, <https://inews.co.uk/news/consumer/vegan-cleaning-products-demand-uk-tesco-rocketed-264794>, Mintel, A year of innovation in household cleaners 2024












More cleaning product formulators and brands are committed to the leaping bunny certification standard



10 %
of global annual
launches in household
categories claim
cruelty free*

**Voice of
the Consumer***:**

Trendsetter**	
25% of product launches in household cleaning in UK claim cruelty free	Beside specific brands, also key retailers in the UK are committed to the leaping bunny programme    M&S
28% of product launches in household cleaning in North America claim cruelty free	Several formualtors and brands are comitted and certified by the Leaping Bunny in the USA and Canada.      

Market Examples



In a global survey, **81%** of respondents said they would not buy a household product if they knew it (or one of its ingredients) had been tested on animals.
77% of respondents also cited ‘not tested on animals’ as a factor in their decision to buy a cosmetic or household product.

Sources: *Mintel, GNPD, Launches globally in the area of Household Care (2019 – 2023), **Mintel, GNPD, Launches in UK and North America, Claim ethical animal, Cruelty Free International, <https://crueltyfreeinternational.org/leaping-bunny>
***Frame: [Fact or Fiction? Mapping perceptions of animal testing, 2020](#)

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Benefits beyond sustainability and cleaning

Introducing REWOFORM® RL 210











REWOFORM® Biosurfactants

Powered by nature








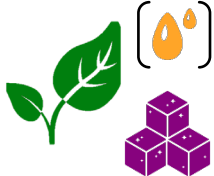


The Evolution of Surfactants

	Petrochemical	Partially bio-based	Fully bio-based	Biosurfactants
Technology				
Feedstock				
Examples	<ul style="list-style-type: none"> ▪ Linear Alkylbenzene Sulfonate ▪ Synthetic Alcohol Ethoxylates 	<ul style="list-style-type: none"> ▪ Alkyl Ether Sulfates ▪ Cocamidopropyl Betaine 	<ul style="list-style-type: none"> ▪ Alkyl Polyglucosides (APGs) ▪ Disodium/Sodium Cocoyl Glutamate 	<ul style="list-style-type: none"> ▪ Rhamnolipids ▪ Sophorolipids
Sustainability	<ul style="list-style-type: none"> ▪ Crude oil-based ▪ Often hazardous raw materials ▪ High CO₂ footprint 	<ul style="list-style-type: none"> ▪ Mostly tropical oil-based ▪ Often hazardous raw materials 	<ul style="list-style-type: none"> ▪ Mostly tropical oil-based ▪ Often hazardous raw materials or processes ▪ Performance gaps 	<ul style="list-style-type: none"> ▪ Sugar- / non-tropical oil-based ▪ Low ecotoxicity ▪ High Eco compatibility ▪ Excellent biodegradability



Biosurfactants are better for the planet

	Petrochemical	Partially bio-based	Fully bio-based	Biosurfactants
Technology				
Feedstock				

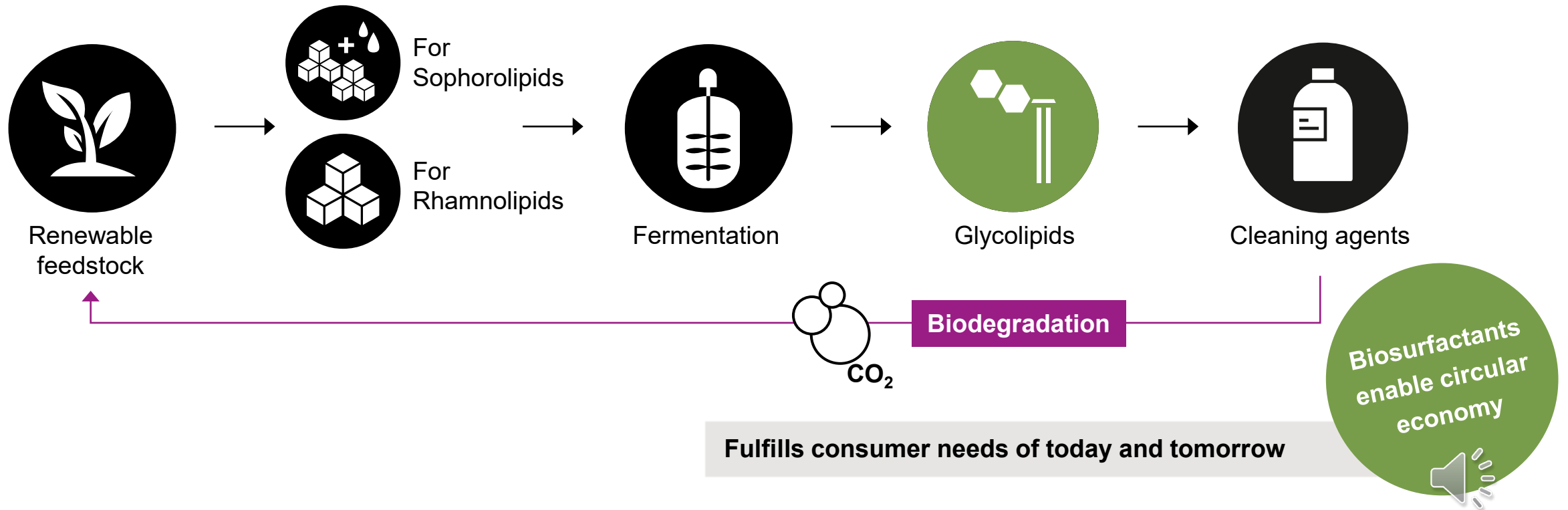
Surface-active agent produced by the fermentation of natural feedstocks



REWOFORM® Biosurfactants

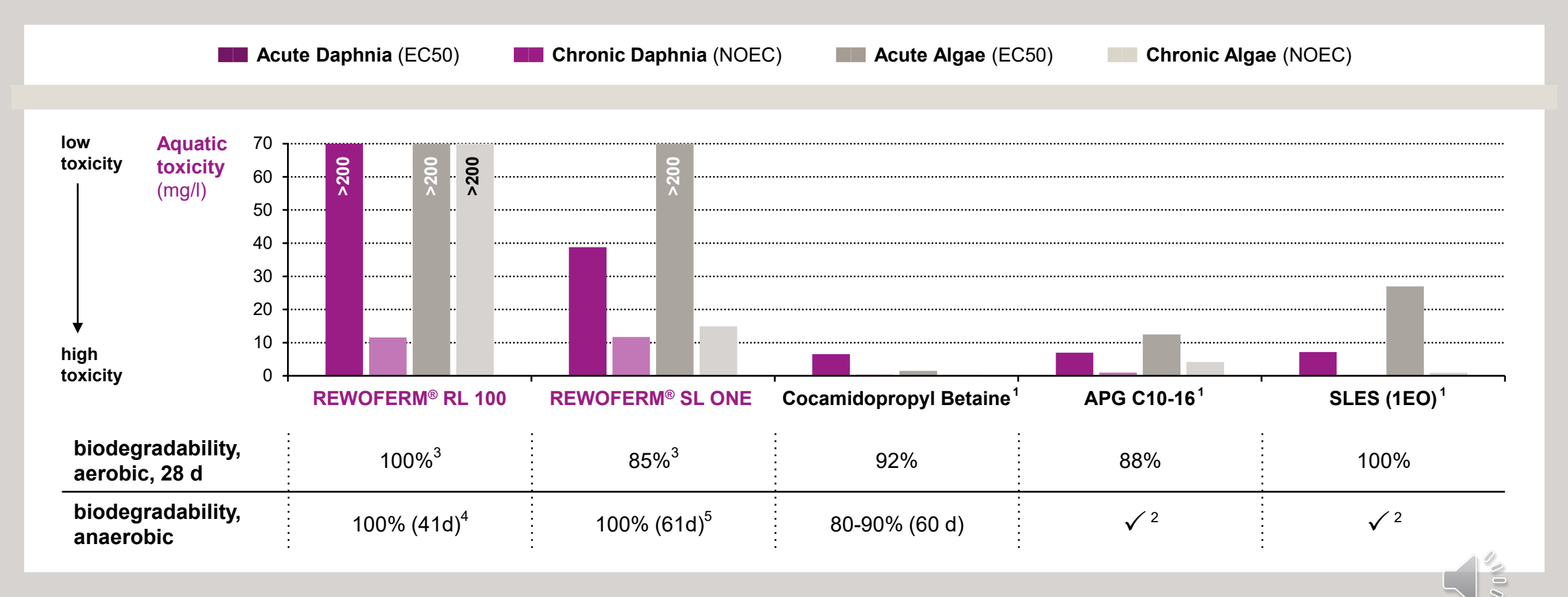
Production process

A unique process resulting in a unique product



REWOFORM® Biosurfactants

Gentle to the planet...exceptionally low toxicity



¹ Source: ECHA data | ² anaerobic degradable acc. to DID list | ³ OECD301F | ⁴ OECD311 | ⁵ ISO 11734

REWOFORM® Biosurfactant Portfolio

Powered by Nature

REWOFORM® RL 210

Rhamnolipid, Na Benzoate preservation



- Based on locally sourced sugar
- Primary & secondary surfactant
- Stable at pH 5.5 – 11
- Floor cleaner, Laundry detergents, Spot & Stain removers
- Excellent and unique foaming properties providing a pleasant hand feel



NEW

REWOFORM® SL ONE

Sophorolipid, Na Benzoate preservation, high acid form



- Based on locally sourced sugar and rapeseed oil
- Secondary surfactant
- Stable at pH 5 - 8
- Hand Dish wash, Automatic Dish wash, Hard surface cleaning, Laundry detergents
- Low foaming and foam stabilizing properties



REWOFORM® RL 100

Rhamnolipid, CIT/MIT preservation



- Based on locally sourced sugars
- Primary & secondary surfactant
- Stable at pH 5.5 – 11
- Laundry detergents and hard surface cleaners
- Excellent and unique foaming properties providing a pleasant hand feel



REWOFORM® SL TWO

Sophorolipid, Na Benzoate preservation, high lactone form



- Based on locally sourced sugar and rapeseed oil
- Secondary surfactant
- Stable at pH 5 - 8
- Hand Dish wash, Automatic Dish wash, Hard surface cleaning, Laundry detergents
- Low foaming and foam stabilizing properties

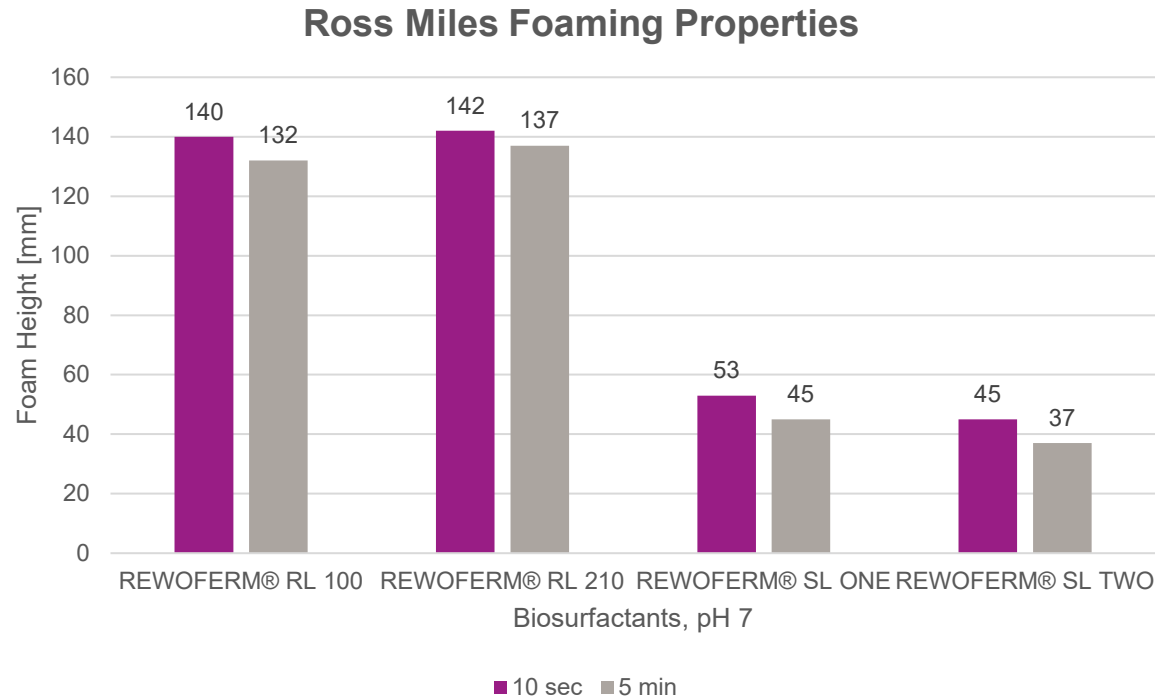


*Pending registration for Ecocert.

**Please note that our products meet the requirements of the ecolabels that are shown above

Biosurfactants differ in foaming properties

Enabling broad range of applications



Test conditions

0.1% active matter in DI water at 40°C, pH adjusted to 7.0 with citric acid / sodium hydroxide

**SOPHOROLIPIDS ARE
SUBSTANTIALLY LESS
FOAMING THAN
RHAMNOLIPIDS,
THEREFORE SUITABLE
FOR APPLICATIONS
WHERE MEDIUM/LOW
FOAMING PROPERTIES
ARE REQUIRED**



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REWOFORM®
Biosurfactants
provide benefits
beyond
sustainability and
cleaning to almost
any application
area



REWOFORM® biosurfactants are suitable for almost any application area



Home Care



- Laundry detergents, pre-spotters, pouches
- Kitchen Cleaner
- Dish Wash¹
- Floor Cleaner
- Glass Cleaner
- All Purpose Cleaner
- Robotic Cleaning



Industrial & Institutional



- Commercial Laundry
- Hard Surface Cleaners
- Membrane Cleaning
- F&B Processing
- Metal Cleaning
- Robotic cleaning



Car Care



- Manual and Automatic Car Wash
- Car Shampoo
- Windshield Cleaner
- Interior Cleaner

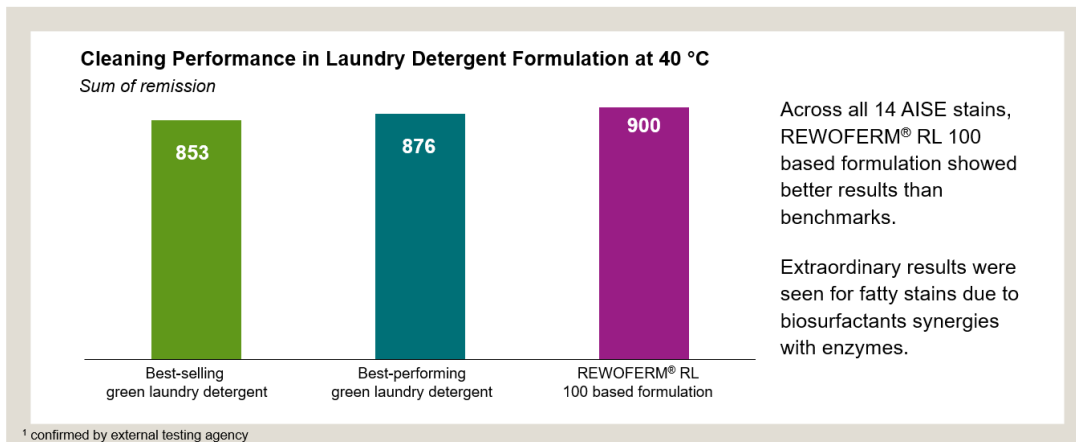
REWOFORM® provides formulated products powerful cleaning for all cleaning market segments.



¹ exclusivity with Unilever for REWOFORM® rhamnolipids

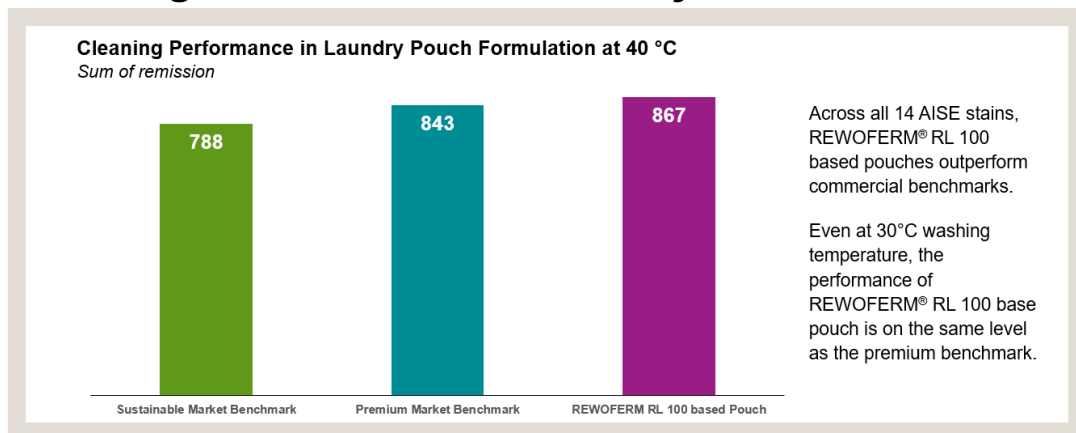
Excellent soil removal in laundry applications

Cleaning Performance in Laundry Detergent Formulation



- Excellent cleaning
- Reduction of formulation complexity
- Synergies with enzymes

Cleaning Performance in Laundry Pouch Formulation



- Excellent cleaning
- Compatible with water soluble PVOH foil
- Enables higher soap content and liquid formula, even w/o MEA



*Data generated with REWOFORM® RL 100

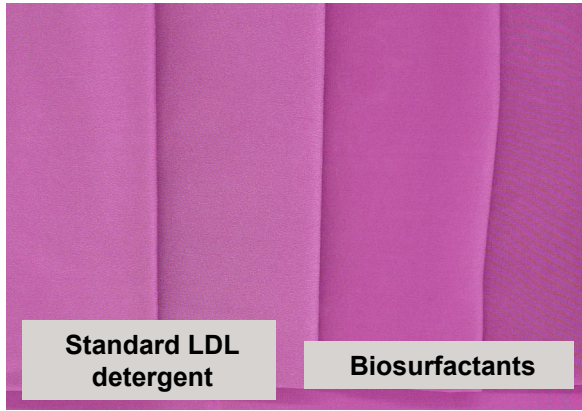


WE GO BEYOND with REWOFORM®
CARE EFFECTS ON TEXTILES

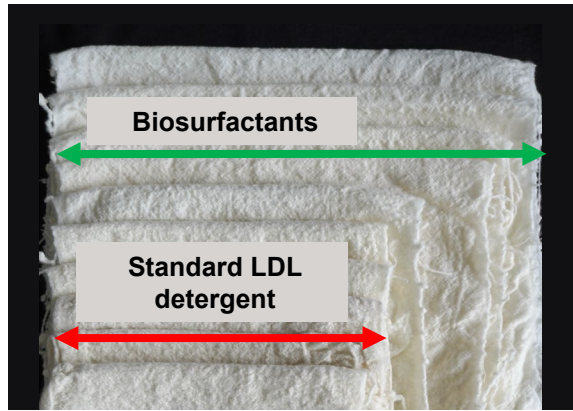


REWOFORM® Biosurfactants deliver benefits beyond sustainability and stain removal to Laundry Applications

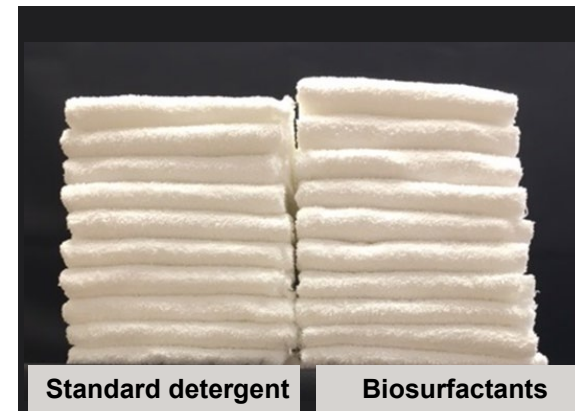
Premium color care



Less shrinkage of wool



Fluffy towels



Enabling MEA-free Pouch formulations

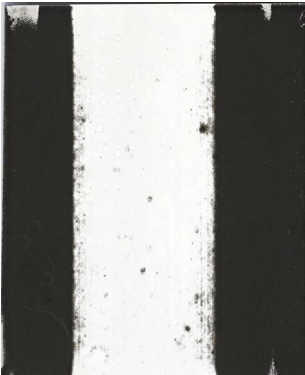


*data generated with REWOFORM® RL 100 based detergent

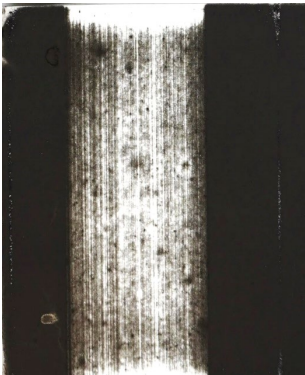


Excellent cleaning in hard surface applications

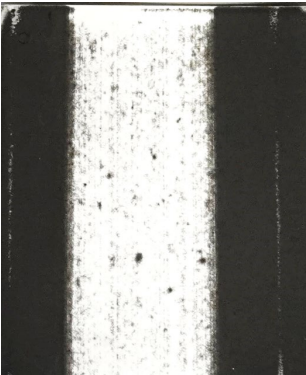
Performance in Kitchen Cleaner Formulation



REWOFORM® based Kitchen Cleaner



Benchmark Eco formulation



Benchmark High performance

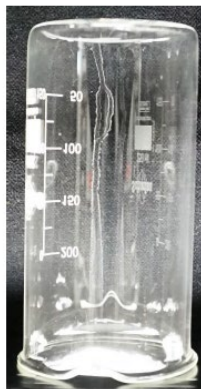


*Data generated with REWOFORM® RL 100

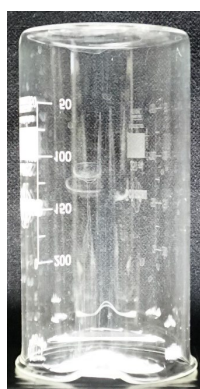
Performance in Rinse Aid for Automatic Dish Wash



REWOFORM® based Rinse Aid



Market Benchmark



Sustainable Benchmark



*Data generated with REWOFORM® SL ONE



WE GO BEYOND with REWOFORM®
CARE EFFECTS FOR HARD SURFACE CLEANERS



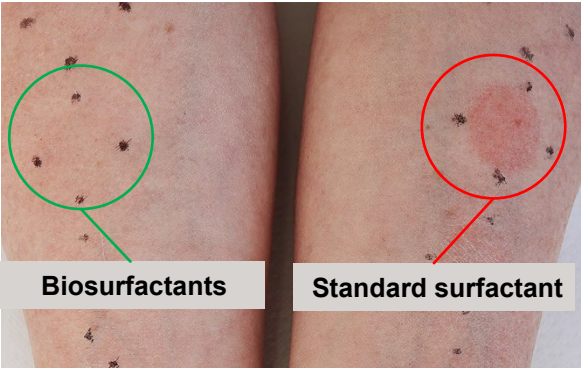
REWOFORM® Biosurfactants deliver benefits beyond sustainability and cleaning to Hard Surface Cleaners

Hinders stress cracking

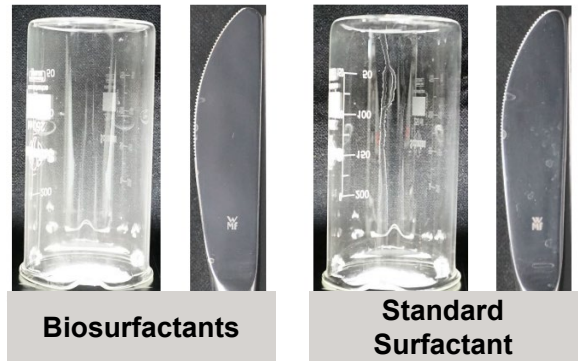
Material	5% RL	5% SL	5% LAS	5% AE	5% APG
<u>Poly(methyl methacrylate)</u>	●	●	●	●	●
Polycarbonate	●	●	●	●	●
<u>Acrylonitrile butadiene styrene</u>	●	●	●	●	●
Polystyrene	●	●	●	●	●

All concentrations in wt.% of active matter. Test with samples of various plastic materials acc. to KW recommendation, samples immersed in solution for 30 sec once a day for 10 days.

Mild even to sensitive skin



Easy Rinsing



Unique handfeel



*data generated with REWOFORM® RL 100 and/or REWOFORM® SL ONE

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Introducing REWOFORM® RL 210



Introducing **REWOFORM® RL 210**



REWOFORM® RL 210

Product properties

REWOFORM® RL 210

Rhamnolipid







Surfactants	Primary and secondary surfactant
Aggregate state	Liquid, yellowish
Compatibility	Compatible with anionics, nonionics and amphoterics
Solubility	Water soluble at pH > 5.0
Dispersibility	after pH 5.6
Active content	~50 %
Stability	Stable at pH 5.5 – 11
Processing	Cold processable, easy to handle
Preservative system	Na Benzoate
Surface tension, Surface tension pH dependent	<ul style="list-style-type: none">pH 5.5: 28 mN/mpH 9.0: 34 mN/m
CMC [%]	<ul style="list-style-type: none">pH 5.5: 0.02pH 9.0: 0.04

Functional Benefits

- Excellent cleaning performance
- Excellent foaming power
- Provides wetting and emulsification benefits (at once)
- Reduces formula complexity
- No cloud point
- Performance not effected by water hardness
- Sustainable preservation system
- Compatible with other biobased ingredients (e.g. enzymes)
- Mild to skin and surfaces



REWOFORM® RL 210 goes further to achieve your eco-certification needs

REWOFORM® RL 210 Sodium Benzoate Preservation	
	✓*
	✓
 	✓
	✓
	✓*

* Pending Registration



REWOFORM® RL 210 is compliant to most important eco-certification requirements



Ecolabel Compliant All Purpose Cleaner

Guideline Formulation

All Purpose Cleaner	
Water	91.5%
REWOFORM® RL 210	1.0%
REWOFORM® SL ONE	5.6%
Citric acid, 50%	0.2%
Sodium Citrate	1.0%
Sodium carbonate	0.6%
Preservative	0.1%

Processing

Blend ingredients in the given order while stirring until clear. Adjust to pH 6.5 with citric acid.



Glass Cleaner with Biosurfactant Technology

Guideline Formulation

Glass Cleaner JB07022

Water	94.3%
REWOFORM® RL 210	0.1%
REWOFORM® SL ONE	0.1%
Ethanol	5.0%
Preservative	0.5%

Processing

Blend ingredients in the given order while stirring until clear. pH 5 - 7



Powerful Liquid Laundry Detergent

Guideline Formulation

Bio Detergent	
	w/w %
Water (Dye, Perfume)	Ad 100
Soap	2.0
NaOH 50 %	0.75
REWOFORM® RL 210	15.0
Sodium citrate * 2 H ₂ O	6.0
GLDA	1.0
Phenoxyethanol	0.45
Enzym Coctail	2.0

Processing

Blend water and NaOH and heat to 60 °C. Slowly add fatty acid (50 °C) under slight stirring and saponify at 65-80 °C for approximately 1 hour. Cool down to room temperature. Add components of phase B under stirring and adjust pH to 8. Add Enzyme cocktail.



Ecolabel Compliant Soaking Liquid for Wet Wipes

Guideline Formulation

Soaking Liquid for Wet Wipes

Water	93.6%
REWOFORM® RL 210	0.2%
REWOFORM® SL ONE	0.2%
Ethanol	5.0%
Preservative	1.0%

Processing

Blend ingredients in the given order while stirring until clear. pH 5 - 7

Cruelty
free

High
Gloss



Powerful Kitchen Cleaner

Guideline Formulation

Power Kitchen Cleaner

JB07090

w/w %

Water (Dye, Perfume)	90.9
----------------------	------

REWOFORM® RL 210	4.0
-------------------------	-----

TEGOTENS® SD 100 MB	0.5
----------------------------	-----

Citric acid 50%	1.5
-----------------	-----

Sodium citrate * 2 H ₂ O	1.5
-------------------------------------	-----

Sodium carbonate	1.5
------------------	-----

Preservative	0.1
--------------	-----

Processing

Blend all ingredients in the given sequence while stirring.
pH ~ 8.5



Rim Cleaner

Guideline Formulation

Rim Cleaner

JB07004

w/w %

Water (Dye, Perfume)

88.6

REWOFORM® RL 210

6.0

REWOPOL® SC 200

3.3

Monoethanolamine

1.5

MGDA 40%

0.5

Preservative

0.1

Processing

Blend all ingredients in the given sequence while stirring.
pH ~ 10.5



REWOFORM® Biosurfactants are game changers in the market for sustainable cleaning products

Add value to your cleaning product with consumer relevant claims supported by REWOFORM® Biosurfactants



Mild to skin



Safe for the ocean



Plant based / vegan



Locally sourced
(no tropical oils)



100% biodegradable

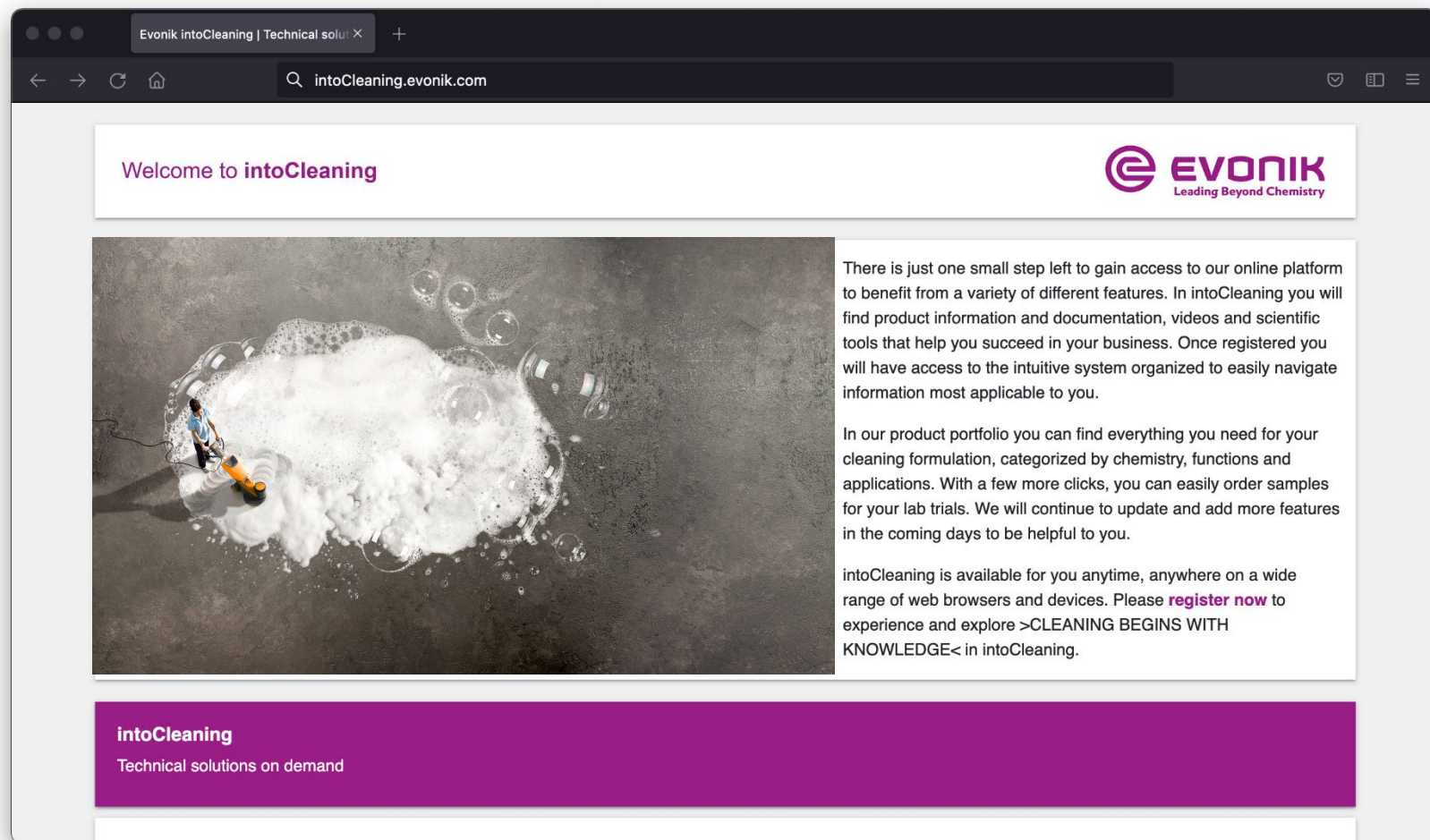


Fermented product



**CLEANING
BEGINS WITH
KNOWLEDGE**

intoCleaning.evonik.com



REWOFORM®
RL 210

SUSTAINABLE

MILD

PERFORMANCE





EVONIK

Leading Beyond Chemistry