

Specialist Research Chemicals & Microfluidic Biochips



Enabling more effective use of microfluidic devices
for research applications

Specialist Research Chemicals

Sphere Fluidics develops and manufactures a range of chemical products to enable the more effective use of microfluidic devices for research applications.

Pico-Surf™ 1 is commonly used in a wide range of microfluidic application workflows, including antibody discovery, cell line development, synthetic biology, stem cell analysis, antibiotic resistance studies, single cell disease research. Other major opportunities and applications are developing in single cell diagnostics, prognostics and single cell genome editing. Pico-Surf™ 1 is available in two standard (2% and 5%) premade solutions in either Novec™ 7500 or FC-40™ fluoruous oils.

Key Benefits

- Allows consistent formation and stabilization of picodroplets from 8pl to 700pl (diameter)
- Manufactured to high quality standards through stringent quality assurance
- High purity
- Ready to use
- Long shelf life
- Animal Origin Free



Applications include

(but are not limited to):

- Single Cell Isolation
- Single Cell Analysis
- Cell Secretion Assays
- Cell and Molecular Biology Assays
- Cell Growth Studies
- Electrospray Ionisation (ESI) Mass Spectrometry

Pico-Break™ 1 – Emulsion Breaking Solution

Pico-Break™ is used to used to gently reduce the stability of picodroplets in order to release cellular or molecular contents into an aqueous medium for subsequent processing.



Features

- Allows gentle breaking of picodroplets (by phase separation via chemically-induced coalescence)
- Compatible with picodroplets stabilised by Pico-Surf™ 1 surfactants
- Contains a dye to visually confirm recovery of sample material

Pico-Glide™ 1

Pico-Glide™ is a microfluidic biochip coating agent designed for users who manufacture their own microfluidic biochips using plasma etched glass or PDMS.

Features

- Specialised chemical solution to promote consistent in-house manufacture of microfluidic biochips
- Minimises non-specific binding interactions
- Improves picodroplet performance and stability



Pico-Wave™

Pico-Wave™ is a diluent comprising a fluorinated oil which is well suited for diluting Pico-Surf™ 1 for use with your specific applications. Pico-Wave™ has been specially formulated for stability, biocompatibility and reproducible performance for your picodroplet studies. Novec™ 7500 & FC-40 flouros oil versions available.



Features

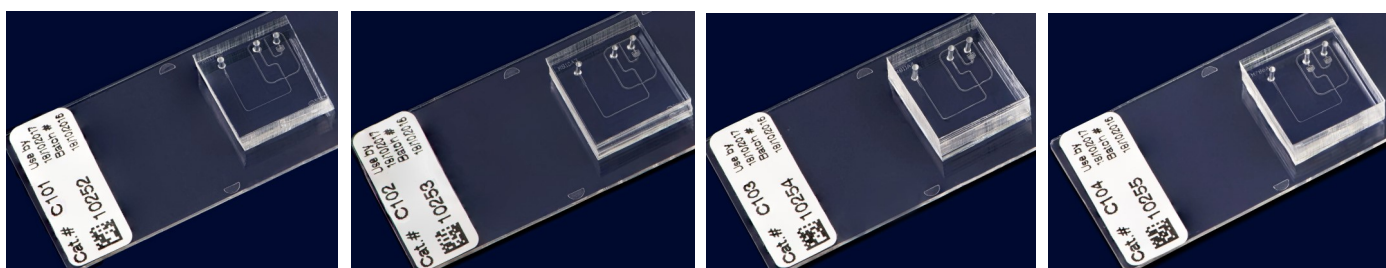
- Optimised for use with Pico-Surf™1 and our other specialist chemicals
- Compatible with our range of Pico-Gen™ microfluidic biochips
- Specially formulated for biocompatibility & stability
- High purity and long shelf life
- Animal Origin Free

Microfluidic Biochips

Our range of Microfluidic Biochips* are designed to facilitate the production of reliable and consistent picodroplets, with volumes ranging from 0.4 pL to more than 1,000 pL. The Biochips are made from soft polymer and with a plastic mounting there is a distinct advantage over glass mountings. The biochips are suitable for a number of applications, including single or multiple cell encapsulation, as well as the generation of picodroplets encapsulating proteins or other molecules.

Pico-Gen™

Picodroplet Generator Biochips* are specially designed for generating picodroplets from a single aqueous source. All Pico-Gen™ Biochips come with a single aqueous inlet port and an one or two oil inlet filters.



40 x 40 µm nozzle

60 x 60 µm nozzle

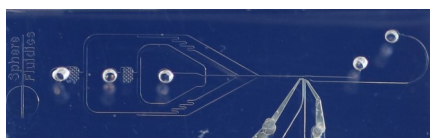
80 x 80 µm nozzle

40 x 40 µm nozzle, 2 filters

Product Code	C101	C102	C103	C104
Slide Size (Length x Width x Thickness, mm)	75 x 25 x 1			
PDMS Block Size (Length x Width x Thickness, mm)	15 x 16 x 4			
Flow Focus Nozzle (a x b, mm)	40 x 40	60 x 60	80 x 80	40 x 40
Picodroplet Diameter Range	Ø 40 - 75 µm	Ø 65 - 100 µm	Ø 95 - 125 µm	Ø 40 - 75 µm
Picodroplet Volume Range	35 - 220 pL	150 - 550 pL	500 - 1,000 pL	35 - 220 pL
Channel Surface Property	Fluorophilic			
Biochip Format	1 oil inlet, 1 aqueous inlet, 1 picodroplet outlet			
In-line Filter	1 filter at oil inlet			2 inlet filters
Inlet/Outlet Diameter	1,000 µm			

Pico-Sort™

Pico-Sort™ biochips are designed to facilitate the production, reinjection and sorting of reliable and consistent picodroplets, with volumes ranging from as small as 400pL picolitres up to 700pL. These biochips are polydimethylsiloxane (PDMS) microfluidic devices, especially designed for sorting and isolation of "hit" picodroplets from the starting cell population based on a user-defined optical readout.



Generation / Sorting



Reinjection / Sorting

*Not for sale or use or offer for sale within the USA or import into the USA.

Specialist Research Chemicals

Sphere Fluidics' specialist chemicals for reproducible picodroplet applications.

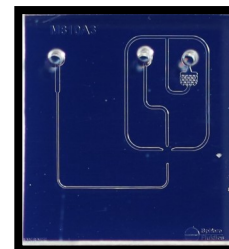
- ◆ **Pico-Surf™** is a range of biocompatible surfactants that act to stabilise picodroplets and their cellular or molecular contents.
- ◆ **Pico-Break™** is used to release the contents of a picodroplet emulsion.
- ◆ **Pico-Glide™** is a coating agent used on microfluidic biochips and other devices to minimise non-specific binding interactions, improving picodroplet stability and reproducibility.
- ◆ **Pico-Wave™** is a diluent for routine use with picodroplets.



Product Name	Volume	Product Type	Product Code
Pico-Surf™ 1 (2% (w/w) in FC-40)	10mL	Surfactant	C011
Pico-Surf™ 1 (5% (w/w) in FC-40)	10 mL	Surfactant	C012
Pico-Surf™ 1 (2% (w/w) in FC-40)	50 mL	Surfactant	C013
Pico-Surf™ 1 (5% (w/w) in FC-40)	50 mL	Surfactant	C014
Pico-Surf™ 1 (2% (w/w) in Novec™ 7500)	10 mL	Surfactant	C021
Pico-Surf™ 1 (5% (w/w) in Novec™ 7500)	10 mL	Surfactant	C022
Pico-Surf™ 1 (2% (w/w) in Novec™ 7500)	50 mL	Surfactant	C023
Pico-Surf™ 1 (5% (w/w) in Novec™ 7500)	50 mL	Surfactant	C024
Pico-Break™ 1	10 mL	Emulsion Breaking Solution	C081
Pico-Break™ 1	50 mL	Emulsion Breaking Solution	C082
Pico-Glide™ 1	5 mL	Microfluidic Biochip Coating Agent	C071
Pico-Glide™ 1	10 mL	Microfluidic Biochip Coating Agent	C072
Pico-Glide™ 1	25 mL	Microfluidic Biochip Coating Agent	C073
Pico-Wave™ 40	100 mL	Diluent	C091
Pico-Wave™ 40	250 mL	Diluent	C092
Pico-Wave™ 40	500 mL	Diluent	C093
Pico-Wave™ 7500	100 mL	Diluent	C094
Pico-Wave™ 7500	250 mL	Diluent	C095
Pico-Wave™ 7500	500 mL	Diluent	C096

Microfluidic Biochips

Sphere Fluidics offers a range of polydimethyl siloxane (PDMS) biochips which has been specially designed and developed to reproducibly generate or sort picodroplets. The biochips offer excellent transparency for easy picodroplet visualisation and their precise design and construction ensure the generation of reliable and consistent picodroplets with a range of volumes from around 35—1,000 picolitres.

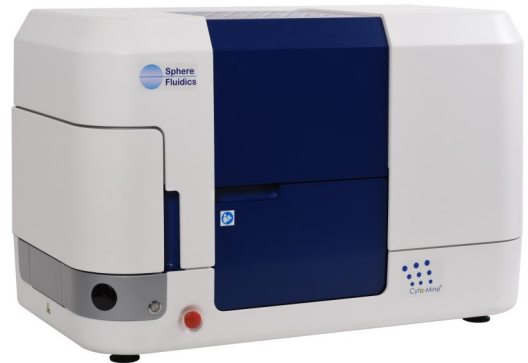


Product Name and Description	Nozzle (µm)	Picodroplet volume range	Product Code
Pico-Gen™ single aqueous, oil inlet filter biochip	40 x 40	35 - 220 pL	C101
Pico-Gen™ single aqueous, oil inlet filter biochip	60 x 60	150 - 550 pL	C102
Pico-Gen™ single aqueous, oil inlet filter biochip	80 x 80	500 - 1,000 pL	C103
Pico-Gen™ single aqueous, two inlet filters biochip	40 x 40	35 - 220 pL	C104
Pico-Sort™ generation / sorting biochip	n/a	400 - 700 pL	C201
Pico-Sort™ reinjection / sorting biochip	n/a	400 - 700 pL	C202

Instrumentation also available

Cyto-Mine® - The Single Cell Analysis and Monoclonality Assurance System

Selective screening, cell isolation and clone verification integrated into a single platform. Reduce your timelines, increase screening capability and delivery monoclonality. Accelerate your biologics discovery and cell line development workflows.



Research Instruments -

- Picodroplet Single Cell Encapsulation System
- Picodroplet Single Cell Assay and Isolation System

Enabling you to generate, sort, and retrieve picodroplets for a range of applications. Both are compatible with our range of microfluidic specialist chemicals and biochips, as well as other standard and custom biochips from other sources.



Notes:

Sphere Fluidics Ltd is an ISO 9001:2015 accredited company.

Pico-Surf™ 1, Pico-Break™, Pico-Glide™ 1, Pico-Wave™ and Pico-Gen™ are trademarks and/or patented technologies of Sphere Fluidics Ltd.

All Sphere Fluidics' supplied chemicals and bioreagents are Animal Origin Free and GLP-compliant.

For research and development purposes only.

Product specifications subject to change without notice.

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