

Structural Material for Prototype Machine

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I'm designing a prototype machine which probably will be between countertop-size and a freestanding machine. If the latter, I'm thinking of using some sort of portable cart for the main structure.

I need to make some of the larger outside components out of a material which looks good (for a machine that might be used in a laboratory), is reasonably strong (for joints of attachment, panels for lights and switches, etc.), light (I may be lugging this thing around to demonstrate before venture capitalists), and cheap. Cheap means not exorbitant, but not necessarily super-cheap (like concrete or dried mud).

I had been thinking about wood. Or plywood. I remember seeing some show on PBS where a guy was turning a bowl of some exotic wood on a lathe, and he mentioned the wood had no grain which made it especially easy to work with. I find it hard to believe that any wood has no grain, but I wonder what wood he was using.

I've also been thinking about Corian. Lots of people are offering it on eBay. One positive thing is that it should be easily machinable, and I will have most of my parts made by machining. However, a negative thing is that I've seen comments that it's rather abrasive when cutting.

The material used for the prototype doesn't have to be something I'd use for a production unit.

Any comments on good materials for the outer housing of a prototype? It should look good, and photos may be taken. The machine will have electronic, mechanical, and optical components. The machine will make a small amount of noise while operating. Operation will be in a room temperature environment, in air. It will process liquids and solids, and spills of both aqueous

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and non-aqueous liquids are anticipated. Some liquids will contain tracer dyes, so a non-staining material is a plus. No liquids will be strong solvents, acids, alkalis, toxins, or radioisotopes.

The other parts of the machine will be aluminum and stainless steel. I've also considered mica and cork for key components, but they are not in the current plan. Plexiglas and glass might be used -- one section in a very prominent position may need a transparent door.

If I go with Corian, any recommendations on color would also be appreciated. It's hard to evaluate the suitability of "Aurora" from a low-resolution eBay image.

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