

PURIFY YOUR CANE AND LIQUID SUGAR WITH PURIT[®] MEDIA

Why use activated carbon?

Liquid sugar is a concentrated solution of refined granulated cane or beet sugar. The finished product is usually a 65° Brix syrup with a neutral sugar taste and odor, low color and no turbidity. It is a key ingredient in the beverage industry for making carbonated soft drinks and other flavored beverages. Because taste and color inconsistency can influence consumers' buying decisions, leading soft drink producers have stringent quality requirements for liquid sugars. NORIT[®] activated carbon products are commonly used as adsorbents for colorants and off-taste/odor compounds in this application. Activated carbon is used to decolorize cane sugar syrups by adsorption of plant pigments (polyphenols) from the sugar cane and colors, such as melanoidins and caramels, created during processing. Activated carbon has the capability to remove non-colorant impurities, such as amino acids and poly saccharides, along with the color.

Critical carbon properties

- ◆ Adsorptive properties: For color removal, the pore structure of a chemically activated carbon is typically better than steam activated carbon due to its high meso porosity. For taste and odor adjustment, steam activated carbon is usually preferred, due to its high micro porosity and phenolic value.
- ◆ pH: A neutral carbon is suggested to avoid sugar inversion. Acidic carbons lead to hydrolysis of sucrose (= sugar loss). Alkaline carbons lead to formation of melanoidins.
- ◆ Filtration behavior: Powdered activated carbon (PAC) grades with good filtration characteristics may be beneficial to reduce operating costs due to longer run rates. Traditionally, PAC has been used for removing dark color in liquid sugar; however due to the poor filtration of PAC, media with better filtration performance is the more preferred technology. We offer two media products, PURIT ULTRA media and PURIT LS HF media. Our PURIT media grades deliver excellent filtration and decolorization of targeted liquid sugar syrups. These multifunctional products may allow purification processes to reduce the frequency of filter press change outs. Our media PURIT grades are wet for easy dispersion and for minimizing dust during the dosing step. PURIT media has a neutral pH for avoidance of sugar inversion.

Benefits

- ◆ High color removal performance
- ◆ Excellent filtration
- ◆ Neutral pH
- ◆ Low dust dosing

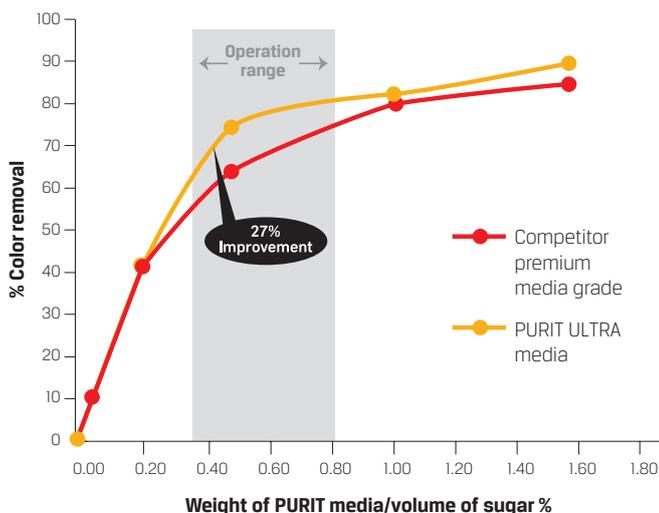


PURIT® ULTRA media performance data

The balance between filterability and decolorization is critical to performance. The graphs below demonstrate results for color removal. When evaluated under controlled conditions to eliminate variability from incoming raw material, these laboratory test results show that our media product achieved better color removal than a competitor's premium media grade product.

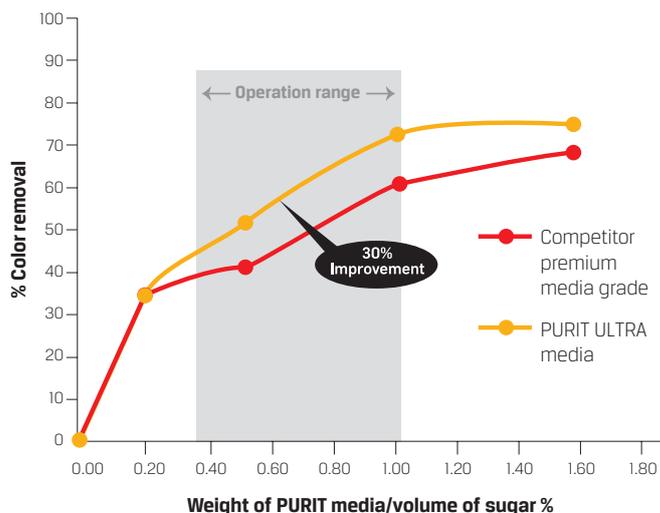
Reducing Mexican cane sugar from 1100 to 300 ICUMSA at 70% color removal target

70% color removal may be achieved with PURIT ULTRA media using 27% less media (0.45 units of PURIT ULTRA media versus 0.62 units of a competitive media).



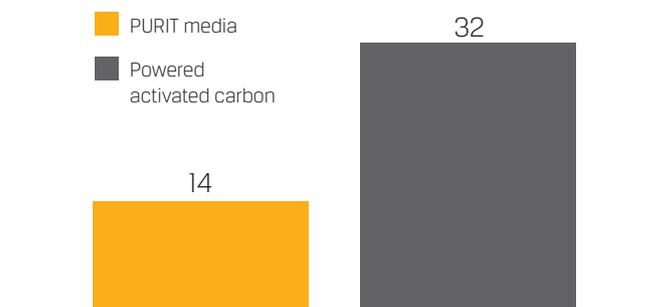
Reducing Mexican cane sugar from 350 to 140 ICUMSA at 60% removal target

60% color removal may be achieved with PURIT ULTRA media using 30% less media (0.6 units of PURIT ULTRA media versus 0.85 units of a competitive media).



The graph at right shows filtration performance of our PURIT ULTRA media versus standard PAC. In this lab test, pressure is measured after sixteen cycles of liquid sugar. After sixteen cycles, the PSI for PAC is 32PSI versus 14PSI for our media. This minimal pressure drop from our media allows longer filter press run rates.

PSI Measured after 16 Cycles of Liquid Sugar



Product selection guide

Challenge	Suggested product	Product type
Dark color removal (1100 to 60 ICUMSA), excellent filtration	PURIT ULTRA	Media
Dark color removal (700 to 60 ICUMSA)	NORIT® CN1	PAC
Light color removal (Lower than 100 ICUMSA), excellent filtration	PURIT LS-HF	Media
Taste and odor adjustment, light color removal, good filtration	DARCO® S-51HF	PAC
Taste and odor adjustment, light color removal, neutral pH	NORIT PN 2	PAC
Taste and odor adjustment	NORIT D 10	PAC



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