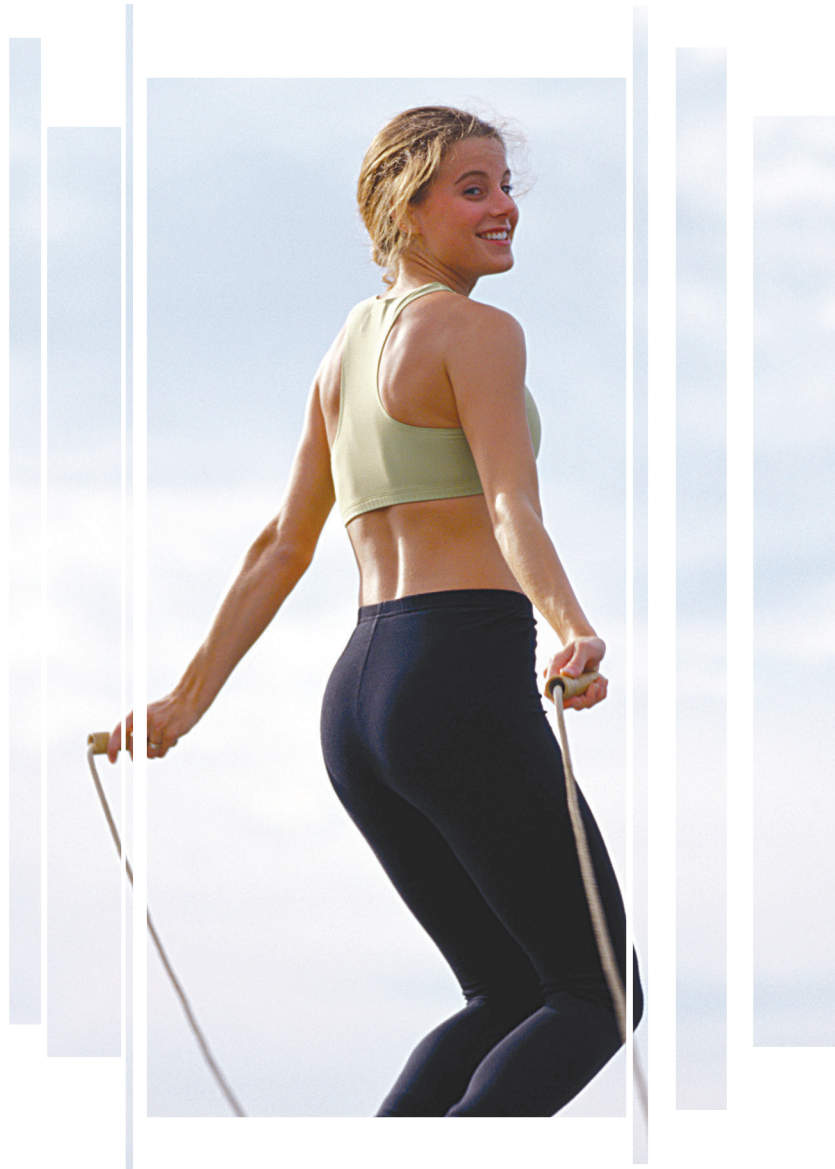


NEOBEE®

MEDIUM CHAIN TRIGLYCERIDES



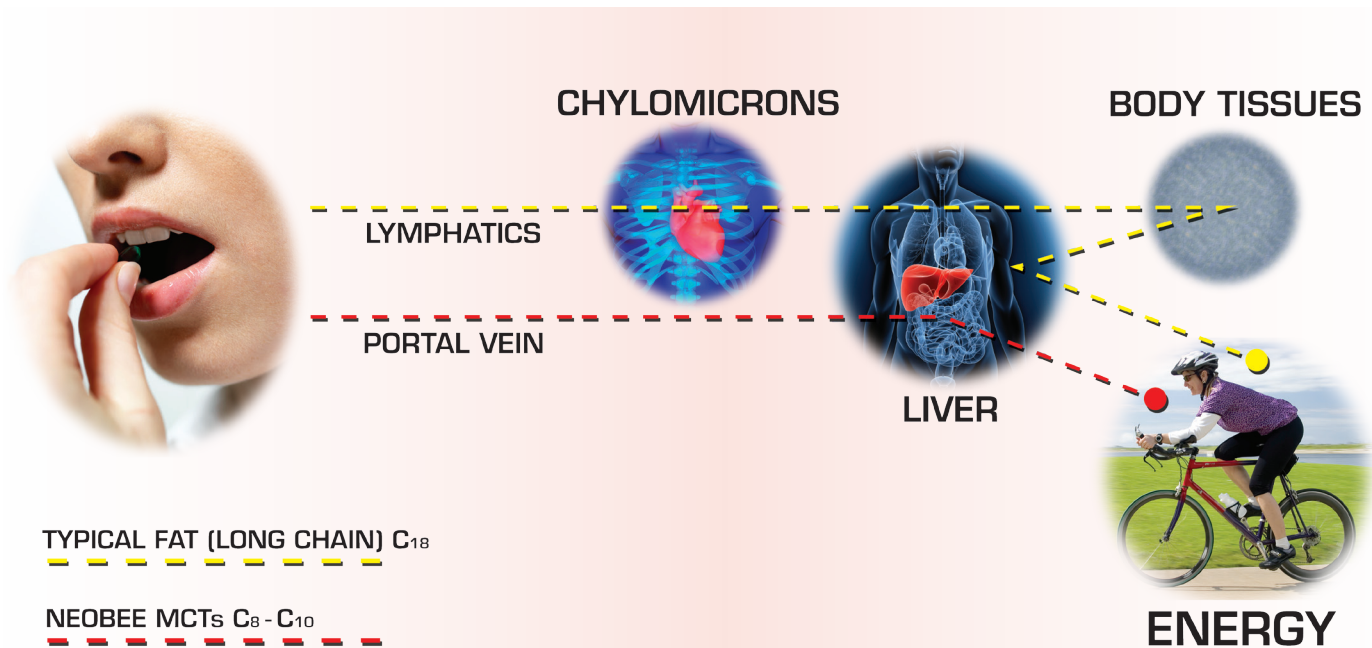
FOOD
NUTRITION
PHARMACEUTICALS

Stepan^S
Lipid  Nutrition
The Natural Way to Better Health

NEOBEE® MEDIUM CHAIN TRIGLYCERIDES

Medium Chain Triglycerides (MCTs) are derived by esterifying glycerol with mixtures of caprylic (C:8) and capric (C:10) fatty acids which are fractionated from coconut or palm kernel oils. They are specially processed to achieve superior oxidative stability and low color and then are further refined to remove residual fatty acids, resulting in a product with essentially no odor or flavor.

The unique metabolic and functional properties of NEOBEE MCTs, a consequence of their chemical structure, make them versatile ingredients in numerous Pharmaceutical, Flavor and Food applications.



Readily digested NEOBEE MCTs travel directly to the liver and are metabolized in 1/8 the time of LCTs... without accumulating in the body as fat.

PHARMACEUTICALS

NEOBEE MCTs were developed over fifty years ago as an energy source for patients with fat malabsorption syndrome. They still find utility in medical nutritional products such as those designed to treat renal, enteral and parenteral conditions, as well as in food for infants unable to metabolize long chain fats. Due to their smaller molecular size, NEOBEE MCTs are digested much more rapidly than are long chain triglycerides. They are hydrolyzed quickly and, upon absorption, travel directly to the liver via the portal vein, bypassing the lymphatic system. This metabolic pathway permits NEOBEE MCTs to serve as a ready source of energy and prevents them from accumulating as fat in body tissues.

Due to their low viscosity and excellent oxidative stability, NEOBEE MCTs are used as excipients in oral, rectal and topical pharmaceuticals for human and veterinary applications. They are efficient solvents and therefore act as carriers for fat-soluble vitamins and actives. Their emollient properties enable NEOBEE MCTs to improve the aesthetics of topical products while functioning as a component of a delivery system.



NEOBEE[®]

MEDIUM CHAIN TRIGLYCERIDES



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APPLICATION	FUNCTION	ADVANTAGES
Adult & Pediatric Nutritionals	Energy Source	Concentrated source of readily metabolized energy.
Pharmaceutical Excipient	Solubilizer/Carrier	Solvent for oil dispersible materials.
Flavors, Colors, Vitamins	Solubilizer/Carrier	Solvent for oil dispersible materials. Oxidatively stable. Taste neutral.
Sports Nutrition, Meal Replacement	Energy source	Concentrated source of readily metabolized energy.
Dried Fruit and Confections	Moisture barrier	Prevents water loss and sticking.
Reduced Calorie Foods	Source of fat	Lower caloric value. Cholesterol neutral.
Liquid Center & Soft Chew Confections	Solubilizer/Plasticizer	Carrier for flavor. Softening agent.
Beverages	Clouding agent	Produces uniform cloud. Low viscosity. Taste neutral.
Hard Candies	Polishing agent	Low viscosity. Moisture barrier. Anti-stick agent.
Snack Foods	Spray oil	Low viscosity. Spreads easily. No trans fatty acids.
Food & Pharmaceutical Processing	Lubricant	Low viscosity. Oxidatively stable. Replacement for mineral oil. Spreads easily.
Mixes, Seasonings, Dry Blends	Anti-Dust agent	Taste neutral. Oxidatively stable.
Baked Goods	Source of fat	No trans fatty acids. Lower caloric value.
Cooking Oil	Source of oil	Readily metabolized. Lower caloric value. No trans fatty acids.
Pet Foods	Source of energy	Readily metabolized. Reduced caloric value.
Lotions and Creams	Emollient	Non greasy skin feel. Moisture barrier.

FOOD

NEOBEE MCTs are slightly polar so they can dissolve a variety of substances that are insoluble in conventional fats and oils as well as substances that are known to be fat-soluble. Hydrocarbons, esters, and natural oils, as well as alcohols, ketones and acids are miscible with NEOBEE MCTs.

Incorporating NEOBEE MCTs into flavor systems will enhance their integrity because of MCTs' outstanding oxidative stability and excellent organoleptic properties.

The low viscosity and ease of dispersability of NEOBEE MCTs make them suitable for use as moisture barriers, lubricants, anti-stick and anti-dusting agents in confection, baking and dried fruit applications. They can be substituted for mineral oil and other high stability oils.



NUTRITION

NEOBEE MCTs provide 6.8 kilocalories per gram versus 9.0 for conventional fats.* This, combined with their tendency to increase satiety, makes them well suited for use in reduced calorie foods. The nutritional benefits associated with the rapid metabolism of NEOBEE MCTs enable them to find utility in meal replacement systems as well as sports nutrition weight management products.

The nutritional and functional properties of NEOBEE MCTs, as well as the fact that they contain no trans fatty acids, are Kosher and Halal certified and are not derived from genetically modified organisms, make them ideal components in a wide variety of food applications. (See chart.)

NEOBEE MCTs can be interesterified with other triglycerides to produce Structured Lipids, yielding fats with specific nutritional or functional characteristics. Structured Lipids, characterized as mixtures of short, medium and long chain fatty acids on a glycerol backbone, are becoming increasingly popular as the need increases for novel ingredients offering functional advantages in food products.

* Journal of Food Science 64 (1999), 960-963.

TYPICAL PROPERTIES

MEDIUM CHAIN TRIGLYCERIDES:				
PRODUCT	NEOBEE M-5	NEOBEE 1053	NEOBEE 895	NEOBEE M-20
Description	Caprylic/Capric Triglycerides	Caprylic/Capric Triglycerides	Caprylic Triglycerides	Propylene Glycol Di(caprylate/caprate)
Form	Clear Liquid	Clear Liquid	Clear Liquid	Pale Yellow Liquid
Flavor	Flavorless	Flavorless	Flavorless	Bland
AOM, hours at 100°C	500	500	500	500
Free Fatty Acid, %	0.05	0.05	0.05	0.03
Viscosity, cSt @ 40°C	14.9	15.9	12.8	6
Typical Fatty Acid Distribution %	C8	66	55	97
	C10	32	44	2

*Custom lipids available on inquiry

*Powder forms available

NEOBEE M-5 and NEOBEE 1053 comply with the specifications for Medium Chain Triglycerides of the National Formulary as published by the US Pharmacopoeia (USP 27/NF 22).

Generally Recognized as Safe (GRAS) Self-Affirmation

On June 17, 1994, a GRAS affirmation petition for use of medium chain triglycerides in food products was accepted for filing by the FDA. **CAPTRIN** is the proposed name for the randomized triglyceride of primarily C₈ and/or C₁₀ fatty acids. MCTs may be labeled as CAPTRIN, medium chain triglycerides, glyceryl tri(caprylate/caprate) or caprylic/capric triglycerides.

Additional information and publications are available on our website at www.stepan.com, by calling Technical Service at **800-745-7837**, or by E-Mail: food.health@stepan.com.

Examples of available literature include:

- Kosher and Halal Certificates
- Excipient Compliance
- Non-GMO Statement
- Nutritional Information
- Allergen Statement
- Proposition 65 Statement
- Product Bulletin
- Global Regulatory Approvals
- MSDS
- Drug Master File Authorization
- Letter of Continuing Guarantee
- 21 CFR Clearances (FDA)
- BSE Statement
- List of available MCT publications
- Chemical Inventory Clearance
- AAFCO Statement
- Pharmacopoeia Compliance





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