

# NATURAL COLOURS & COLOURING FOODSTUFFS; legal definitions and labelling

Food colours are used to restore, enhance and differentiate food products in a wide variety of applications. Creating eye catching products is key to standing out in an ever growing market place, and with a consumer increasingly more health focused and knowledgeable about food labelling and artificial ingredients, there has been a strong uptake in the use of clean label, natural, plant and vegetable based ingredients, a trend set to continue.

As a specialist manufacturer of food ingredients, Plant-Ex can offer a full colour portfolio of natural colours alongside a wealth of experience and technical expertise, catering for all industries and applications. From high performance, naturally derived food colours, to clean label colouring food ingredients, Plant-Ex can offer innovative and stable colour solutions for all applications and labelling demands.

- **Artificial food colour additives (E-number)** – Synthetically produced additives used to colour foods, includes Azo dyes such as Tartrazine E101.
- **Natural food colour additives (E-number)** – Derived from a variety of natural sources and further processed to concentrate, enhance and stabilise the colour pigments.
- **Colouring foodstuffs (Clean label ingredients)** – Simply processed from foods such as fruits, vegetables, plants and spices which are used to give flavour and colour, along with a clean label declaration.

Breakdown  
of colours



## What are colouring foodstuffs?

- Colouring foodstuffs are clean label ingredients that naturally impart colour to food and beverages, they are produced from edible fruits, vegetables, flowers, algae and spices which have been simply processed without the use of chemicals or solvents to selectively extract the pigments.
- Examples of colouring foodstuffs include Saffron, used for many thousands of years to impart a delicate flavour as well its prized golden yellow colour.
- Based on the principle of minimal processing without the use of solvents or chemicals, colouring foods are primarily concentrated juices, produced from high quality crops and raw materials which are then standardised for colour and carefully processed into a range of formats.

# COLOURING FOODSTUFFS

- Colouring foodstuffs do not undergo selective extraction of the colour pigments, they are simply concentrated juices which retain the flavour and nutritive qualities of the source they are made from delivering flavour as well as colour.
- As typical food ingredients, colouring foodstuffs are not considered as technological additives and are not regulated under 1333/2008 legislation. Therefore, labelling of colouring foodstuffs is as an ingredient in the product and does not require labelling as a colour, or with an E-number.
- The criteria for defining a colouring foodstuff can be found in the EU Guidance notes on the classification of food extracts with colouring properties (29.11.2013, Version 1), which was adopted by the European Standing Committee on the Food Chain and Animal Health.
- Colouring foodstuffs have a clean label declaration and are based on natural, edible ingredients recognisable to the consumer. With growing awareness of artificial additives, as well as strong trends towards improving health and eating nutritious foods, colouring foodstuffs have grown in popularity as they are perceived as more natural and healthy options.
- Working with colouring foodstuffs may present challenges when developing new products, they tend to be less stable than typical food colour additives and may require higher dosages to achieve the desired colour shade when compared with their additive counterparts. With in house research and development laboratories and applications kitchens, Plant-Ex has built a wealth of knowledge in the use of colouring foodstuffs and is able to offer a range of support.

## Colouring foodstuffs:

- + **Wide portfolio of colour shades in a range of user-friendly formats**
- + **Clean label, simply processed ingredients**
- + **Growing consumer demand for clean label, natural ingredients**
- + **Perceived by the consumer as healthy, such as Spirulina**
- **Can be difficult to achieve bright/intense colour**

## Colouring Foodstuff Portfolio

-  Red Beet
-  Black Carrot
-  Radish
-  Red Cabbage
-  Purple Sweet Potato
-  Safflower
-  Burnt Sugar
-  Spirulina
-  Malt

## Technical Demonstrations:

Turbidity/ pH /Heat/ Emulsions and particle size/ Spray drying/ Colour matching/ Solubility/ Dosage/ Applications/ Blending

## shades

- **Colours are less stable and require careful selection**
- **Cost in use is higher than with naturally derived colours**
- **May impart taste at higher dosages**

# NATURAL COLOURS



## What are Natural Colours?

- A natural colour is a food colour additive that has been derived from a natural source and added to a food or beverage for the primary reason of modifying the colour of the product.
- Plant-Ex natural colours are extracted from a wide range of sources including plants, spices, microorganisms and minerals. To produce vibrant and stable colours firstly high-quality raw materials are selected, before undergoing chemical or solvent processing to selectively extract and enrich the pigments responsible for the colour. The result is a highly concentrated and stable colour, which can be tailored to work in a wide range of food and beverage applications.
- By concentrating the pigment in relation to the other components of the source material, Plant-Ex natural colours deliver minimal taste to the final food product.
- Able to produce a bright and vibrant array of colour shades, Plant-Ex natural colour portfolio has a range suited to every type of food industry application. By utilising in house technical expertise, as well as the latest manufacturing technology and analytical equipment, Plant-Ex can offer innovative colour solutions with excellent performance and cost in use whilst maintaining batch to batch consistency.
- As technological additives, the usage of food colours is regulated under EU legislation 1333/2008, with the the specifications for these colours described in EU 231/2012.
- Under EU legislation, colour additives must be labelled according to their function on the back of pack and some may carry restrictions on use in certain foodstuffs. For example, 'colour: E160a', or 'colour: Beta Carotene'.
- Some colours, while derived from natural sources, are not considered natural colours due to the extensive processing and modification the pigments have undergone to stabilise or enhance them. Whilst there is no differentiation of natural and artificial colours on back of pack labelling, a product using this group of colours may not claim on packaging to be "made using natural colours" but instead could claim "free from artificial colours".
- For example, Chlorophyll E140 is a natural colour, however, to produce a more vibrant and stable green colour from Chlorophyll it is necessary to use the chemical process of alkaline hydrolysis, where the magnesium atom is replaced with sodium and copper to modify the pigments shade. This results in the formation of Sodium Copper Chlorophyllin E141 (ii) – it is due to this process that Sodium Copper Chlorophyllin is not considered a natural colour even though it is extracted from a natural source.



**Plant-Ex**  
Ingredients Ltd

# NATURAL COLOURS

## Natural Colour Portfolio

\*naturally derived pigments, which have been modified & should no longer be considered a natural colour



Carotenes E160a (i) Synthetic\*, (ii) Natural Mixed Palm, (iii) Natural Blakeslea Trispora, (iv) Natural Algal Dun Salina



E162 Red Beet



Anthocyanins E163



Paprika E160c



Riboflavin E101\*



Curcumin E100



Annatto Norbixin E160b(ii)\*



Carmine E120\*



Lutein E161b\*



Chlorophyll E140(i) \*



Lycopene E160d\*



Titanium Dioxide E171\*



Calcium Carbonate E170\*



Caramels E150a, b, c, d\*



Iron oxides (Yellow, Red, Black) E172\*



Annatto E160b\*



Carbon Black E153

## Naturally derived colours:

+ Bright and intense colour shades for any application

+ Good cost in use

+ Good stability

+ Low flavour impact

- Must be labelled as a colour additive

- Lower consumer appeal for additives or E-numbers

- Some naturally derived colours are not able to be labelled as “natural”

## Technical Support

Talk to our team about the options available and our recommendations which would be given according to the application. Accelerated stability testing can also be undertaken in our laboratories to assist our partners.