Green
Orange
Yellow
Pink

Colours that reflect the goodness of nature

necol™ | Natural and Effective Colours

Synthite

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Think of the juicy red colour of a strawberry and your mouth waters, the bright yellow of a lemon and you're refreshed, or the rich brown of a chocolate and you want to give in. The act of eating is a multisensory experience. While taste and aroma of food will always decide what we like or don't like, how food looks is as important as how it's cooked. That's where food colour comes in. From colourful candy to bright hued drinks, our meals are full of artificial colour. But rising concerns about these dyes have created a demand for natural colours. Synthite believes that the best colours come from nature's palette. As a member of NATCOL, we offer natural colour solutions created from the finest raw materials. Our range of natural and effective colours (NECOL™) offer a wide choice of colours for application in the beverage, dairy, confectionery and savoury industry.

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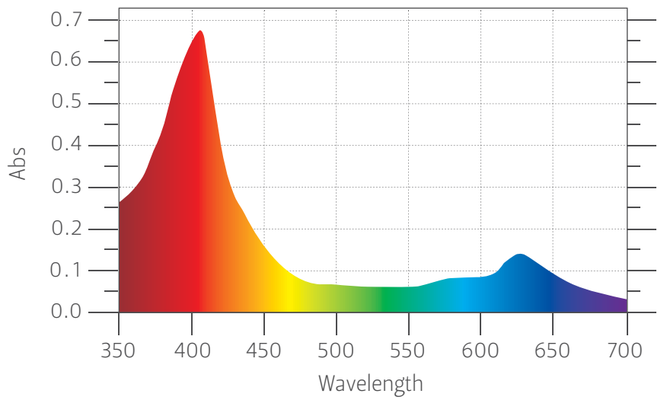
Green

Green pigments from Spinach.

The fresh green of spinach derives its colour from chlorophyll pigments in the leaf. An edible flowering plant from the *Amaranthaceae* family, spinach is native to central and south-western Asia. Its vivid colour speaks of its high antioxidant content and is a rich source of vitamin C, vitamin E, iron, calcium and potassium. The green pigment derived from spinach has good heat and light stability and is a popular colouring agent in the confectionery and beverage industry.

Applications	Mantis Green	Fern Green	Bright Green	Vibrant Green
Beverages	●	NA	NA	●
Dairy	●	●	NA	●
Confectionery	●	●	NA	●
Fried Snacks	●	●	NA	●
Pasta	●	●	NA	●
Seasoning & Savoury	●	●	NA	●
Meat Products	●	●	NA	●
Sauces	●	●	NA	●
Bakery	●	●	NA	●
Frozen Desserts	●	●	NA	●
Canned Fruits	●	●	NA	●
Pet Foods	●	●	NA	●
Cosmetics	●	●	●	●
Dry Mixes	NA	●	NA	NA
Fats & Oils	NA	NA	●	NA
Soaps, Crayons etc.	NA	NA	●	NA

Base Colour	Mantis Green	Fern Green	Bright Green	Vibrant Green
Pigment	Copper Chlorophyll	Copper Chlorophyll	Copper Chlorophyll	Sodium Copper Chlorophyll
Water Soluble	Yes	Yes	NA	Yes
Oil Soluble	NA	NA	Yes	NA
Powder	NA	Yes	NA	NA
Liquid	Yes	NA	Yes	Yes
pH	(2-9)	(2-9)	(2-9)	(2-9)
Light Stability (at 1000lux)	6 months	6 months	6 months	6 months
Heat Stability	Good	Good	Good	Good
0.1% soln. in water	Clear	Clear	NA	Clear



Higher colour ratio in the absorption spectrum indicating the strength of green pigments.

●-Applicable
NA-Not Applicable

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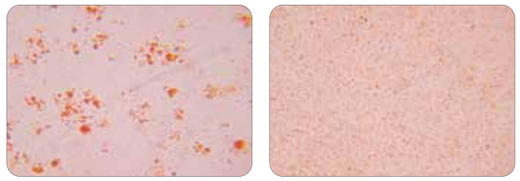
Orange

Orange pigments from Paprika.

The rich colour of paprika comes from carotenoid pigments that are extracted into orange food colour. Paprika or *Capsicum annuum* is a domesticated species of peppers native to Asia Pacific, North and South America. The presence of active colouring pigments like capsanthin and capsorubin makes these pigments great colouring agents. As one of the largest manufacturers of paprika oleoresins, Synthite offers superior heat and light stable colours for use in the beverage, dairy and confectionery industry.

Applications	Carrot Orange	Aurora Orange	Saffron Orange	Bright Orange
Beverages	●	●	NA	NA
Dairy	●	●	●	NA
Confectionery	●	●	●	NA
Fried Snacks	●	●	●	NA
Pasta	●	●	●	NA
Seasoning & Savoury	●	●	●	NA
Meat Products	●	●	●	NA
Sauces	●	●	●	NA
Bakery	●	●	●	NA
Frozen Desserts	●	●	●	NA
Canned Fruits	●	●	●	NA
Pet Foods	●	●	●	NA
Cosmetics	●	●	●	●
Dry Mixes	NA	NA	●	NA
Fats & Oils	NA	NA	NA	●
Soaps, Crayons etc.	NA	NA	NA	●

Base Colour	Carrot Orange	Aurora Orange	Saffron Orange	Bright Orange
Pigment	Capsanthin	Capsanthin	Capsanthin	Capsanthin
Water Soluble	Yes	Yes	Yes	NA
Oil Soluble	NA	NA	NA	Yes
Powder	NA	NA	Yes	NA
Liquid	Yes	Yes	NA	Yes
pH	(2-9)	(2-9)	(2-9)	(2-9)
Light Stability (at 1000lux)	6 months	6 months	6 months	6 months
Heat Stability	Good	Good	Good	Good
0.1% soln. in water	Clear	Cloudy	Clear	NA



Control | Necol Orange

Microscopic image showing Necol Orange having a uniform dispersion of colour pigments as compared to control

●–Applicable
NA–Not Applicable

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Yellow

Yellow pigments from Turmeric.

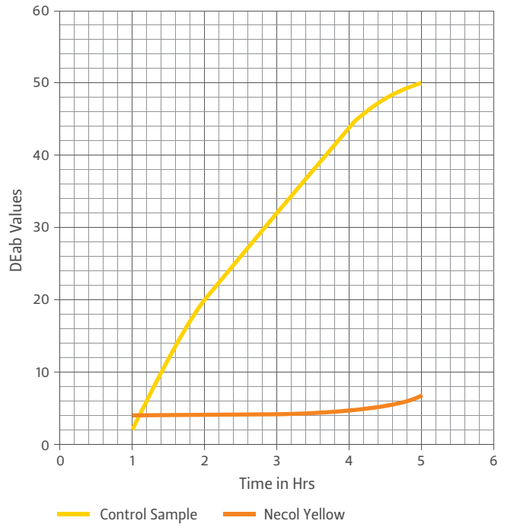
The bright yellow colour of turmeric and marigold flowers is captured in the form of curcumin and lutein extracts. As the roots of the herbaceous *Curcuma longa* plant, turmeric is used prominently in Indian Ayurveda for its medicinal properties. Marigold (*Tagetes erecta L*), though not traditionally used in cooking, contains carotenoid pigments that are rich in nutrition and colour food naturally. Our natural yellow pigments deliver consistent colour density and provide depth in food applications.

Applications	Lemon Yellow	Spring Yellow	Allure Yellow	Bright Yellow	Lime Yellow
Beverages	●	●	NA	NA	NA
Dairy	●	●	●	NA	●
Confectionery	●	●	●	NA	●
Fried Snacks	●	●	●	NA	●
Pasta	●	●	●	NA	●
Seasoning & Savoury	●	●	●	NA	●
Meat Products	●	●	●	NA	●
Sauces	●	●	●	NA	●
Bakery	●	●	NA	NA	●
Frozen Desserts	●	●	●	NA	●
Canned Fruits	●	●	●	NA	●
Pet Foods	●	●	●	NA	●
Cosmetics	●	●	●	●	●
Dry Mixes	NA	NA	●	NA	NA
Fats & Oils	NA	NA	NA	●	NA
Soaps, Crayons etc.	NA	NA	NA	●	NA

Base Colour	Lemon Yellow	Spring Yellow	Allure Yellow	Bright Yellow	Lime Yellow
Pigment	Lutein	Lutein	Lutein	Lutein	Curcumin
Water Soluble	Yes	Yes	Yes	NA	Yes
Oil Soluble	NA	NA	NA	Yes	NA
Powder	NA	NA	Yes	NA	NA
Liquid	Yes	Yes	NA	Yes	Yes
pH	(2-9)	(2-9)	(2-9)	(2-9)	(2-7)
Light Stability (at 1000lux)	6 months	6 months	6 months	6 months	6 months
Heat Stability	Good	Good	Good	Good	Good
0.1% soln. in water	Clear	Cloudy	Clear	NA	Clear

LIGHT STABILITY DATA OF MARIGOLD

SAMPLE DESCRIPTION	DEab VALUES-SUNLIGHT				
	1 HR	2 HRS	3 HRS	4 HRS	5 HRS
CONTROL SAMPLE	1.63	20.17	33.8	44.5	50.7
NECOL YELLOW	3.6	3.9	4	4.9	6.9



DEab indicates change in colour

●-Applicable
NA-Not Applicable

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Pink

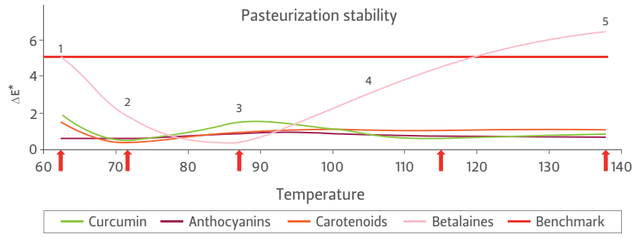
Pink Pigments from Beetroot and Black Carrot.

The healthy pink colour of beetroots can be attributed to the presence of betalain pigments. The deep roots of beetroot are a rich source of antioxidants and nutrients including magnesium and sodium. Black carrots, another great source of pink food colour, contain anthocyanins that make these pigments more heat and light stable. Synthite's pink colour is extracted from the finest quality beetroots and black carrots that are sourced sustainably.

Applications	Strawberry Pink	Strawberry Pink	Blackcurrant
Beverages	NA	NA	●
Dairy	●	●	●
Confectionery	●	●	●
Fried Snacks	NA	NA	NA
Pasta	NA	NA	NA
Seasoning & Savoury	●	●	●
Meat Products	●	●	●
Sauces	NA	NA	NA
Bakery	NA	NA	NA
Frozen Desserts	●	●	●
Canned Fruits	●	●	●
Pet Foods	●	●	●
Cosmetics	●	●	●
Dry Mixes	NA	●	●
Fats & Oils	NA	NA	NA
Soaps, Crayons etc.	NA	NA	NA

Base Colour	Strawberry Pink	Strawberry Pink	Blackcurrant
Pigment	Betalains	Betalains	Anthocyanins
Water Soluble	Yes	Yes	Yes
Oil Soluble	NA	NA	NA
Powder	NA	Yes	NA
Liquid	Yes	NA	Yes
pH	(2-7)	(2-7)	(2-7)
Light Stability (at 1000lux)	AS	AS	AS
Heat Stability	Fair	Fair	Fair
0.1% soln. in water	Clear	Clear	Clear

Temperature (deg C)	Time (Second)	Betalains (Pink 1)-DEab*	Anthocyanins (Pink2)-DEab*
62	30	5.65	0.5
71	15	1.98	0.42
88	1	0.47	0.8
115	20	4.61	0.5
138	2	7.02	0.5
150	15	0.47	9.77



1. Regular pasteurization @ 62.8 for 30 Minutes **2.** HTST (High Temperature Short Time) @ 71 for 15 Seconds
3. HHST (Higher Heat Short Time) @ 88 for 1 Second **4.** Sterilization @ 115 for 20 Minutes
5. Continuous ultra pasteurization @ 138 for 2 Seconds

**All the measurements are done with X-rite Color-i5 colorimeter, configured in reflectance mode and on CIEL* a* b* protocol. The measured value is the absolute spectral difference (delta E). The human visual perception limit is regarded as a delta E value of 5.*

●-Applicable
NA-Not Applicable
AS-Application Specific