



ZEEMAIL



Zeospheres® Ceramics, LLC

129 Valentine Drive, Lockport, Louisiana 70374

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MOHS Hardness

One of the benefits of **Zeospheres®** is their ability to increase hardness and abrasion resistance. This is partly a result of their spherical shape and partly a result of their own hardness.

There are many different ways to measure and express hardness. The system commonly used to measure the hardness of **Zeospheres®** and most ground minerals is the Mohs scale. It appears that this system is not universally understood, however, and we have had several requests for more information on the Mohs hardness scale. Therefore, below is some background and detail on Mohs hardness.

The Mohs scale for hardness was developed in 1822 by a German mineralogist named Friedrich Mohs. It involved arranging common minerals in a list so that when one material was scraped against another, the higher numbered material would scratch the lower numbered material – indicating that it was harder. Mohs selected a value of 1 for talc and 10 for diamonds, requiring all other minerals to be rated somewhere in between. Some common materials and their Mohs hardness rankings:

Mohs Hardness Value

1

2

3

Typical Materials

Talc

Kaolin

Mica = 2.0 – 2.5

Human fingernail = 2.25

Barite, calcium carbonate, copper coin

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4	Granite, Fluorite Iron = 4.5
5	Apatite Wollastonite = 5.0 – 5.5
6	Feldspar Titanium Dioxide = 6.0 – 6.5
7	Silica Zeeospheres®
8	Topaz
9	Sapphire
10	Diamond

As shown above, **Zeeospheres®** have the same Mohs 7 hardness as silica. However, due to their spherical shape, **Zeeospheres®** are far less abrasive. In previous studies, **Zeeospheres®** were only one-third as abrasive as silica.

Zeeospheres® also do not have hazardous levels of crystalline silica. That would seem to make the choice of an extender that can contribute to increased hardness an easy one.