

Ask Science (reddit)

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- [Why are there no vacuum balloons?](#) (2026/01/28 17:11)

I got this question while thinking about airships for a story: why is there no use for balloons with a vacuum inside, since the vacuum would be the lightest thing we can "fill" a balloon with? I tried to think about an answer myself and the answer I came up with (which seems to be confirmed by a google search) is that the material to prevent the balloon from collapsing due to outside pressure would be too heavy for the balloon to actually fly, but then I thought about submarines and how, apparently, they can withstand pressures of 30 to 100 atmospheres without imploding; now I know the shell of a submarine would be incredibly heavy but we have to deal with "only" one atmosphere, wouldn't it be possible to make a much lighter shell for a hypothetical vacuum balloon/airship provided the balloon is big enough to "contain" enough empty space to overcome the weight of the shell, also given how advanced material science has become today? Is there another reason why we don't have any vacuum balloons today? Or is it just that there's no use for them just like there's little use for airships?

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