EMPOWERMENT

Covestro CMF Design Trends
2022 | 2023 Edition

Healthcare

covestro

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Content

At Covestro, we co-create Color Material Finish (CMF) with designers, blending aesthetics and functionality into material-based experiences that can surprise and delight consumers. Collaboration is at the heart of our business model – we value our partners and work closely with them to develop customized, finely-tuned solutions. We add value through aesthetic, functional and circular design.

A global service at your fingertips. Our team offers world-class color development, drawing on diverse backgrounds and experience across a wide range of industries to optimize the impact of CMF on consumers. With a network of 6 Color & Design Centers connected across the globe, we're ready to support your design process physically and digitally, no matter where you are located.

Inspiration for your CMF strategy or design concepts. We continuously analyze and monitor trends to extract implications on aesthetics of materials. Our trend brochure in its 2022 | 2023 edition shows how actual and longer lasting key themes for the industry can be translated into a convincing CMF strategy and a makeable design. We are constantly pushing the boundaries on what can be achieved with our high quality, tunable polycarbonate and hope to inspire designers by providing a glimpse of the possibilities.

We have a team of in-house designers and colorists who will help you better engage consumers through world class CMF design by leveraging the optical, tactile, haptic, mechanical, aesthetic and functional properties of polycarbonate. We're ready to help you make your designs a reality, from concept to mass-production.

Global Color & Design (CMF)
Email: CMF-Design@covestro.com

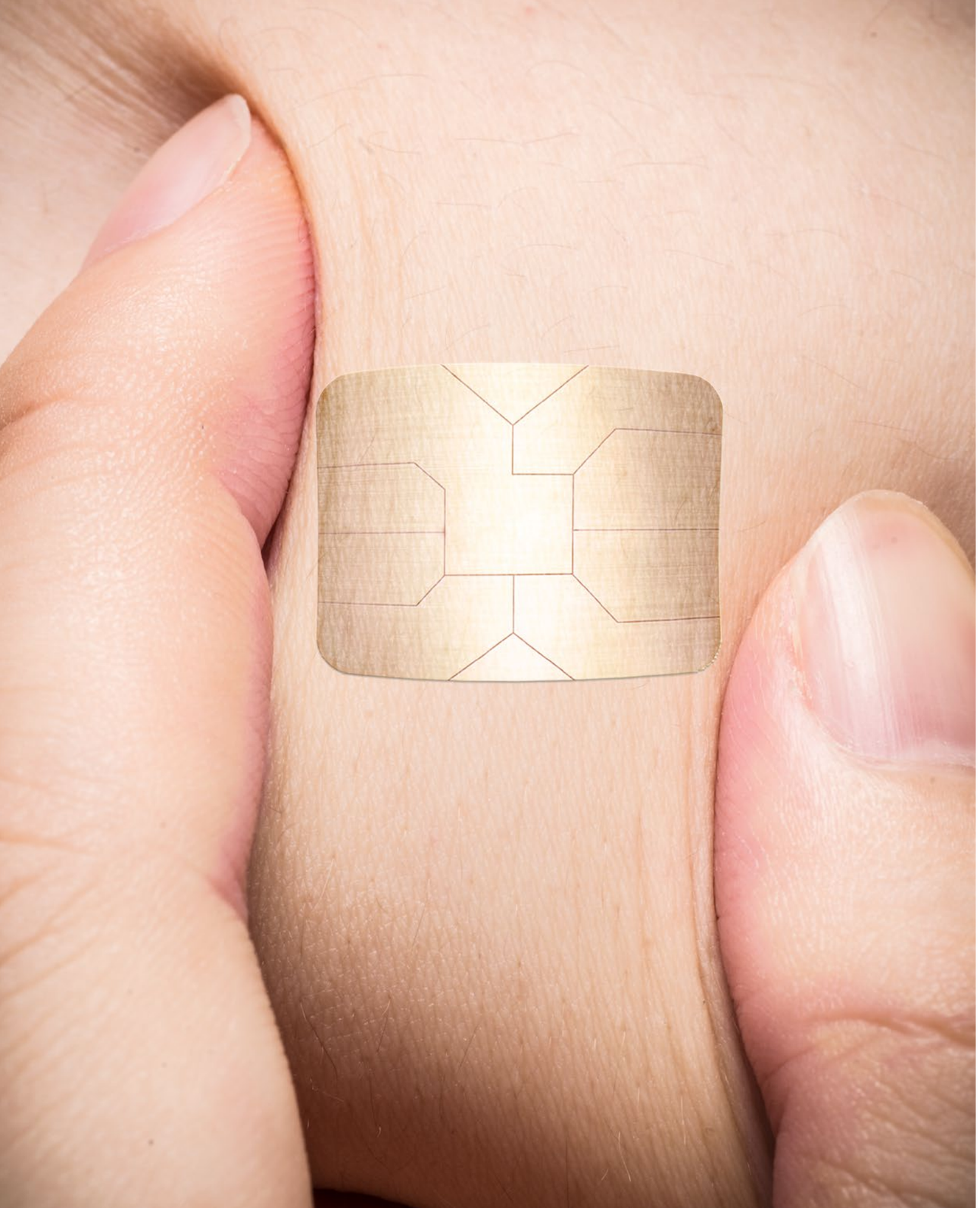
Today's world presents many challenges and we often find ourselves asking how can we ensure all people enjoy an equal, improved quality of life. While we know all living beings are continuously aging, on a broader spectrum, human existence carries with it the promise of continuous improvement.

As the human lifespan lengthens, the very definition and boundaries of life are also evolving and expanding. With the prevalence of long-term and chronic diseases on the rise, many now find themselves living with expanded definitions of what it means to be and feel well. As populations grow and change, medical technology and devices will be needed to support highly varied groups of people.

As recent events have shown, a globally-minded community is more important than ever. Through pandemics, environmental challenges and more, many things may be out of our daily control – however there is still an opportunity to work together collaboratively to preserve the health of our communities and environment.

Trend 1

Intelligent Interaction



With the development of artificial intelligence (AI), healthcare and wellness devices have created new possibilities for maintaining daily health. AI powered devices can provide daily at-home medical services, identifying symptoms and other medical information through patient interaction, providing medical professionals with more accurate data, making the diagnosis process easier and more efficient. These intelligent designs not only interpret and manage symptoms, but can also provide a level of emotional comfort for a more pleasant treatment experience.

These health and wellness innovations are often propelled by smart sensor technologies, where human to machine interaction becomes a two way dialogue. As machines learn to detect and interpret human behavior through signals such as facial expressions and body language, devices can now also provide a sense of emotional wellness and reassurance in response. In medical and healthcare devices, advanced sensory systems such as precise motion and tactile recognition can now supplement human connection, when access to a provider may be inaccessible.

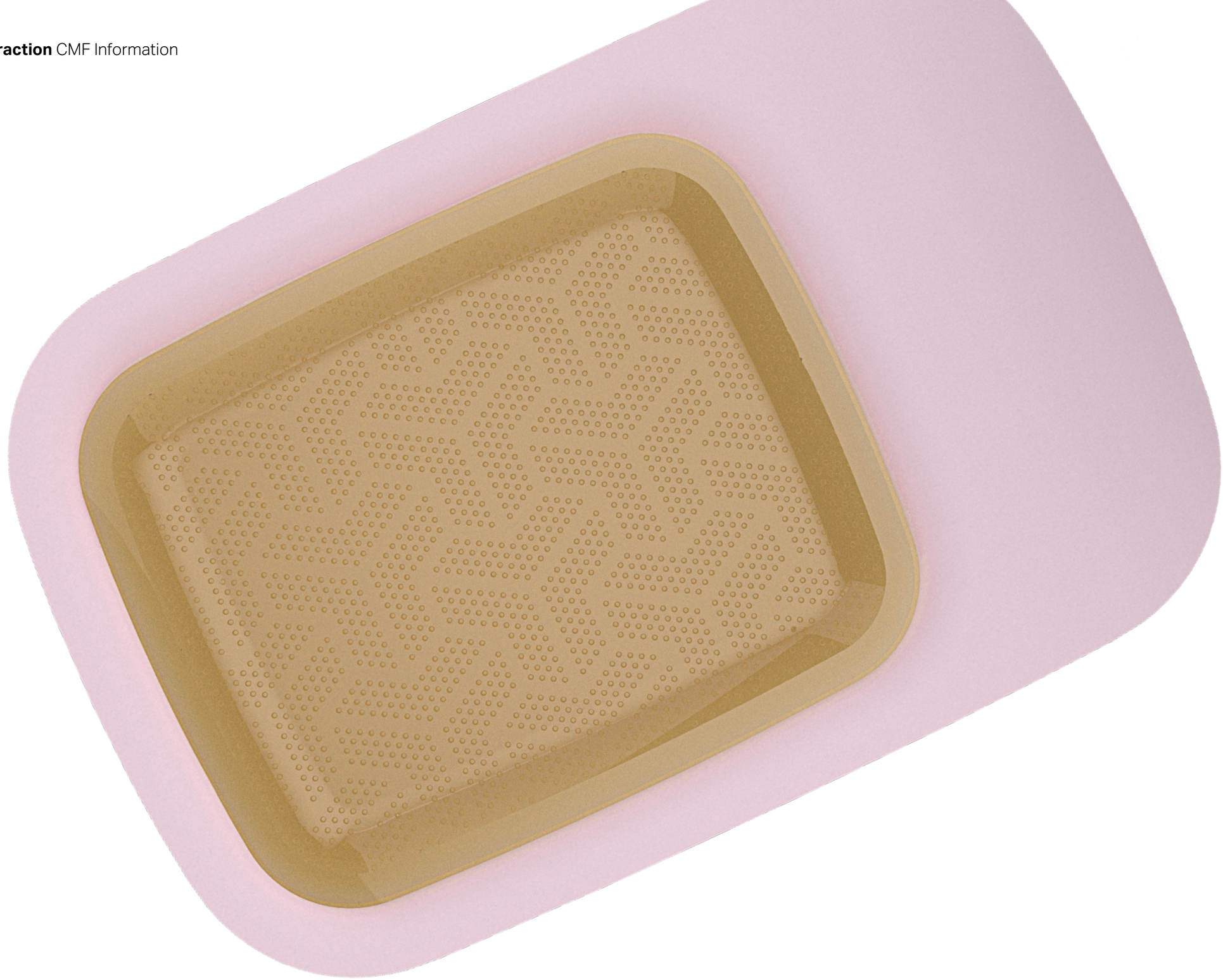
While the ethical implication of AI devices must be taken into consideration, scenarios like these show how intelligent solutions are suitable for a wide range of applications including formal diagnosis, treatment, and rehabilitation – beyond the boundaries of traditional medicine and healthcare.

Discreet Biomimicry

Advanced voice recognition technology, wearable devices and designs which can interpret neurological signals are enabling those who are neurodiverse to enjoy new experiences with the help of multi-sensory support and feedback. User experiences of medical devices have been vastly improved, providing feelings of warmth and comfort. Yet it is also essential to moderate the level of realism for biomimetic properties, to avoid the effects of the ‘Uncanny Valley’ – a term coined by Masahiro Mori, where designs are almost lifelike and cause feelings of unease.

CMF

Unsaturated yet bright hues provide a natural, warm feeling, an ideal foundation for friendly interaction between user and interface. Matt and translucent qualities exude a comforting aura and draw the user in, tempering the effect of strong technical textures for a more restrained aesthetic. Skin biocompatible (polycarbonate+polyester)- blend Makroblend® M525 is chemically resistant and safe for contact with uncompromised skin, tested according to ISO 10993-5 in-vitro cytotoxicity as well as ISO 10993-10 irritation and skin sensitization. Makrolon® 2458 is medical-grade polycarbonate that has ISO 10993-1 certification and is suitable for ethylene oxide or steam sterilization. It also has low viscosity and can be easily demolded.



Kitten's Footprint

22HC11 (Base)

Solid
Matt Front / Gloss Back
Material: Makroblend® M525

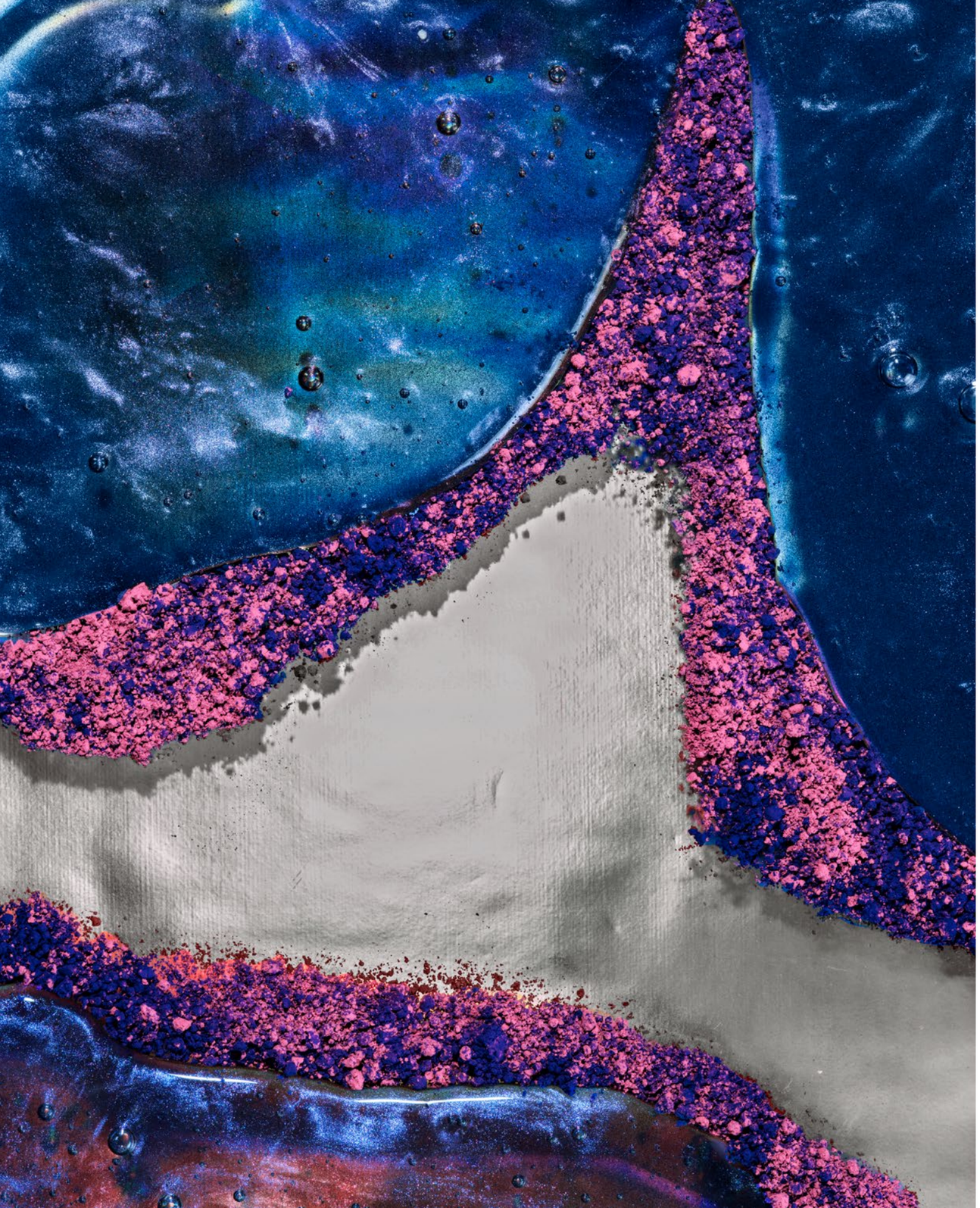
Milk Candy

22HC12 (Insert)

Translucid
Gloss Back
Material: Makrolon® 2458

Trend 2

Inclusive Well-being



As society continues to evolve and change due to recent events, the daily structure of work and homelife has shifted family structures and responsibilities as well. With more possibilities for people to freely pursue their own desires and needs, the prioritization of various interpersonal relationships has changed and will remain dynamic.

Around the globe, many communities are facing declining populations and birth rates. Some nations with low birth rates are encouraging childbirth through programs which support parenting. Improved educational standards and greater economic independence have empowered people with more choices and freedom when it comes to family planning. Infant and child products are being developed to address parental pain points, and childcare is no longer considered one person's sole responsibility. Partners are now encouraged to have an active role in childcare as well. In high-density urban areas, public facilities and spaces which are family-friendly have become more commonplace.

The number of single-person households, or those who live alone, is on the rise in developed areas. Millennials, or the post-90s generation, are making their health a priority, relying on dietary supplements and healthcare products to optimize their physical condition. Mental health and wellness are also high priorities – and pets have become a prime countermeasure against loneliness.

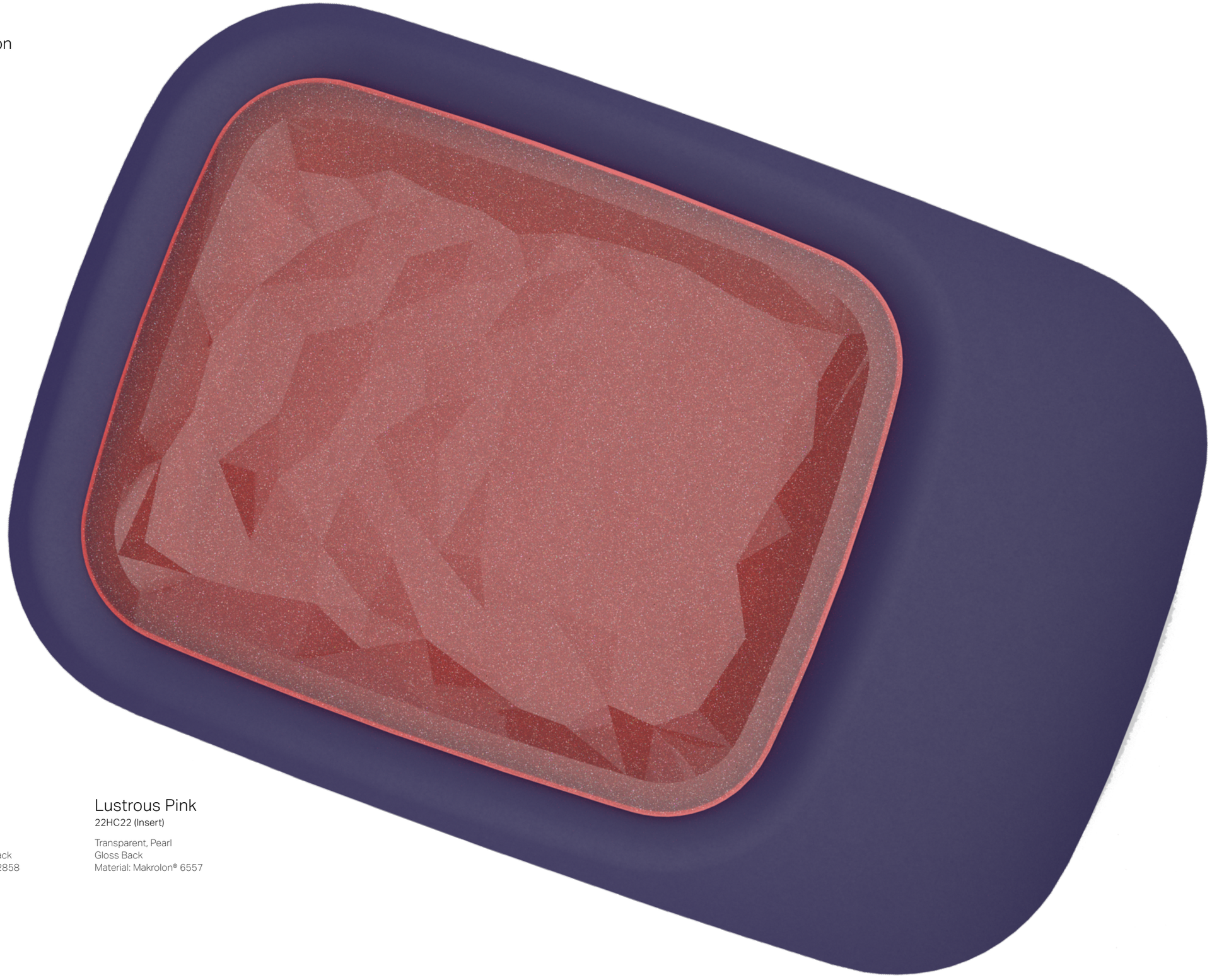
Not to be overlooked, the aging population is growing at a rapid rate and is host to their own unique challenges. The global surge of this demographic has left some wondering how, as a society, we may cope with the demands of modern living after the age of 60. Medical and healthcare technologies could help users live longer and stay young-at-heart, by aiding the elderly in performing activities with the same ease as younger individuals. With the support of physical and cognitive enhancements, ageing may no longer be associated with frailty or weakening. This could result in the rise of the 'Young Old', where older users continue to learn, create, and communicate as part of a more inclusive, mutually beneficial society.

Connected Communities

Multiple demographic shifts are generating opportunities for growth and progress: young consumers choosing to live alone, older individuals wanting to indulge in the present, and others placing greater value on self-improvement. Vivid designs reflect the modernity of urban life, while vibrant colors serve as a reminder to stay connected to one another. Authentic yet adaptable interpersonal interactions could pave the way for more positive societal development.

CMF

Strong blue provide a strong vital force. Warm, soft shades of pink provide a reassuring yet unobtrusive sense of security, while pearlescent finishes have a spirited appeal. Makrolon® 2858 is medical-grade polycarbonate that is biocompatible according to relevant ISO 10993-1 test requirements and is suitable for ethylene oxide or steam sterilization. It also has medium viscosity and good impact resistance. Makrolon® 6557 is a UV-stable polycarbonate that is flame-resistant, with a UL94 V-0 rating at a thickness of 3mm. It has medium viscosity and can be demolded easily.



Purple Blue
22HC21 (Base)

Solid
Matt Front / Gloss Back
Material: Makrolon® 2858

Lustrous Pink
22HC22 (Insert)

Transparent, Pearl
Gloss Back
Material: Makrolon® 6557

Trend 3

Empathy Amplified

Many individuals seek to maintain their physical health, but youthful health and energy is difficult to sustain as one grows older. Now with modern medicine, current concerns are not necessarily about longevity, but instead focus on the quality and dignity of life as people age. Technology and devices offer solutions to mitigate some of the physiological deterioration which usually occurs later in life.

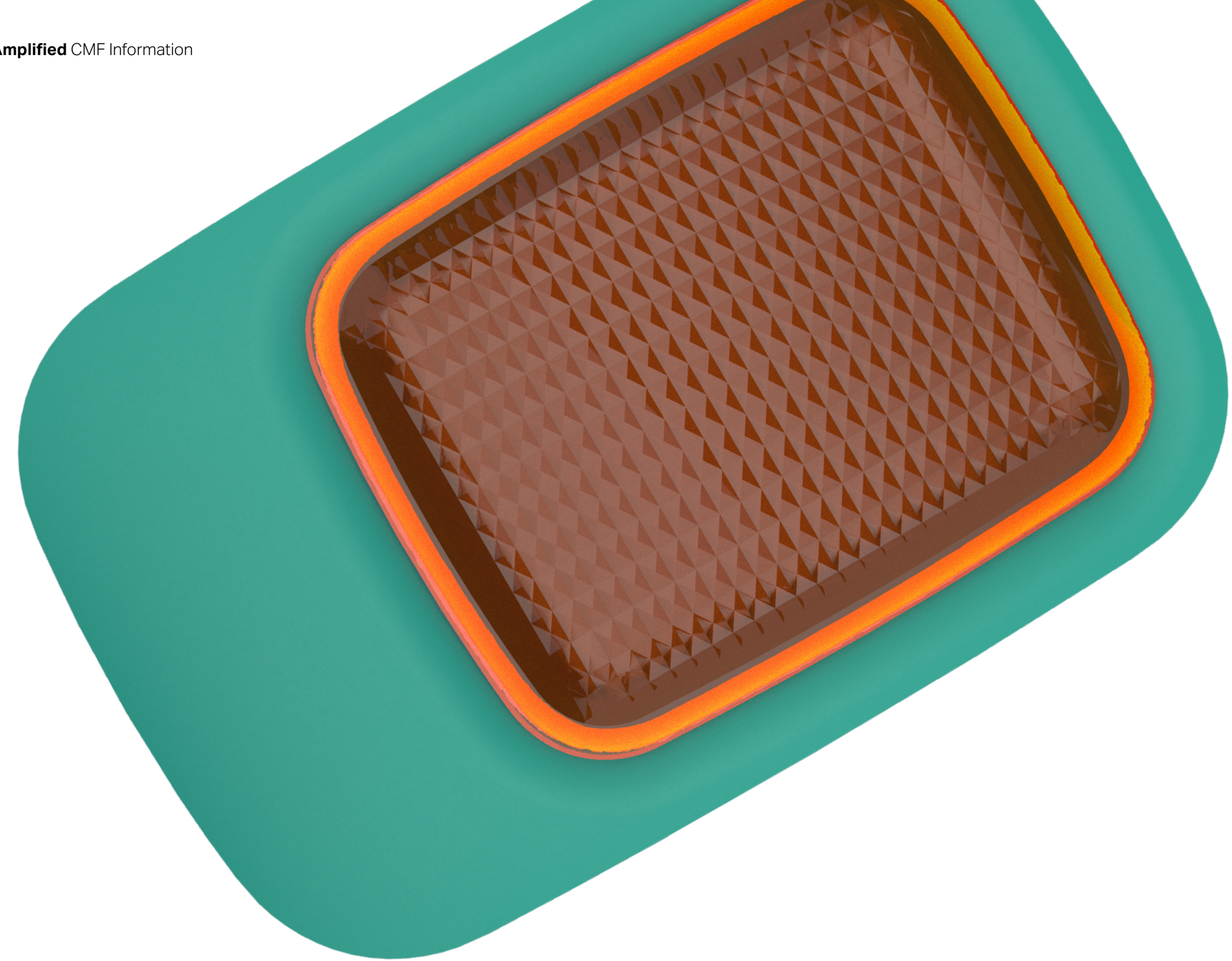
It is important to also reconsider the concept of daily care to ensure a variety of solutions are available so users with impairments or disabilities can equally benefit from the convenience of modern living. This not only has positive benefits for the individual, but a positive societal impact as well.

There is an increasingly empathetic perspective toward individuals with varying abilities and those who are neurodiverse. Voice recognition, sensing and exo-skeletal technologies are making advances to alleviate gradual or partial disabilities. These advances will move society closer to a future where ability level and aging will no longer be as burdensome.

Sensorial Clarity

Future designs will also be a means of visual communication, using materials and colors to strengthen visible cues for users with impairment, for improved recognition, safety, and usability.

CMF
Bright, vivid high-intensity colors in strong contrasting combinations can serve as warning signs or provide vulnerable users with greater confidence. High gloss and glowing edge effects can further emphasize the visibility of this effect. (PC+ABS)- blend Bayblend® M850 XF is easy flowing and biocompatible, meeting relevant requirements of ISO Standard 10993-1. Makrolon® 2805 is available for general purpose applications. It has medium viscosity and can also be demolded easily.



Apple Green
22HC31 (Base)

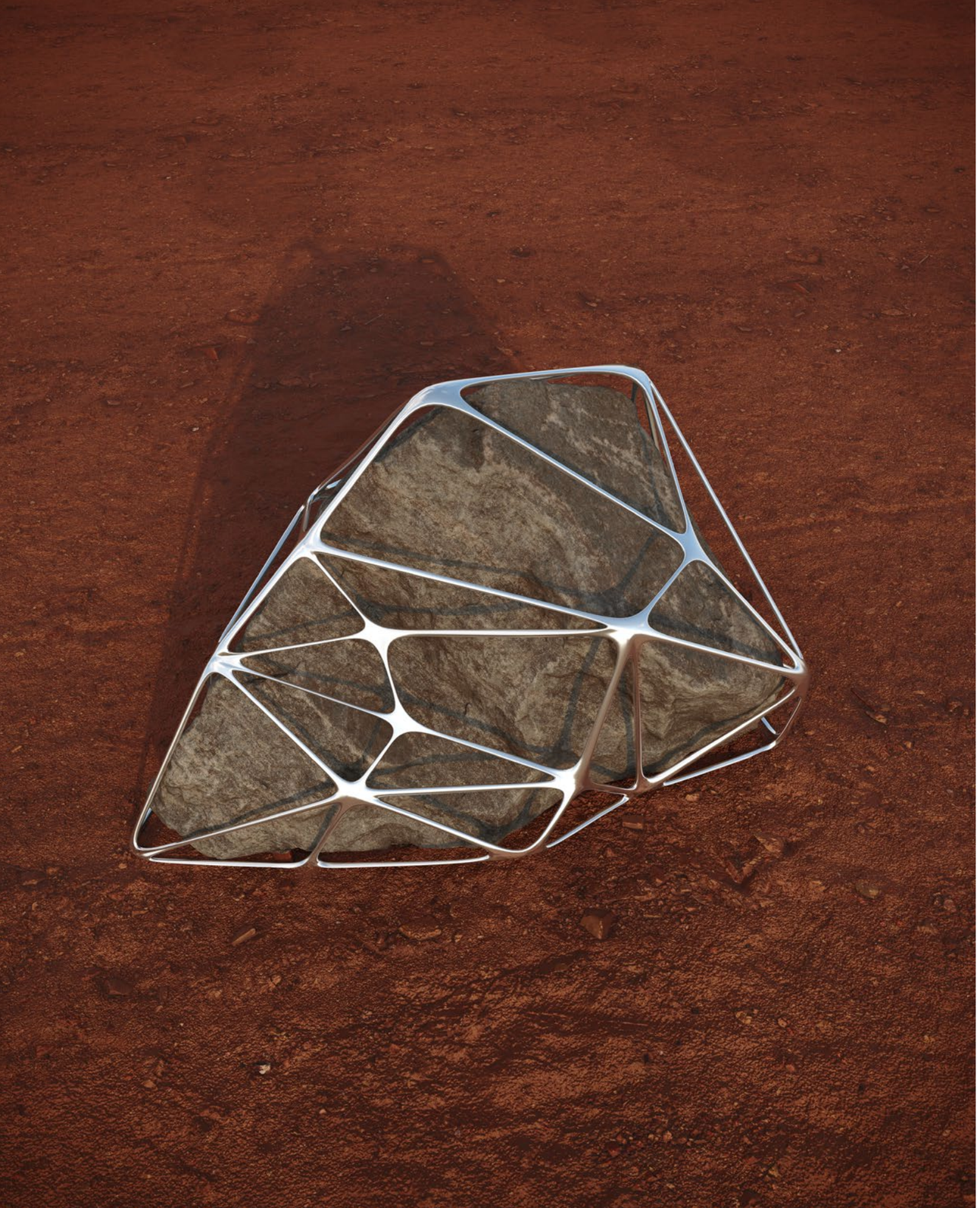
Solid
Matt Front / Gloss Back
Material: Bayblend® M850 XF

Orange Glow
22HC32 (Insert)

Transparent, Fluorescent
Gloss Back
Material: Makrolon® 2805

Trend 4

Resilient Optimism



Recent events such as unprecedented wildfires, hurricanes, winter storms and heatwaves have renewed our attention on environmental conditions. These events are awakening us to examine and modify our behaviors otherwise our actions may cause unintended consequences.

Research is underway for how society can best live with these new challenges and the conditions they pose. Strategies for health and wellness in extreme environments, as well as protective measures for individual safety or environmental adaptability are likely to become a key focus of future healthcare products. At present, drones are being developed to pinpoint disaster areas and support relief rescue aid. Miniature and portable versions of traditionally large-scale medical devices are being created so treatment and assistance can be administered in remote, underserved, or disaster-stricken areas[1].

From reusable materials and clean energy sources, to recycling systems which reduce pressure on the environment, people are looking for solutions to reduce and reverse environmental challenges.

Protective Tactility

New medical devices and health examination facilities can perform in hostile environments, alerting users to danger and actively saving lives. Compared to finer, smoother surface textures, a coarser finish can stimulate a user's haptic reflexes further, strengthening their sense of recognition and security.

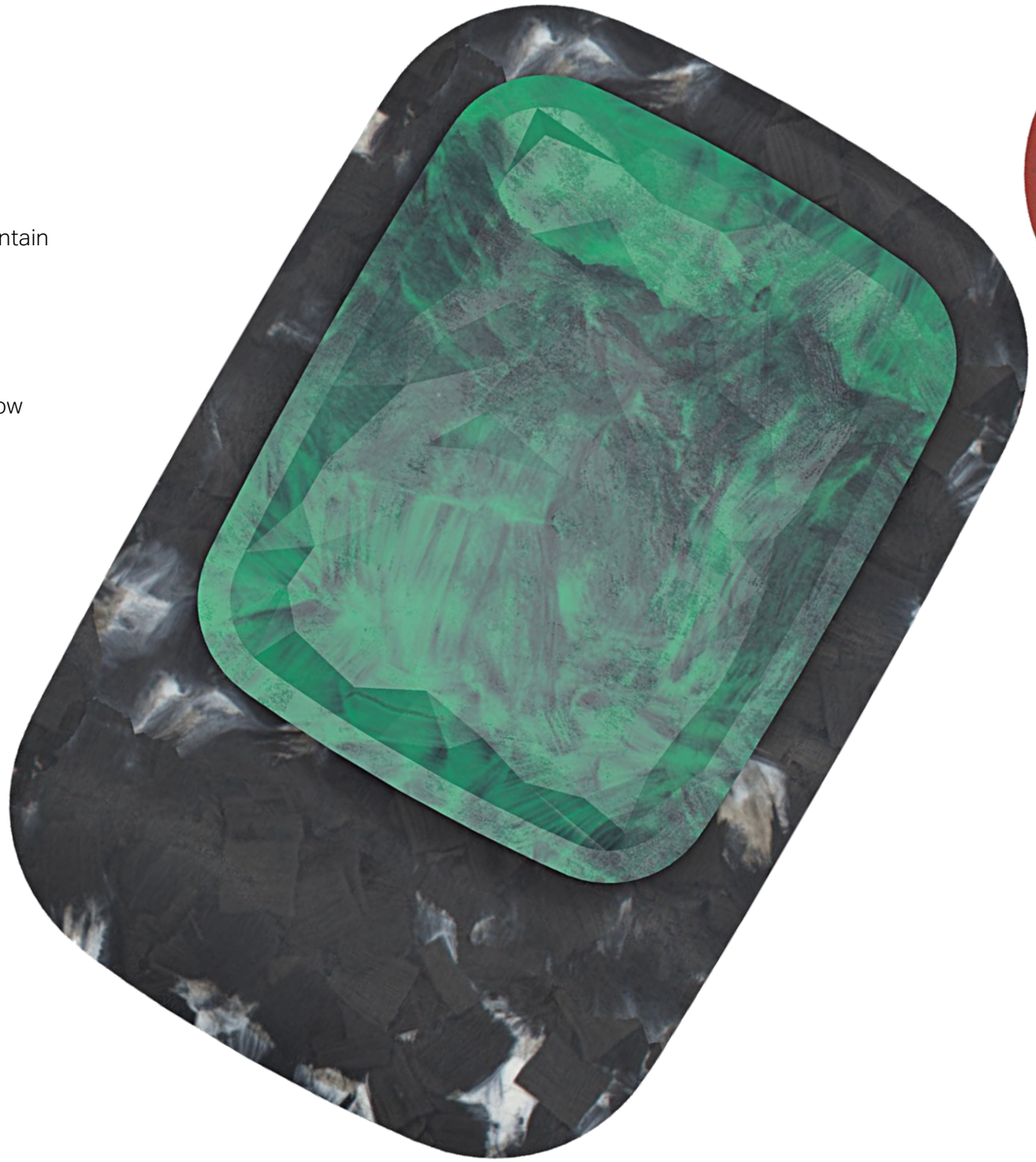
CMF
Carbon composite material is lightweight and offers exceptional rigidity.

Smart Sustainability

Advancements in technology are expediting the implementation of sustainable design principles in medical devices. In contexts which require the utmost safety, flexibility in assembly and disassembly of components helps to ensure parts are reused or recycled.

CMF
Muted hues provide a strong sense of reliability and security, while marbled patterns and sandy, matte textures reminiscent of earth and minerals celebrate the vitality of wild, natural landscapes. Makrolon® FR6011 is a halogen-free, flame-resistant polycarbonate with a UL94 V-0 rating at a thickness of 1.5mm. It is suitable for contact with household chemical and cleaning solvents, with medium viscosity as well as UV-stability and impact-resistance.
New product medical Makrolon® M6011 FR is having next generation of flame retardancy with a UL94 V-0 rating at a thickness of 1.5mm and good dimensional stability. It is resistant to both daily chemicals and disinfectants, with medium viscosity, UV-stability and impact resistance.
It is safe for contact with uncompromised skin, tested according to ISO 10993-5 in-vitro cytotoxicity as well as ISO 10993-10 irritation and skin sensitization. Makrolon® 2458 is a medical-grade polycarbonate that fulfills ISO 10993-1 requirements. It is suitable for ethylene oxide or steam sterilization, has low viscosity and can easily be demolded.

1. Reference link: https://www.cnet.com/news/butterfly-iq-pocket-size-ultrasound-machine-changes-game-for-telemedicine-at-ces-2019/



Snow Mountain
22HC41 (Base)

Solid
Color: 020083
Material: Maezio®

Pine Shadow
22HC42 (Insert)

Solid
Color: 601690
Material: Maezio®

Mars
22HC43 (Base)*

Solid, Marble
Matt Front / Matt back
Material: Makrolon® FR6011

Stone
22HC44 (Insert)

Solid
Matt Back
Material: Makrolon® 2458

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GERMAN DESIGN AWARD WINNER 2022

* Special color effect, can be challenging to implement in some of our material combinations.
# All colors have been created by Covestro's color experts. The correlated RAL color codes are a reference only and not fully accurate.

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 Edition: 2022-06 HCV1