

# Ingredientes multifuncionais para a viabilização de iniciativas sustentáveis em produtos eficientes e econômicos

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IMCD Brasil

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# AGENDA

A IMCD no Brasil e no mundo

A IMCD no segmento de *Home Care*: equipe, parceiros, produtos, tecnologias e serviços a clientes

Como a IMCD viabiliza e materializa iniciativas sustentáveis em produtos eficientes e econômicos:

- Programa *Sustainable Solutions*
- Discussão de formulações
- Estudos de caso
- *DOE*



# Unidade de negócios Home Care and I&I

A unidade de negócios de Home Care e I&I (Limpeza Industrial e Institucional) oferece uma linha de especialidades químicas utilizadas na fabricação de produtos de limpeza. Por exemplo, para roupas, louças, carros e pisos.

## Mercado doméstico

- Cuidados com a lavanderia
- Lavar louça
- Limpeza e cuidado de superfícies
- Cuidados automotivos
- Cuidados com o ar

## Produtos

- Tensoativos
- *Builders*
- Aditivos funcionais especiais

## Características

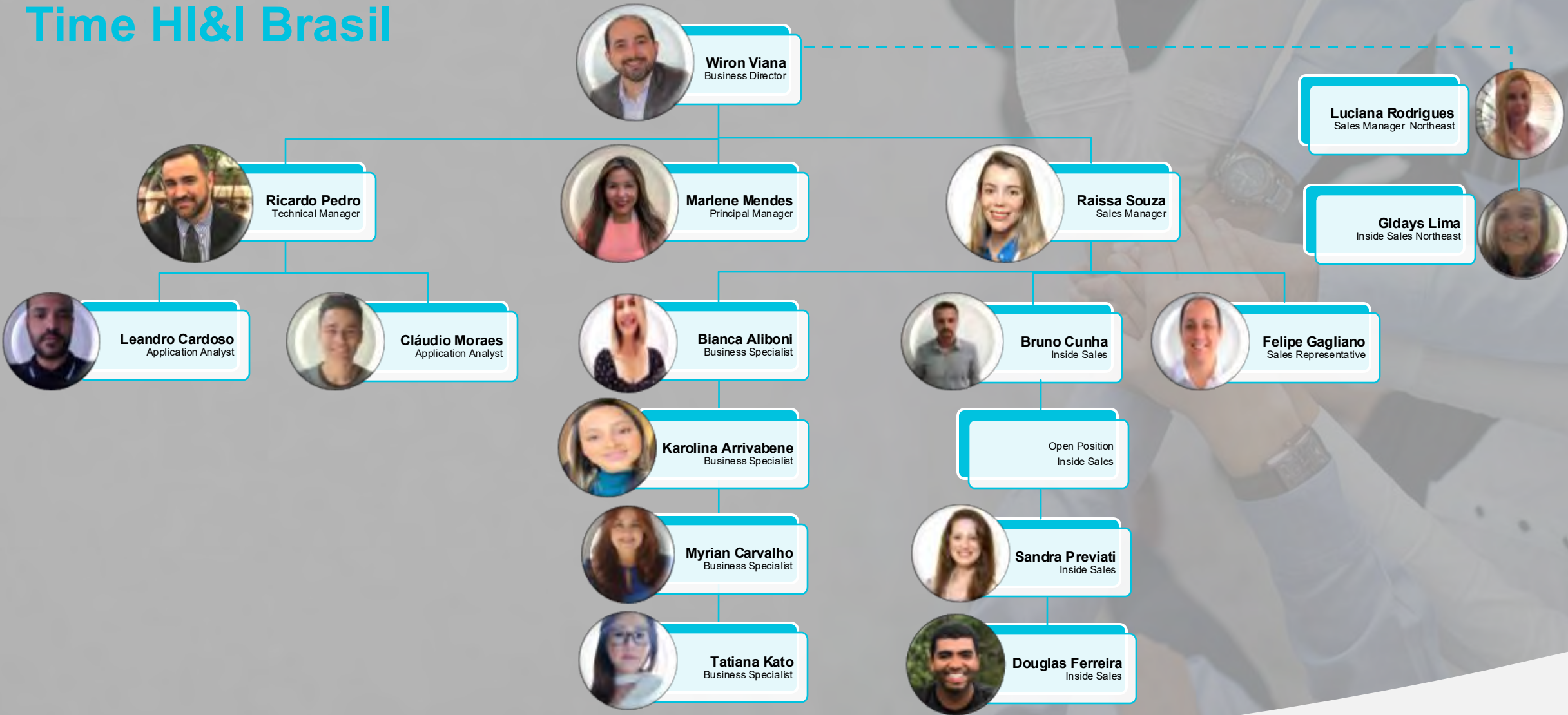
- Foco na eficácia e em formulações ecológicas



## Parcerias com Principals BRASIL



# Time HI&I Brasil



# *Sustainable Solutions* na IMCD e em HI&I



# *Sustainable Solutions*

Nossa missão

“

*Temos a missão de defender as jornadas de nossos parceiros no sentido de utilizar soluções sustentáveis todos os dias para causar um impacto positivo em sua organização e no mundo.*

”

# Sustainable Solutions

## Nosso papel



Como distribuidor, consideramos o quadro completo da sustentabilidade: a fonte do material (produtor), o resultado dos materiais quando formulados em conjunto (cliente) e a sua utilização final (consumidor).

- Facilitar a exploração de alternativas sustentáveis
- Fornecer conhecimento à nossa indústria sobre as principais tendências de sustentabilidade
- Permanecer objetivo na seleção de produtos para evitar *green washing*
- Ajudar nossos clientes a saber por onde começar com suas metas de sustentabilidade





## O que é... *Sustainable Solutions*



*Sustainable Solutions* é um recurso completo que apoia nossos clientes na navegação pelas complexidades das soluções verdes.



### **Explorar**

amplo conteúdo,  
regulamentações e  
oportunidades de  
materiais sustentáveis



### **Avaliar**

quais materiais são  
adequados para suas  
necessidades  
exclusivas



### **Escolher**

fazer a mudança para  
o uso de soluções  
mais ecológicas para  
produzir seus  
produtos



# *Sustainable Solutions*

## Nossa forma de agir

- Observar holisticamente um produto e como ele foi produzido
- Organizar os produtos em nossas categorias com duas considerações principais:
  - **Materiais sustentáveis:** matérias-primas de baixa emissão, não perigosas, de base biológica e biodegradáveis
  - **Soluções sustentáveis:** matérias-primas que permitem criar inovações com maior sustentabilidade, como reduzir energia ou melhorar a durabilidade e os processos de fabricação
- Considerar materiais de origem local para reduzir as emissões e a pegada de carbono



# *Sustainable Solutions*

## Nossa expertise

- Observar as tendências globais
- Monitorar os mercados
- Seguir rigorosamente os regulamentos locais
- Compreender as especificações de nossos clientes e as implicações do uso de alternativas sustentáveis



# Categorias da sustentabilidade



**Economia Circular e Renovável**



**Emissão, desperdício, efluentes e recursos**



**Durabilidade**



**Eficiência material e Inovação**



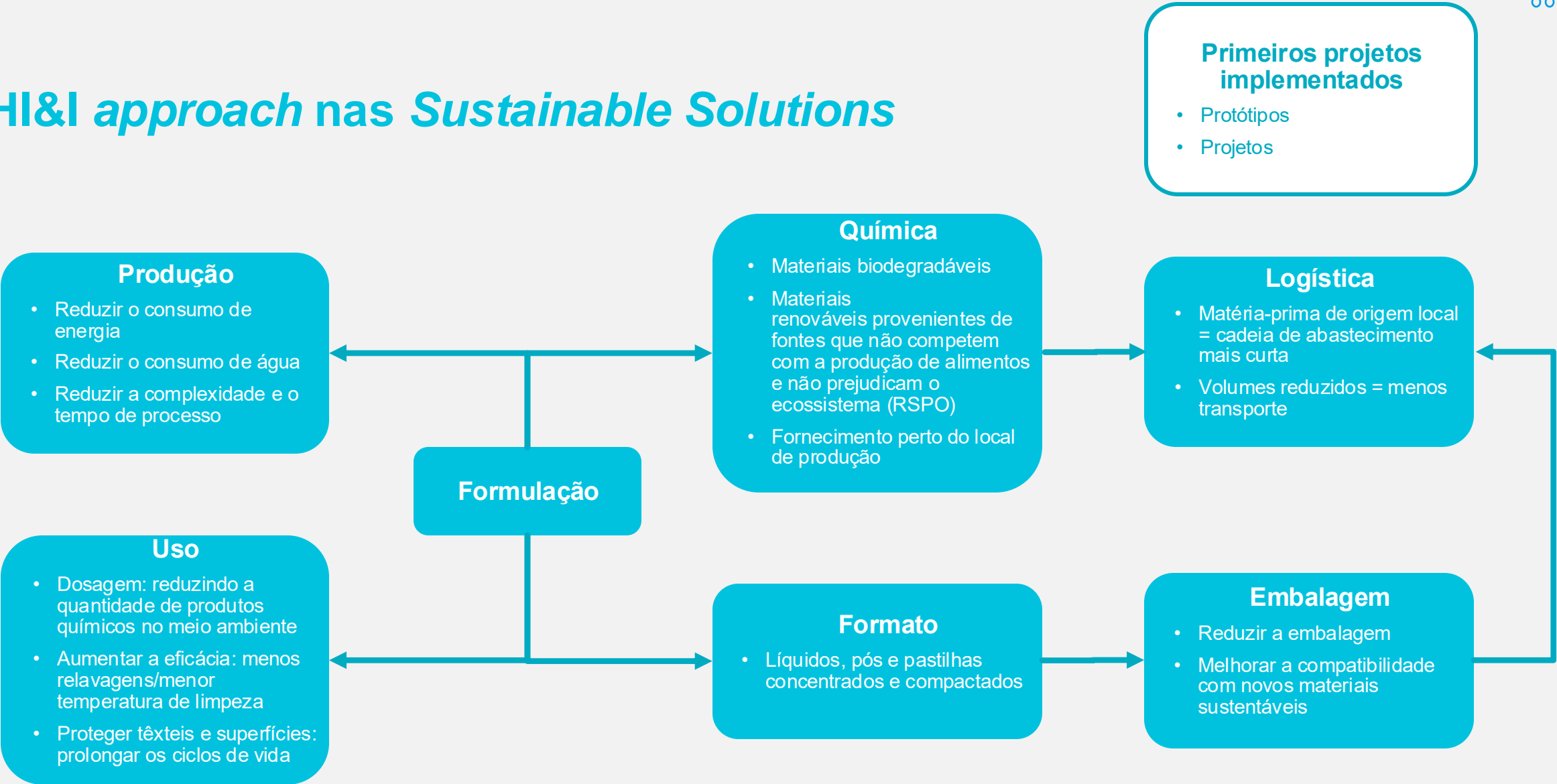
**Produtividade e Energia**



**Pessoas, Saúde e Segurança**



# HI&I approach nas Sustainable Solutions



**Como a IMCD viabiliza e materializa iniciativas sustentáveis em produtos eficientes e econômicos**

***Sustainable Solutions***



# As 4 perguntas básicas para a escolha dos mecanismos de limpeza

Para a definição dos mecanismos a serem usados em determinado produto, você deverá responder as seguintes perguntas:

1. Em quais superfícies esse produto será usado?
2. Qual a composição química dessas superfícies?
3. Qual a origem das sujidades presentes nessas superfícies?
4. Qual a composição química dessas sujidades?

*Insights* sobre  
sustentabilidade  
no mercado de  
saneantes





# The Future of Home Care

Home Care Category Growth Drivers

<https://info.blackswan.com/en-gb/homecare-report-2021>



<https://blackswan.com/resources/reports/home-care-trends-innovation-report-2023>

As previsões feitas por IA estão se concretizando



# How to Win: Home Care

## Home Care As Self-Care

While traditionally viewed as a chore, cleaning is now being seen as a relaxing way to take care of oneself.

**344,504**

Total Conversations

**+4%**

Growth

## Cleaning With Conscience

Consumers are looking beyond the initial task at hand and are choosing products in accordance to their values and lasting impact.

**229,843**

Total Conversations

**+7%**

Growth

## A Lasting Clean Guaranteed

Going beyond a standard clean, consumers are looking to passively protect from and actively prevent dirt, germs, and bacteria.

**535,839**

Total Conversations

**+3%**

Growth

## Limiting Consequences

Consumers are looking beyond the initial task at hand and beginning to choose products in accordance with its lasting impact and their own values.

Awareness of the long-term impact a product may have, not only on a family and home, but also on the wider planet, is increasing. This awareness has led to a preference for all-natural products, driven by safety concerns for both in and out of the house.

With growing interest and knowledge in the ingredients used to manufacture a cleaning product, consumers want soft, gentle and safe ingredients for their loved ones whilst also being reassured the product itself is sustainable or recycled.

## Future Direction

This affinity for natural ingredients is increasing by nearly 10% whilst a growing number of consumers express actively looking for more ecofriendly offerings.

Brands should invest in clear labeling and sincere efforts to create products ethically and sustainably, while also combining organic ingredients. Non-artificial and non-toxicity alongside eco-friendly packaging will be integral to buyer choices moving forward.



# Cleaning With Conscience

## CLEANING WITH CONSCIENCE

# Mapping Top Trends

Reduce unwanted repercussions by ensuring products are eco-friendly and safe for users and their loved ones.

Consumer's want direct and clear labelling with the assurances that their product choice will not only deliver on cleanliness, but also leave their homes toxic and chemical free. Brands should use package messaging to call out **Non-Artificial**, **Safe for Pets** and **Safe on Skin** elements.

Once a cleaning regime has been completed, buyers also require knowledge they're product will not cause harm outside of the home. **Compostable Packaging** is set to become integral to product packaging whilst **Flushable Cleaning Wipes** and **Saving Water** stays high on the priority list for consumers.



### Lens Key

- (Be) Benefit
- (Th) Theme
- (In) Ingredient
- (Pr) Products
- (Br) Brands



- Eco-Friendly
- Safe in the Home

### DORMANT

Low volume with negligible rate of growth

### EMERGING

Low volume with positive rate of growth

### GROWING

High volume with positive rate of growth

### MATURE

High volume with negligible rate of growth

Next

Now



CLEANING WITH CONSCIENCE

Mrs. **MEYER'S**  
CLEAN DAY

# Case Study



**279**

Total Conversations

**+18%**

Growth

**18**

TPV Rank

**Growing**

Phase

**+28%, -1%**

Sentiment

## Mrs. Meyer's Clean Day

By tapping into eco-conscious, safety-oriented consumers and emphasizing their commitment to natural ingredients, Mrs. Meyer's Clean Day has doubled their social media following, increased sales, and became the third highest ranked brand in their category.

Product	Volume	Growth	TPV	Phase
Safe to Use	4,361	+5%	13	Mature
Safe for Pets	874	+15%	3	Growing
Lemongrass	1,188	-3%	14	Mature
Citrus Oil	161	+14%	146	Growing

My mom is drowning our house in bleach. If I don't die from the virus it will be from the ammonia poisoning she's giving me.

Recommend her the Mrs Meyers Clean day Multi Surface Everyday Cleaner. No harmful chemicals and it's eco friendly and it's even aromatherapeutic!

3:04 PM - Mar 17, 2020

ps: if you want to use natural non-aerosol cleaning supplies but are afraid of them being too expensive to not be worth it USE MRS. MEYERS CLEAN DAY. It works so well and, yes it's slightly more expensive, but it's so worth it!

I feel like it lasts me longer than any other cleaning supply and I feel that things stay cleaner longer than they do with any other supply I have personally used. plus, all of the scents smell so nice and don't leave you with a headache from all of the chemicals afterward.

10:00 AM - Mar 21, 2020

## CLEANING WITH CONSCIENCE

Reassure users that products are safe for even the most sensitive of users.

Ease concerns regarding long-term impact by making zero waste initiatives easy.

Tap into organically associated benefits of natural ingredients.

**Now**  
Short–Mid Term  
Predictions, 0–6  
months

Recyclable, reusable, and other eco-friendly initiatives are expected by consumers. Brands that do not offer such products will be viewed negatively.

**Next**  
Long Term  
Predictions, 6+  
months

Utilise the power of natural ingredients to ease concerns around toxicity and clearly label products as safe for kids, pets, and sensitive skin.

# Key Needs & Predictions

## A Lasting Clean Guaranteed



### Passively Protect & Actively Prevent

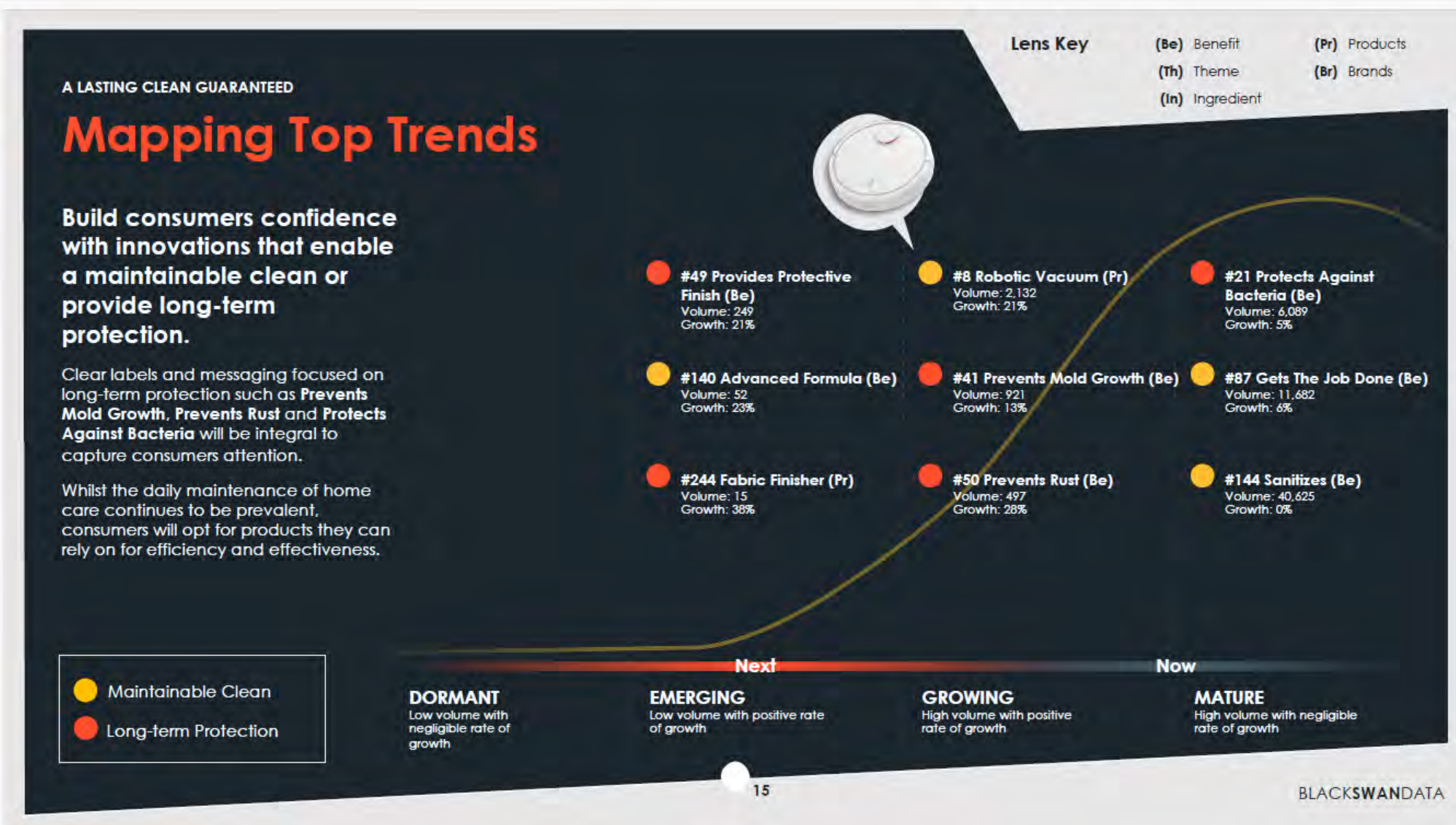
Trustworthy brands aimed at germ eradication have flourished, but consumers are starting to look for more long-term, sustainable cleaning solutions. Moving beyond a standard clean, consumers are looking to both passively protect and actively prevent dirt, germs, and bacteria.

This means buyers are purchasing products that can aid daily cleaning, such as new tech-gadgets like a robotic vacuum, whilst also opting for long-term protection against nasties such as mould, rust and dirt.

### Future Direction

12% more consumers are experimenting with new technology and product formats geared towards cleaning. Brands that can tap into the tech space will do well to innovate new products that can help consumers to save time and rely upon for a continuous cleaning routine.

There will always be a growing need for lasting protection against germs and dirt. With 13% of conversation geared towards this long-term protection, products should provide clear messaging on it's preventative measures.





A LASTING CLEAN GUARANTEED



# Case Study



**1,773**  
Total Conversations

**+19%**  
Growth

**23**  
TPV Rank

**Growing**  
Phase

**+18%, -6%**  
Sentiment

**Microban**

Creating an 8% increase in net sales for P&G, Microban has quickly become a household favorite due to the assurance users feel knowing their surfaces are protected for 24 hours.

Product	Volume	Growth	TPV	Phase
Protects Against Bacteria	6,089	+27%	21	Mature
Provides Protective Finish	249	+12%	49	Emerging
Works Immediately	68	+21%	128	Dormant
Sanitizes	40,625	+7%	144	Mature



That seems more fun. I'm getting Microban over here. Which I would never use. If it isn't bleach or alcohol, I don't truly believe that it really kills germs. 😊  
#FrightClub  
7:51 PM · Jun 24, 2021

A LASTING CLEAN GUARANTEED

# Key Needs & Predictions

## Now

Short-Mid Term Predictions, 0-6 months

Solutions that provide a consistent, germ-free clean are consistently sought after especially as restrictions ease. Reassuring consumers that their hygiene needs through messaging or calculated use of powerful cleaning agents is key to building a loyal consumer base.

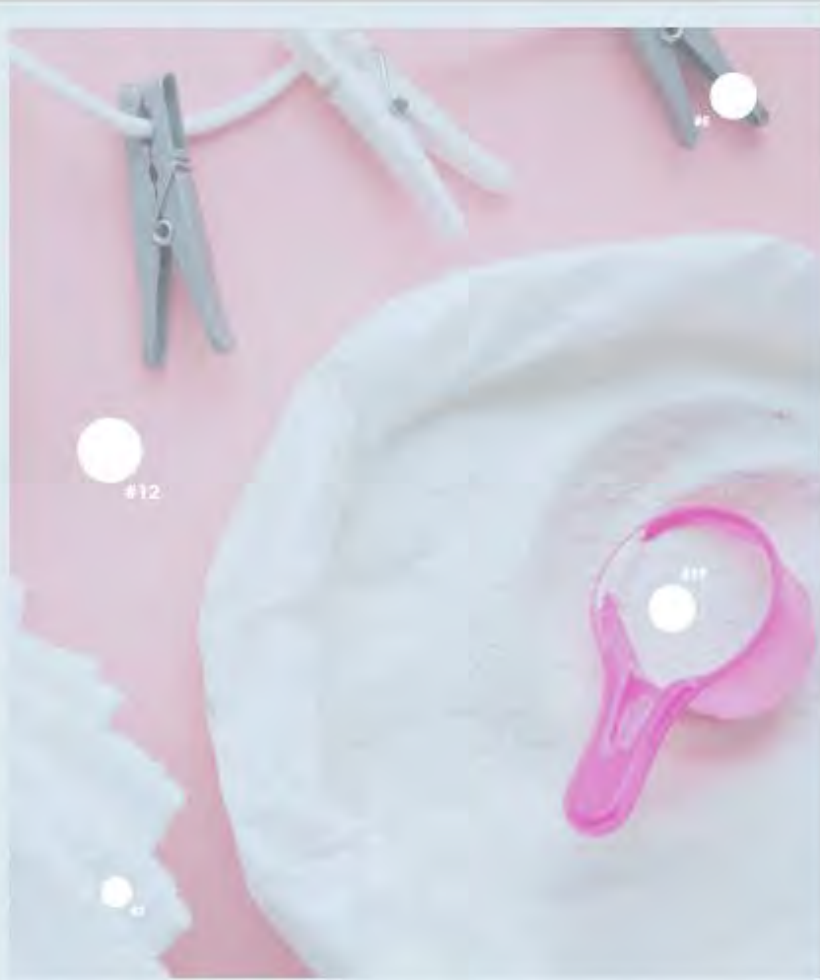
## Next

Long Term Predictions, 6+ months

From automatic robotic vacuums to antimicrobial protection, innovations that provide active protection against and in-the-moment eradication of dirt and germs will give consumers the peace of mind they're looking for.


Messaging should focus on how product efficiency is tied improving to one's peace of mind.

Tap into new technology to actively prevent germ build-up and provide continuous cleanliness.



# How to win in Laundry Care

Next we're going to use our innovation platform to drill deeper into the **emerging, growing** and **mature** trends consumers are talking about in **Sustainable Fabric Care**.



BLACKSWANDATA



## 3 Innovation Opportunities

Sustainable Fabric Care is the #1 Growth Driver within Home Care, meaning it is highly relevant and talked about by consumers, as well as predicted to sustain growth into the future.

Using our innovation platform we've identified **three** opportunity areas in which brands can activate:



**#1 Ethical  
Washing**



**#2 Energy  
Efficiency**



**#3 Simple  
Natural,  
Ingredients**

INNOVATION OPPORTUNITY

# #1 Ethical Washing



## What can we learn from analyzing the conversation trends in this space?

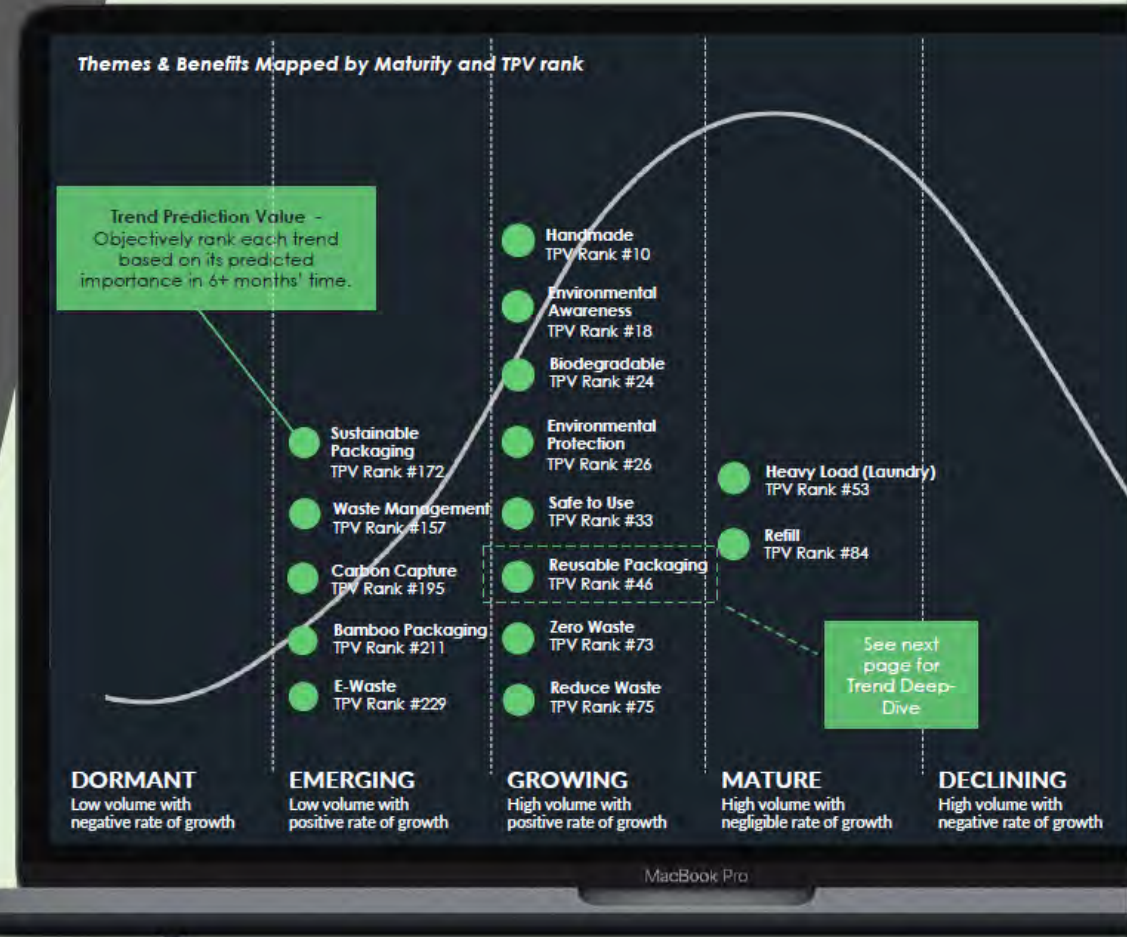
Consumers are concerned by the environmental impact of their washing and are adopting more ethical washing practices.

They are starting to gravitate towards Sustainable Packaging - such as **Bamboo** and other **Biodegradable** materials.

Consumers are also actively trying to minimize waste by using products with packaging that is **Reusable** or **Refillable**.

To activate within this space, brands really need to consider the importance of **Waste Management** and **E-Waste**.

Consumers are actively trying to **Reduce Waste** – they want brands to be transparent about their waste management and explicitly showcase their **Environmental Awareness** initiatives through their products.



TREND DEEP-DIVE

# Reusable Packaging

Packaging that can be reused multiple times, by being refilled or used for other purposes.

TPV RANK: #46 (of 439 Themes)  
 MATURITY: Growing  
 VOLUME: 1,338 Conversations  
 GROWTH: +35% last 2 years



Top Associated Benefits:



Durable  
(TPV Rank #37)



Green Cleaning  
(TPV Rank #127)



Long-Lasting  
(TPV Rank #123)

**CASE STUDY:**

**Top Associated Brand:**

**Branch Basics**  
 TPV RANK: #5 (of 2,237 Brands)  
 MATURITY: Growing  
 GROWTH: +44% last 2 years

Founded by three women on a mission to remove toxins and chemicals from cleaning products. They produce a range of concentrated, reusable and refillable cleaning products that reduce packaging waste.



© 2022 Condé Nast

INNOVATION OPPORTUNITY

## #2 Energy Efficiency



### What can we learn from analyzing the conversation trends in this space?

Consumers are utilizing new technology and sourcing energy efficient detergents to conserve energy and **Reduce Costs** in their day-to-day home care routines.

US consumers are quickly becoming water conservationists, closely monitoring their **Water Consumption** at home. And alongside water usage, the public are preoccupied by their **Electric Usage**. They are talking about washing fewer loads, and using electricity more sparingly to **Reduce Consumption**.

Consumers are looking at washing **Full Loads**. They are seeking a detergent that can handle higher capacity as well as changes in temperature, including colder washes. For brands to win in this space, they must cater to these requirements. But it is crucial that efficacy is not impacted in response to these changes in behavior.



TREND DEEP-DIVE

# Energy Conservation



The effort to reduce wasteful energy consumption by using fewer energy services. This can be done by using energy more effectively or changing behaviors to reduce usage.

TPV RANK: #51 (of 439 Themes)

MATURITY: Growing

VOLUME: 1,624 Conversations

GROWTH: +78% last 2 years



## Top Associated Themes & Benefits:

Energy Efficiency  
(TPV Rank #18)

Dependable  
(TPV Rank #94)

Antimicrobial  
(TPV Rank #22)

Efficient Results  
(TPV Rank #111)

Environmental Protection  
(TPV Rank #29)

Water Conservation  
(TPV Rank #115)

## CASE STUDY:

Top Associated Brand:

**Clorox Green Works**

TPV RANK: #113 (of 2,237 Brands)

MATURITY: Growing

GROWTH: +20% last 2 years

Clorox Green Works is an easy-refill, all-purpose cleaner derived from 98% natural ingredients. Consumers associate this as a sustainable and highly dependable product with efficient results.





INNOVATION OPPORTUNITY

# #3 Simple & Natural



## What can we learn from analyzing the conversation trends in this space?

Consumer preferences are moving towards **Naturally Derived Ingredients**. Their online dialogue reveals concerns over 'toxic nasties' to both the planet and their skin sensitivity with the perceived aggravating effects of chemical ingredients.

Brands should adopt and hero simple, well-known ingredients such as **Tea Tree Oil** and **Eucalyptus Globus**. These ingredients are associated with being gentler on the skin; they tap into perceptions that natural is less harmful to people and the environment.

To successfully activate in this area, it's important to offer products that showcase **Transparency** and **Ethically Sourced Ingredients**. Consumers want to know where the products have been sourced and what ingredients the formulation is free-from.



TREND DEEP-DIVE

# Free and Gentle



A safe, non-irritating, chemical-free formulation that is gentle on the skin and eco-friendly.

TPV RANK: #95 (of 439 Themes)

MATURITY: Growing

VOLUME: 1,721 Conversations

GROWTH: +32% last 2 years



## Top Associated Benefits & Ingredients:

- |   |   |   |  |
|---|---|---|--|
|   | Coco Nucifera (Coconut Oil)<br>(TPV Rank #18) |   | More Convenient<br>(TPV Rank #96)                |
|  | Non-Irritating<br>(TPV Rank #61)              |  | Cananga Odorata (Ylang Ylang)<br>(TPV Rank #193) |
|  | Safe For Babies<br>(TPV Rank #73)             |  | Rose Oil<br>(TPV Rank #202)                      |

## CASE STUDY:

Top Associated Brand:

**Molly's Suds**

TPV RANK: #54 (of 2,237 brands)

MATURITY: Growing

GROWTH: +27% last 2 years

Molly's Suds focuses on safe ingredients and zero harmful chemicals. They are explicit and transparent in showcasing the ingredients in their products, prioritizing natural, non-toxic recipes.



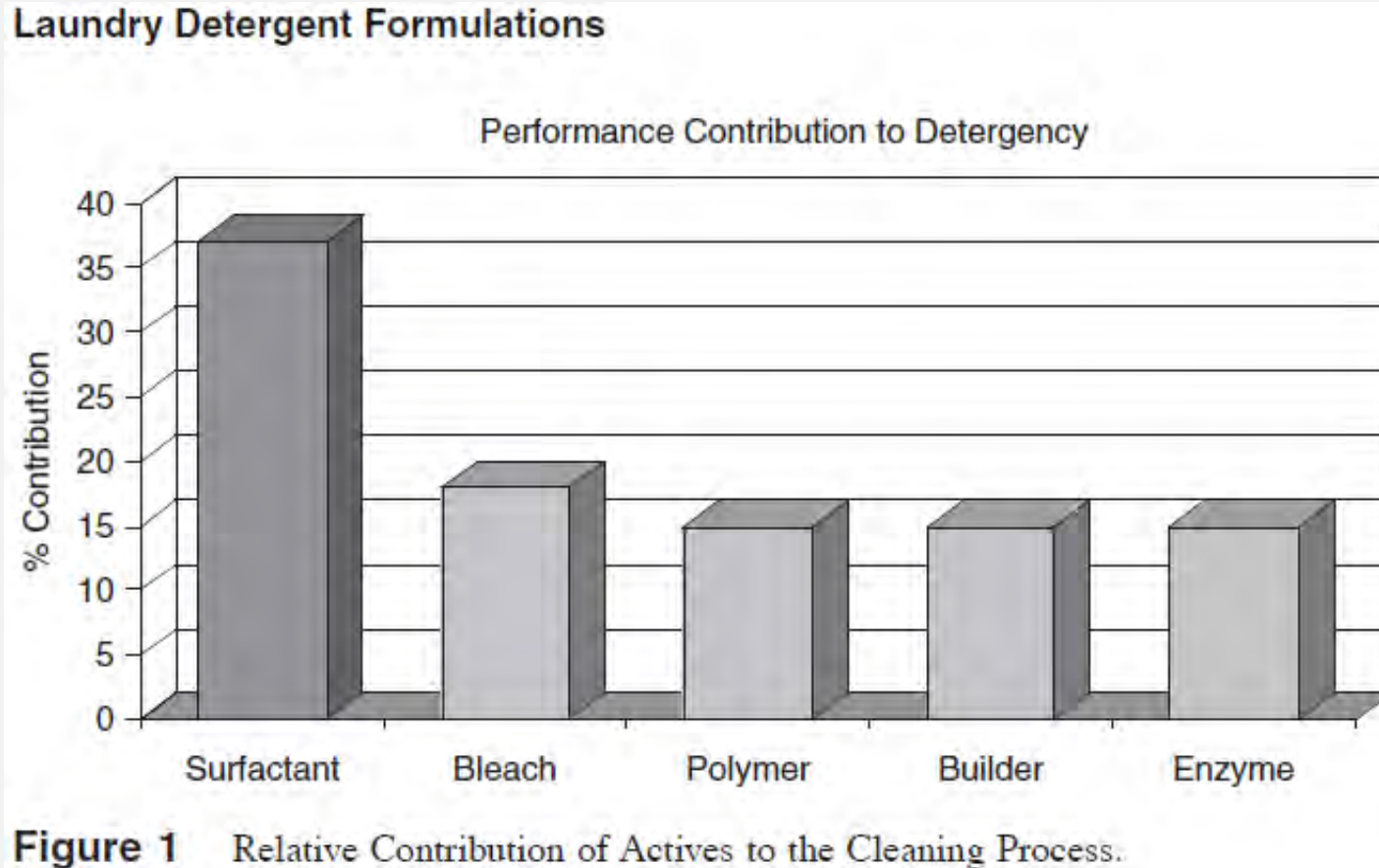
©2022, Molly's Suds.



# How to win in Laundry Care

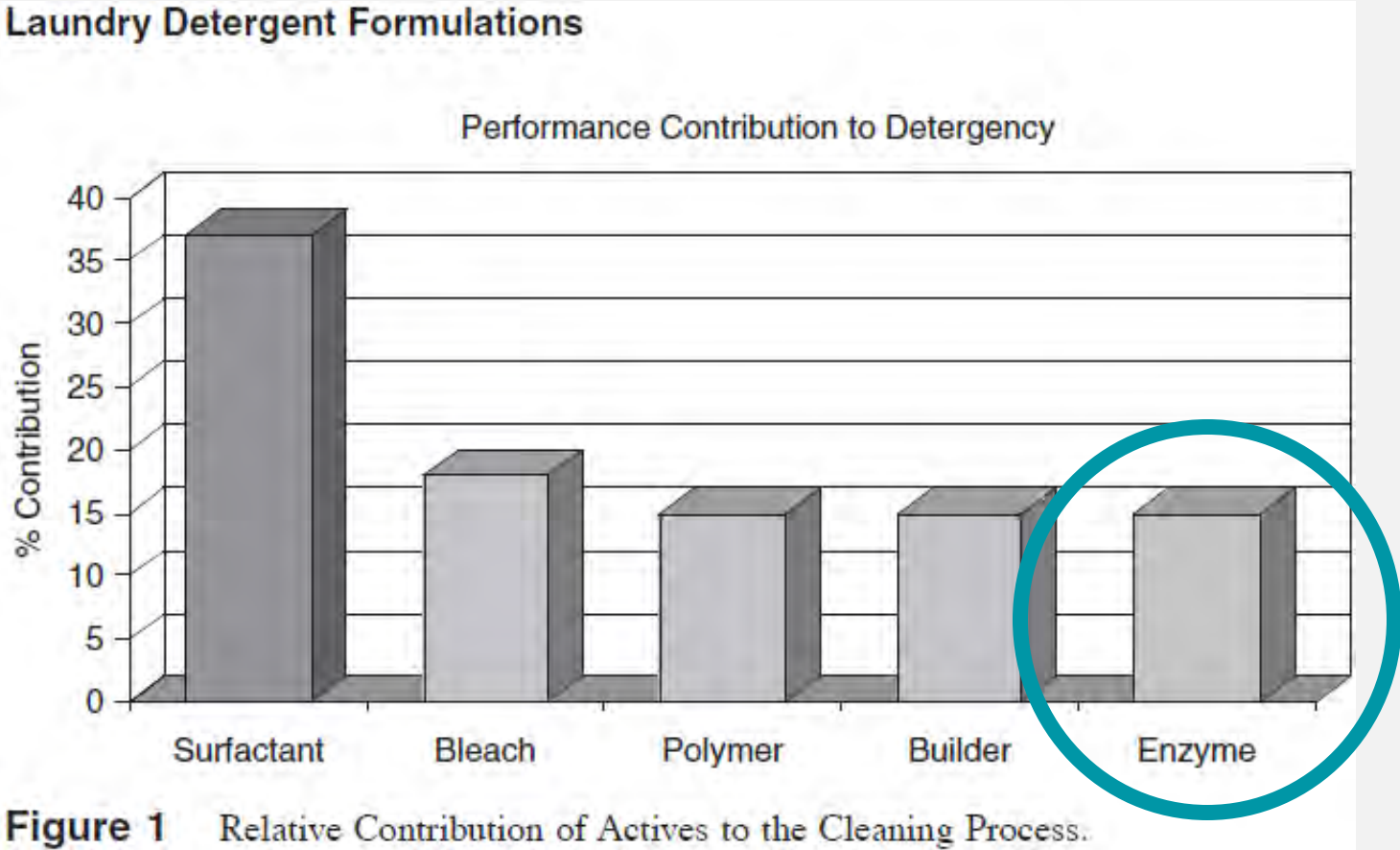
- #1 Ethical Washing**  
Support consumers' waste reduction motivations by providing refillable and reusable products used from sustainable ingredients such as Bamboo - demonstrating you are the brand committed to making the change.
- #2 Energy Efficiency**  
Use comm's to educate consumers about the energy, water and cost saving benefits of reduced frequency and load size ratio. However, efficacy remains key, so use as an opportunity to reassure that your product still performs with a full load.
- #3 Simple Natural, Ingredients**  
Tell the ingredient story - from sourcing and provenance to the benefits beyond the wash. Place 'natural' at the centre of the formulation, but don't 'greenwash' or hide away from the chemicals needed to clean - as consumers will do their research.

# Explorar a complementariedade de mecanismos



- Linha Poly TA
- Linha Surfadone™
- Linha Nansa®
- Linha Empilan®
- Linha Bisomer®

# Explorar a complementariedade de mecanismos



- Linha Poly TA
- Linha Surfadone™
- Linha Nansa®
- Linha Empilan®
- Linha Bisomer®

Showell, M. S., *Handbok of Detergents Part D: Formulation*, Taylor & Francis, Boca Rton, FL, 2006

**Linha Polyenz**

# Estudo de caso: tira manchas difíceis da região das axilas de camisas e camisetas



Mancha difícil:

- Resíduos de desodorante:
  - Óleos emolientes
  - Ativo desodorante
  - Espessantes
- Suor:
  - Sais minerais
  - Sebo cutâneo
  - Proteínas
- Poluição

# Estudo de caso: tira manchas difíceis da região das axilas de camisas e camisetas



Mancha difícil:

- Resíduos de desodorante:
  - Óleos emolientes – **Polyenz LP100, MMB**
  - Ativo desodorante – **Polydisperse GLDA Na4**
  - Espessantes – **Polyenz PR S210**
- Suor:
  - Sais minerais
  - Sebo cutâneo – **Polyenz LP100, Poly RM55**
  - Proteínas – **Polyenz PR P400**
- Poluição – **Polyenz 200**



# Tira manchas de calçados

Sujidades	Mecanismos	Insumos IMCD Eficiência	Pilares da sustentabilidade
Gordura	Saponificação Emulsificação	Liquid Nabion Poly RM55 / Bisomer FCC LF6200	Formato espuma: Benecel K200M
Graxa	Emulsificação Solvência	Poly RM55 / Bisomer FCC LF6200 MMB	Formato gel oxidante: Kelzan AP-AS
Pixe	Emulsificação Solvência	Poly RM55 / Bisomer FCC LF6200 MMB	Formatos que economizam água e trabalho manual
Grama	Reação enzimática	Polyenz PR P400	Ingredientes biodegradáveis
Tintas coloridas	Oxidação	Poly Oxy 25	Ingredientes não atacam a borracha nem o tecido
Terra	Complexação	Polydisperse GLDA Na4	Ingredientes compatíveis, mutifuncionais e sinérgicos



# Lava roupas esportivas

Sujidades	Mecanismos	Insumos IMCD Eficiência	Pilares da sustentabilidade
Gordura	Saponificação Emulsificação	Liquid Nabion Poly RM55 / Bisomer FCC LF6200	Formato espuma: Benecel K200M
Suor	Emulsificação Reação enzimática	Poly RM55 / Bisomer FCC LF6200 Polyenz PR P400	Formato viscoso, gel e <i>roll on</i> : Kelzan AP-AS
Cosméticos	Emulsificação Solvência Reação enzimática Complexação	Poly RM55 / Bisomer FCC LF6200 MMB Polyenz PR S210 Polydisperse GLDA Na4	Formatos que economizam água e trabalho manual
Desodorante	Emulsificação Solvência Reação enzimática Complexação	Poly RM55 / Bisomer FCC LF6200 MMB Polyenz PR P400 Polydisperse GLDA N4	Ingredientes biodegradáveis
Sangue	Reação enzimática	Polyenz PR P400	Ingredientes não atacam o tecido
Terra	Complexação	Polydisperse GLDA Na4	Ingredientes compatíveis, mutifuncionais e sinérgicos
Odor corporal	Reações químicas	Polyfix ZRC 25 GP	Ingredientes que agem em molho



# Limpador e protetor de placas solares

Sujidades	Mecanismos	Insumos IMCD Eficiência	Pilares da sustentabilidade
Material particulado orgânico	Emulsificação Solvência	Poly RM55 / Bisomer FCC LF6200 MMB	Formato líquido com espalhante para facilidade de aplicação e formador de filme para reduzir periodicidade de aplicação
Material particulado inorgânico	Redução da tensão superficial	Poly RM55 / Bisomer FCC LF6200 GlyAcid 70 HP	Durabilidade do efeito: Sorez HS 205
Biofilme estágio inicial	Desinfecção Reação enzimática	Desinfecção Linha Polyenz	Proteção do material: Sorez HS 205 Carboquat H
Biofilme estágio avançado	Desinfecção Reação enzimática Abrasão branda	Desinfecção Linha Polyenz	Espalhantes: MMB Surfadone LP100



# Ingredientes IMCD sustentáveis, funcionais e estruturais

## Tira manchas difíceis de tênis e sapatos

- Ataque a manchas em partes brancas de tênis e sapatos, retirando resíduos de terra, graxa e grama com as enzimas Polyenz PR P400, Polyenz 200, Polydisperse GLDA e MMB.

## Tira manchas com oxigênio ativo

- Na forma de espuma e na forma de gel
- Estabilidade com Polydisperse H1
- Sinergia na limpeza com MMB estável em peróxido
- Novo formato em espuma pelo uso de Benecel K200M
- Novo formato em gel pelo uso Kelzan AP AS

## Tira manchas *roll-on*

- Facilidade de uso com formador de filme Sorez HS 205
- Maior eficiência, maior rendimento e menor custo com as enzimas Polyenz PR P400, S210, M200 e Polyenz 200, Kelzan AP MMB e Polydisperse GLDA

## Tira manchas difíceis de roupas

- Ataque a manchas na região das axilas, retirando resíduos de desodorante e suor com as enzimas Polyenz PR P400, Polyenz LP100, Polyenz M200 Polyenz 200, Polyenz PR S210, Polydisperse GLDA e MMB
- Reavivamento do tecido na área manchada com Polyenz 200

# Ingredientes IMCD sustentáveis, funcionais e estruturais

## Inibidor de odores em *spray card*

- Inibe os causadores de odor com os produtos Polybac
- Inibe os odores com Polyfix ZRC GP 25, MEA, Polybac

## Lava louças antibac

- Formulação com o ativo verde Purac Sanilac 80, livre de triclosan, doadores de formol e fenólicos

## Saponáceo cremoso

- Formulação de maior estabilidade com Cellulon R93 e Poly Susp Exp
- Possibilidade de novos abrasivos graças ao poder suspensor de Cellulon R93 e Poly Susp Exp
- Possibilidade de produto de baixa viscosidade com Cellulon R93

## Espuma desinfetante

- Formulação à base de Purac Sanilac 80 ativo compatível com tensoativos aniônicos espumantes
- Espuma muito estável, consistente e de excelente textura graças à Benecel K200M

# Ingredientes IMCD sustentáveis, funcionais e estruturais

## Lava roupas esportivas

- Inibe os causadores de odor com Polybac
- Inibe os odores com Polyfix ZRC GP 25
- Ataque a manchas na região das axilas, retirando resíduos de desodorante e suor com Polyenz PR P400, Polyenz LP100, Polyenz M200 Polyenz 200, Polyenz PR S210, Polydisperse GLDA e MMB

## Higienizador de hortifrutis sem cloro

- Formulação com o ativo verde Purac Sanilac 80, livre de triclosan, doadores de formol, fenólicos, clorados, solventes, contendo tensoativo verde

## Limpador de placas solares

- Limpador não corrosivo, que combate biofilmes, limpa poluentes atmosféricos, não espumante, de fácil enxágue, com tensoativos naturais da linha Poly.

## Protetor de placas solares

- Formulação à base de Purac Sanilac 80 com super espalhante da Ashland.
- Produto de baixa espuma, de fácil aplicação e fácil enxágue.
- Produto formador de filme protetor anti sujeira.
- Possibilidade de tornar o produto auto limpante com advento de chuvas

# Limpeza e proteção de placas solares

Soiling	Technical requirements Cleaning mechanisms	Sustainable drivers	IMCD products
Particulate organic matter	Emulsification Solveny	Liquid format with higher spreadability and ease of application and film former to reduce application frequency <b>Decent Work and Economic Growth - SDG 8</b> <b>Climate Action - SDG 13</b> <b>Life below water - SDG 14</b>	Poly RM55 and Bisomer FCC LF6200 - low foam biodegradable cleaners MMB - zero foam biodegradable cleaner and Safer Choice
Particulate inorganic matter	Surface tension reduction Higher spreadability	Durability of effect and ease of application <b>Decent Work and Economic Growth - SDG 8</b> <b>Climate Action - SDG 13</b> <b>Life below water - SDG 14</b>	Poly RM55 and Bisomer FCC LF6200 - low foam biodegradable cleaners GlyAcid 70 HP - gentle, no corrosive, biodegradable cleaner
Biofilm in early stage	Desinfection Gentle abrasion Higher spreadability	Material protection <b>Sustainable Cities and Communities - SDG 11</b> <b>Climate Action - SDG 13</b> <b>Life below water - SDG 14</b>	Carboquat H - anticorrosive biodegradable biocide Sorez HS 205 - performance lasting Surfadone LP100 - low foam cleaner
Biofilm in advanced stage	Desinfection Enzymatic reaction Gentle abrasion Higher spreadability	Higher productivity Material saving Water saving <b>Sustainable Cities and Communities - SDG 11</b> <b>Climate Action - SDG 13</b> <b>Life below water - SDG 14</b>	Carboquat H - anticorrosive biocide Polyenz - low temperature cleaning, biobased cleaning MMB - zero foam cleaning and Safer Choice Sorez HS 205 - performance lasting



# Projeto em colaboração com cliente



# Modelagem para maximização de efeito dentro de um custo definido



## Protimiza Experimental Design



Ricardo Pedro (Sair)  
Fechar o Experimento

1. Variáveis e Respostas

2. Metodologia

3. Experimentos

4. Resultados

### Regressão

Nome	Coefficiente	Erro Padrão	t calculado	p-valor
<input type="checkbox"/> Média	20304,78	1265,64	16,04	0,0000
<input checked="" type="checkbox"/> $x_1$	2837,17	783,61	3,62	0,0031
<input checked="" type="checkbox"/> $x_1^2$	3716,63	1296,90	2,87	0,0132
<input checked="" type="checkbox"/> $x_2$	15488,33	783,61	19,77	0,0000
<input checked="" type="checkbox"/> $x_2^2$	-7270,87	1296,90	-5,61	0,0001
<input checked="" type="checkbox"/> $x_1 \cdot x_2$	3369,25	959,72	3,51	0,0038

$$Y_1 = 20304,78 + 2837,17 x_1 + 3716,63 x_1^2 + 15488,33 x_2 - 7270,87 x_2^2 + 3369,25 x_1 x_2$$

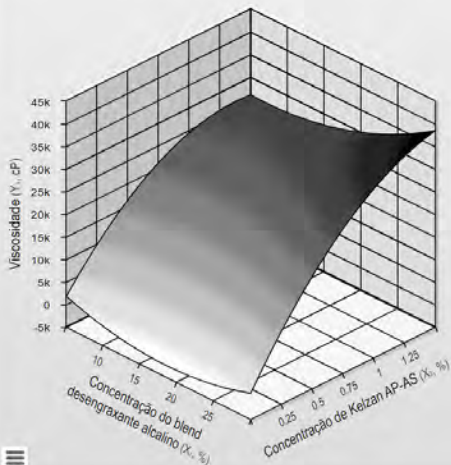
Desative os coeficientes que não são estatisticamente significativos para reparametrizar o modelo ao nível de significância desejado (Desative na ordem decrescente do p-valor)

### ANOVA

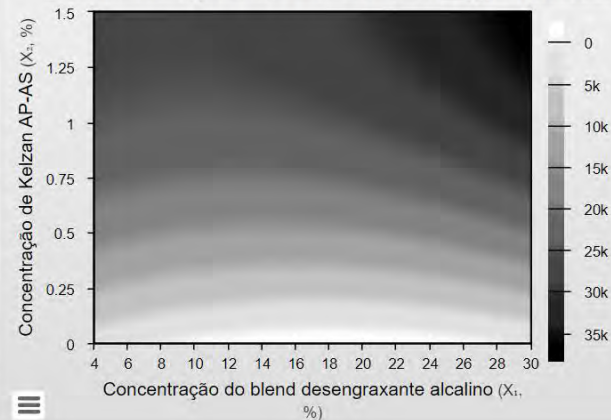
Fonte de Variação	Soma dos Quadrados	Graus de Liberdade	Quadrado Médio	F <sub>calc</sub>	p-valor
Regressão	3338105114,4	5	667621022,9	90,6	0,00000
Resíduos	95790323,6	13	7368486,4		
Falta de Ajuste	79623622,9	3	26541207,6	16,4	0,00034
Erro Puro	16166700,7	10	1616670,1		
Total	3433895438,0	18			

$R^2 = 97,21\%$

Concentração do blend desengraxante alcalino ( $X_1$ ) × Concentração de Kelzan AP-AS ( $X_2$ )



Concentração do blend desengraxante alcalino ( $X_1$ ) × Concentração de Kelzan AP-AS ( $X_2$ )







# Considerações finais

## A IMCD

Possui um amplo conhecimento sobre como resolver os maiores desafios do mercado de Home Care e I&I

Conta com um time 100% dedicado e com formação técnica para atendimento aos clientes

Dispõe das melhores tecnologias para melhorar funcionalidade, desempenho, estética, estrutura e estabilidade de formulação de produtos domésticos e I&I

Disponibiliza aos seus clientes um laboratório 100% dedicado a Home Care e I&I

Conta com uma rede IMCD *world class* disponível para apoiar as iniciativas locais

**Parabeniza a todos vocês que aqui vieram buscar conhecimento**

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