

Lightweight cultured marble vanity tops

Comparing Omyasphere® 200 to a standard filler mix in cultured marble

The situation

This trial evaluated the performance of Omyasphere® 200 as a lightweight filler alternative to calcium carbonate at a manufacturer of cultured marble vanity tops. In addition to formulation cost reduction, this manufacturer wanted to reduce the part weight to improve product handling, worker safety, and transportation costs. The vanity tops were produced in an open-mold batch-process.

Trial protocol

To evaluate the lightweighting capability of Omyasphere 200, together with the manufacturer, we formulated to the same batch volume, not by weight. The original formulation used 11.3 kg of resin and 34 kg of calcium carbonate for a total volume of 23.8 L.

In the lightweight formulation, part of the calcium carbonate filler was replaced with Omyasphere 200 to achieve the same total batch volume as the original. The batch weight was lower.

To measure the effectiveness of lightweighting and other important product characteristics, the variables and methods listed in the table to the right were used.

Viscosity:	Brookfield & TA rheometer
Density:	Gardco weight per gallon cup
Color:	BYK-Gardener TCS II
Tensile properties:	Instron tensile strength & modulus
Impact properties:	Notched izod impact strength

The solution

The lightweight formulation was able to achieve a total weight reduction of 32% by replacing 16.3 kg of calcium carbonate with 1.8 kg of Omyasphere 200 while keeping volume consistent in the batch, 23.8 L. When making this replacement, the customer was able to achieve a lower formulation cost per liter while producing the same sized counter top, improving worker safety with a lighter easier to handle product, and increase part per pallet loading. Mix viscosity and end product physical properties such as color, hardness, and impact strength were all within acceptable limits provided by the customer.

Starting formulation (no lightweight filler)

Raw material	Weight (kg)	Density (kg/L)	Volume (L)	% by weight	% by volume
Resin binder	11.3	1	11.4	25%	48%
CaCO ₃	34	2.7	12.5	75%	52%
Total	45.3	1.9	23.9	100%	100%

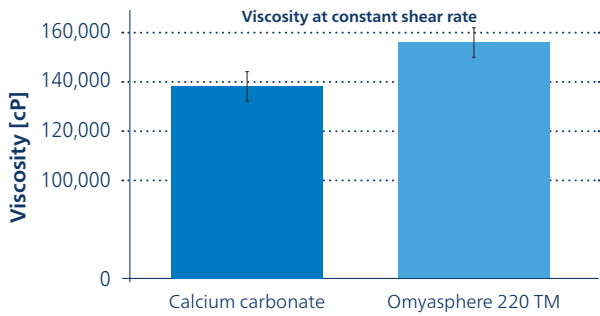
Formulation with Omyasphere® 200

Raw material	Weight (kg)	Density (kg/L)	Volume (L)	% by weight	% by volume
Resin binder	11.3	1	11.4	37%	48%
CaCO ₃	17.7	2.7	6.4	57%	27%
Omyasphere 200	1.8	0.3	6.1	6%	25%
Total	30.8	1.3	23.9	100%	100%

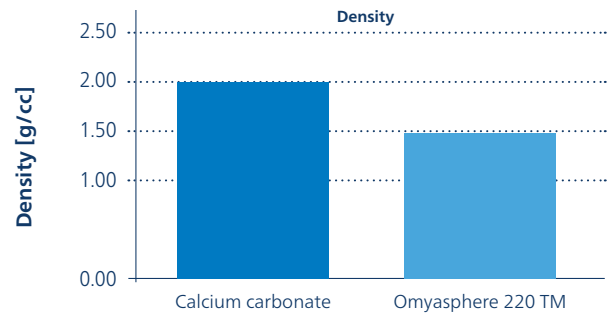
Total batch weight was reduced by 14.5 kg (32%), while filling the same countertop mold and using the same weight of resin (11.3 kg).

Physical properties

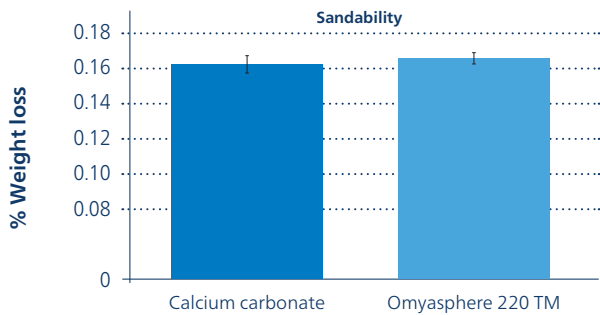
Viscosity performance maintained with Omyasphere® 200



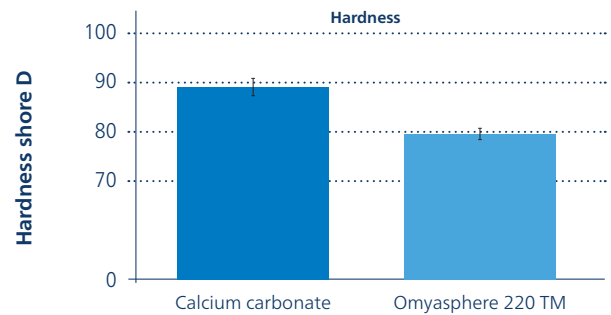
Omyasphere® 200 reduces matrix density



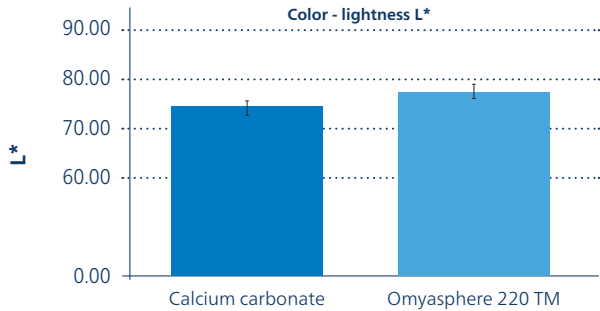
Omyasphere® 200 improves sandability



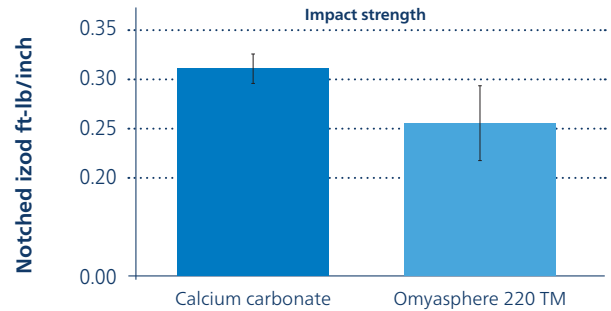
Hardness is maintained within acceptable levels



The addition of Omyasphere® 200 does not have a significant impact on color



Mechanical properties of the finish cultured marble vanity using Omyasphere® 200 were within acceptable ranges



* Sandability, hardness, and color measurements were completed on a surface that did not have a gel-coat.

Proven solutions for a more productive world

The Omyasphere® 200 series combines very low apparent density, meaning less weight for the same volume. This reduction in weight will benefit the handling process and total production cost.

Benefits

1. Improved worker safety and easier-to-handle product: exact same sized countertop, 32% lighter.
2. Lower batch weight, same batch volume: replaced 16.3 kg of calcium carbonate with 1.8 kg of Omyasphere® 200.
3. Lower transportation costs. Increased number of parts per pallet.
4. Lower formulation costs per liter.

Omyasphere are registered trademarks of Omya AG in the European Union and multiple other countries.

Omya International AG, Baslerstrasse 42, CH-4665 Oftringen, email:lightweightfillers@omya.com

Omya has taken every possible care to ensure that the information herein is correct in all aspects. However, Omya cannot be held responsible for any errors or omissions which may be found herein, nor will it accept responsibility for any use which may be of the information, the same having been given in good faith, but without legal responsibility. This information does not give rise to any warranties of any kind, expressed or implied, including fitness for purpose and non-infringement of intellectual property. The technical information presented comprises typical data and should not be taken as representing a specification. Omya reserves the right to change any of the data without notice. Source: Omya International (2025/11)