

QUALITY COLORS.



Case Study

MuCEM, Marseille, France

Architect: Rudy Ricciotti

Winner of the Colored Concrete Works Award 2017



BAYFERROX®
Color for Life.

COLORED CONCRETE WORKS®
An initiative of LANXESS

QUALITY WORKS.

LANXESS
Energizing Chemistry

MUSEUM AT THE GATEWAY TO THE MEDITERRANEAN SEA.



■ At the outer point of the Old Harbor, the dark color of MuCEM contrasts to the beige of the fort, without competing with it.

Harmonious contrast to the environment.

It is the most spectacular museum in the city and one of the 50 most frequently visited museums in the world: the Musée des Civilisations de l'Europe et de la Méditerranée, or MuCEM, in the city of Marseille in Southern France.

In 2013 the Mediterranean harbor metropolis was named the cultural capital of Europe. The opening of the unique museum, which is dedicated to the cultures of the Mediterranean area, is recalled by many as the high point of the cultural capital year. Planned by the highly decorated French architect Rudy Ricciotti, the museum was created at the outer point of the Old Harbor, in the direct vicinity of the venerable Fort Saint Jean. At this location, the angular form and color contrast of the facade to the beige of the fortress walls give MuCEM

its own identity, avoiding competition with its historical surroundings. It was for just this reason that Ricciotti consciously used black-colored concrete as construction material. And what looks like a dark block from a distance is revealed as one comes closer to be a delicate yet stable outer shell, suffused with light and wind: a construction made of ultra high performance concrete (UHPC) that conjures up the nets of the local fishermen and whose color only enhances the impression of lightness. Colored with **Bayferrox®** color pigments, the structure seems to be suspended between sea and sky.



■ The delicate structure of the outer shell lets in light and air.



■ From the ramps, visitors have a view of the harbor and the sea.

A bridge to history.

In the rectangular area of 72 x 72 meters, the outer shell of 384 colored concrete panels rises 19 meters into the sky. It conceals another rectangle with a length of 52 meters – the heart of the museum, containing exhibition rooms up to nine meters high and covering 3,600 square meters. Between these two shells, the interior of glass and the outer of UHPC, the pedestrian ramps rise up nearly to the roof of the building – a very special kind of museum tour, during which the visitors can see and feel the wind, the sun, and the sea. At the end of the tour, a 115-meter-long cantilevered bridge of UHPC extends from the roof terrace of the building over to Fort Saint Jean. From there, another bridge extends to the Panier quarter.

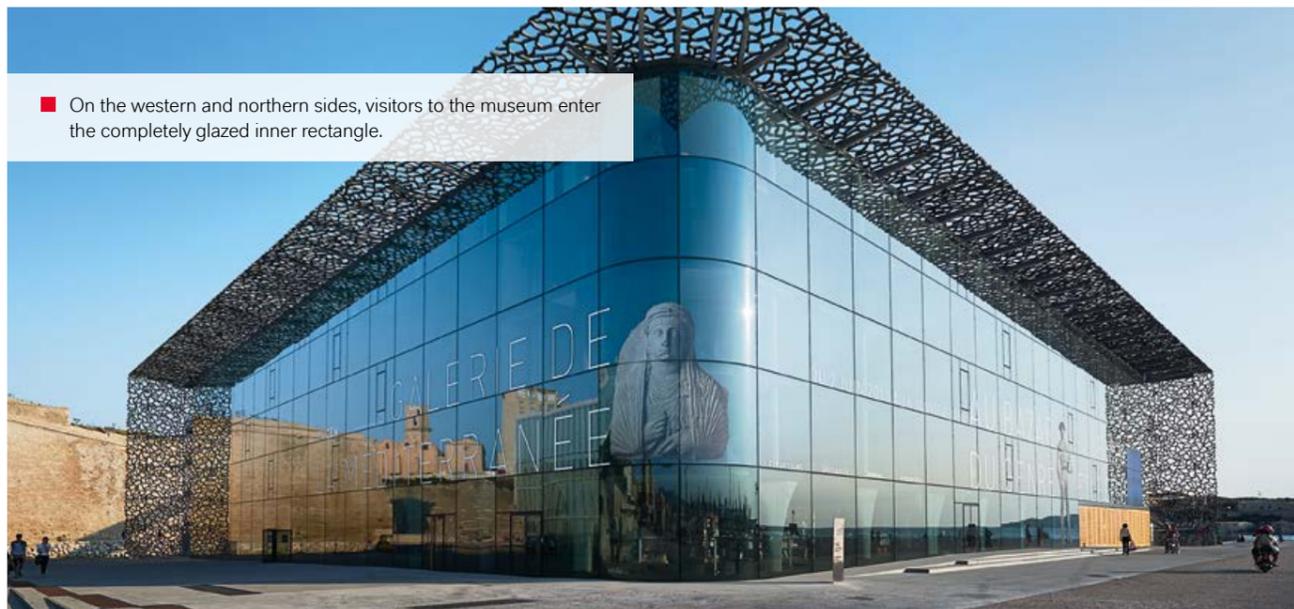
Concrete has a long tradition in French architecture and is therefore viewed as a downright “patriotic” construction material. At MuCEM, the trendsetting use of extremely durable and rugged UHPC in the 3 x 6 meter panels has made it possible to construct an outer shell that is light yet formally complex. The gigantic puzzle of 384 panels is connected and held in place by stainless steel rods, which are connected to concrete supports in the internal rectangle. The cantilevered bridge was constructed of five individual elements.



“COLOR MAKES CONCRETE THE EMBODIMENT OF FUNCTIONALITY AND ESTHETICS”

Rudy Ricciotti

Rudy Ricciotti, born August 22, 1952 in Algiers, architect and engineer with degrees at the Ecole d'architecture de Marseille (1980) and the Ecole d'ingénieurs de Genève (1974), has, among other things, been awarded the Grand Prix national de l'architecture. As an architect of lighthouse projects in France, such as the National Choreographic Centre of Aix-en-Provence, he also garnered international renown with projects such as the Footbridge of Peace, Seoul, the Potsdam Nikolaasaal, Potsdam, and the International Centre of Art and Culture, Liège.



■ On the western and northern sides, visitors to the museum enter the completely glazed inner rectangle.

■ The cantilevered bridge takes visitors over to the fort.



LIKE DUST IN THE SUNLIGHT.

Delicate lightness and great stability.

For his design, Rudy Ricciotti was concerned not only about the stability characteristics of the UHPC used, but also its environmental footprint. For instance, all the formed elements and panels were produced and prepared close to the construction site, to keep travel distances short, in order to minimize the environmental effects. Local craftsmen and specialists were also used to increase social identification with the structure.

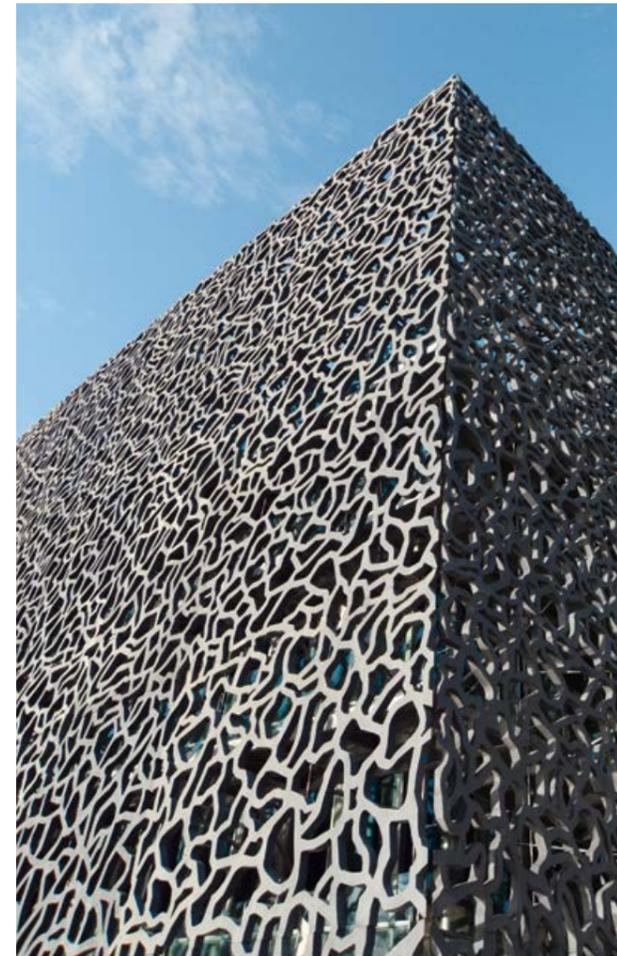
The dark colored UHPC offers protection against the summer heat and, in combination with an energy concept based on the use of sea water and solar energy, also contributes to the reduced primary energy needs of the building: The museum does without conventional systems for heating,

ventilation, and air conditioning. In addition, the material is very long-lasting; UHPC is water resistant and also offers long-term resistance to the salty sea air of the Mediterranean. It is these characteristics that also distinguish the **Bayferrox® 330** and **Bayferrox® 318** used to color the concrete. Like all **Bayferrox®** color pigments, thanks to their outstanding light and weather resistance, they are more than capable of lasting for the concrete's estimated life cycle of at least 100 years. Thus this concrete in the color of dust, immersed in the light of the sun, shows how delicate lightness and great stability can be combined through technological brilliance.

■ A museum as a transparent place for cultural and sensory experience.



■ The structure of the colored concrete panels evokes the nets of fishermen.



PROJECT DATA

Location

Marseille, France

Architecture

Agence Rudy Ricciotti

Principal

The Country of France

Construction time period

November 2009–June 2013

Amount of concrete

1100 m³ precast concrete

250 m³ ready-mixed concrete

Pigment supplier

CHRYSO France

Harold Scholz & Co. GmbH

Pigments

Precast concrete: Bayferrox® 318

Ready-mixed concrete: 80% Bayferrox® 330 +
20% Carbon Black

■ Sun, wind, and sea are ever-present.



Bayferrox® 330 + Carbon Black



Bayferrox® 318

FOR ADDITIONAL INFORMATION, CONTACT THE LANXESS COUNTRY REPRESENTATIVE.

Germany

LANXESS Deutschland GmbH
Business Unit Inorganic Pigments
Rheinuferstraße 7–9
47829 Krefeld
GERMANY
Tel.: +49 221 8885 3974
Fax: +49 2151 88 4133

USA

LANXESS Corporation
Business Unit Inorganic Pigments
111 RIDC Park West Drive
Pittsburgh, PA 15275-1112
USA
Tel.: +1 412 809 1000
Fax: +1 412 809 1059

Singapore

LANXESS Pte. Ltd.
Business Unit Inorganic Pigments
3A International Business Park
#07-10/18 ICON@IBP Tower B
SINGAPORE 609935
Tel.: +65 6725 5828
Fax: +65 6725 4828

Australia

LANXESS Pty. Ltd.
Business Unit Inorganic Pigments
Unit 1/35 Carter Street
Lidcombe, NSW 2141
AUSTRALIA
Tel.: +61 28748 3910
Fax: +61 28748 3999

Japan

LANXESS K.K.
Business Unit Inorganic Pigments
Marunouchi Kitaguchi Building 23F
1-6-5, Marunouchi, Chiyoda-ku
Tokyo 100-8215
JAPAN
Tel.: +81 3 5293 8017
Fax: +81 3 5219 9776

Great Britain

LANXESS Ltd.
Colour Works
Lichfield Road
Branston
Burton-on-Trent
Staffordshire, DE14 3WH
UNITED KINGDOM
Tel.: +44 1283 714200
Fax: +44 1283 714201

Brazil

LANXESS Indústria de Produtos
Químicos e Plásticos Ltda.
Av. Maria Coelho de Aguiar, 215 Bloco
B - 2º Andar
05804-902 São Paulo
BRAZIL
Tel.: +55 11 3741 2615
Fax: +55 11 3741 3933

Italy

LANXESS S.r.l.
Segreen Business Park, Palazzo Y
Via San Bovio n.1/3
20090 - Milano San Felice - Segrate
ITALY
Tel.: +39 0230722644
Fax: +39 0230724298

South Korea

LANXESS Korea Ltd.
9F, Samsung Boramae Omni Tower
23, Boramae-ro 5-gil
Dongjak-gu, Seoul
07071, Korea
REPUBLIC OF KOREA
Tel.: +82 2 6715 5100
Fax: +82 2 847 3295

Central and Eastern Europe

LANXESS Central Eastern
Europe s.r.o
EUROVEA
Central
2 Pribinova 6
811 09 Bratislava
Slovak Republic
Tel.: +421 2 3215 1626
Fax: +421 2 3215 1699

Spain

Europigments, S.L.
Business Unit Inorganic Pigments
Arquitectura, 27
Polígono Industrial Els Garrofers
08340 Vilassar de Mar
SPAIN
Tel.: +34 937 540 770
Fax: +34 937 540 784

China

LANXESS Specialty Chemicals
Co., Ltd.
No. 458 Haijin Road
Jinshanwei Town
Shanghai, 200540
R.P. CHINA
Tel.: +86 21 5284 7860
Fax: +86 21 6250 0769

India

LANXESS House
Plot no's. A162-164
Road No.27, MIDC
Wagle Estate
Thane (West) - 400604
Maharashtra, INDIA
Tel.: +91 22 25871000
Fax: +91 22 25871287

France

LANXESS S.A.S.
Inorganic Pigments
Le Doublon A
11, avenue Dubonnet
92407 Courbevoie Cédex
FRANCE
Tel.: +33 1 80 46 30 00
Fax: +33 1 80 46 30 45

LANXESS
Energizing Chemistry

Health and safety information

Appropriate documentation was compiled with information on the health and safety measures that have to be observed in handling the LANXESS products mentioned in this brochure. For materials mentioned here that are not LANXESS products, the operational hygiene and other safety measures recommended by the respective manufacturers must be observed. Before working with these products, you must read and familiarise yourself with the available information on their dangers, proper use and handling. This point is of decisive importance. Information is available in various forms: such as safety data sheets, product information and product labels. Please contact your LANXESS representative in Germany or the Department of Regulatory Affairs and Product Safety of LANXESS Deutschland. For business in the USA, please contact the LANXESS Product Safety and Regulatory Affairs Department in Pittsburgh, Pennsylvania.

Information on Regulatory Compliance

For some end use purposes of the products found in this brochure, the applicable regulations must be observed, including those of the FDA, BFR, NSF, USDA and CPSC. If you have any questions regarding the approval status of these products, please contact your representative at LANXESS Deutschland GmbH or the Department of Regulatory Affairs and Product Safety of LANXESS Deutschland GmbH or, for business in the USA, your representative at LANXESS Corporation, the LANXESS Regulatory Affairs Manager in Pittsburgh, Pennsylvania. How and for which purposes you utilise our products, our technical support and our information (oral, written or through product assessments) is beyond our control. The same applies for suggested formulations and recommendations. Therefore it is indispensable that you check our products, our technical support and our information for their suitability for the intended processes and purposes. The application-specific analysis must encompass at least suitability tests in regard to technical as well as health, safety and environmental aspects. Such testing has not necessarily been done by us. Unless agreed to otherwise in writing, all products are sold exclusively in accordance with our general terms and conditions for sale and delivery. Information and technical support are provided without warranty (we reserve the right to make changes at any time). It is expressly agreed that you release us from any possible liability resulting from the use of our products, technical support and information due to fault, contract or other reasons and that you assume this liability yourself. Any statements and recommendations not contained in this brochure are not authorised and are not binding for us. None of the information in this brochure is to be interpreted as a recommendation to use the products in any way that violates commercial proprietary rights such as patents in regard to any materials or their use. Furthermore, neither explicitly nor implicitly is any licence granted under commercial proprietary rights such as patents.

Bayferrox® is a registered trademark of Bayer AG, Leverkusen, Germany.
Colortherm® is a registered trademark of the LANXESS Group.

Issue 1/2017

LANXESS Deutschland GmbH
Business Unit
Inorganic Pigments
Rheinuferstraße 7–9
47829 Krefeld
GERMANY
E-Mail: coloredconcreteworks@lanxess.com
www.lanxess.com
www.bayferrox.com
www.colored-concrete-works.com

Visit our Internet site:
www.colored-concrete-works.com

