



Real Food Ingredients. 100% Tomato.

Clearly natural solutions for perfect flavour and texture

A white paper by Lycored



Beyond clean label

Clean label has been a major trend in the food industry for the past decade, with food and beverage manufacturers keen to highlight that their products are free from synthetic ingredients and additives.

But today's consumers are looking for more. They want to know what *is* in their food, not just what isn't. They want their food to be made of recognisable natural ingredients and they want to know where those ingredients came from.

This desire for more transparency is leading to a massive upsurge in *clearer* labelling. So, while Innova Market Insights found in 2014 that a quarter of all food and beverage launches featured clean label claims, it also identified greater transparency – a shift from 'clean to clear' – as the top labelling trend for 2015.

In tune with this trend, Lycored offers Real Food Ingredients made from 100% tomato, enabling formulators to label products with reassuringly simple food declarations that all consumers will recognise. What's more, its vertically-integrated business model guarantees farm-to-fork transparency and traceability.

Lycored uses its own specially bred non-GMO tomatoes, carefully grown on farms in California and Israel. Once the tomatoes are harvested, a proprietary extraction process is used to remove the delicate pigments, fibres and serum from their pulp as efficiently as possible.



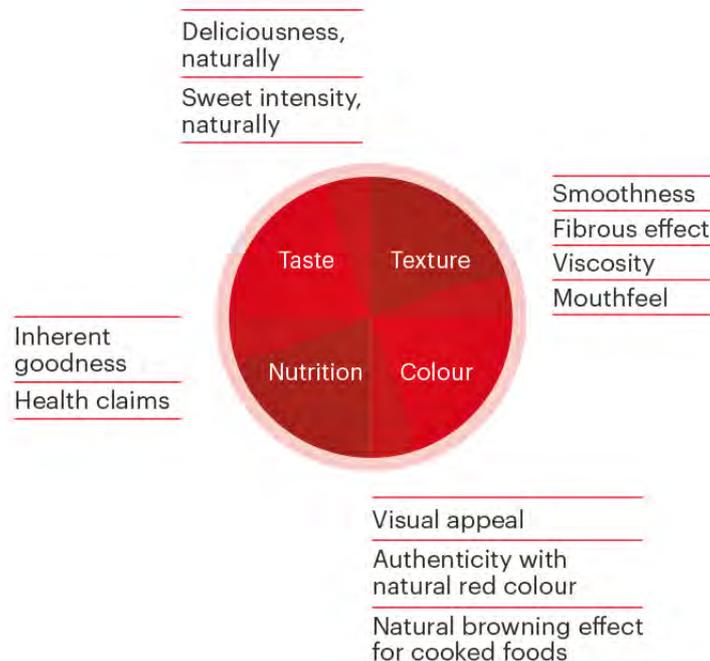
Honest goodness

The unique non-GMO tomatoes bred by Lycored are naturally four times higher in lycopene than standard tomatoes. They are also rich in naturally occurring taste compounds, including glutamate, which is an amino acid.

Lycored's Real Food Ingredients range builds on the goodness of these tomatoes to enhance the taste, colour and texture of food, while also providing an inherent nutritional advantage. There are four product types available from Lycored, as follows:

- **SANTE** – this taste enhancer provides a high concentration of the natural compounds that produce umami (the fifth taste) and kokumi (the Japanese word for deliciousness). SANTE accentuates existing flavour characteristics while remaining taste neutral.
- **Clear Tomato Concentrate (CTC)** – a concentrated serum with a savoury character that offers balanced sweetness from 60 brix combined with higher acidity than SANTE, which creates a smooth balancing taste effect. In tomato-based products, it also increases tomato taste intensity.
- **Lyc-Fibers** – these modify the pulpiness, viscosity and mouthfeel of sauces, soups and meat products. The unique, authentic texture they provide cannot be achieved reliably using other texturisers. They lend products a pleasant pulpy fibre mouthfeel, without the slimy consistency of formulations that rely on alternative stabilisers such as gums and starches.
- **Dry Tomato Pulp** – this combines a fresh, vibrant and consistent red colour with a stable texture for red sauces, ketchups and soups. Its fibre content can add to the health credentials of a naturally-positioned product. It also works well as a natural colourant and texture improver in meat-based products such as sausages, in which many food colourants or starches are not permitted.

4 dimensions of goodness, from our tomato.



SANTE – natural deliciousness

Available as a liquid or powder, SANTE provides naturally occurring umami and kokumi tastes with a low sodium content.

Umami, meaning 'delicious taste', is also known as the fifth taste – after bitter, sweet, salty and sour – and its savoury, meaty character is detected via the taste receptors for glutamate. Kokumi, meaning 'rich taste', provides balance and a hearty mouthfeel. Kokumi is delivered by foods with the right combination of amino acids.

Importantly, SANTE manages to combine both of these attributes with a clean and clear label. Manufacturers may declare SANTE as 'tomato concentrate' or 'natural flavour', according to local regulations.

SANTE is taste-neutral, with no overt tomato taste, so it can be used to boost the flavour of both sweet and savoury products. It is ideal for use in soups, sauces and marinades and in its powdered form it can also be applied as part of a seasoning mix for products such as potato chips and extruded snacks, and in spice blends for meat products.

Low dosages of between 0.15 and 0.7% are sufficient to deliver a highly accentuated taste experience, and SANTE is stable across a wide range of temperatures and pH.

As well as providing all these positive attributes, SANTE enables formulators to reduce or eliminate a range of ingredients with negative labelling connotations, such as MSG, ribonucleotides, yeast extracts and hydrolysed vegetable proteins. In addition, thanks to its ability to enhance the salty flavour of products, SANTE allows a reduction in sodium from salt by 30 to 50% in some applications.

The secret of SANTE lies in the high levels of naturally occurring glutamate in Lycored's specially bred tomatoes. Glutamate occurs naturally at high levels in many delicious foods, such as ham and Emmental cheese, Nori seaweed and scallops. Lycored's special breed of tomato is also a rich source of natural glutamate. It has an amino acid concentration of almost 9%, of which 32% is natural glutamate.



Clear Tomato Concentrate – smooth flavour

CTC is a clear liquid that acts as a natural taste improver for food, bringing a smoother character to savoury products such as soups, condiments and sauces. It can also intensify the tomato character of tomato-based foods and act as an extender for tomato paste, which can be expensive.

CTC can be declared as consumer-friendly 'tomato concentrate' and, like SANTE, it gives formulators a way to reduce or eliminate their use of less attractive ingredients. It is stable across a range of pH and temperatures. It is colour-neutral and besides delivering a better taste and cleaner label, it can also produce a browning effect for a more appetising appearance in foods such as pies and pastries.

Lyco-Fibers – authentic texture

Formulators can modify the pulpiness, viscosity and mouthfeel of sauces, soups and meat products naturally using Lyco-Fibers. Not only do they deliver a cleaner label, but they also carry the positive benefit of fibre content.

Their high stability means that Lyco-Fibers do not undergo syneresis when used in sauces. In addition, while alternative stabilisers such as gums and starches can lead to a slimy consistency, Lyco-Fibers deliver an authentic vegetable fibre texture.

Lyco-Fibers also improve the juiciness of meat products and prevent burning of the meat when barbecuing.



Dry Tomato Pulp – visual appeal with fibre

Lycored's Dry Tomato Pulp is perfect for formulators looking to produce tomato-based sauces, soups and dips with a fresh and vibrant 'made from scratch' look, taste and texture that remains stable throughout a product's shelf-life. It also suits meat products such as sausages.

The pulp delivers a fresh, consistent, natural red colour thanks to its high lycopene content, combined with an authentic pulpy texture. It also contains fibre and can carry a consumer-friendly 'crushed tomatoes' or 'tomato concentrate' label within the EU.

Conventional tomato pastes can be inconsistent, which may lead to formulation challenges. In contrast, Lycored's Dry Tomato Pulp provides reliable, consistent, repeatable results. It also permits the removal of starches from sauces, leading to a shorter ingredients list.



Benefits of Lycored's Real Food Ingredients at a glance:

- ✓ Foodstuff label declaration
- ✓ Cleaner label and a shorter ingredient list in many applications
- ✓ Stable across a range of pH and temperatures
- ✓ Allergen-free
- ✓ Kosher and Halal
- ✓ Optional 'Contains Lycopene' claim for Dry Tomato Pulp
- ✓ Fibre content
- ✓ No added glutamates
- ✓ Non-GMO
- ✓ Vegan

Inherent goodness – naturally

Lycored is an international company committed to 'Cultivating Wellness' by harnessing the nutritional potential of nature using cutting edge science. The result is a growing portfolio of natural ingredients and products that formulators and – just as importantly - consumers can recognise and trust.

Lycored's first 'hero ingredient' was lycopene, which has been clinically proven to help support general health and, more specifically, heart, skin, prostate and female reproductive health, among others. As global leaders in natural carotenoids for food, beverage and dietary supplement products, Lycored's experts are constantly developing new fortification blends using lycopene to support relevant health claims. Beyond this, simply including Lycored's natural tomato ingredients allows customers to provide an 'inherent goodness' or better-for-you positioning for their products.

Established in 1995, Lycored is based in Israel, with sales and production operations in the UK, Switzerland, the US, Ukraine and China.

***For more information about our Real Food Ingredients please contact
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