

Kennedy's Confection

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 **SENSIENT**[®]

FROM VINEYARD TO THE CONFECTION

Sensient's vertical integration

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Sensient - the Masters of Any Degree in Colour, a special report by Angus Kennedy

Angus Kennedy of Kennedy's Confection is invited to Sensient Food Colors Italy (SFC), one of Europe's oldest and largest producers of natural red food colour to explore the amazing story of the production of enocianin* **Enocianin, incidentally is the Latin word for grape extract pronounced eno-cy-an-in.*

I had heard a good deal about Sensient's 'Italian factory' from Roland Beck, Sensient Colors Europe GmbH, Managing Director during a visit to Sensient's production facility in Germany (See Kennedy's Confection Dec,16). "It's right in the heart of Italy's foremost red wine producing area too!" I remember Roland saying.

Roland's invitation for me to visit Sensient Food Colors (SFC) in the heart of Italy was turning into very tempting proposal with words being used with great affection like:

uniquely historical, heart of, Italian passion, vibrant colours, Roman architecture and great wines! The latter was my final breaking point. The decision for me, to accept this invitation to visit this magical colouring food plant in the heart of Italy was somewhat irresistible.

Arrangements were made and it wasn't long before I found myself cruising majestically across Italy to visit SFC in the heart of Italy's wine growing region. An area surrounding a seductively attractive Roman town that we went



on to visit called Reggio Emilia, where I am informed by Roland, 'the Italian flag was first designed'. And perhaps, I wondered, hand painted with the original colours from these magical grapes that I had come to see.

Was it a co-incidence then that we find what's claimed, Europe's largest and oldest plant for vertically integrated colour manufacturer born in the same place of the origination of Italy's national colours of the Italian flag?

Roland Beck was there to welcome me at the factory gate.

Europe's largest and oldest plant for vertically integrated colour manufacturer



I am never going to look at another gummi bear in the same light!

I receive a very warm welcome from Imerio Bortot, standing by his side, Managing Director of Sensient Food Colors Italy and Anu Landgrebe, Marketing Manager, Sensient Colors Europe GmbH. Combined, my hosts become a formidable knowledge base for the production of some of the great colours we achieve within our confectionery products today.

We immediately kit up; there is lots to see and do. Imerio throws open the doors to the plant to start our guided tour of this quite enormous multi-million-pound facility- specialising in the process of grape skin extraction. The only one of its kind in Italy, I am informed.

SFC was founded on the acquisition of the two original family owned Italian extraction plants, *Reggiana Antociani Cadè* and *Nino Fornaciari Corte Tegge*, where previously Imerio gained his 30 years of experience and impossibly good knowledge. The two companies were merged to form the operation I was standing in. It was seriously impressive, spotless and one of the cleanest high-tech plants I have been to in a considerable time. Imerio should be pleased with himself, I am thinking, as he reels off his plant's list certifications including: ISO 9001, FSSC 22000, IFS, SMETA 4 pillars and Organic (NOP) in January earlier this year.

We walk over to a huge 'mound' of purple grape skins lying dormant in the Italian sunshine that have been processed as they wait for a bulldozer to take them away to make biogas. Everything is recycled, I am told, there is no waste, all materials have value including the grape seeds for oil and tartaric acid. As I learned from visiting Sensient in Germany this is very much part of the company's ethics with strong values in sustainability and working in harmony with our planet.



We start off talking about the grape harvest, a hugely active time where everyone waits for the weather to be right and for the trucks to arrive at the factory filled with the skins straight from some of Italy's leading wineries. SFC maintains a constant and close contact with wineries to assess quality and quantity of the harvest.

Now I am feeling quite privileged, I am on a journey of discovery of Italian art, architecture, the most amazing results in how we can colour our candies and now wine making. But like anything like this, it's hugely scientific.

We are in the business of anthocyanins - water soluble



Jelly sweets coloured with Sensient's Pure-S



pigments that provide red to blueish red colour shades. They can be found in not just grapes but flowers, fruits and vegetables, all of which can be processed in this giant facility covering, though the lions share is the grape. Grapes alone are another verse and chapter of encyclopaedic knowledge, so I settled for remembering varieties like: *Vinifera Silvestris*, *Rupestris* and Subgenus *Muscadinia*.

The grape skins arrive at any time in September to October depending on the weather during the intensive weeks during harvest period. Flexibility and speed is key. This is a big operation with thousands of tons of skins coming from over 100,000 hectares of land and a storage capacity of 20 million litres. Grape skins arrive over 24 hours day and night. As we walk over the plant and Roland informs me rather proudly that if all their anthocyanin is used in red hard-boiled candies and they were positioned next to each other, they could surround the globe.

Anthocyanins are available as natural colours and as colouring foods. Colouring foods from Sensient base on concentrates and extracts from specially selected edible plant sources with unique colouring properties. Originating from traditional foods such as vegetables and fruits, all products comply with the EU Guidance Notes on Colouring Foods.

Typical sources for anthocyanins are elderberry, black carrot, certain flowers, fruits and grapes, again all producing a different variant on colour themselves.

The difference in the pH level can change the colour hue of the anthocyanins. The science is complex and exact.

The higher the pH value the more blueish and less stable the colour. It's back to school for me. To demonstrate the process Anu takes me to a lab where lines of products are carefully placed on a table in rows with a low to high pH value.

My job is to add anthocyanin based colours and colouring foods to each different pot. The resulting colour in



soft drink, yoghurt and water is remarkably different (even though it's the same colouring product). So, as I stir the pots up feeling that I might have mastered the 'knowledge' they all turn very different colours due to pH value. Seems pH is king! One would use a black carrot-based colouring product for example and not a grape anthocyanin to colour a yoghurt due to better pH stability of black carrot.

I am then informed that if used in a product with pH value of approx. 6 - 7 anthocyanins can start to fade within minutes and the blueish colour turns muddy grey. Anthocyanins are perfect in products with low pH value, such as hard boiled candies and jelly sweets.

I am never going to look at another gummi bear in the same light! I think. My mind is spinning, but rather enjoyably. I know I will never master this, so I accept and Roland seeing that I am at maximum cerebral capacity, duly rescues me and starts to show me some results of their hard work

- SFC's innovation the 'Pure-S Strawberry Antho P-WS E 163', a quite remarkable product with not just bright colour hue but also an improved neutral taste.

It's just one of a huge number of innovations from SFC each year. The colour I am shown provides a very bright red shade in boilings and jellies. It's not just a colour I feel, this is a brilliant strawberry hue, even in a yoghurt; a very intensive bright red colour as if they have literally been lit up with real light.

Roland is keen to explain their Seed to Shelf program. "We are engaged across the entire natural colour value chain from agronomy through to our applications," adds Roland. "We are there right at the beginning from agronomy."

The Seed to Shelf programme is all about being involved in all parts of the value chain. Which has many key benefits across 4 key categories such as Supply Chain Certainty, Transparency, Food Safety & Social Responsibility, and Raw Material Control. Roland explained that Seed to Shelf is important as it provides sustainable and responsible contract farming, natural colour food safety and quality assurance, and improved cost certainty and stability.

Sensient are engaged across the entire natural colour value chain from agronomy technology, right through to supporting the development of the final product. Consumers feel positive about companies that are open about origins and growing conditions. Sensient has long term collaborations with growers in tropical rain forest areas supporting intercropping best practices that bring greater value to the farmers and has positive impact on sustainability generating positive ecological footprint.

I was keen to find out a little more on consumer trends. More adventurous consumers are on the rise, I was told. Especially in the US and this trend has also travelled across Europe. Millennials, born between 1980 and 1998,



have been found to be most likely to experiment with “new food”, I was told. The overall visual appeal of food and drink is also becoming more popular in social media sharing-based culture I learned, making colour a very important aspect of candy production.

Given the latest government efforts across Europe to drive down sugar content in food products, Sensient’s enocianin products I discover, could be a wise choice as sugar-free colour for high boiled candies. Consumer demand for natural and “less processed” food and drink is also pushing companies to reformulate to remove artificial ingredients and replace them with more natural products like colouring foods. To meet this trend Sensient has created new colouring food products such as Strawberry Red and Pink Berry.

Natural colours and colouring foods are expected to soon become the “norm” for brands innovating with plant-based ingredients according to the Sensient team. Multi-sensory is also on the list, with brands expected to engage consumers by “sparking the senses” visually and through texture and effect. This is expected to affect food colour as brands will seek to use colour to identify and alert consumers of the sensory impact of different textures and effects.

Sensient naturally has a very wide and extensive range of market leading and innovative food colours on offer. Some of these include: Cardea which is entirely composed of natural ingredients and concentrates and Microfine, an aluminium-free natural colour range, designed to replace synthetic lakes in powder application. And not forgetting Sensient’s brilliantly innovating Pure-S range, mentioned earlier.

Sensient’s portfolio also includes: Avalanche – the global portfolio of alternatives to titanium dioxide, and Certified Organic – a relevant range of EU certified organic colouring foods based on selected edible plant sources from organic production.

The day is drawing to an end and I am privileged to be enlightened by such a team of experts. ‘I can graduate with

a Sensient Degree in colour!’, I mused, complete with a brilliantly coloured mortarboard to celebrate such achievement.

I had a final question for Imerio, our Italian host for the day. “What then is your favourite wine?” I ask him. He lights up and smiles immediately, as he did when he noticed I had no neck tie. Wine is a subject close to his heart.

“A true Prosecco Angus; a great sparkling.” He said.

I know there is a lot more to his answer coming from one of the most knowledgeable men I have met on the subject of wine and anthocyanins. But that discussion may have to wait for another occasion, I think!

He asks me the same question, and I reply, “Champagne.”

“Did you know?” he said, “Champagne is made from a red grape.” I was amazed.

Again.

Imerio was polite and warmly courteous having been subjected to my clear ignorance. “Yes, Angus the colour is all in the skin.” This final junction of knowledge was all I needed, I finally ‘got it’ in such a simple way.

I had discovered the fascinating world of anthocyanins with so many different shades, enabling confectioners to make perfect hard boiled candies or jelly sweets, with or without E numbers. We headed towards the door and for our return to the UK. Me now with a Sensient Masters Degree in colour, I mused from such wonderful hosts.

Footnote:

I loved writing this story and you know what? The next time I pop a gummi bear in my mouth, I will see it all in a very new light - thanks to Sensient. Yes, and when I stare at the bubbles of my next Moët, (hopefully as soon as possible) I will be raising my glass to those the wonderful people within Sensient and those running this amazing plant with Italian passion, precision, science and of course the most beautiful colours.