



砼工石造

BENTU SURFACE

“回收塑料再生混凝土实验”
“Recycling of plastics recycled concrete experiment”

塑体 -

REGENERATED PLASTIC-

回收塑料 再生混凝土 实验

RECYCLING OF PLASTICS

RECYCLED CONCRETE

EXPERIMENT

材质再生是最重要的人文关怀!

Material regeneration is the most important humanistic care!

塑体，重塑身体。面对当下的境况，渴望改变，去塑造、编织新的美好肌理。

人类社会面临资源短缺和环境恶化的危害。地球承受的负担剧增，资源枯竭和环境严重破坏威胁着人类社会的可持续发展。

废物管理不善正在污染世界海洋，通过媒介繁殖疾病，废物燃烧中的空气传播颗粒物增加呼吸道疾病。堵塞排水沟造成洪水灾害。

根据世界银行的《废物 2.0》报告，全世界每年产生 20.1 亿吨城市固体废物，其中至少 33% 的废物没有以环境安全的方式进行管理。2018 年报告预测，快速的城市化，人口增长和经济发展将推动全球废物在未来 30 年内增加 70%，达到每年产生的惊人废物 34 亿吨。以塑料废物为例，这使我们的海洋窒息，占海洋垃圾的 90%。仅在 2016 年，全世界就产生了 2.42 亿吨塑料废物，相当于约 24 万亿个 500 毫米 10 克塑料瓶。这些瓶子的水量可能会填满 2400 个奥林匹克体育场，480 万个奥林匹克规格的游泳池或 400 亿个浴缸。这也是 340 万只成年蓝鲸或 1,376 座帝国大厦的总重量。这仅是每年产生的总废物的 12%。（数据来源世界银行）艾伦·麦克阿瑟基金会（2016）预计，如果不采取任何行动，到 2050 年，海洋中的塑料将比鱼类多。

在太阳发出的紫外线下，塑料正在降解为几乎无法回收的“微塑料”，并且正在破坏食物链与自然栖息地。

我国是世界塑料生产和使用大国，其中多种塑料产品，如聚氯乙烯（PVC）、氨基模塑料等产量已经位于全球首位，且进一步增长的潜力仍然十分巨大。这些塑料使用之后，一部分由于没有得到及时有效的收集处理而进入环境，并在环境中发生破碎、腐化，给地表水、土壤和海洋等带来严重的环境污染。

近年来，国际上对塑料垃圾和微塑料环境危害的关注日益增多。现已在全球 233 种海洋生物（包括 100% 海龟物种、36% 海豹物种、59% 鲸鱼物种、59% 海鸟物种，以及 92 种海鱼和 6 种无脊椎动物）消化道内发现有微塑料颗粒的存在。据联合国环境规划署（UNEP）报道，到 2050 年，预计 99% 的鸟类都会食用塑料。2015 年，在包括我国在内的多个国家食用盐（包括湖盐、岩盐、海盐）、海产品（如鱼、贝）、啤酒、蜂蜜等产品中均检出了不同材质、不同数量、不同形状的微塑料颗粒。（数据来源中国科学院刊）塑料废物严重影响着人类的健康和生计，环境和繁荣。塑料固体废物管理是一个普遍问题，对世界上每个人都很重要。

Regenerated Plastic: Reshape the body. Faced with the present situation, eager to change, to mold and weave new beautiful texture.

Human society is faced with the hazards of resource

shortage and environmental deterioration. The burden on the earth has increased dramatically, and resource depletion and serious environmental damage have threatened the sustainable development of human society.

Poor waste management is polluting the oceans all over the world, which breeding diseases through various media and increasing the risk of respiratory diseases through airborne particulate matter in waste combustion. The blockage of the drain have caused a flood disaster.

According to the What A Waste 2 released by World Bank, the world produces 2.01 billion tons of municipal solid waste every year, at least 33 percent of which are not managed properly in an environmentally friendly way. Rapid urbanization, population growth and economic development will boost global waste by 70 percent over the next 30 years to an astonishing 3.4 billion tons a year, the 2018 report predicts. In the case of plastic waste, it suffocates our oceans, accounting for 90% of all marine waste. In 2016 alone, the world produced 242 million tons of plastic waste, equivalent to about 24 trillion 500 mm 10g plastic bottles. The bottles could fill 2,400 Olympic stadiums, 4.8 million Olympic-sized swimming pools or 40 billion bathtubs. That equals the total weight of 3.4 million adult blue whales or 1,376 Empire State Buildings. This is only 12% of the total waste produced each year. The Allen MacArthur Foundation (2016) predicts that if nothing is done, there will be more plastic in the ocean than fish by 2050.

Under the sun's ultraviolet rays, plastics are degrading into "micro-plastics" which is unrenewable and is destroying food chains and natural habitats.

Our country is a large plastic manufacturer and consumer in the world, among which many kinds of plastic products, such as PVC, amino plastic and so on, have been in the first place in the world, and the potential for further growth is still very great. After the use of these plastics, some of them enter the environment because they have not been collected and treated in time and effectively, and they are broken and corrupted in the environment, which brings serious environmental pollution to surface water, soil and ocean.

设计有着不同的含义。它一直是变革的推动者。

Design has different meanings. It is always the change agent.

在可持续发展问题上人们经常误以为科学技术是万能的药方。确实科学技术是第一生产力，是推动人类文明进步的基石。科学技术就像人体里的荷尔蒙，无畏，激情蓬勃。然而，科学技术这种力量在缺乏人文意识觉醒的过程中，一些负面效应如生态危机、伦理危机、价值危机将会接踵而至。针对设计而言，人文意识的觉醒尤为重要。人文意识的觉醒能够使我们在每一个创造的背后，首先回到根性，保留人的尊严，关注人的生存与发展状况，以及与人相关的文化传统、审美意趣、生活方式、工艺特产、文化遗产。有所为，更重要的是有所不为。

在深入研发废弃塑料再生混凝土，并形成建筑材料与家居产品的进程中，我们深刻的体会到“设计不是一种职业，而是一种态度。”这句设计新精神的话语，将一直激励着我们一次又一次克服困难，战胜挑战。

在重新发掘塑料废物新价值的过程中，终究绕不过如何再利用并且可批量复制，同时又不会在生产过程中继续产生新的能耗。只有诚恳务实的动手去触摸、实验，失败，再尝试。对于塑料废物的再生利用，我们有着莫大的热情和信心。这是一次探讨商业价值和环境效益的行动。

重从材料获取到成品的过程中消耗最小的能源，同时更便于投入工业化量产当中，以对环境最小的伤害，获得最大化的经济效益和工业之美，让陌生的熟悉感冲击你的内心，让更多无用，成就有用。

2020是个让人窒息的一年，我们陷入了非自愿隔离的压抑。在这样的一个时期，相反我们应该比以往任何时候都要更清晰自己的目标，变得更理想、大胆、勇于进取，去编织新的美好纹理，用坚定的践行通过循环利用资源来消除消费主义带来的浪费和污染，从而迈向新的循环经济。

On the issue of sustainable development, people often mistake science and technology as a universal prescription. It is true that science and technology are the primary productive forces and the cornerstone of the progress of human civilization. Science and technology are like hormones in the human body, fearless and passionate. However, some negative effects such as ecological crisis, ethical crisis and value crisis will come in the absence of human consciousness.

In terms of design, the awakening of humanistic consciousness is particularly important. The awakening of humanistic consciousness can enable us to return to the root of every creation, to preserve human dignity, to pay attention to human survival and development, and to the cultural tradition, aesthetic interest, life style, craft specialty and cultural

heritage related to human beings. We should make use of advantages and avoid the disadvantages to balance the art, humanity and profit.

In the deep research and development of recycled plastic concrete, and the formation of building materials and home products progress, we deeply realize that "design is not a profession, but an attitude." This design of the new spirit of the words, will always encourage us to overcome the difficulties, overcome the challenges.

In the process of re-discovering the new value of plastic waste, it will not be possible to reuse and reproduce in batches, but will not continue to produce new energy consumption in the production process. Only sincere practical hands to touch, experiment, failure, try again. We have great enthusiasm and confidence in the recycling of plastic waste. This is an action to discuss commercial value and environmental benefits.

Focus on the material to the end of the process of the consumption of the smallest energy consumption, while more convenient to put into industrial mass production, in order to the environment minimal harm, to obtain the maximum economic benefits and industrial beauty, so that unfamiliar familiarity strike your heart. We can convert more useless consumption and wastes into helpful and useful things.

2020 has been a choking year, and we're stuck in depressed involuntary isolation. In such a period, on the contrary, we should be more clear about our goals than ever before, be more ideal, bold and enterprising, weave a new fine texture, eliminate the waste and pollution caused by consumerism with firm practice and recycle resources, and move towards a new circular economy.



砼工石造

诞生于混凝土设计品牌本土创造的跨界实验。本着对世界的好奇和“万物平等”的物质关怀，一群捣鼓水泥的人，想要重新定义建筑材料在人居空间中的价值。在感觉、温度、质地、颜色中感知，在艺术与工艺中探索，让材料回归其本质。

设计品牌本土创造成立于 2011 年，作为一个极具实验性、探索性，无界限、跨界多产独立设计品牌，从事产品创新研发和设计。设计团队致力于以设计为基本手段，通过一系列的实验探索更多可能，让不同的材质回归它的本质，还原它的独特肌理，成为符合日常生活需求的产品。

材料概念

在材料使用上，我们以回收粉碎的废弃陶瓷或拆迁混凝土建筑废渣为骨料，混合超高性能混凝土一体浇筑而成。

在性能上，高密度混凝土的特性使产品抗渗耐污，更易清洁。

在环境影响方面，产品在生产过程中自然凝结，避免了烧制，能减少扬尘与用水污染，做到生产过程的环保最大化。而每个产品的投入使用，意味着当中 50% 的废弃材料真正实现回收利用。让产品渗透在日常生活的每一处，我们想为这个地球做得更多。

奖项

2015 EDIDA ELLE Deco 国际设计大奖，Elle Decoration 中文版《家居廊》

“伞”混凝土墙砖，最佳墙面设计奖

2017 德国 IF 设计大奖，汉诺威工业设计论坛

“六”混凝土墙砖，织品、墙面与地板类别设计奖

2017 德国红点设计大奖，德国红点设计博物馆

“影”混凝土墙砖，材料与表层处理类别，最佳产品设计奖

2018 意大利 A' 工业设计大奖，意大利 OMC Design Studios

“影”混凝土墙砖，银奖

2018 家具与灯具设计十佳榜，加拿大 Azure 杂志

“失体”项目，最佳再生设计

BENTUSURFACE

A cross-border experiment born out of Bentu, a concrete design brand. With a curiosity for the world and a concern for "equality in all things", a group of cement tinkerers, who want to redefine the value of building materials in the human space, perceiving in sensation, temperature, texture and colour, exploring in esthetic and craftsmanship, bringing the material back to its essence.

Bentu, founded in 2011, is an experimental, exploratory, boundary-less, cross-border and prolific independent design brand, engaged in innovative product development and design. The design group is committed to using design as a basic tool to explore more possibilities through a series of experiments, allowing different materials to regain to their essence, restore their unique texture and become products that meet the needs of everyday life.

MATERIAL

Regarding the material application, we use recycled and crushed waste ceramics or demolition concrete construction waste as aggregates, mixed with ultra-high performance concrete cast in one piece. In terms of property, the high-density concrete answers the needs of impermeability and stain resistance. For the concern of environment, the products condense naturally during the production process, instead of firing process, reducing dust and water pollution, maximizing the environmental protection of the production process. The fact that each product is put into use means that 50% of the waste material is actually recycled. We want to do more for the planet by making our products in presence in every aspect of our daily lives.

Awards

2015 EDIDA ELLE Deco International Design Award, Elle Decoration Chinese version of 'Home Gallery',

'Umbrella' concrete wall tiles, Best Wall Design

2017 IF Design Award, Hannover Industrial Design Forum, Germany

'Six' concrete wall tiles, Design Award in the category of Weaving, Wall and Floor

2017 Red Dot Design Award, Red Dot Design Museum, Germany

'Shadow' concrete wall tiles, in category of Material and Surface Treatment, Best Product Design

2018 A' Industrial Design Award 2018, OMC Design Studios, Italy

'Shadow' concrete wall tiles, Silver Award

2018 Top 10 Furniture and Lighting Design 2018, Azure Magazine, Canada

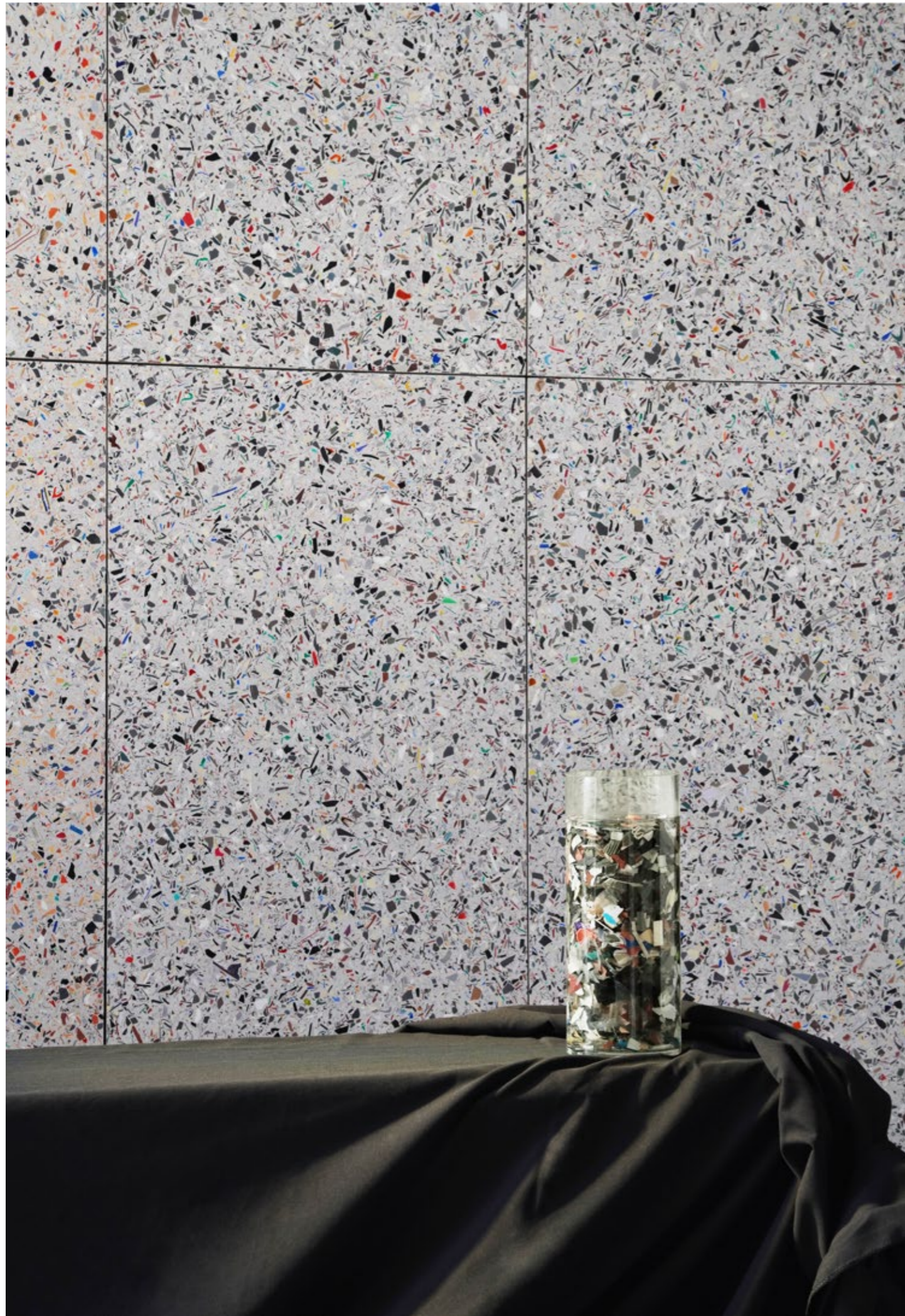
'Wreck' project, Best Recycled Design

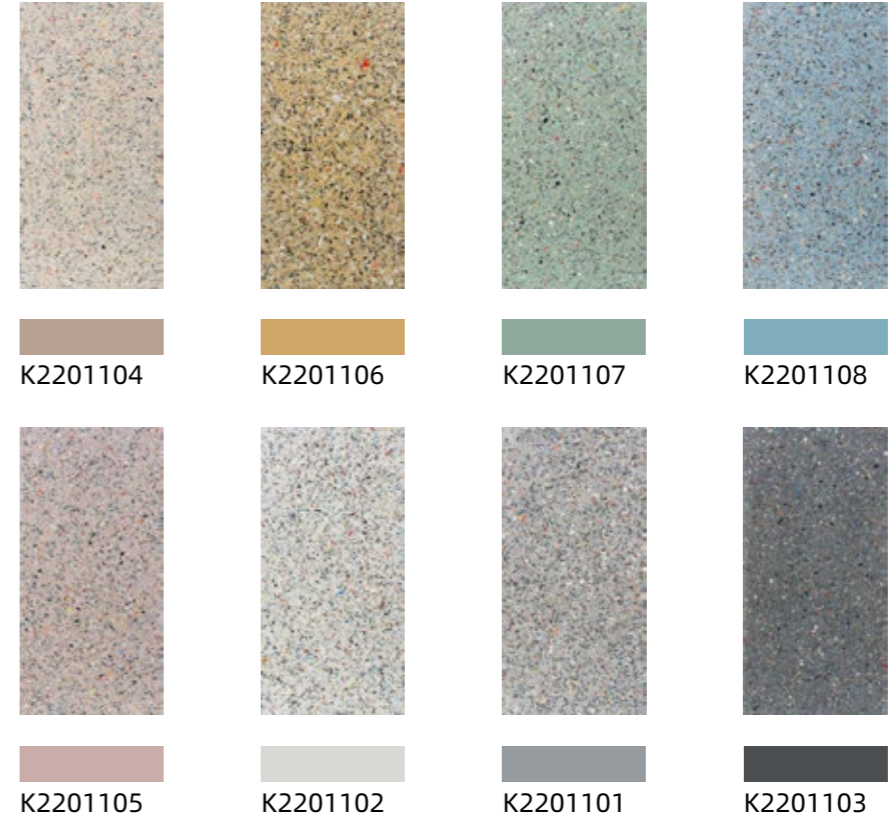












塑 · 板材

主体材料：混凝土 \ 回收塑料

常规尺寸：1200×600×H20mm \ 2400×1200×H20mm

定制尺寸：3000×1200×H20mm \ 2700×1800×H20mm

产品重量：36kg \ 144kg | 180kg \ 243kg

注：支持花色定制，50m² 起订，定制周期约 25-35 天。

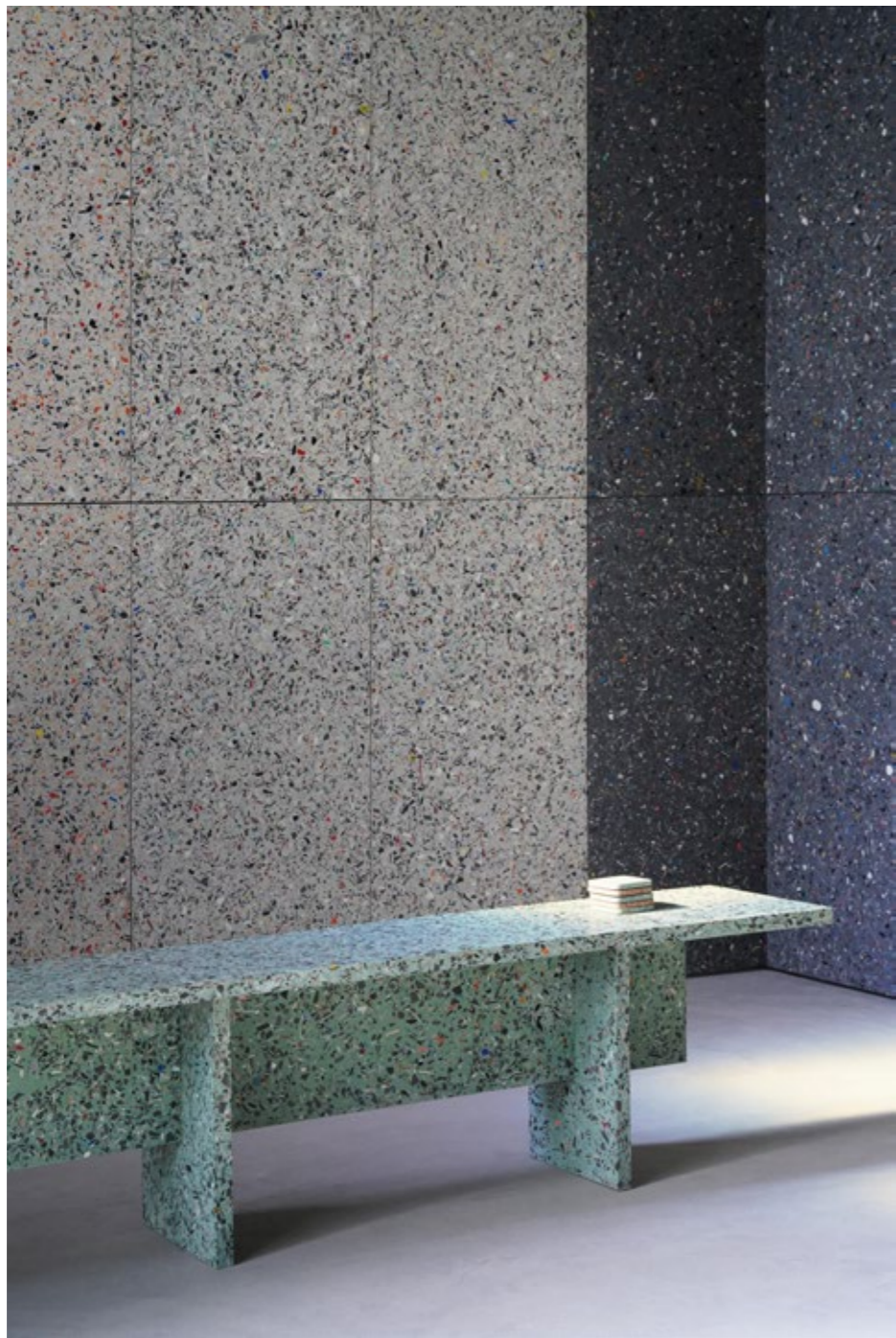
Plastic · Tiles

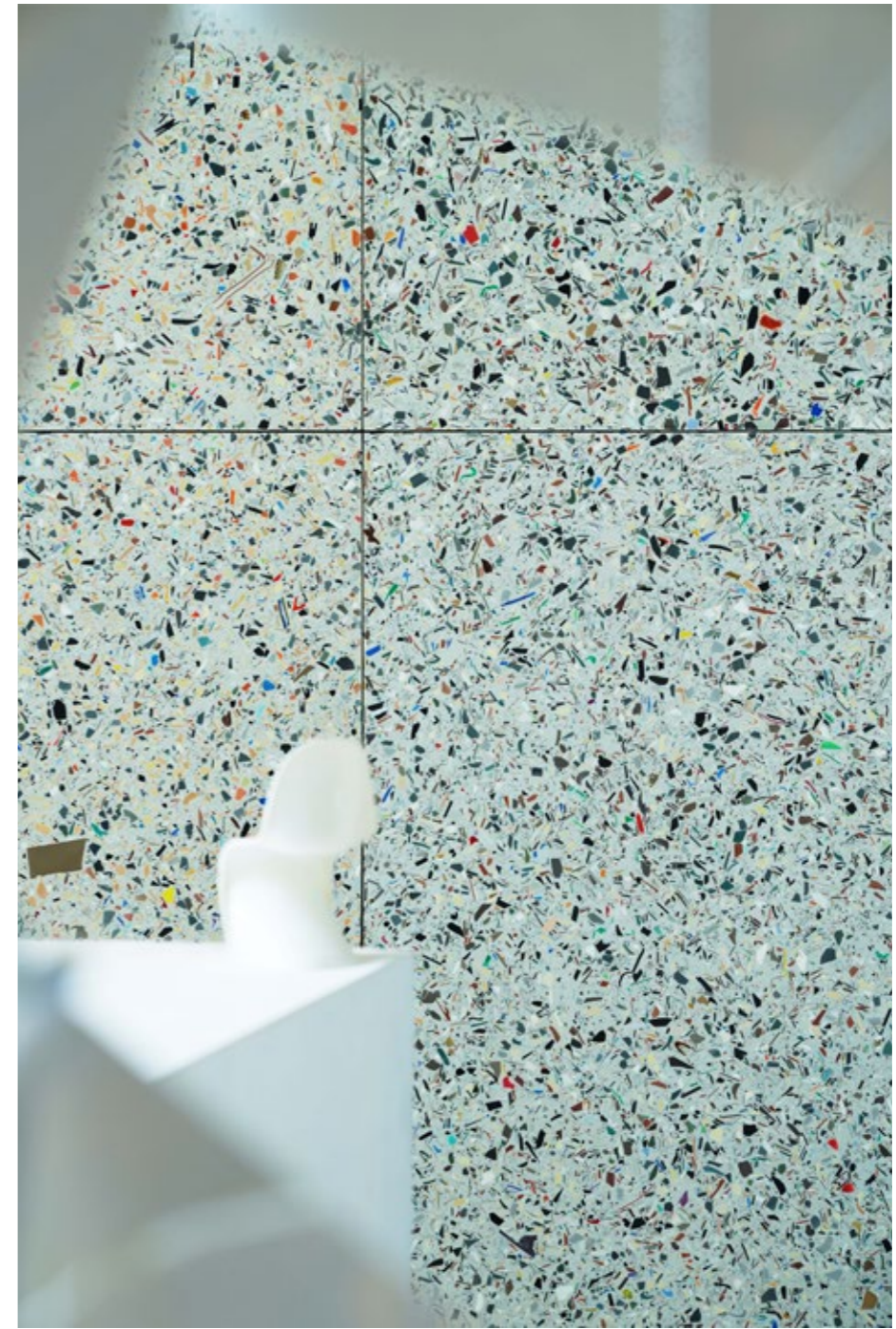
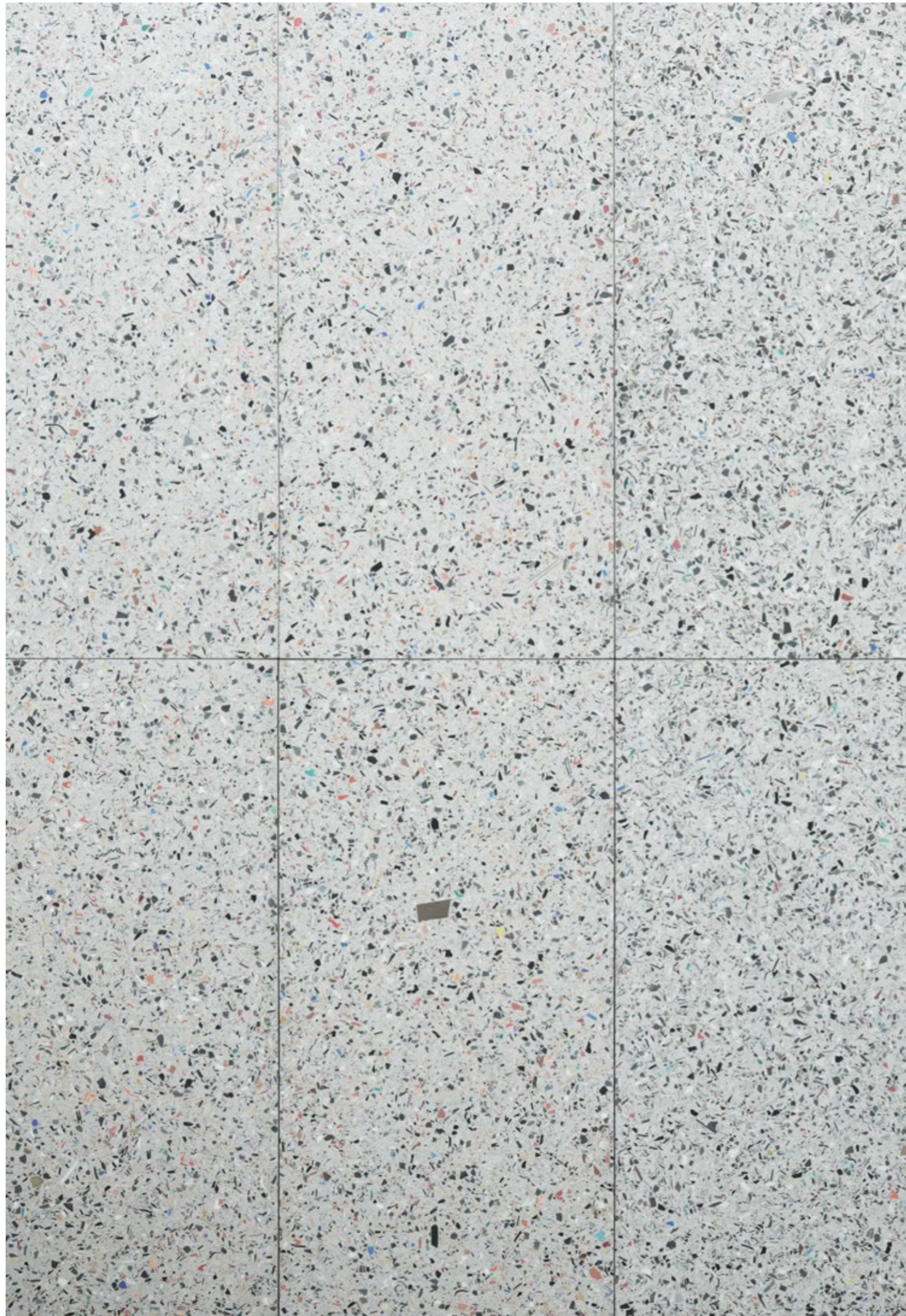
Main material: concrete \ Recycled plastic

Regular size: 1200×600×H20mm \ 2400×1200×H20mm

Customized Size: 3000×1200×H20mm \ 2700×1800×H20mm

Product weight: 36kg \ 144kg | 180kg \ 243kg











十 /Ten · 长凳

主体材料：混凝土 \ 回收塑料

产品尺寸：2400×350×H455mm

产品重量：108kg

产品颜色：深灰、灰、浅灰、黄、蓝、绿

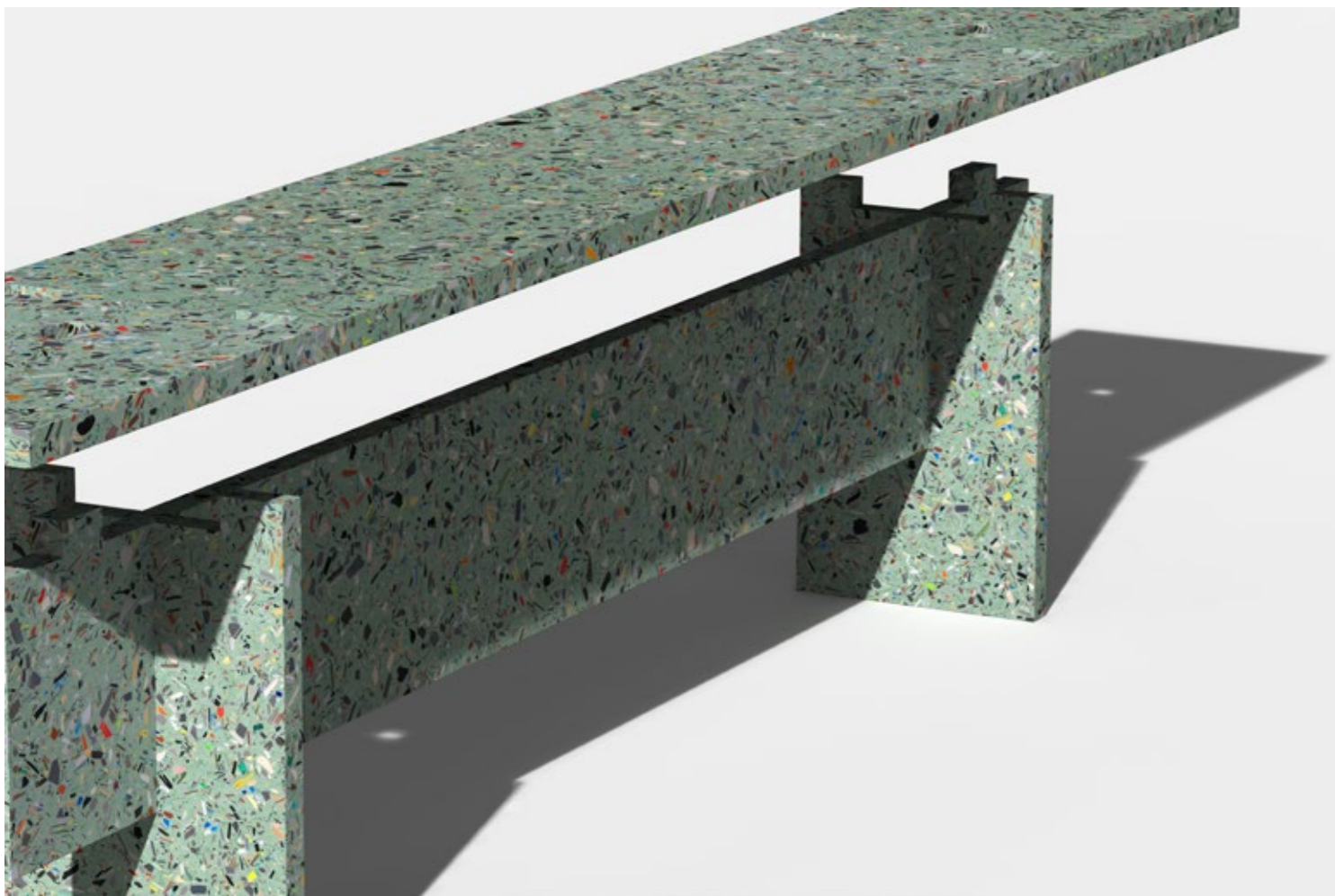
Ten · bench

Material : concrete \ Recycled plastic

Dimension : 2400×350×H455mm

Weight : 108kg

Color: Dark gray、gray、light gray、yellow、blue、green









十 /Ten · 长桌

主体材料：混凝土 \ 回收塑料

常规尺寸：2400×800×H750mm

产品重量：196kg

产品颜色：深灰、灰、浅灰、黄、蓝、绿

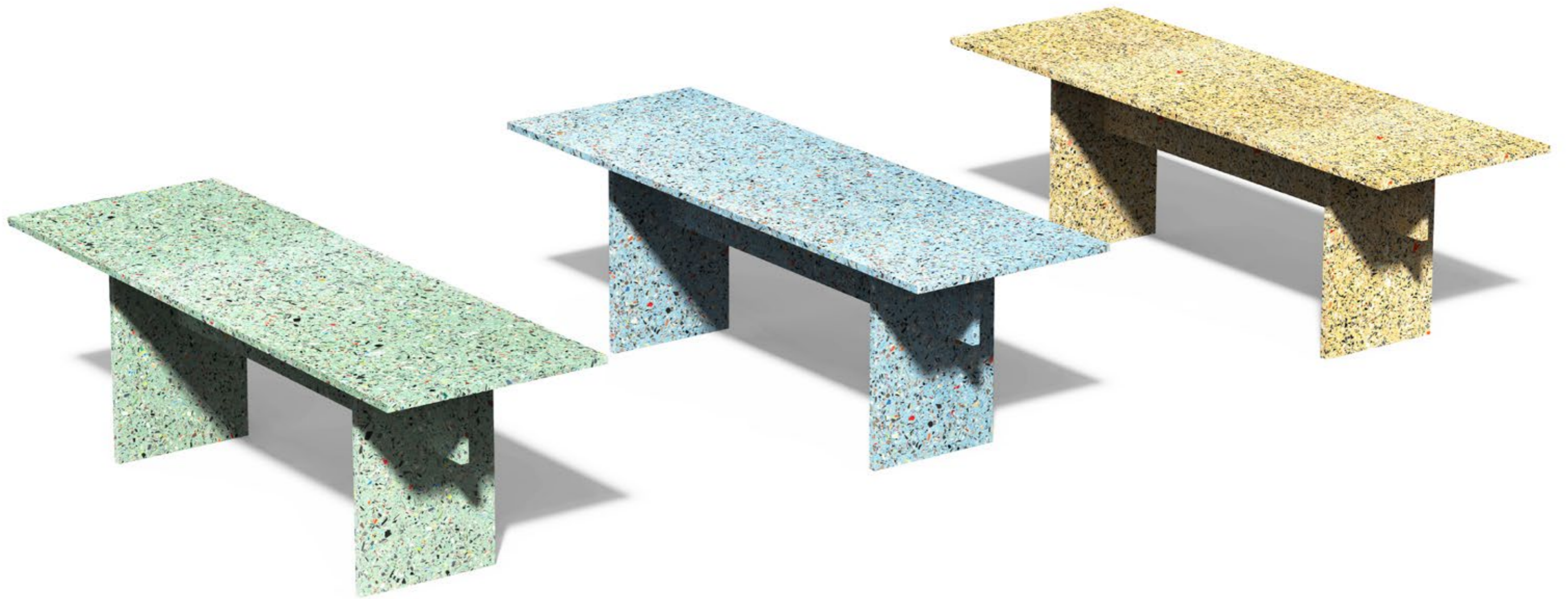
Ten · Long table

Material : concrete \ Recycled plastic

Dimension : 2400×800×H750mm

Weight : 196kg

Color: Dark gray、gray、light gray、yellow、blue、green







混凝土美

混凝土是一种极具独特个性与自然特性的材料。每一件个体都因其与众不同的表皮结构与肌理而显得独特。由此，每件混凝土产品的颜色并不会相同，它会随着制作的天气、温度、环境湿度，以及使用时长而发生变化。另外，混凝土表面自然散布着细腻微小的气孔。气孔的存在并不会限制产品的功能作用。确切来说，这种特质愈加彰显了混凝土的自然气质与强烈个性，也是我们保留其存在的缘起。

使用与保养

混凝土本身是一种易脆的材料，在日常使用过程中，应避免硬物撞击与刮划。材料表面涂刷了一层防水防污保护剂，如在使用过程中产生污迹，及时用湿毛巾清洗干净即可，应避免使用砂纸或百洁布等会破坏保护涂层的清洁工具，以免影响保护涂层的时效性和防水防污性。正常情况下使用，涂层效果可保持 3-5 年。

购前须知

混凝土产品不建议长期置于处于潮湿状态下，如卫浴空间，对于防污要求高的空间，也应谨慎选择。

Concrete Aesthetics

Concrete is a material with a unique personality and natural characteristics, and each individual piece is unique because of its distinctive skin structure and texture. The color of each concrete product will not be the same; it will change depending on the weather, temperature, and ambient humidity in which it is made, as well as the length of time it is used. In addition, the concrete surface is naturally scattered with fine and tiny pores but its does not limit the functional role of the product. This quality is the reason why we preserve the naturalness and strong character of concrete.

Use & Maintenance

Concrete itself is a brittle material, in the process of daily use, should avoid hard objects impact and scratching. The surface of the material is coated with a layer of waterproof and anti-fouling protective agent, such as stains in the process of use can be cleaned with a wet towel in time. The use of cleaning tools such as sandpaper or Pasteur cloth that will destroy the protective coating should be avoided to avoid affecting the timeliness of the protective coating and the water and dirt repellency. The coating effect can be maintained for 3-5 years when used under normal conditions.

材料性能

MATERIAL PERFORMANCE

	抗压强度 Compressive strength	68Mpa
	抗折强度 Flexural strength	13.3Mpa
	抗冲击强度 Impact strength	12.2kj/m ³
	密度 Density	2.27g/cm ³
	吸水率 Bibulous rate	1.79%
	防火等级 Fire rating	A
	抗渗性 Permeability resistance	6
	抗冻性 Frost resistance	F50
	莫氏强度 Mohs strength	6
	尺寸精度 Dimensional accuracy	±0.5mm

注：以上部分参数经 SGS 测试获得。

Note: Some of the above parameters were obtained through testing by The Societe Generale de Surveillance S.A.



- Web: www.bentudesign.com
- Tel: +8620 89770506
- Wechat: bentudesign
- Instagram: bentudesign
- Email: info@bentudesign.com /
press@bentudesign.com

微信 · wechat