

## Itaconix® TSI® 322

### New, uncompromising plant-based choice for multi-functional scale inhibition

Use Itaconix® TSI® 322 to eliminate trade-offs between sustainability and top scale inhibition. Itaconix® TSI® 322 is plant-based and has excellent calcite and mineral dispersant properties. Stable across wide temperature and pH ranges, Itaconix® TSI® 322 is easy to handle and tablet. Suitable for detergent, and water treatment applications, Itaconix® TSI® 322 is the sustainable alternative to polyacrylates, phosphates, and phosphonates.

Applications:	Advantages:	Physical & Chemical Properties	
<ul style="list-style-type: none"> <li>• Automatic dishwashing detergents</li> <li>• Hard surface cleaners</li> <li>• Industrial cleaners</li> <li>• Water treatment</li> </ul>	<ul style="list-style-type: none"> <li>• Superior calcium and magnesium chelation and scale inhibition</li> <li>• No trade-off in sustainability and performance</li> <li>• Multi-functional chelation, dispersion, scale inhibition</li> <li>• More compact dosing</li> <li>• Approved for Safer Choice</li> <li>• Less metal and glass corrosion</li> <li>• Biodegradable</li> <li>• Stable from pH 2 - 14</li> </ul>	CAS#	1052620-22-0
		pH at 10% active	5.2
		Odor	none
		Average molecular weight (Mn)	4300 g/mole
		% Active	85
		Chemical class	Poly(itaconic acid-co-AMPS, sodium salt)
		Appearance	Off-white granules
		Density	700 g/L

### Class leading results

Achieve class leading spotting & filming results in comparison to industry brand leaders with the power of Itaconix® TSI® 322 in automatic dishwasher detergent formulations. Create more compact dosing by reducing or removing common builder ingredients with the use of Itaconix® TSI® 322.

### Clearer glasses than the leading branded pods

(30 cycle Stiftung Warentest protocol at an independent laboratory)

TSI® 322 in a 12.5g formula      Leading Brand A      Leading Brand B

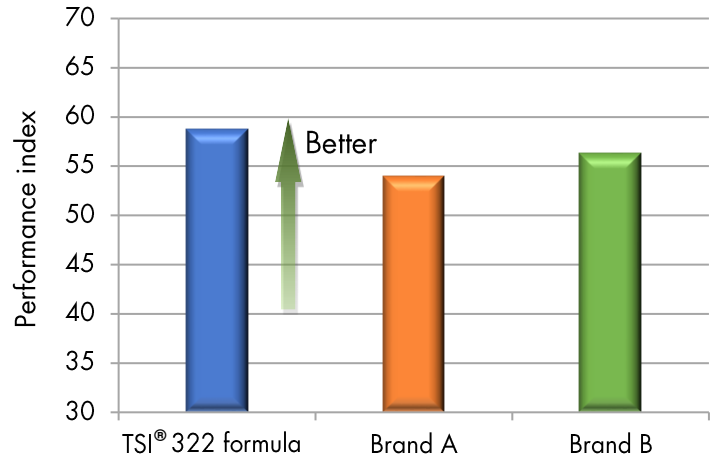


**Better spotting & filming scores**

Achieve top performance and sustainability using Itaconix® TSI® 322 in combination with sodium citrate in automatic dishwasher detergent formulations.

Independent laboratory testing confirms Itaconix® TSI® 322 improves overall spotting and filming scores in comparison to two leading brands.

Filming score vs leading brands

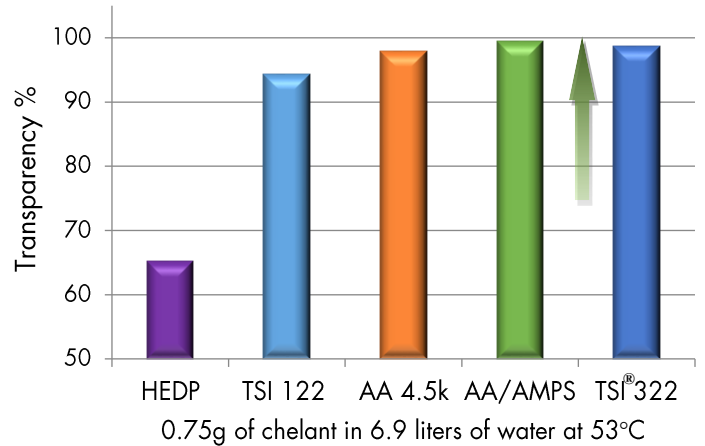


**Improved calcium carbonate dispersion**

Itaconix® TSI® 322 is plant-based and offers scale inhibition at the levels obtained by leading acylate based dispersant polymers.

Itaconix® TSI® 322 enables the reduction or complete removal of phosphonates, phosphates, amino acetates and polyacrylates from automatic dishwasher detergent formulations.

Dispersion at 300ppm water hardness



**Samples upon request**

Please email request to: [samples@itaconix.com](mailto:samples@itaconix.com)

**To request information on ordering quantities and pricing**

Please call: +1 (603) 775-4400 or email: [sales@itaconix.com](mailto:sales@itaconix.com)



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2 Marin Way, Stratham, New Hampshire 03885, USA. • +1 (603) 775-4400.

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