

## L-tug technology – disruption of hydrocarbon folding for industrial oils and biodiesel

### Technology

---

L-tug is a new class of molecules that can disrupt folding of lipids and other hydrocarbon molecules, which results in changes of their physical properties. For oils or fats this involves an increase in the size of their droplets or globules, which leads to a dose-dependent:

- reduction of viscosity and density
- increase of spreadability, permeability and fluidity
- increase in greasing and lubrication properties
- reduction of freezing and melting time
- increase in hydrophobicity and gas solubility
- increase in thermal conductivity
- acceleration in heating and cooling time
- increase in burning time and heat generation without increased, or with reduced, fuel consumption
- increased efficacy of biodiesels

These changes in the folding can be achieved by controlled incorporation of L-tug into hydrocarbons in a range of molecular ratios of 1 to 10,000, 100,000 or 1,000,000 subject to the modifying matrix composition.

### Applications

---

The application of this technology does not involve any chemical modifications of hydrocarbons. L-tug molecules are safe for humans, animals, plants, soil and water. These molecules are thermoresistant and fully biodegradable.

### IP Protection

---

L-tug technology patent application was filed 7 February 2018.

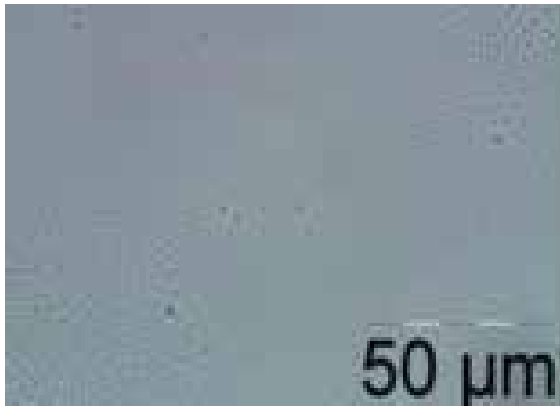
Lycotec is now looking to license L-tug technology to the Oils and Biodiesel industry. For more information and enquiries please contact: [info@lycotec.com](mailto:info@lycotec.com)

Granta Park, McClintock Building, Great Abington, Cambridge CB21 6GP  
Phone: +44 (0) 1223651411  
Website: [www.lycotec.com](http://www.lycotec.com)

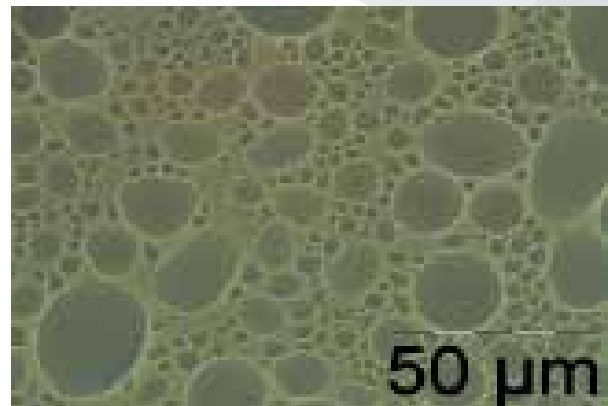
## L-tug Increases Lipid Droplets Size and Reduces Oil Viscosity

---

Oil lipid droplets under light microscopy

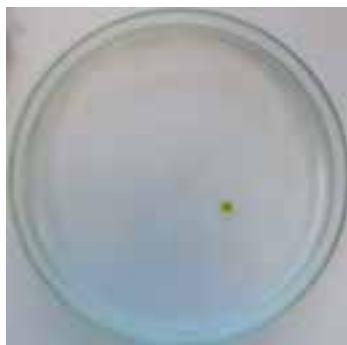


Control oil



L-tug oil

A drop of oil on the surface of water



Control oil

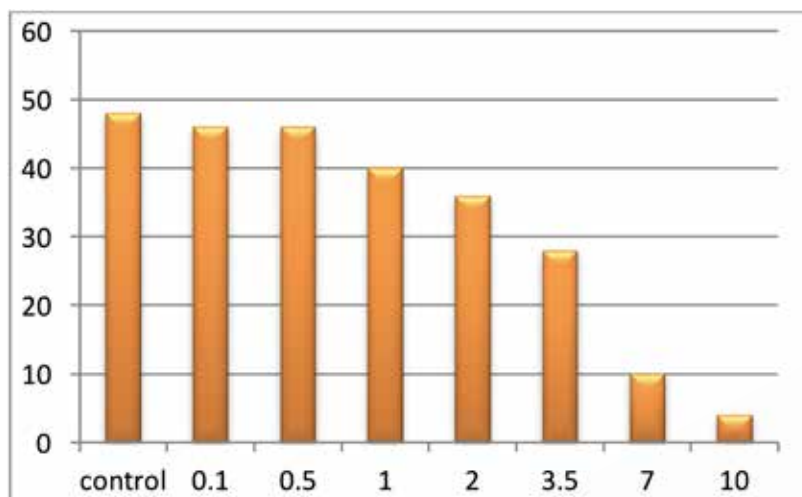


L-tug oil

## L-tug Reduces Melting and Defrosting Point and Time

---

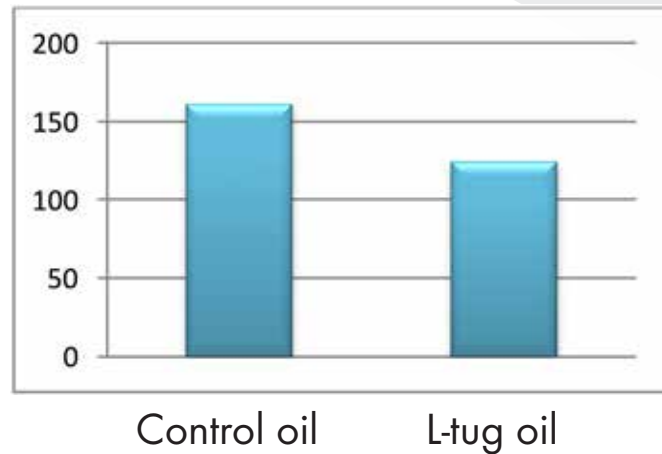
Defrosting time of frozen oil at room temperature, in seconds



L-tug concentration in mg/30ml

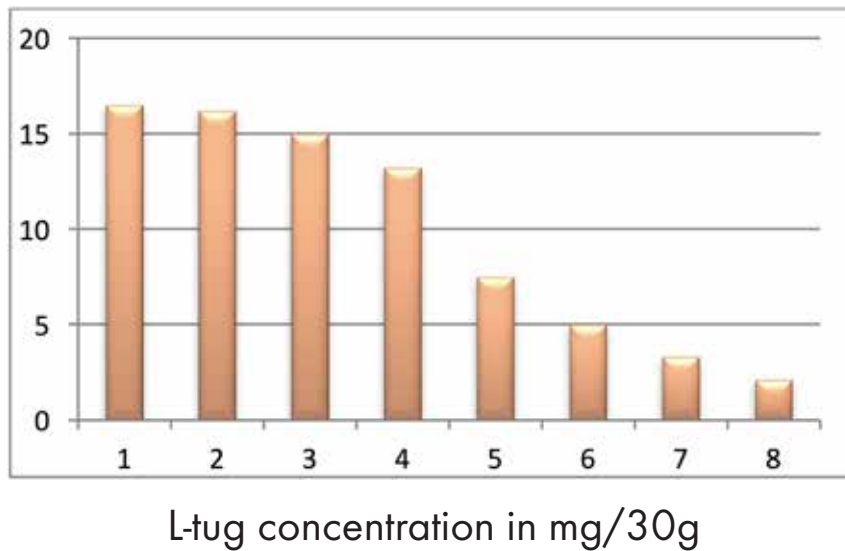
## Defrosting time of frozen kerosene at room temperature, in seconds

---



## Melting time of animal fat at room temperature, in minutes

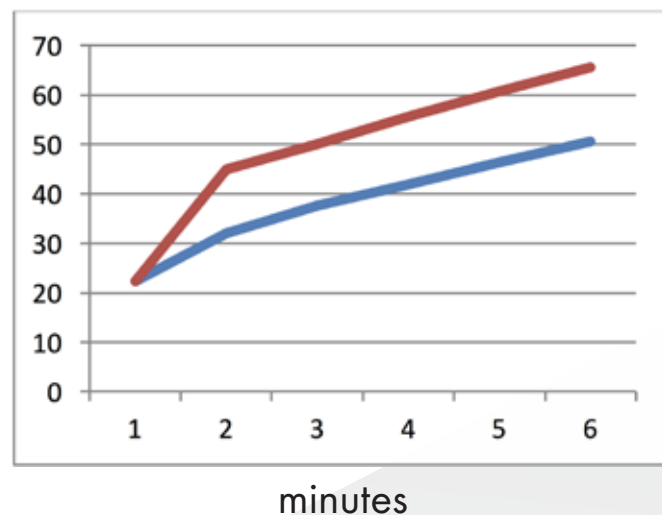
---



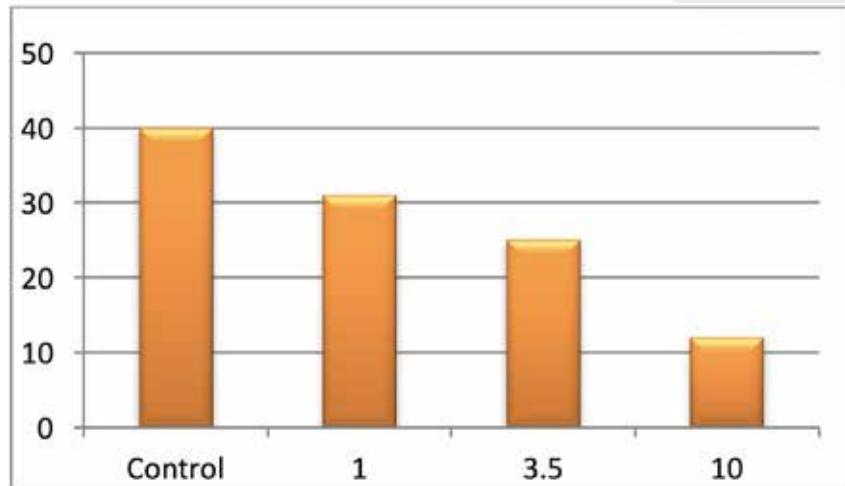
## L-tug Accelerates Heat Conductivity

---

Kinetics of 50:50 water-oil emulsion heating, in °C  
blue - control oil, red - L-tug oil



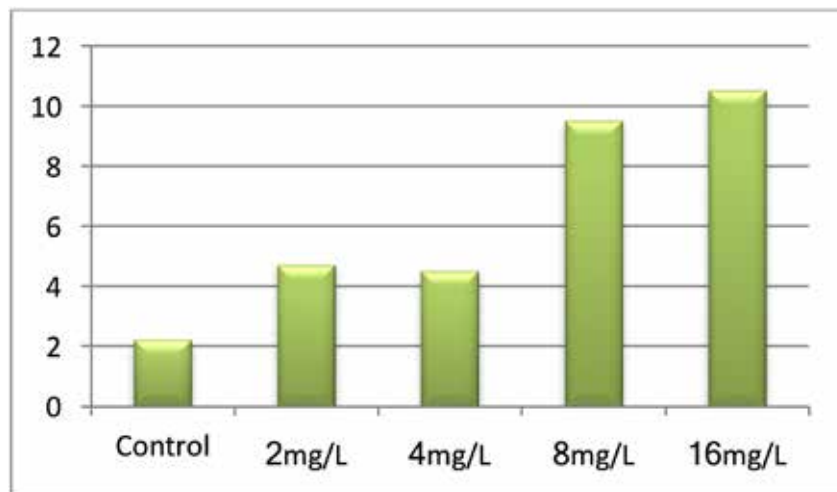
Time to reach boiling point of animal fat at 350°C, in seconds



L-tug concentration in mg/30g

## L-tug Increases Efficacy of Fuel Consumption

Saving of paraffin petroleum by different concentrations of L-tug after burning of its same amount for 10 hours, in ml



L-tug concentration

Granta Park, McClintock Building, Great Abington, Cambridge CB21 6GP  
Phone: +44 (0) 1223651411 | info@lycotec.com

[www.lycotec.com](http://www.lycotec.com)