Curling Up with plastic sheets

By Mark Favreau

I thought the nine-headed beast had been perched motionless atop the shelf for ten months. It was time to disassemble and retire the beast to make way for something new to go on display. Then I noticed. It hadn't been entirely motionless. The sheet plastic wings were quite curled at the ends.

The plastic was flat enough where the pins held the sheet to the model, but I suspected the only reason it was flat was the pins holding it down. Sure enough, when the sheet was unpinned the whole thing curled more or less uniformly.

There was more disappointment than surprise upon observing this condition. I'd known for years that if one covered a sheet of paper or cardboard with paint that the sheet would curl. The paint would dry and contract at a different rate than the substrate and voilà the curl. The solution to counteract the curl was to paint the other side of the sheet.

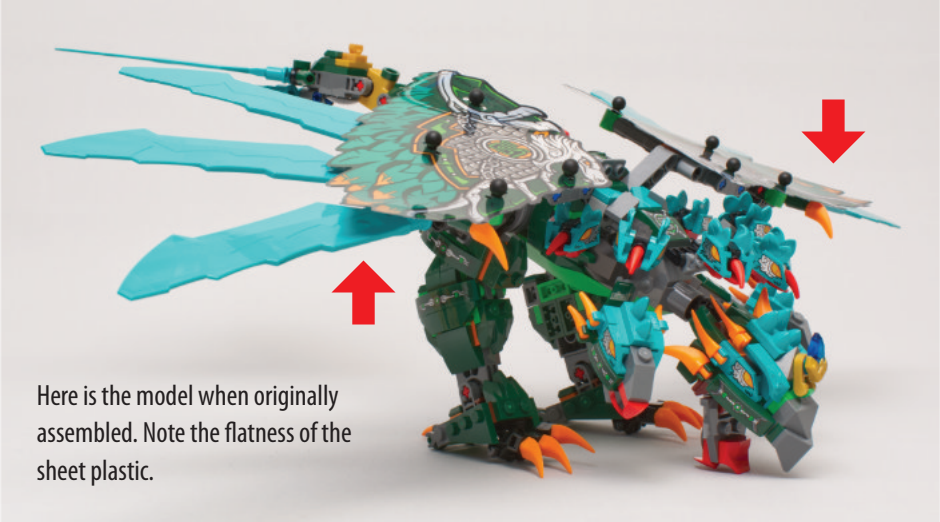
I was curious, though, to see if a little heat might remedy the situation. I took out the hair dryer, pointed it at the printed side of the sheet for a couple minutes, and the sheet did relax somewhat. As soon as the heat was removed, however, the sheet quite quickly began to curl again. I had expected it to curl gradually, but that was not the case. The sheet popped and jumped abruptly in a series of steps and after that there was gradual return to its full curl. I then left the sheet alone for a day to see if there would be additional curling, and there was, but it was extremely minimal.

I repeated the procedure a day later and this time the return to the curl was gradual, no jumps, and again it took no more time to return to the curl than it had taken to flatten it.

Next I tried putting the heat to the unprinted side of the sheet. It again flattened, and this time perhaps a bit more than before. The curl did again return, but this time it was far more gradual, taking quite a while. Leaving it printed side down, it appeared to curl from all sides around the center as opposed to the earlier side-to-side curl along the long axis.

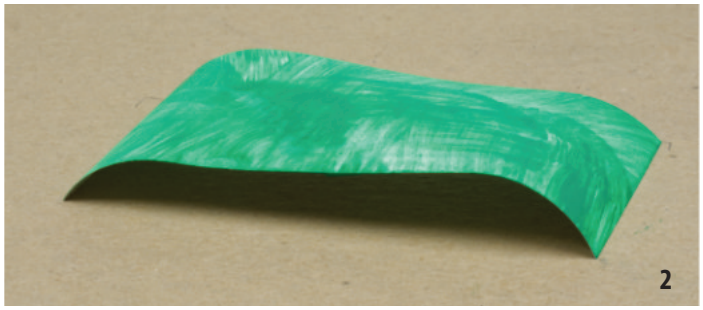
After two days without change, I turned the sheet printed side up and it immediately began to curl as it had earlier. It started with small jumps then over the course of a day gradually returned to the initial full curl.

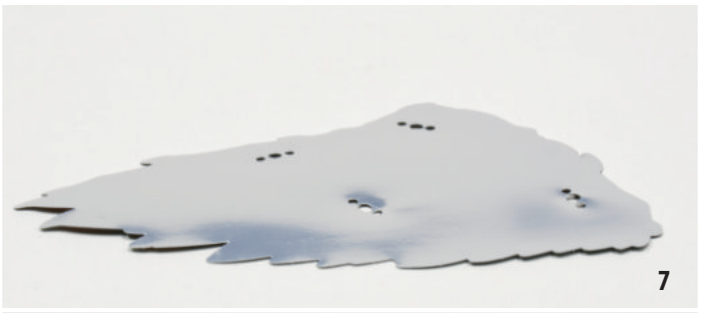
Further testing might yield more information, but to the extent of what was tested here the conclusion is that the plastic is going to curl and stay curled in an average room environment.

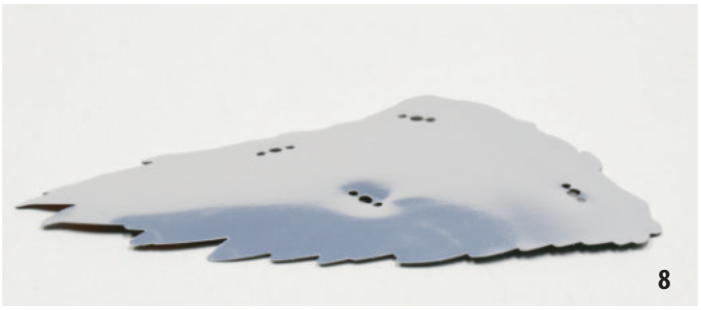


Here is the model when originally assembled. Note the flatness of the sheet plastic.

Here is the model ten months later. Note the curl of the sheet plastic.







1 Paint being applied to a card. **2** Wet paint on card. **3** Dried card showing curl. **4** Immediately after heat applied first time. **5** Moments later. **6** Minutes later.

7 Back immediately after heat application. **8** Seconds later. **9** After two days. **10** Flipping over. **11** Moments later. **12** One day later.