

TOMAPAIN: A TOMATO PEEL-BASED BISPHENOLS-FREE COATING FOR CANS

Terrestrial plants have an outer layer that acts as a protective barrier to their environment: the cuticle. This is composed of waxes and polymeric matrices, including cutin, a polyester whose main monomers are hydroxy acids, polyhydroxy acids, epoxy acids and C16 and C18 dicarboxylic acids (see Figure 1).

The Tomapaint company has developed a process for extracting cutin from industrial tomato by-products and has developed a resin

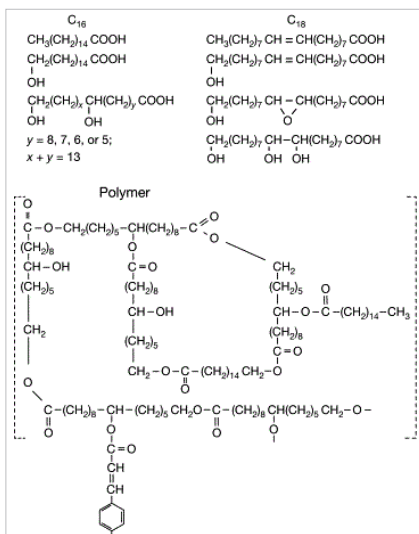


Figure 1/ Chemical structure of cutin

based on oligomers of this polyester for use in the coating (interior and exterior) of metal food packaging such as cans.

According to the start-up, the tomato cutin-based resin:

- / would be free of bisphenols;
- / would have good chemical and mechanical properties, a good adhesion;
- / would confer corrosion resistance to the metals on which it is applied;
- / would comply with migration tests carried out on cans with different simulants;
- / could be applied to tinfoil, tin-free steel and aluminum via standard production lines without modification of processing time and temperature;
- / would have passed packaging tests at different storage temperatures for 2 years with lentils, beans, sauce and tomato pulp as packaged products.

A production site of these resins from the co-products of tomato processing is being developed in northern Italy. According to Tomapaint, the facility would eventually have an annual production capacity of several

hundred tonnes and would be able to process 1,500 tonnes of tomato waste per year.

For more information:
<https://www.tomapaint.com/>

https://agromax.iris.cat/wp-content/uploads/2020/11/Agromax-press-release-bio-resins-rev.-CHIESA_OMAM-1.pdf

INTEGRITY BIOCHEM OFFERS A NEW ALTERNATIVE TO ETHOXYLATED NONYLPHENOLS

Integrity BioChem recently introduced surfactants produced from sustainable plant materials: the TegraSurf range.

With a hydrophilic-lipophilic balance (HLB¹) between 7 and 19, these surfactants can, according to their developer, be used as an alternative to the main non-ionic surfactants (such as ethoxylated nonylphenols) for a wide variety of applications: energy, mining, agriculture, water treatment...

According to Integrity BioChem, the action of the TegraSurf products is as effective as that of a synthetic surfactant (based on mineral oil) at a lower cost than other biobased surfactants on the market.

At the same time, these products have, according to their inventor, several ecological advantages: their Renewable Carbon Index² is higher than 90% and they are certified "readily biodegradable" according to the 301B protocol of the OECD (Organization for Economic Co-operation and Development).

For more information:
<https://www.integritybiochem.com/news/ibc-announces-first-of-its-kind-surfactant-to-improve-industrial-sustainability>

¹ Hydrophilic-Lipophilic Balance

² The Renewable Carbon Index is defined by the Renewable Carbon Initiative (RCI), launched by the nova-institute and industry (Beiersdorf, Covestro, Henkel, LanzaTech, Lenzing, Neste, Stahl, SHV Energy, Unilever, UPM and Cosun Beet Company), whose aim is to support and accelerate the transition from fossil to renewable carbon for all organic chemicals and materials

A POSSIBLE SUBSTITUTION OF PHTHALATES BY A SOYBEAN OIL DERIVATIVE

The [Replacing phthalate](#) report by the Swedish non-governmental organization ChemSec indicates that epoxidized soybean oil (ESBO) accounts for about 20% of phthalate substitute sales. It should be noted that this plasticizer acts more as a secondary plasticizer³ and cannot replace all phthalates in the product. However, a recently developed soybean oil derivative can be used as a primary plasticizer as an alternative to phthalates, namely 2-ethylhexyl epoxy stearate (see Figure 2).

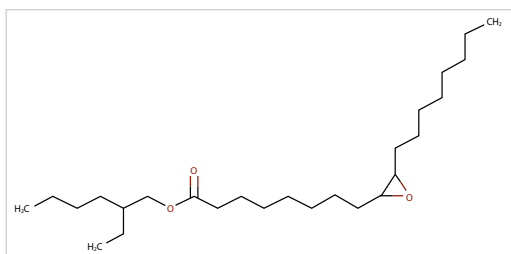


Figure 2/ Structure of 2-ethylhexyl epoxy stearate (n°CAS 141-38-8)

Epoxy 2-ethylhexyl stearate is available on the market via the products Proviplast® PLS Green 8 and Lankroflex™ ED6 marketed by the companies PROVIRON and Valtris Specialty Chemicals, respectively. According to their producers, these products have several advantages: low viscosity; excellent thermal and UV stability; good resistance to extraction in water, oil or solvents; very low tendency to migrate; and excellent flexibility characteristics at low temperatures.

Flexible PVC from this technology is used for various products: cables, pipes, toys, coated fabrics, shoe soles, floor coverings...

For more information:
<https://www.valtris.com/product/lankroflex-ed6-epoxidised-octyl-stearate/>

<https://polymer-additives.specialchem.com/product/a-proviron-proviplast-pls-green-8>

³ Unlike primary plasticizers (such as phthalates), secondary plasticizers do not have sufficient mechanical properties or compatibility with PVC to be used on their own, but combining them with a primary plasticizer reduces the concentration of the latter, lowers the production cost of the final product and provides satisfactory mechanical performance.

THE RUDOLPH GROUP EXPANDS ITS BIONIC-FINISH®ECO RANGE

The RUDOLPH group has patented a dendrimer technology (see Figure 3) allowing the production of water repellent textile finishes free of fluorine and APEO (Alkylphenol Ethoxylates). These products belong to the BIONIC-FINISH®ECO range adapted to different materials (cellulosic, synthetic textiles...) and designed for different applications:

- / high performance professional textiles (e.g. when resistance to brushing is required);
- / sportswear, outdoor wear, ready-to-wear;

- / technical textiles (e.g. flame retardant technical fibers);
- / textiles where the amount applied must be limited to maintain appearance and feel.

According to the RUDOLPH Group, the BIONIC-FINISH®ECO product range is Bluesign® approved, ZDHC Chemical Gateway certified and complies with most RSL⁴.

The RUDOLPH group also has two fluoride-free, APEO-free water repellent treatments:

- / RUCO®-DRY BIO CGR, a waterproofing treatment derived from natural waste (from grain processing);
- / RUCO®-DRY BIO NPE, composed of a mix of plant extracts.

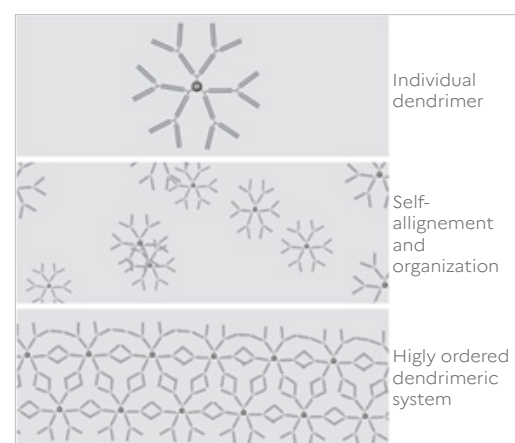


Figure 3/ Système dendrimère⁵

For more information:
<https://www.rudolf.de/en/technology/bionic-finish-eco/>

<https://www.rudolf.de/en/technology/bio-logic/>

⁴ Restricted Substances List: List of chemical substances whose presence is limited in consumer products, generally due to government regulation or law

⁵ Dendrimers are tree-like macromolecules whose structure starts from a central core and proceeds via branching units to peripheral functions. The dendrimer system patented by the RUDOLPH Group is fixed to the textile and has durable water-repellent properties without the use of fluorinated substances.

AGENDA

K 2022

The triennial K trade fair for the plastics and rubber industry will be held in Düsseldorf from 16 to 23 October 2022, will focus on four themes: raw materials and auxiliaries ; machinery and equipment ; semi-finished products and technical parts ; services, research and science.

<https://www.k-online.com/>

European Detergents Conference (EDC)

The SEPAWA® association is hosting on October 26-28, 2022 in Berlin (Germany) the European Detergents Conference (EDC).

On this occasion, specialists from the academic world and industry will present the latest developments in the field of surfactants used surfactants in personal care as well as institutional and industrial cleaning with potential alternatives to alkylphenol ethoxylates.

<https://sepawa-congress.de/en/european-detergents-conference/>

2022 Great Lakes PFAS Summit

The Michigan Department of Environment, Great Lakes, and Energy (EGLE) will host the third annual virtual Great Lakes PFAS Summit on December 5-7, 2022.

This event will bring together environmental program managers, researchers, and contractors to discuss topics such as alternatives to PFAS.

<https://www.michigan.gov/egle/outreach/upcoming-events/2022/12/05/2022-great-lakes-pfas-summit>