

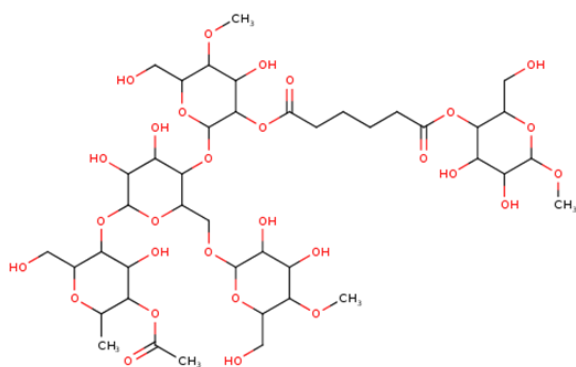
DETERMINATION OF ADIPIC ACID CONTENT OF ACETYLATED DI-STARCH ADIPATES BY GAS-CHROMATOGRAPHIC METHOD

The Expertise Centre CCC Analyses (Eurofins Food & Feed Testing, The Netherlands) is proud to announce the availability of the method for analyses of free and total adipate in modified starches using gas chromatography conform NEN-EN-ISO 11215 according to ISO 17025 as a validated routine test.

The method is available with the test code HEC3R.

Introduction

Acetylated di-starch adipate (St-Adipate) is a chemically modified starch. It is prepared by treating starch with adipic and acetic anhydrides to form white or nearly white powder, granules, or flakes (if pre-gelatinised).



Acetyl di-Starch Adipate

Regulations

St-adipate has a GRAS (Generally recognized as safe) FDA notification. In the EC (Commission Regulation (EU) No. 231/2012) it is allowed as food additive having E-number E1422. It's degree of modification is limited by law for use in foods. The amount of adipic and acetate groups should not exceed 0,135 and 2,5%, respectively. Also the amount of reaction by-products as free adipic acid is limited. The free and bound adipate is generally below 0,09%. The limits set by regulation reflects the maximum treatment or cross-linking levels needed to achieve the required functionalities. The level of cross-linking is usually low at 1 cross-link per 1000-2000 or more anhydroglucose units.

Functionality

St-adipate, is a starch that is treated to resist high temperatures and stability. It is used in foods as a bulking agent, emulsifier, stabilizer, binder and a thickener.



Main uses are:

- ◆ frozen cakes
- ◆ dry mixes
 - ◆ cupcakes
 - ◆ muffins & cakes
 - ◆ cookies
 - ◆ puddings
 - ◆ flavoured toppings
 - ◆ sauces
- ◆ breakfast cereals
- ◆ pies
- ◆ custard powders
- ◆ mayonnaises
- ◆ salad dressings (e.g. caesar salad dressing)

Milk or dairy products like:

- ◆ fermented milk
- ◆ drinking yoghurt
- ◆ flavoured milks
- ◆ whipped creams
- ◆ unripened cheese
- ◆ whey products
- ◆ fat-based desserts
- ◆ starch based desserts (rice pudding, tapioca)

Other uses are:

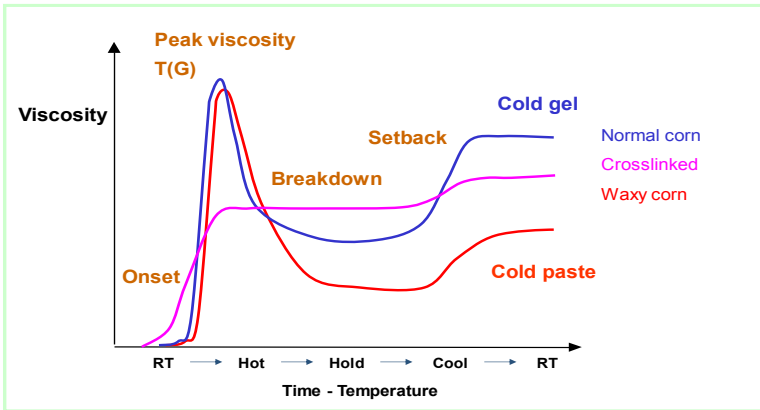
- ◆ soups
- ◆ vegetable sauces
- ◆ meat sauces
- ◆ ketchup
- ◆ fruit concentrates
- ◆ jams & marmalades
- ◆ jellies & purees
- ◆ desserts
- ◆ custards
- ◆ pies & fillings
- ◆ instant beverages
- ◆ dried foods
- ◆ semi-preserved or frozen fish & seafood
- ◆ coffee
- ◆ coffee substitutes
- ◆ tea
- ◆ herbals teats
- ◆ hot cereals
- ◆ breakfast oats
- ◆ pre-cooked pasta
- ◆ noodles
- ◆ dried or heat-coagulated eggs
- ◆ confectionary

Principle of the method

Principle

The test portion is dispersed in moderately concentrated sodium hydroxide solution, to hydrolyse fully the adipate from the starch. After acidification, the adipic acid is extracted with ethyl acetate. The ethyl acetate is removed, and the dry residue is silylated. The determination is performed by silylation and gas chromatography (GC-FID) equipped with a capillary column using an internal standard.

The method is suitable for raw materials or ingredients.



Viscosity of St-adipate vs. waxy & normal corn starch



Test code	Applicability (GC-FID)
HEC3R	Ingredients and raw materials



Contact us

Websites: www.carbohydratetesting.com & www.eurofinsfoodtesting.nl/en

Email: carbohydrates@eurofins.com