



IMERCARE®

Natural. Mineral. Beautiful.

Natural mineral solutions for Oral care

- Abrasive agents for toothpaste

- White opacifier

- Cosmos approved



IMERYS



COSMOS
APPROVED



The cosmetic market is constantly facing new challenges to fulfil customers' needs and habits. The Oral care market is not an exception to the rule, especially for toothpaste. Customers are looking for more **natural, efficient** and **safe formulations**.

ImerCare® offers innovative natural mineral grades specifically developed for toothpaste. The Oral care range has been **engineered to maximize the efficacy** while **respecting the enamel** of the teeth.

The ImerCare® grades for Oral care applications were tested by the **Oral Health Research Institute** at Indiana University, USA. The Relative Dentin Abrasion¹ and the Pellicle Cleaning Ratio² were measured by representative in vitro tests. The full method of the tests is available upon request.

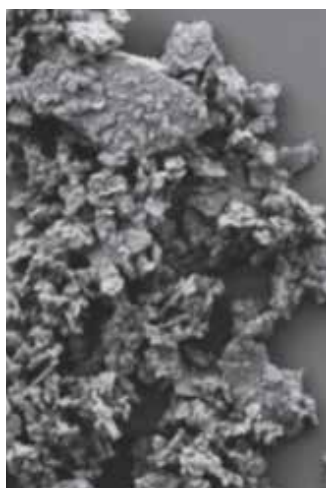
ImerCare® KaoBright, the natural alternative to abrasive silica and white opacifier

■ The design of a unique kaolin grade, compliant with the highest standards

ImerCare® KaoBright is a 100% natural kaolin specifically designed as an alternative to abrasive silica in standard toothpaste. Thanks to the unique shape of the particles resulting from a specific process, this grade has a high polishing action for whitening effect and smoothing surface of the enamel. Using ImerCare® KaoBright has a clear benefit to long term enamel retention and overall oral care health.

ImerCare® KaoBright is COSMOS approved and microbiologically controlled by heat treatment.

Due to its inertness, ImerCare® KaoBright is compatible with other toothpaste ingredients and particularly therapeutic agents such as fluor.



Particle size
Fine particles

Can get into dental
interstices easily and
increase cleaning efficiency

Shape
Ideal platy structure

Respecting the sensitivity
of the enamel

Mohs Hardness³
4.5 (medium)

Adequate polishing, remove
surface contaminants
and irregularities

ImerCare® KaoBright is tailor-made for a long term whitening effect & overall oral care health

¹ Relative Dentin Abrasion (RDA): to avoid premature deterioration of dentin due to highly abrasive toothpastes, the Relative Dentin Abrasion is measured. For customer health and safety, the American Dental Association recommends a RDA value below 250. The Hefferren Abrasivity method in compliance with ISO 11609, recommended by the American Dental Association, was used in this study.

² Pellicle Cleaning Ratio (PCR): a key function of toothpaste is to remove stains. Certain stains are so tenacious that they require toothpaste containing high performance abrasives with a Pellicle Cleaning Ratio value

of at least 50 to remove them. Method: the surface of teeth specimens was stained using a staining solution (tea, coffee, mucin, FeCl₃ and Micrococcus Luteus). The specimens were then brushed using a standard method. Stain removal performance was determined by measuring tooth colour before and after brushing with a spectrophotometer.

³The Mohs hardness scale is a qualitative ordinal scale characterizing scratch resistance of various minerals through the ability of harder material to scratch softer material.

■ The optimised combination of gentleness & good polishing properties

The RDA¹ and PCR² of two different toothpaste formulations were measured to demonstrate the proven efficiency of ImerCare® KaoBright compared to standard silica.

INCI name	Function	Ref 1 (%)	Ref 2 (%)	Form A (%)	Form B (%)
Water	Solvent	<i>q.s</i>	<i>q.s</i>	<i>q.s</i>	<i>q.s</i>
Carboxymethyl Cellulose	Thickener	1.5	1.5	1.5	1.5
Glycerin	Humectant	45	45	45	45
Standard Silica	Abrasive agent	15	15	10	-
TiO ₂	Colorant	-	0.5	-	-
ImerCare® KaoBright	Abrasive agent & white opacifier	-	-	5	15
Sodium Benzoate	Preservative	0.2	0.2	0.2	0.2
Sodium Monofluorophosphate	Therapeutic agent	1	1	1	1
Sodium Cocoyl Glutamate	Surfactant	1.5	1.5	1.5	1.5

Results

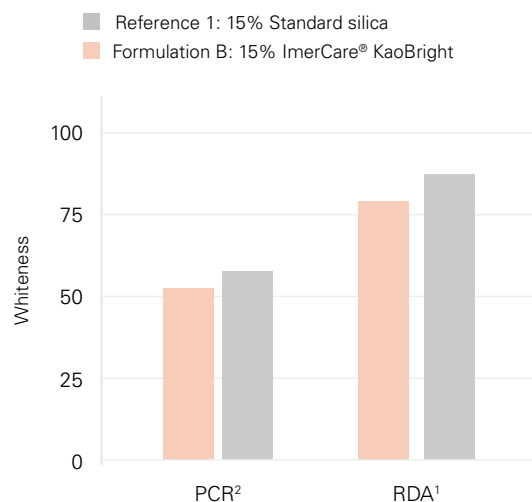
• Minimized RDA¹

At same percentage into the formulation, the RDA¹ is lowered compared to standard silica, resulting in less damages on enamel.

• Maximized PCR²

At 15% cleaning efficiency is higher, resulting in better cleaning of the teeth.

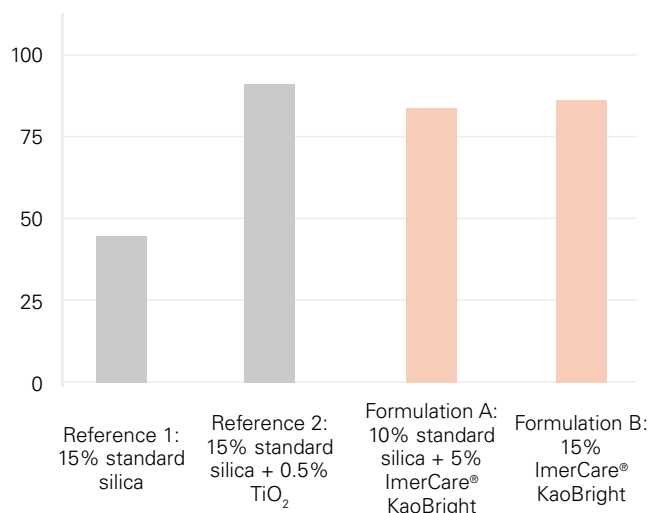
RDA¹ and PCR² of ImerCare® KaoBright compared to silica in a standard toothpaste formulation



■ The sustainable white opacifier

In toothpaste, titanium dioxide is widely used as a whitening pigment and opacifier agent.

To protect end users' health, Imerys has engineered ImerCare® KaoBright. This mineral has excellent white opacifier properties, making it a suitable alternative to titanium dioxide, which became controversial.

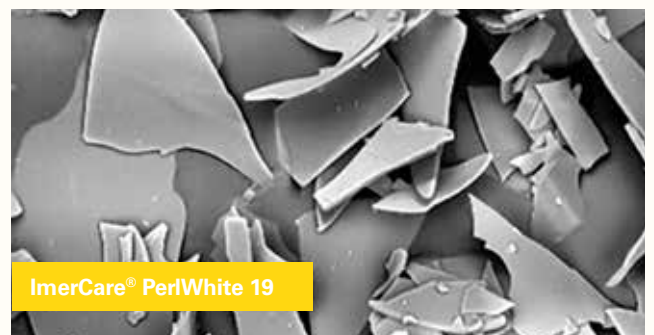
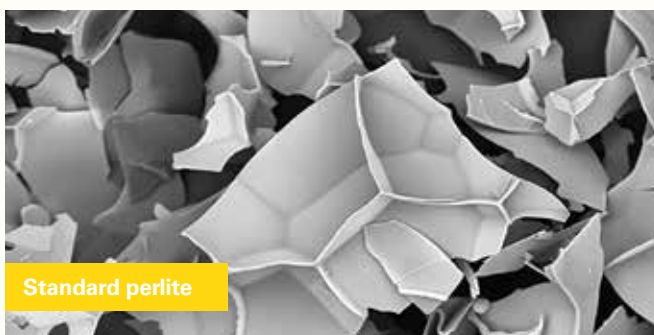


ImerCare® PerlWhite 19, the natural cleaning booster for whitening toothpastes

■ The unique perlite grade from an Imerys' proprietary grinding process

ImerCare® PerlWhite 19 is a 100% perlite-based product that has been specifically engineered to boost the PCR² without impacting too much the RDA¹ of abrasive toothpaste formulations.

ImerCare® PerlWhite 19's efficiency is due to its optimised particle size distribution and unique particle shape. Imerys' innovative, proprietary grinding process enables large particles to be removed and actually modifies particle morphology, transforming 3-dimensional particles into 2-dimensional, platy particles.



Comparison of standard perlite (large, three dimensional particles with sharp ridges) and ImerCare® PerlWhite 19 (small, two dimensional, platy particles)

- ImerCare® PerlWhite 19 is COSMOS approved and microbiologically controlled by heat treatment.
- Due to its inertness, ImerCare® PerlWhite 19 is compatible with other toothpaste ingredients and particularly therapeutic agents such as fluor.



■ The tailor made solution to adjust the cleaning efficiency of your formulation.

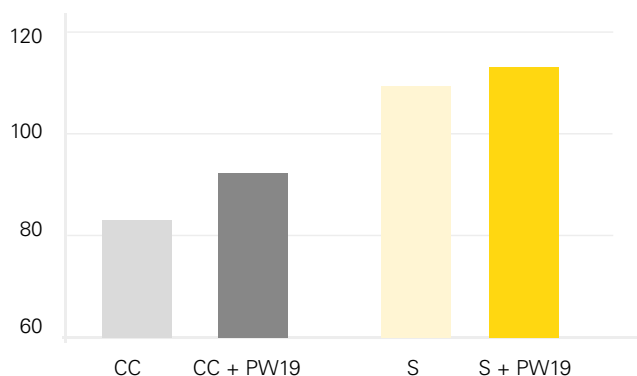
How to boost the cleaning efficacy with less damages on enamel?

The PCR and RDA of four different toothpaste formulations were measured by representative *in vitro* tests, to demonstrate the boosting effect of ImerCare® PerlWhite 19 on cleaning efficiency.

Formulation	Abrasive agents
CC	<ul style="list-style-type: none">• 14.5% calcium carbonate (CC) as abrasive agent
CC + PW19	<ul style="list-style-type: none">• 12.5% calcium carbonate as abrasive agent• 2% ImerCare® PerlWhite 19 as cleaning booster
S	<ul style="list-style-type: none">• 20% silica (S) as abrasive agent
S + PW19	<ul style="list-style-type: none">• 18% silica as abrasive• 2% ImerCare® PerlWhite 19 as cleaning booster

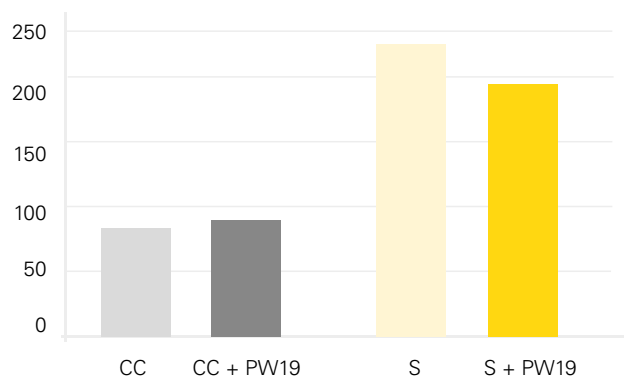
Results

2% ImerCare® PerlWhite 19 boosts the toothpaste formulation's PCR



Results show an increasing of the PCR of :
+15% between the CC and CC + PW19
+3.6% between the S and S + PW19

Adding 2% ImerCare® PerlWhite 19 has no significant impact on RDA



Results show a non-significant impact on RDA value by adding 2% ImerCare® PerlWhite 19 in the formulation, allowing the formulators to maintain their initial targets.

Conclusion

Only 2% ImerCare® PerlWhite 19 is necessary to boost cleaning performance of the abrasive agent (up to +15%), helping to whiten the teeth without resulting in premature erosion of the enamel and dentin.



About Imerys

The world leader in mineral-based specialty solutions for industry, Imerys delivers high value-added, functional solutions to a diversified set of industrial sectors, from processing industries to consumer goods. The Group draws on its knowledge of applications, technological expertise and its material science know-how to deliver solutions based on beneficiation of its mineral resources, synthetic minerals and formulations. These contribute essential properties to customers' products and performance. Imerys is determined to develop responsibly, in particular by fostering the emergence of environmentally-friendly products and processes.

Our Expertise

With over two hundred years' experience in the minerals business, Imerys refines and engineers its minerals through various—often proprietary—processes that influence their concentration, size, shape, structure and surface chemistry to obtain the properties our customers require and to the highest standards of quality, consistency and reliability.

Our Personal Care team has in-depth knowledge of how minerals interact in cosmetic applications and a proven track record for developing new, value-added solutions for customers.

Our applications laboratories are equipped with a full range of analytical and cosmetics-specific equipment, enabling us to provide customers with bespoke formulation services and technical support.



About ImerCare®

ImerCare® minerals benefit from all the experience and expertise of Imerys group.

The ImerCare® product range is derived from 100% natural kaolin, perlite, diatomaceous earth and talc grades which have been engineered to provide exactly the right properties in terms of exfoliation, matting, transparency, coverage, rheology absorption, and skin feel.

ImerCare® minerals are ideal for use in skin care, make-up, toiletries, hair care and oral care.

All ImerCare® grades are natural, chemically inert and can be used in bio cosmetics. They are processed so as to provide specific functional benefits in cosmetic formulations.

Integrating Sustainable Development into all we do



At Imerys, we respect the world in which we operate. We are committed to our role in society, to meeting our obligations to the countries and communities in which we do business, as well as to acting as responsible environmental stewards.

Our Corporate Social Responsibility policy is built upon three mainstays:

Empowering our people

- **Ensuring that health and safety come first** by developing and continually improving our health and safety culture and systems so as to achieve an injury-free workplace.
- **Developing our human capital** by respecting internationally recognized human rights and labor practices as set out in our Code of Business Conduct and Ethics; investing in the talent and skills of our employees; engaging in constructive social dialogue, and fostering a culture of workplace diversity and inclusion based on mutual respect.

Caring for our planet

- **Acting as responsible environmental stewards** by assessing environmental risks and continually improving control measures to reduce adverse environmental impacts; maximizing the efficient use of natural resources, and preserving biodiversity.

- **Reducing the impact of climate change** through the implementation of a long-term climate change strategy in line with the COP21 2°C trajectory as well as developing innovative solutions at the service of a low-carbon economy.

Building for the future

- **Ensuring exemplary Business Conduct** by maintaining the highest standard of corporate governance; respecting and implementing fair operating practices and ensuring a responsible supply-chain with all our partners; and engaging with local communities to create shared value in particular through education and skills development.
- **Ensuring that our products are safe** for people and the environment and developing sustainable solutions that make positive contributions to society from both life cycle assessment as well as long term sustainability perspectives.



More information about our sustainable development policies and practices can be found on:

www.imerys.com

Applications & benefits of ImerCare® oral care range

ImerCare® Oral care range - Applications

		ImerCare® KaoBright	ImerCare® PeriWhite 19
 Oral care	Toothpaste	Abrasive agent (cleaning agent)	Cleaning booster
		White opacifier	

ImerCare® Oral care range - Properties

Median particle size – d50(laser) Sedigraph®	6 µm	19 µm
Mohs hardness	4.5	6
Whiteness Y	93	80

ImerCare® Oral care range - Microbiological control

Microbiologically controlled	✓ Heat treatment	✓ Heat treatment
Cosmos approved	 COSMOS APPROVED	 COSMOS APPROVED

Compliance

All Imerys cosmetic products are natural, pure and chemically inert. These attributes enable them to be used in cosmetic products that comply with European cosmetic directive (EC) n°1223/2009.



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