



Melvin S. Drozen  
Keller and Heckman LLP  
1001 G Street, N.W.  
Suite 500 West  
Washington, D.C. 20001

Re: GRAS Notice No. GRN 000767

Dear Mr. Drozen:

The purpose of this letter is to correct our response letter to GRN 000767, dated September 7, 2018, by revising a statement in paragraph four of the original letter.

The Food and Drug Administration (FDA, we) completed our evaluation of GRN 000767. We received the notice that you submitted on behalf of MonoSol, LLC (MonoSol) on March 15, 2018,<sup>1</sup> and filed it on April 26, 2018. MonoSol submitted amendments to the notice on June 20, 2018, and June 29, 2018, that clarified the intended use of the notified substance, and provided a revised Part 6 of the notice to more definitively discuss information cited in the notice and to clarify MonoSol's overall conclusion.

The subject of the notice is polyvinyl alcohol (PVOH) for use as a component of water-soluble, edible film that may be used to form pouches containing pre-portioned aliquots of (1) certain dry ingredients (i.e., instant tea, instant coffee, hot chocolate mix, flavored drink powder, and whey protein supplement powder) to be used by the consumer in preparing ready-to-serve foods and beverages at a level up to 0.734 g PVOH/serving, (2) approved color additives to be used in manufacturing flavored beverages (non-dairy and non-alcohol) at a level up to 0.0006 g PVOH/serving, and (3) dry ingredients to be used by commercial establishments in making pizza dough at a level up to 0.0075 g PVOH/serving.<sup>2</sup> The notice informs us of MonoSol's view that these uses of PVOH are GRAS through scientific procedures.<sup>3</sup>

MonoSol provides information about the identity of PVOH (CAS Reg. No. 9002-89-5). PVOH as an odorless, translucent, white or cream-colored granular powder. The molecular formula is  $(C_2H_3OR)_n$ , where R=H or COCH<sub>3</sub> is randomly distributed.

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<sup>1</sup> MonoSol submitted updates to its notice on April 11, 2018, and April 23, 2018. These updates clarified the identity of the notified substance.

<sup>2</sup> One slice is considered a single serving of pizza. The total use of 1.26 g PVOH/batch of dough would generate 21 pizzas.

<sup>3</sup> MonoSol states that PVOH is not intended for use in products under the U.S. Department of Agriculture (USDA)'s jurisdiction or for use in infant and toddler formulas and foods.

MonoSol describes the manufacturing process for PVOH, which is produced by polymerization of vinyl acetate monomer through controlled hydrolysis of the resulting polyvinyl acetate. Sodium acetate, methanol, and methyl acetate are the primary expected impurities. MonoSol indicates that PVOH is manufactured to be food grade.

MonoSol provides specifications for PVOH, including limits for lead (<2 mg/kg), methanol (<1%), methyl acetate (<1%), residue on ignition (<1%), and degree of hydrolysis (86.5-89.0%). MonoSol specifies that PVOH has a molecular weight range of 37,000 to 150,000 g/mol. MonoSol provides the results of five non-consecutive batch analyses of PVOH to demonstrate that it can be manufactured to meet these specifications.

MonoSol estimates the dietary exposure to PVOH using consumption data from the USDA's 1994-1996 Continuing Survey of Food Intakes by Individuals. MonoSol reports that the cumulative dietary exposure<sup>4</sup> to PVOH for the total users only U.S. population is 45.16 mg/kg body weight (bw)/day (d) at the 90<sup>th</sup> percentile.

MonoSol discusses the safety of PVOH using published studies and cites the GRAS conclusion from GRN 000141.<sup>5</sup> These published studies include animal toxicity studies (a two generation reproductive study and a subchronic toxicity study in rats), in which the authors reported no treatment-related effects at a dose of 5000 mg/kg bw/d. MonoSol reports that a literature search was conducted through January 2018. MonoSol did not report any new data or information that would contradict their GRAS conclusion; thus, the studies discussed in their notice were included in GRN 000141.

MonoSol concludes that based on the totality of the evidence, the intended use of PVOH is GRAS.

### **Section 301(II) of the Federal Food, Drug, and Cosmetic Act (FD&C Act)**

Section 301(II) of the FD&C Act prohibits the introduction or delivery for introduction into interstate commerce of any food that contains a drug approved under section 505 of the FD&C Act, a biological product licensed under section 351 of the Public Health Service Act, or a drug or a biological product for which substantial clinical investigations have been instituted and their existence made public, unless one of the exemptions in section 301(II)(1)-(4) applies. In our evaluation of MonoSol's notice concluding that PVOH is GRAS under its intended conditions of use, we did not consider whether section 301(II) or any of its exemptions apply to foods containing PVOH. Accordingly, our response should not be construed to be a statement that foods containing PVOH, if introduced or delivered for introduction into interstate commerce, would not violate section 301(II).

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<sup>4</sup> The cumulative exposure estimated by MonoSol includes that from GRN 000141 and from the intended uses in this notice.


<sup>5</sup> PVOH was the subject of GRN 000141. We evaluated this notice and responded in a letter dated April 28, 2004, stating that we had no questions at that time regarding Colorcon's GRAS conclusion.

## **Conclusions**

Based on the information that MonoSol provided, as well as other information available to FDA, we have no questions at this time regarding MonoSol's conclusion that PVOH is GRAS under its intended conditions of use. This letter is not an affirmation that PVOH is GRAS under 21 CFR 170.35. Unless noted above, our review did not address other provisions of the FD&C Act. Food ingredient manufacturers and food producers are responsible for ensuring that marketed products are safe and compliant with all applicable legal and regulatory requirements.

In accordance with 21 CFR 170.275(b)(2), the text of this letter responding to GRN 000767 is accessible to the public at [www.fda.gov/grasnoticeinventory](http://www.fda.gov/grasnoticeinventory).

Sincerely,  
**Michael A.  
Adams -S**

 Digitally signed by Michael A.  
Adams -S  
Date: 2018.09.19 12:54:32  
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**Dennis M. Keefe, Ph.D.**  
Director  
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