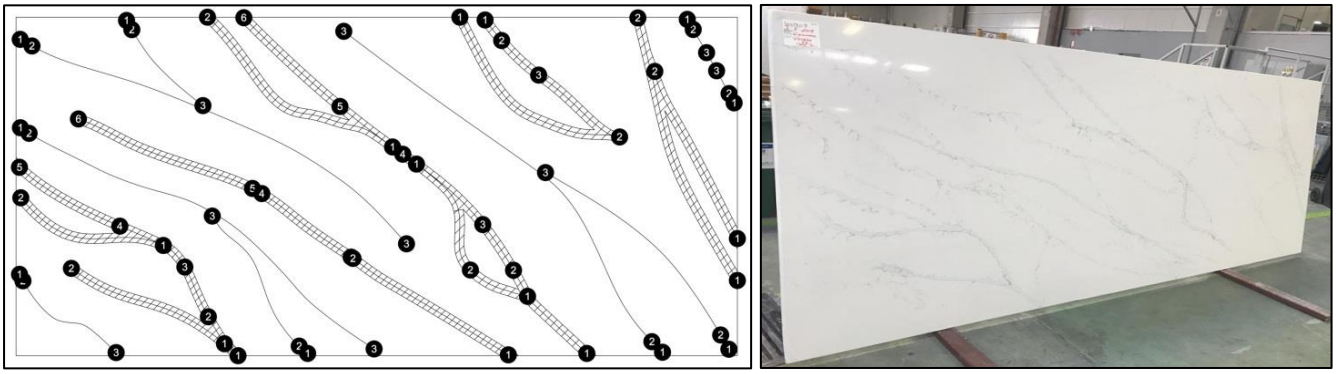
Artificial Calacatta Marble

Esra ARICI, Duygu OLMEZ, Arman ALTINYAY, Furkan CAPRAZ, Murat OZKAN, Gokhan DENIZ, Nurcan TOPCU
Peker Yuzey Tasarimlari A.S. (Belenco Quartz Surfaces), R&D Center, TURKEY

Calacatta Marble, which is famous and originated from Carrara city of Toscana region of Italy, is formed out of thick veins over white base stone. Calacatta marbles are only 10% of the excavated marbles in the Carrara region. Due to the extinction of the natural marble reserves and their high costs, aim of this study is to produce artificial Calacatta marble looking engineered stones. In this study, base stone formulas has been tested to be able to represent the original marble look, thick vein formulas has been studied. Calacatta marble look stone vein maps have been drawn via Rhinoceros software (Fig.1). To obtain Calacatta marble looking, long and thick vein designs have been carried out through Belenco production process by the robots. Working principle of the robots; opening the vein over the base slab first and then filling those veins with mixture vein. Veins of the Calacatta marble are thick. To be able to achieve thick veins, added mixture veins rheology intended to be same as the base slab. Trial of the slab rheology for the mixture vein was not successful for unloading from the robot, due to the resin amount etc., because of this reason mixture vein formula have been optimized at the laboratory. For the different type of mixture vein formulas, to represent Calacatta marble vein colours; iron oxide, titan dioxide, copper chromium oxide, carbon black, manganese iron oxide (spinel and hematite structure), chrome iron oxide (hematite structure) pigments have been used at the formulations. Also used coloured resin (with pasta pigment) for spraying and painting the mixture vein side walls. After the laboratory prototype, plant production tests have been performed and finally standard mechanical tests (impact resistance, bending resistance, wear resistance and water absorption) have been made and approved.



(a) (b)

Figure 1: The vein map (a) and slab (b)



Arman ALTINYAY has graduated in Product Design and taken specialty (1st level) master degree in Yacht Design at Poli.Design Consorzio del Politecnico di Milano. He has work experiences at light alloy rim and yacht design sectors. He attended global fairs (exhibited his furniture design at Köln IMM) and workshops (SUAC – YAMAHA- SUZUKI workshop at Hamamatsu,Japan). He has completed his Turkish National Military service. He has been working at Belenco since July 2018. His expertise at R&D Center of Belenco is developing long veined marble look products which are being produced with Breton robots technology.

Email: armanaltinyay@belenco.com

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