

**Environmental Assessment For Sodium Carboxymethyl Starch**  
**Food-Contact Notification (FCN)**

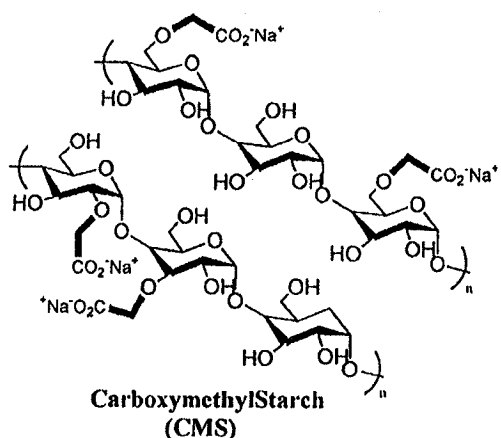
1. **Date:** September 10, 2011
2. **Name of Notifier:** Paper Pak Industries
3. **Address:** 1941 White Avenue  
La Verne, CA 91750
4. **Description of Proposed Action:**

This FCN requests the use of Sodium Carboxymethyl Starch (Food-Contact Substance or FCS) as a super absorbent polymer for use in pads that function to absorb fluids in packaged meat and poultry products. The pads containing the FCS absorb fluids that result from the washing of meat and poultry prior to packaging and fluids that are intrinsic to meat and poultry. The pads will be used in the packaging of meat and poultry products which are either refrigerated or frozen until used.

The FCS will be marketed under the trade name BioSap and will be incorporated into pads that are used in meat and poultry food packages at production sites throughout the U.S. The FCS is expected to be distributed widely across the U.S. in patterns corresponding to national population density. The FCS is an alternative to cellulose and acrylic acid pads currently in use. Disposal of the FCS is expected to occur nationwide either in municipal landfills or through incineration.

## 5. Identification of Substances that are the Subject of the Proposed Action:

The substance that is the subject of this FCN Sodium Carboxymethyl Starch. The CAS Registry Number associated with this FCS is 9063-38-1. The structural formula of the FCS is shown below.



The FCS is a solid, large molecular weight molecule that is white in appearance. It was not possible to determine the molecular weight of the FCS due to its large size and cross-linking but the molecular weight is anticipated to be greater than 1 million Daltons. Physical and chemical properties of the FCS are shown in Table 1 below:

**Table 1**  
Physical and Chemical Properties for Sodium Carboxymethyl Starch

Property	Value
Bulk Density	0.6 g/cm <sup>3</sup>
pH at 10% w/w in water	5.2-6.0
Particle Size Distribution	Retain on 20 Mesh: 1.0% Max Retain on 30 Mesh: 30.0% Max Retain on 60 Mesh: 42.0% Mas Retain on 100 Mesh: 10.0% Max Through 100 Mesh: 2% Max

Impurities:

Information on impurities associated with the FCS is presented on page 5 of the FCN and is considered confidential business information. Only negligible amounts of the impurities are expected to enter the environment from the proposed use of the FCS.

**6. Introduction of the Substances into the Environment:**

**a. Introduction of substances into the environment as a result of manufacture:**

There are no extraordinary circumstances that apply to the manufacture of Sodium Carboxymethyl starch and, therefore, information about environmental introductions resulting from the production of this substance need not be included in the Environmental Assessment.

**b. Introduction of substances into the environment as a result of use/disposal:**

Negligible amounts of the FCS are expected to be released into the environment during its use because it will be part of food packaging and is expected to remain with food packaging throughout its use.

Almost all of the FCS is anticipated to be disposed in landfills either as typical trash or incinerated. Based on properties of the of the FCS (high-molecular weight, water insoluble polymer) and residual studies conducted with the FCS, only very low levels of the FCS and its residuals are expected to leach from landfills. The residual studies showed that the levels of residuals associated with the FCS is very low (<1% of the FCS). If incinerated, the FCS is expected to completely combusted into carbon, hydrogen and oxygen.

## **7. Fate of Emitted Component in the Environment:**

There is no environment fate information available on the FCS. However, very little, if any amounts, of the FCS is expected to enter the environment during use and disposal because only small quantities, if any, of the FCS will be released into the environment during use and disposal. Moreover, since the FCS is a high molecular weight polymer that is water insoluble it will be very difficult, if not impossible, to conduct any meaningful environmental fate studies.

The publically available literature data indicates that the residuals associated with the FCS are rapidly biodegraded. Consequently, none of the residual substances are expected to persist in the environment.

## **8. Environmental Effects of Released Substances:**

There is no environment effects information on the available on the FCS. However, due to the insignificant, if any, levels of the FCS (and the residuals associated with the FCS) that are expected to be released into the environment no environmental effects of concern are anticipated.

## **9. Use of Resources and Energy:**

The raw materials used in the production of the FCS are commercially manufactured materials that are produced for use in a variety of chemical reactions and production processes. Energy used specifically for the production of the proposed use of the FCS is not significant.

Moreover, the proposed use of FCS as described will not lead to a net increase in the consumption of resources and energy since the FCS is an alternative to absorbent polymers currently in use.

**10. Mitigation Methods:**

As noted above, no significant adverse environmental impacts are expected to result from the intended use of the FCS. Thus, the use of the subject FCS is not reasonably expected to result in any new environmental issues requiring mitigation methods of any kind.

**11. Alternatives to the Proposed Action:**

No potential adverse environmental effects are identified herein that would necessitate alternative actions to that proposed in this Food Contact Notification. In view of the excellent properties of the FCS as a absorbent in food packaging, the benefits that result from its use and the absence of any significant environmental impact that would result from its use, the clearance of the FCS as described herein appears to be environmentally safe and desirable in every aspect.

**12. List of Preparer:**

This Environmental Assessment was prepared for Paper Pak by Eliot Harrison of Lewis & Harrison, LLC. Mr. Harrison's background is in biology and chemistry and he has over ten years of experience in the preparation of submissions for food-contact substances.

**13. Certification:**

The undersigned official certifies that the information provided herein is true, accurate, and complete to the best of his knowledge.

Name: Eliot I. Harrison

Title: Agent for Paper Pak Industries

Signature:

A black rectangular box redacting the signature.

Date:

2/10/2011