



Pico-Break™ 1

An innovative solution for the phase separation of emulsions



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What is Pico-Break™ 1?

Picodroplet technology is a rapidly growing area of interest and has many potential applications. This technology is particularly important where tests 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-Break™ 1 is a specialised chemical solution used to induce phase separation of an aqueous emulsion stabilised with Pico-Surf™ 1. It contains a proprietary, orange-coloured, fluorocarbon dye in 1H, 1H, 2H, 2H-perfluorooctan-1-ol (PFOH), so it can be used as a phase contrast reagent.

Why should I choose Pico-Break™ 1?

- ✓ Allows for easy and reproducible phase separation of any emulsion stabilised with a Pico-Surf™ 1.
- ✓ Excellent compatibility with emulsions made with all variants of Pico-Surf™ 1.
- ✓ Easy visualisation of boundary layers between two liquid phases.
- ✓ Suitable for many applications, such as recovery of cells from picodroplets.
- ✓ Undergoes rigorous QC and QA testing including NMR.
- ✓ Experienced scientific and application support available.

How do I use Pico-Break™ 1?

Before starting, please ensure the emulsion has been collected in, or transferred to, a micro-centrifuge tube.

1



Ensure the emulsion is floating on top of Pico-Surf™ 1 by keeping the micro-centrifuge tube upright.

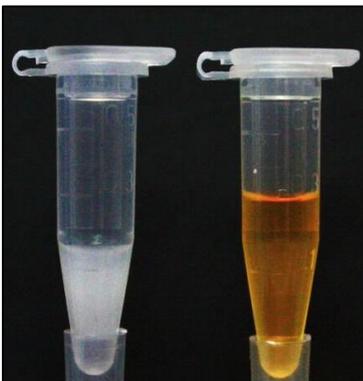
When required, cool the micro-centrifuge tube containing Pico-Surf™ 1, oil and emulsion, to approximately 4°C by storing it in a refrigerator or an ice bath.

2



Using a standard plastic pipette tip, carefully remove as much of the Pico-Surf™ 1 oil (bottom layer) as possible. This will minimise the amount of Pico-Break™ 1 that you will need to use to break the emulsion.

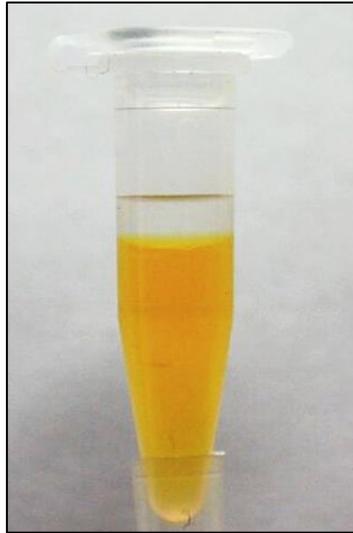
3



Estimate the volume of Pico-Break™ 1 needed to break the emulsion (please see page 5).

Add the Pico-Break™ 1 to the emulsion, then close the lid of the tube and gently agitate the mixture. You should see the emulsion start to disperse.

4



Spin the tube in a micro-centrifuge for a maximum of 1 minute at RCF 100-1000 x g to completely disperse the emulsion and separate the two phases.

If the emulsion contains mammalian cells, centrifuge the sample at 100 x g for 5 seconds immediately after the addition of Pico-Break™ 1 and agitation.

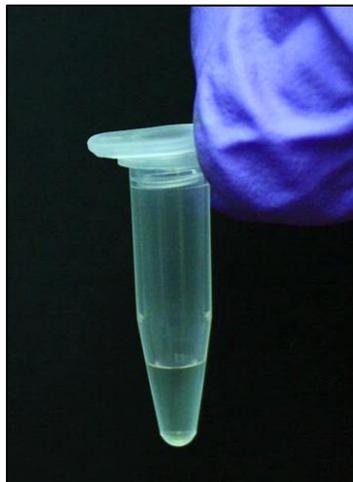
5



Following phase separation, two layers should be seen. The bottom orange-coloured layer is the unwanted fluoros phase.

Tilt the tube 45° and carefully remove the top aqueous layer by pipette and transfer to a clean micro-centrifuge tube.

6



The aqueous phase is ready for further experimentation or analysis.

How much Pico-Break™ 1 should I add to my emulsion?

After the removal of Pico-Surf™ 1 oil, a general rule for the volume of Pico-Break™ 1 required to cause phase separation of the emulsion is as follows:

- Use **two times** the total volume of emulsion and remaining fluoruous oil for Pico-Surf™ concentrations **below** 3%.
- Use **three times** the total volume of emulsion and remaining fluoruous oil for Pico-Surf™ concentrations **above** 3%.

Safety Notes

See the Pico-Break™ 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-Break™' 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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