



## **TECHNICAL BULLETIN**

### **Zemea® USP-FCC Propanediol: Bitterness and Sweetness Study**

#### **INTRODUCTION**

The effect of Zemea® USP-FCC propanediol on the flavor of various food and beverage products was studied. The sensory testing was conducted by an experienced tasting panel of Tate & Lyle employees.

#### **EXPERIMENTAL DESIGN**

##### **Test Methods & Products**

Nine (9) Tate & Lyle employees experienced in the evaluation of food and beverages tasted three juices and two yogurts with and without the addition of Zemea® USP-FCC propanediol. The nine panelists tasted the products and discussed their perceptions of the flavor. They indicated whether the test or control product in each pair was sweeter, more bitter, and had a stronger overall flavor.

**Table 1.** Products Tested

<b>Product</b>	<b>Zemea® USP-FCC Propanediol Level %</b>	
	<b>Control</b>	<b>Test*</b>
Plain Greek Yogurt	0	1.0
Vanilla Yogurt	0	1.0
Orange Juice (no pulp)	0	0.1
Cranberry Juice	0	0.1
Grapefruit Juice	0	0.1

\*Zemea® USP-FCC Propanediol Level, Wt. %

#### **RESULTS**

- The plain Greek yogurt and grapefruit juice containing Zemea® USP-FCC propanediol were less bitter and clearly sweeter than the corresponding control products.
- The vanilla yogurt and orange juice containing Zemea® USP-FCC propanediol were less bitter and somewhat sweeter than the corresponding control products.
- Cranberry juice containing Zemea® USP-FCC propanediol was less bitter and less sweet than the corresponding control product.

## CONCLUSION

- The addition of Zemea® USP-FCC propanediol to various food and beverage products may achieve a reduction in bitterness in the final product.
- The addition of Zemea® USP-FCC propanediol to various food and beverage products may achieve an overall improved sweetness perception in the final product.
- Zemea® USP-FCC propanediol is a pure, naturally derived ingredient ideally suited for both food and beverage applications. It functions well as a carrier, taste modifier, extraction solvent, diluent, and humectant.

## DATA SUMMARY

Chart 1. Plain Greek Yogurt

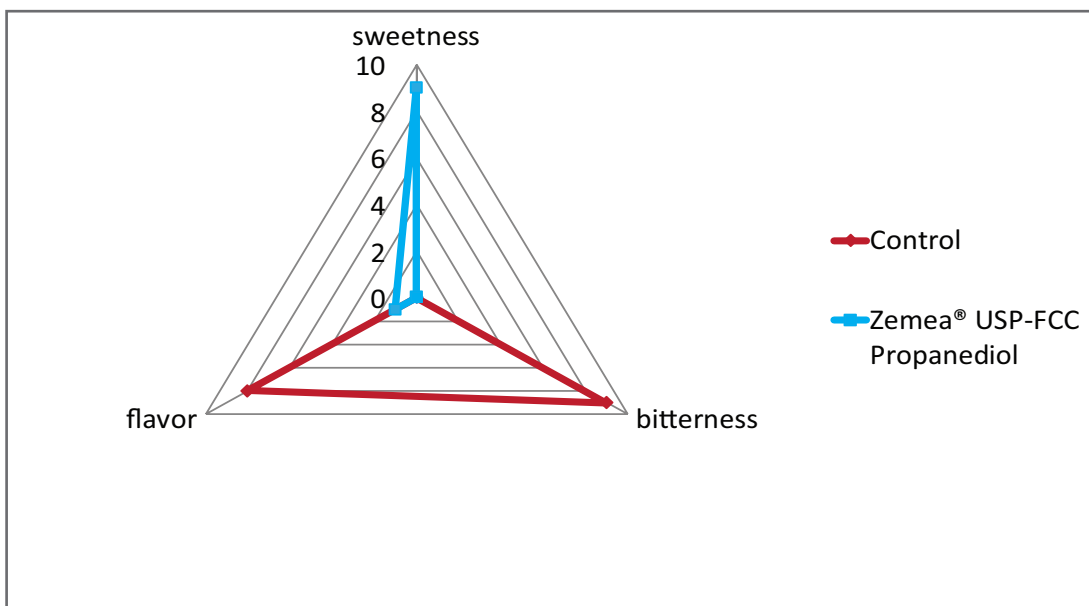


Chart 2. Vanilla Yogurt

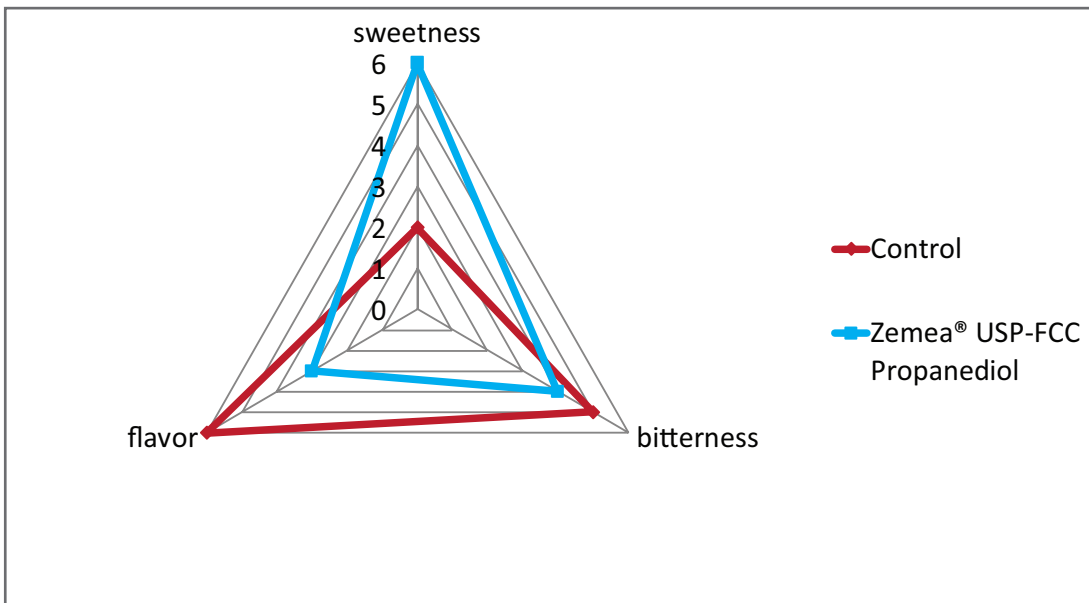


Chart 3. Orange Juice (no pulp)

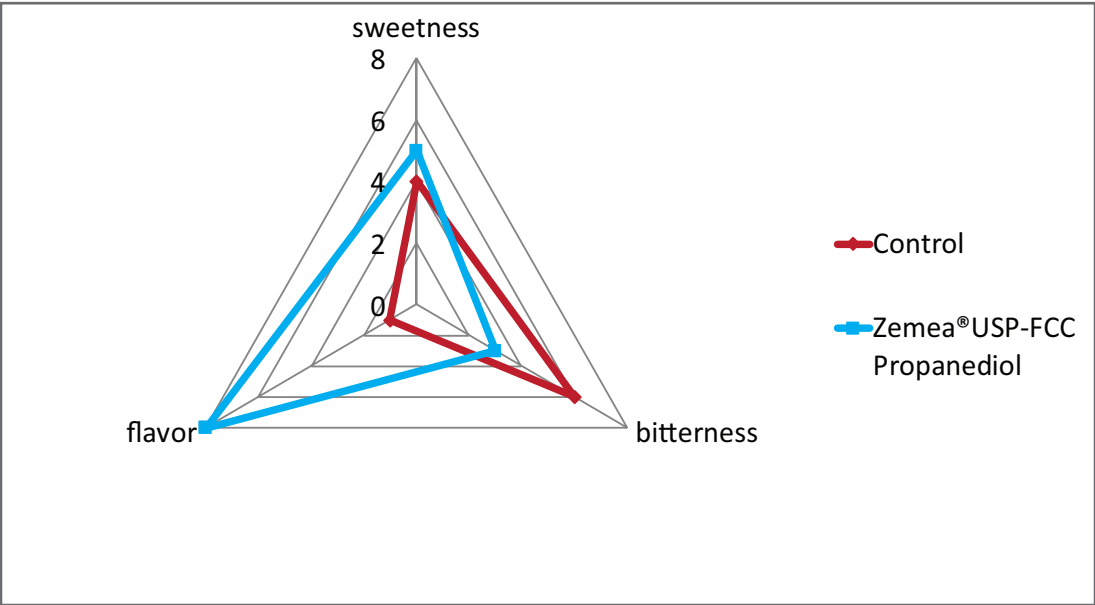
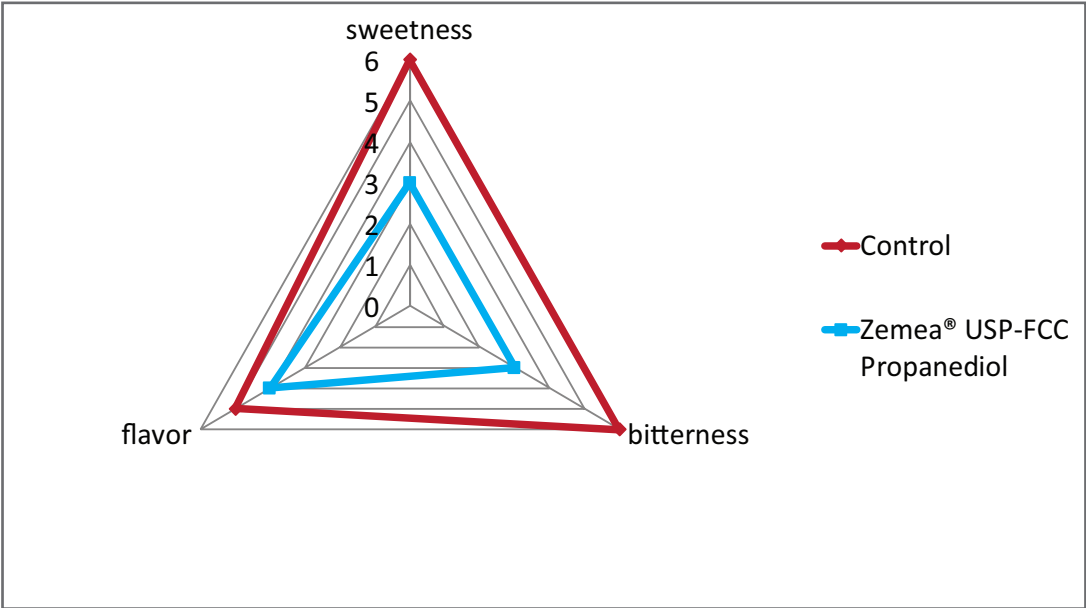
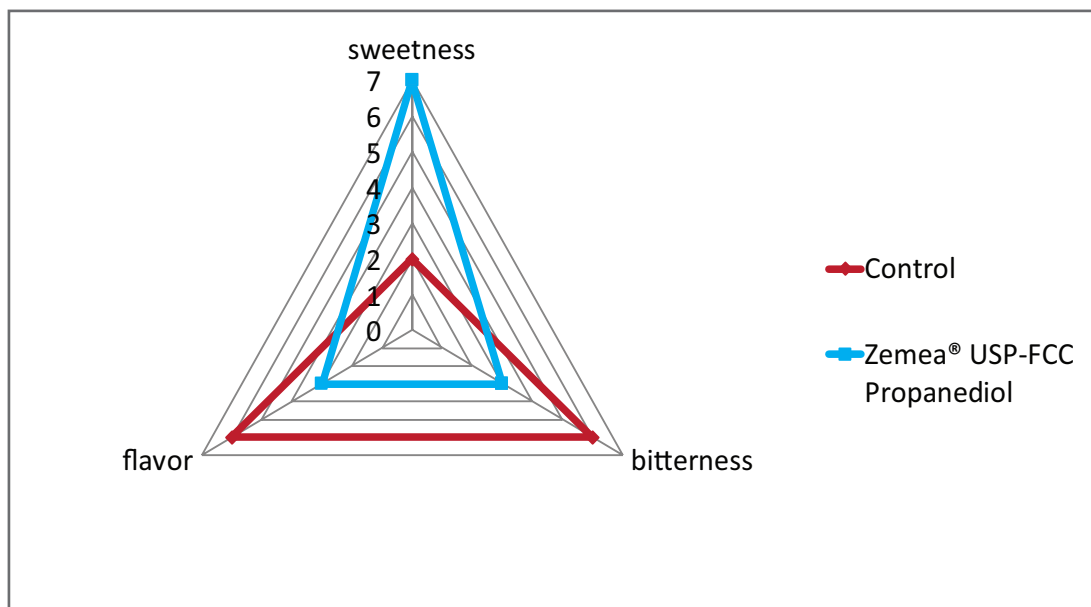


Chart 4. Cranberry Juice



**Chart 5. Grapefruit Juice**



**For additional information  
or samples:**

**DuPont Tate & Lyle Bio Products  
Customer Service**

198 Blair Bend Drive  
Loudon, TN 37774

Tel: +1-866-404-7933  
www.duponttateandlyle.com



Copyright © 2016 DuPont Tate & Lyle Bio Products Company, LLC. Zemea® is a registered trademark of DuPont Tate & Lyle Bio Products Company, LLC, for its brand of bio-based propanediol. All rights reserved. This technical product information is presented in good faith and is believed to be accurate and reliable as of the date of publication. DuPont Tate & Lyle Bio Products makes no guarantee or warranty of any kind, expressed or implied, regarding the product or information contained herein. Purchaser assumes all risk and liability in acting on the information provided herein. It is the sole responsibility of the Purchaser to determine whether Zemea® propanediol is appropriate and suitable for the Purchaser's specific use and, as required, to obtain approval by appropriate regulatory authorities for such use. Statements concerning the use of Zemea® propanediol are not to be construed as recommendations, suggestions, or inducements to use it in the infringement of any patent or in violation of any applicable laws or regulations. DuPont Tate & Lyle Bio Products disclaims any liability for infringement of any patent by reason of customer's use of any products or information contained herein in combination with other materials or in any process. (7/2016)