

WHITENING YELLOWED BRICKS

Experiment by
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I thought an experiment was in order. Not that the results would be in any way definitive, but just to provide a touchstone for comparison.

For years there have circulated in AFOL forums various questions and comments about whitening yellowed bricks, can it be done, how do you do it, should it be done, does it last, does it make the bricks brittle, and various other contemplations, musings, assertions, and cautions about the process and the results.

I have whitened bricks in the past with the process of putting bricks in hydrogen peroxide in a clear bowl and setting the bowl in a sunny window for various extended periods of time. The bricks did whiten. I did not track those bricks as to whether or not they again yellowed, they just went back into the stash and got used whenever the need arose.

I also had two old white horses that were yellowed to the point that they could be mistaken for tan. Also of note is the fact that the horse heads were discolored differently than the bodies. More than ten years ago I decided to whiten one of them using the process described above. The horse whitened. Over the years it has again yellowed, but not uniformly nor to the extent of the horse that was not whitened. My position on the whitening situation since then is that whitening results were a crapshoot.

Another unanswered question regarding my early experiments is the cause or causes of yellowing. Is the yellowing due to the chemical composition of the plastic, environmental conditions such as sun and air quality, or a combination of these things? As most of these

yellowed bricks had been acquired second hand the history is lost.

Encountering the whitening debate again more recently, and having acquired some decent UV lamps, I figured I would attempt a more controlled test and see for myself what happens. Here are the results of one test on a series of 2x3 inverted slopes. Why those particular bricks? Those were what I had in sufficient numbers that showed various different color shifts.

The process: bricks were assembled for a “before” photograph with a new white control brick on one end and a tan control brick on the other. Control bricks were removed and yellowed brick identities were noted using the various mold numbers on the undersides of the bricks so the sequence could be recreated later. Note the bricks had various mold marking differences so it should be safe to assume that they came from at least four different production runs.

Disassembled bricks were then put into a bowl filled with enough hydrogen peroxide to cover all the bricks. A 50W UV LED lamp was placed on top of the bowl and turned on. I checked on the progress after two hours. Many bricks had whitened, seemingly completely, by that point, but there were still several that, although being definitely lighter, were still not as all-white as the others. So I put the lamp back on the bowl for another two hours. After that all bricks seemed to the naked eye to be of roughly equivalent whiteness. Bricks were then dried, their sequence recreated and an “after” photograph was taken.

The assembled bricks were then put into a closed box and placed on the shelf. 156 days

later the box was opened and another photo was taken. Those photos appear on the next page.

Observations:

While the process definitely whitened the bricks, none were as white as the control brick, but very close.

There were still very subtle differences in color after whitening.

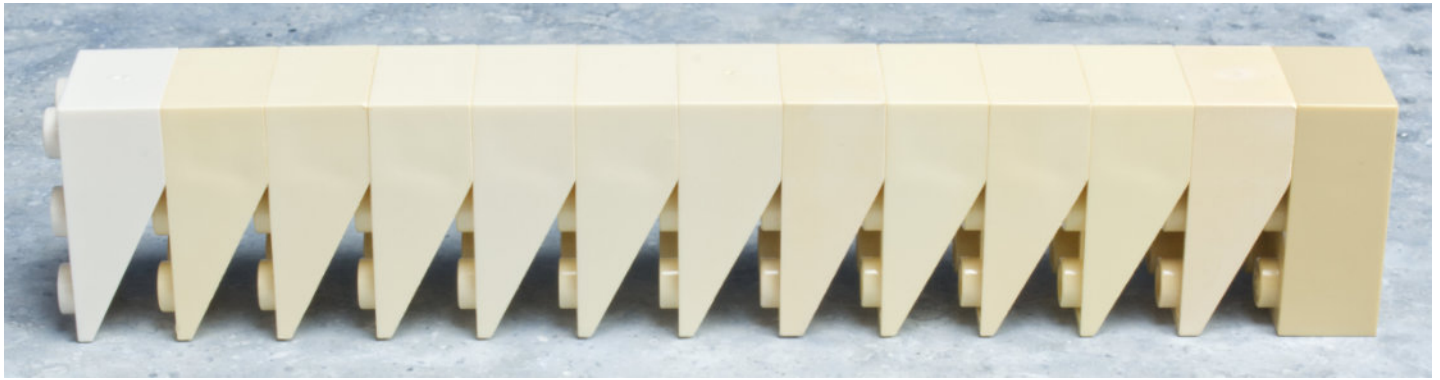
All bricks seem to display a very, very subtle yellowing after 156 days.

The brick immediately next to the tan control brick started off more pinkish in color and seemed to whiten best, and seemed to remain the whitest after 156 days.

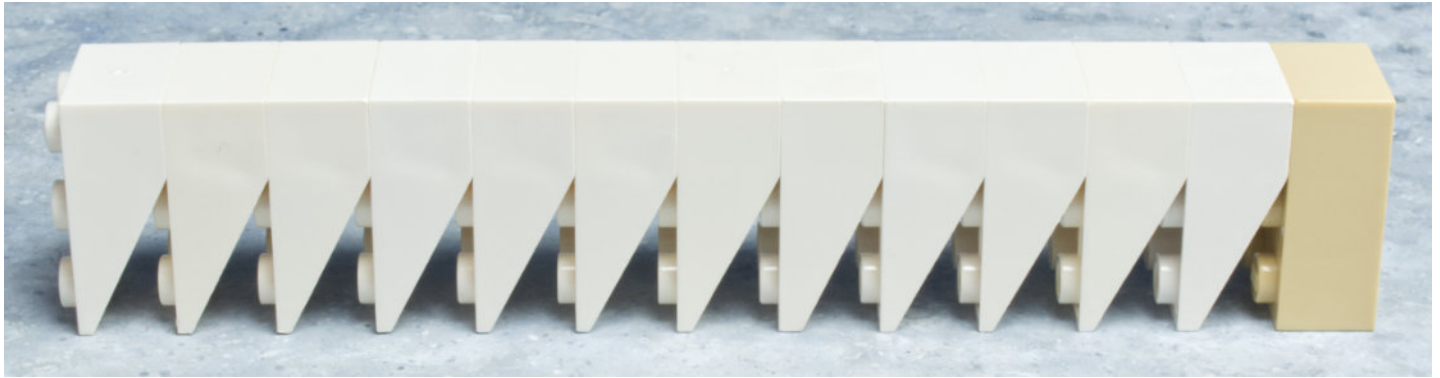
Referring to the photos, counting the white control slope as number 0, slope number 7 and the last slope did not have the inter-stud supports and those two remained whiter than the bricks with the inter-stud supports.

What I think I can conclude:

1. Does the process work? Yes.
2. The results seem to persist reasonably well for at least half a year.
3. Does the process make the bricks more brittle? I could not say for certain. To me, they do not seem more brittle, but the sample size here is too small and I do not have the required tools to perform actual testing.
4. Results vary given the production run. Undoubtedly there have been changes in materials and processes over the years.
5. Should you do it? That’s up to you.
6. It’s a crapshoot.



Before whitening.



Immediately after whitening.



156 days after whitening.



At top is a white horse for reference, bottom left is the unwhitened horse, bottom right is horse whitened over ten years ago. The two bottom horses appeared identical prior to whitening.