emulseo
+33 (0) 535 541 006
contact@emulseo.com
www.emulseo.com

Product Data Sheet

FluoSurf™

Fluorinated Surfactant

FluoSurf™ is a high-performance fluorinated surfactant designed and optimized to stabilize aqueous droplets in fluorinated oils (sold by Emulseo) for chemical or biotechnological applications.

OVERVIEW

Droplet-based microfluidics is an emerging and powerful tool for biotechnological applications such as digital polymerase chain reaction (dPCR) or single cell analysis. Droplets, which behave as microreactors, are formed in microfluidic chips with very high throughput and allow to conduct a large number of parallel experiments in a reduced time.

Fluorinated oils are commonly used as the continuous phase for these kinds of applications because of their ability to solubilize and transport oxygen. Additionally, most chemical and biochemical compounds are non-soluble in fluorinated oils.

BENEFITS

- Stability: FluoSurf™ allows the stabilization of droplets from 1 to 300µm with a high generation frequency (few to thousand droplets per second) and keeps droplets stable during heating cycles.
- Biocompatibility: FluoSurf™ is biocompatible and can be used to stabilize droplets containing biochemical compounds or biological entities.
- Purity: Thanks to a well-established post process allowing the elimination of impurities, FluoSurf™ is obtained with a high purity.
- Leakage control: Thanks to the elimination of impurities involving leakage, hydrophilic and hydrophobic molecules can be efficiently contained within droplets.
- Reproducibility: FluoSurf™ production is perfectly reproducible. Each batch is tested for structure and performance following strict quality control specifications. A certificate of analysis can be delivered for each batch and is available on the website.
- Production of large volumes: Our capacity to produce in large quantities allows us to meet all your needs.
- IP freedom to operate

FLUOSURF™ - FLUORINATED SURFACTANT

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FLUOSURF™ - FLUORINATED SURFACTANT

PRODUCT SPECIFICATIONS

Product name	FluoSurf™
Solvents	Fluorinated oils such as Fluo-Oil 7500 or Fluo-Oil 40 (sold by Emulseo).
Formula	PFPE-b-PPO-PEO-PPO-b-PFPE
Molecular weight	7kDa<Mw<13kDa
Charge	Neutral
Surface tension	4 mN/m
CMC	0.03 w/w%
Hazards	Not classified hazardous. SDS available on Emulseo website.
Biocompatibility	Biocompatibility has been tested with plankton, yeast, E. Coli and mammalian cells.
Shelf life	Neat: 12 months from purchase if stored appropriately Diluted: 6 months from purchase if stored appropriately

HOW TO USE

Neat FluoSurf™ must be diluted in fluorinated oil (Fluo-Oil 7500 or Fluo-Oil 40) overnight before use. FluoSurf™ can also be delivered diluted at the desired w/w% concentration in Fluo-Oil 7500 or Fluo-Oil 40 as a ready-to-use formulation. If necessary, fluorinated solutions can be filtrated using PTFE syringe tip filters (repeated filtrations may reduce product concentration).

To minimize binding interactions, Emulseo recommends performing a fluorophilic surface treatment (Fluo-ST1 or Fluo-ST2 sold by Emulseo) on the microfluidic chips before using FluoSurf™ diluted in fluorinated oil as the continuous phase.

At high or fluctuating temperatures (dPCR), 4w/w% concentration is recommended in order to improve droplet stability.

It is advised to collect water-in-fluorinated oil droplets into a plastic container as the hydrophilic surface of glass containers could disrupt droplet stability.



Example of a 4w/w% FluoSurf™ dilution in 10 mL Fluo-Oil 7500:
Fluo-Oil 7500 density = 1.61
10mL HFE 7500 = 16.1g
4w/w% FluoSurf™ = 0.671g = (0.04*16.1)/0.96

STORAGE

Store in the fridge. FluoSurf™ is shipped in amber glass bottles to prevent UV degradation. It is not recommended to use a clear glass bottle for storage.

CONTACT

If you have any queries, please do not hesitate to e-mail us at: contact@emulseo.com