

NUTRARTIS

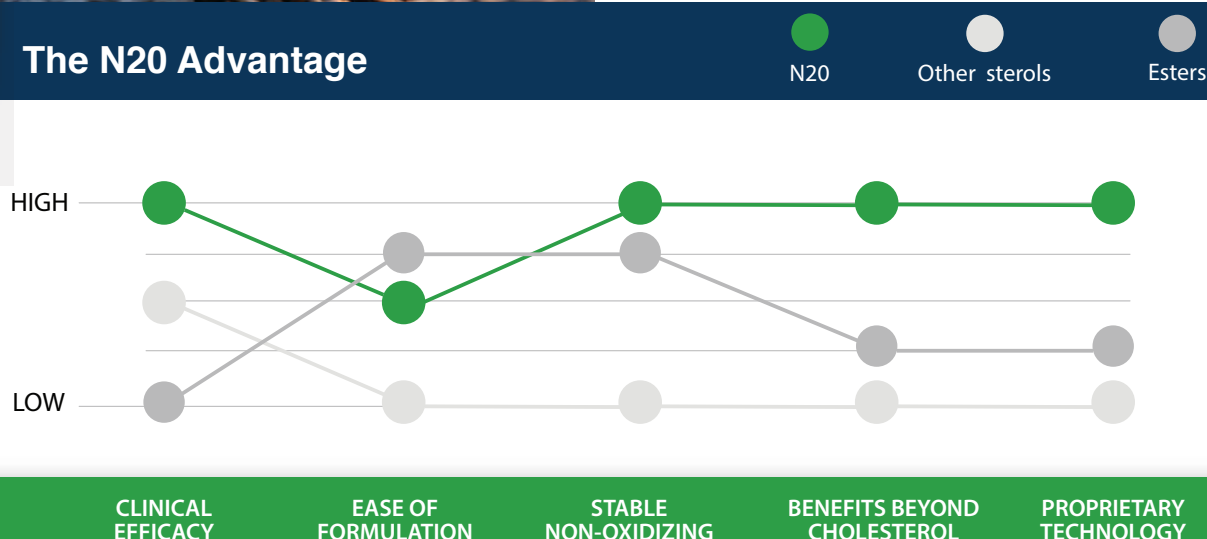
INTRODUCING N20

Revolutionizing Heart Health with Seamless Integration

- ✓ **Innovative Composition:** Contains 20% w/w plant sterols in water, ensuring optimal performance and stability.
- ✓ **Clean Label:** Non-GMO and allergen-free, making N20 ideal for vegan, kosher, and halal diets.
- ✓ **Convenient Bulk Packaging:** Available in 10 kg jerry cans for streamlined production processes.
- ✓ **Maximized Efficiency:** The ultra-small particle size of N20 ensures superior bioavailability and enhanced biological activity, optimizing health benefits.



The N20 Advantage



Plant sterols have traditionally posed significant technological challenges due to their high melting point and insolubility in lipids and water, making their use in food products difficult. Nutrartis, with over a decade of experience, has developed N20, a free-form plant sterol dispersion with an average particle size of 400 nm, delivering 2 grams of plant sterols in just 10 grams of dispersion without chemical modifications. N20 offers several advantages: non-reactive stability which prevents unwanted odors, enhanced bioavailability through increased surface contact, and high dispersibility in water-based media, which facilitates greater adoption and consumption.

Its patented technology allows easy incorporation into various food recipes, ensuring optimal palatability, increased dispersibility, long-term stability, and improved biological efficacy. Additionally, N20's innovative composition is non-GMO, allergen-free, and is suitable for vegan, kosher, and halal diets.

Unlike plant sterol esters which require fat for formulation and may not ensure bioavailability, or non-esterified plant sterols with large particle sizes that are ineffective in lowering cholesterol, N20 offers a superior alternative with its advanced ultra-small particle size formulation.

Partner with Us for Success



CONTACT US

At Cardiosmile, we don't just provide ingredients.

We collaborate closely with our clients, sharing best-in-class marketing and business practices. Our extensive portfolio of scientific knowledge supports your efforts in effectively communicating the benefits to both consumers and healthcare professionals. Transform your products and set new standards in heart health with Cardiosmile N20. Join us in creating a healthier future, one formulation at a time.

CHIEF COMMERCIAL OFFICER
rose.dellorto@nutrartis.com

TECHNICAL SUPPORT
gonzalo.vega@nutrartis.com

KEY ACCOUNT MANAGER
felipe.vilches@nutrartis.com



Elevate Heart Health with Proven Efficacy

Leading medical groups, like the the European Atherosclerosis Society Consensus Panel and the American Heart Association Nutrition Committee, recommend taking 2 grams of plant sterols daily to reduce cardiovascular risks without unwanted side effects.

Regular diets only provide about 150 to 440 mg, so it's hard to get enough from food alone. To help, the EFSA allows adding plant sterols to many foods, like dairy, margarine, sauces and drinks.



Proven Clinical Benefits of N20:

Lipid Profile Improvement: Significant reductions in non-HDL cholesterol, triglycerides, and waist circumference.

Liver Health: Reduction of liver fat and CRP levels, along with increased HDL-cholesterol.

Comprehensive Health Benefits: Positive effects on vitamin D levels and blood pressure in NASH patients.

Safety Profile: No adverse effects and no reduction in liposoluble vitamins. N20 stands out for its unparalleled clinical efficacy, offering a comprehensive approach to cardiovascular health without compromising safety. Integrate N20 into your formulations to deliver these exceptional health benefits to your consumers.



Enhanced Clinical Benefits of N20

While traditional plant sterols are known to reduce LDL cholesterol in hypercholesterolemic patients, N20 goes further, also reducing triglycerides and waist size. Three clinical studies, including a 6-month trial with 200 patients and a 1-year trial with 31 patients, confirm N20's safety and effectiveness.

Generic formulation steps are as easy as:

Mix with water-based ingredients. Consider the use of additional hydrophilic surfactants and/or stabilizers. Carry on to subsequent formulation steps as required. Homogenization may not be needed. Shelf life stability and process conditions are not likely to change due to incorporation of N20..



Comparison to Plant sterol alternatives

Molecule	Plant sterol ester	Sub-micron Plant sterols
Properties	Melting point: 50°C	Particle size: 400 nm
Vehicle	Fat	Water
Preclinical efficacy	↓LDL-c	↓nonHDL-c, ↑HDL-c, ↓Triglycerides, ↓LIVER FAT
Clinical efficacy	↓nonHDL-c	↓nonHDL-c, ↑HDL-c, ↓Triglycerides, ↓Waist perimeter, ↑Bowel movement, ↓LIVER FAT

While plant sterols esters are a popular ingredient used in the food industry, they often require fat for proper formulation and may not guarantee adequate absorption by the body (bioavailability) in the final product. In addition, free (non-esterified) plant sterols, due to their large particle size (over one micron), are generally not absorbed effectively and may not be effective in loweringcholesterol levels in consumers (Jiménez, 20223).

Global Presence

N20 is the key ingredient in Cardiosmile, a unique product in the world that delivers 2,000 mg of plant sterols in liquid sachet format. Cardiosmile is currently available in the **USA, Canada, UK, Taiwan, Hungary, Singapore, Chile and Bolivia**.



Certifications



Suggested Applications

Our Applications Team has developed a wide range of plant sterol formulations for the food industry. Following, a non-comprehensive list:

Food application	Typical serving size (g)	Percentage of N20 in the formulation to achieve 2 g of plant sterol per portion
Bread	40	25%
Cream cheese	28	36%
Fermented drink	100	10%
Ice cream	100	10%
Juice	250	4%
Margarine	25	40%
Milk	200	5%
Non-dairy drink	200	5%
Nutrition bar	70	14%
Salad dressing	30	33%
Spoonable yogurt	125	8%



Nature's Cholesterol Reducer

Plant sterols, or phytosterols, are fat compounds naturally present in the cell membranes of all plants. These beneficial compounds can be found either as free molecules or linked through ester or ether bonds. Commercially, plant sterols are available in two forms: ester form (linked to a fatty acid) and free-form (chemically pure molecule).

Key Advantages of Plant sterols:

Cholesterol Reduction: Effectively lowers both total cholesterol and LDL-C levels.

Natural and Safe: Sourced from vegetables, ensuring a natural and safe solution for heart health.

Versatile Applications: Suitable for incorporation into various food products to enhance their health benefits. Integrate plant sterols into your food formulations and offer consumers a powerful, natural solution to improve heart health and reduce cholesterol levels.

Clinically Proven Benefits

Plant sterols are renowned for their ability to reduce intestinal cholesterol absorption, leading to a significant decrease in plasma levels of total and low-density lipoprotein cholesterol (LDL-C). This makes them a crucial component in the fight against cardiovascular disease.



Regulatory status

Based on the abundance of clinical trial data, many countries around the world have now approved the use of claims relating the cholesterol-lowering effect of plant sterols. Sample EU claim: Plant sterols and plant stanol esters have been shown to lower/reduce blood cholesterol. High cholesterol is a risk factor in the development of coronary heart disease.

Other EU considerations: Information to the consumer that the beneficial effect is obtained with a daily intake of 1,5-3 g plant sterols/stanols. Reference to the magnitude of the effect may only be made for foods within the following categories: fat spreads, dairy products, cheese-type products salad dressings, rye bread and rice drinks.

