

Re: Is it possible to dope acrylic to achieve a higher index of refraction?

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*Source:* <http://sci.tech-archive.net/Archive/sci.optics/2007-06/msg00163.html>

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- *From:* Swedi Wasolela <[bosco.smith@xxxxxxxxxx](mailto:bosco.smith@xxxxxxxxxx)>
  - *Date:* Mon, 25 Jun 2007 00:28:03 -0000
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I was led to believe that glass could have its index changed by doping it with lead. And I know that gradient index glass is made by putting glass bars in a bath of something which then diffuses into the glass, is it sodium perhaps? Anyway, the presence of these dopants changes the index (although very slightly). Perhaps the dopants are straining, or relieving, the bonds in such a way as to alter the index. Why could you not do the something in a polymer?

On Jun 24, 11:55 am, Salmon Egg <[salmon...@xxxxxxxxxxxxxxxx](mailto:salmon...@xxxxxxxxxxxxxxxx)> wrote:

On 6/24/07 8:00 AM, in article  
1182697249.326935.255...[xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx](mailto:xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx), "Swedi Wasolela"

<[bosco.sm...@xxxxxxxxxx](mailto:bosco.sm...@xxxxxxxxxx)> wrote:

Hello,

Does anyone know if there are compounds one can add to acrylic during extrusion or casting to achieve a higher index of refraction (even at the expense of some clarity?). How high can you go. Is it remotely possible to reach levels of 1.8 or 1.9? Does anyone make such products already?

Cheers,

Swedi Wasolela

Not really. The source of the index comes from the chemical bonds. Just about any decent book on physical chemistry will have a table of molecular polarizabilities for various bonds. Any significant change in index would require a significant change in molecular structure.

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Bill

— Support the troops. Impeach Bush. Oh, I forgot about Cheney.