

**S. K. Patil and Associates**

***Dextrins: Food & Industrial Products,  
Applications, Markets and Industry  
Situation 2012***



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# ***DEXTRIN: Food & Industrial Products, Applications, Markets and Industry Situation***

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## **ABSTRACT**

This latest revision of dextrin report is enhanced to include several areas pertinent to current situation and opportunities. Dextrins belong to a class of low-molecular-weight carbohydrates degradation products made from starch manufactured by a process called pyrolysis. During pyrolysis, dry, powdered starch is treated with acid in a suitable reactor and heated while mixing. Depending on the type of starch used, the reaction conditions, and the point at which the reaction is stopped, a very large number of different products can be made for use in industrial and food applications. They find widespread use in industry, due to their non-toxicity. They are used as water-soluble glues, as thickening agents in food processing, and as a binding agent in pharmaceuticals.

Dextrinization can be accomplished using either a mineral acid or an organic acid as a catalyst. Hydrochloric acid is widely used in the manufacture of dextrins. A dextrin are characterized by its solubility in water, viscosity, color, pH, moisture, reducing sugar value, molecular weight

distribution, and many other measurements. There are five classes of dextrin and the industry nomenclature base on color and final product characteristics; white, cream, canary, waxy based, British gums and more recently resistant dextrans (non or slow digestible in health and nutrition)

Dextrans are marketed to several food and industrial segments and offer marketing opportunities with their excellent properties of solubility, film forming, and adhesive/tack properties in many foods including the new growth areas such as snacks, whole grains among other. More recently the digestion resistant properties in health/nutrition segment that provide controlled glycemic response, low calorie, etc. Resistant dextrans or resistant maltodextrans are mixed and random glycosidic linkages -1-4 and 1-6 glucosidic bonds from starch and 1-2 and 1-3 bonds, from transglucosidation. Produced by pyrolysis of corn starch with HCl, further enzymatic hydrolyzed. These are partially digestible. Laxation and colonic fermentation, effects on lipid levels. Promoted in Nutritional beverages, functional foods, low viscosity fiber source. Applications have expanded into dairy, soy milk among many other products with fiber claims.

This report provides critical information on dextrin process, products, brief properties, industry volume, price estimates and the end user applications properties with key customers. Report also includes timely information regarding selected current research activities (who is doing what?) and list of pertinent patents. Total market for pyrodextrans fir food and industrial sectors in the US for 2011 is estimated to be ~ 173 million lbs. /as indicated above food sector amounts to ~ 39 million lbs. Majority of dextrin produced is consumed in the industrial segments as adhesives and binder for numerous products from bag adhesives, industrial, consumer tapes, wall papers, foundries, etc.

Resistant dextrans or resistant maltodextrans (RS dextrans) are mixed and random glycosidic linkages -1-4 and 1-6 glucosidic bonds from starch and 1-2 and 1-3 bonds, from transglucosidation. Produced by pyrolysis of corn starch with HCl, further enzymatic hydrolyzed. These are partially digestible with laxation and colonic fermentation and effects on lipid levels. Promoted in Nutritional beverages, functional foods, and low viscosity fiber source. Applications have expanded into dairy, soy milk among many other products with fiber claims.

Report also includes latest research and technology developments and most recent patents issued in the areas of dextrans, resistant dextrans and applications.