



Pico-Surf™

Novel biocompatible surfactants for the generation of stable picodroplets



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What is Pico-Surf™?

Picodroplet technology is a rapidly growing area of interest and has many potential applications. This technology is particularly important where experiments need to be conducted on only a few nanolitres, or picolitres of sample containing, for example, cells or biologically relevant solutions, such as proteins. As a result, picodroplet technology enables scientists to perform thousands to millions of reactions simultaneously.

Pico-Surf™ 1 is a proprietary biocompatible surfactant that can be used in a variety of microdroplet and picodroplet applications. It acts to stabilise picodroplets and their cellular or molecular contents. Such picodroplets are highly stable over a wide range of temperatures and biological conditions, ensuring reliability and reproducibility. Pico-Surf™ 1 is specially designed for generating aqueous solution-in-oil picodroplets for a variety of assays, including, but not limited to, cell and molecular biology assays, cell secretion assays, cell growth studies and electrospray injection mass spectrometry.

Pico-Surf™ 1 is available pre-dissolved at 2% and 5% concentrations in either of two fluorocarbon oils:

- Novec™ 7500.
- Fluorinert™ FC-40.

To help you decide which product is best for your particular application, please refer to page 3.

Why should I choose Pico-Surf™ 1?

- ✓ Suitable for cell secretion assays, cell growth studies, cell and molecular biological assays, single cell analysis and isolation.
- ✓ Enables the reliable formation and stabilisation of picodroplets with a diameter of between 25 µm and 110 µm, and a volume range of between 8 pL and 700 pL.
- ✓ Can be used directly – no further manipulation is needed.
- ✓ Long shelf life of up to one year when stored correctly.
- ✓ High purity.
- ✓ Animal Origin Free.
- ✓ All products undergo rigorous QC and QA testing, including NMR and performance in biological assays.
- ✓ Experienced scientific and application support available.

Which Pico-Surf™ 1 is best for my experiment?



I'm a new user

We recommend trying Pico-Surf™ 1, 5% in Novec™ 7500, first as this is suitable for all applications, including cell secretion assays, cell growth studies and other cell and molecular biology assays.

Pico-Surf™ 1, 5% in Novec™ 7500, offers both excellent picodroplet stability with very low fusion rates, as well as good performance in biological tests. However please note that Fluorinert™ FC-40 is more viscous and has a greater resistivity than Novec™ 7500, thus may offer advantages in certain applications. We have other special solutions of Pico-Surf™ 1 for you to try and have listed those below:

Product Name and Description	Volume	Product Code
Pico-Surf™ 1 (2% (w/w) in FC-40)	10ml	F001
Pico-Surf™ 1 (5% (w/w) in FC-40)	10ml	F002
Pico-Surf™ 1 (2% (w/w) in FC-40)	50ml	F003
Pico-Surf™ 1 (5% (w/w) in FC-40)	50ml	F004
Pico-Surf™ 1 (2% (w/w) in Novec™ 7500)	10ml	F005
Pico-Surf™ 1 (5% (w/w) in Novec™ 7500)	10ml	F006
Pico-Surf™ 1 (2% (w/w) in Novec™ 7500)	50ml	F007
Pico-Surf™ 1 (5% (w/w) in Novec™ 7500)	50ml	F008

How do I use Pico-Surf™ 1?

Pico-Surf™ 1 general information

Pico-Surf™ 1 is provided as a clear liquid in amber bottles. Store in an enclosed container at room temperature. Stable for 12 months when stored as recommended. Use directly; no further formulation required. For research use only.

Picodroplet storage and incubation

We recommend storing picodroplets generated with Pico-Surf™ 1 in sterile, plastic micro-centrifuge tubes. However, they can also be stored in any container that has hydrophobic surface properties. For medium to long-term storage, particularly at higher temperatures, we recommend topping up the emulsion with mineral oil to prevent evaporation.

Picodroplet size

The size of the picodroplet has an influence on the performance of the surfactant. As a picodroplet increases in size, the chances of coalescence also increases.

The maximum size of picodroplet we recommend is 110 µm diameter (700 pL).

It is worth noting that each lot of Pico-Surf™ 1 could behave slightly differently as the end product is a polymer mixture. This means that the same flow rates will not always generate exactly the same size picodroplets from experiment to experiment. On receiving a new lot of Pico-Surf™, we recommend testing it to fine-tune the conditions most suited for your needs and to ensure strict reproducibility.

Safety Notes

See the Pico-Surf™ 1 Material Safety Data Sheet.

Contact

If you have any queries, please do not hesitate to email us at:

Support@spherefluidics.com

Please mention 'Pico-Surf™' in the subject line.

Accreditation

Sphere Fluidics is an ISO9001:2015 accredited company for the provision of Life Sciences products and services.



Sphere Fluidics Limited

Sphere Fluidics (SF) is an established Life Science Tools company providing unique collaborative services and products for single cell analysis, engineering and isolation. The Company has patented novel biochip systems, including specialist chemicals, which automatically process millions of miniaturised tests in picodroplets (*i.e.* small compartments of a picolitre volume). The technology enables the rapid screening and characterisation of single cells and their products in the search for unique and highly valuable variants among huge cell populations. Sphere Fluidics' versatile technologies assists the discovery and development of new biopharmaceuticals, enzymes, cell therapies and innovative ways to study diseases, such as cancer, auto-immune disorders and infectious diseases, while saving time and reducing costs.

For more information please visit: www.spherefluidics.com.

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Fluorinert™ and Novec™ are trademarks of 3M.



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