

Percoll PLUS/Percoll

CELL PREPARATION

Percoll™ PLUS is a silica-based colloidal medium for cell separation by density gradient centrifugation. The silica particles of the medium are covalently coated with silane, providing product stability and long shelf life. The silane coating also provides low osmolality and toxicity, as well as low viscosity. Percoll PLUS has low levels of endotoxins, making it well-suited for cell separation in clinical research applications. Cell separation with the medium is performed under gentle conditions, facilitating the isolation of a variety of cells, subcellular particles, and viruses where preservation of viability and morphological integrity is important. The low toxicity of Percoll PLUS ensures that removal of the medium from separated cellular particles is not usually necessary.

After adjustment, Percoll PLUS forms iso-osmotic gradients within the density range of 1.0 to 1.3 g/ml. This density range is especially useful since most cells, subcellular particles, and viruses have a buoyant density of 1.0 to 1.2 g/ml in Percoll PLUS.

Percoll PLUS offers:

- Low endotoxin levels (max. 2 EU/ml)
- Absence of toxicity for cells and very low chemical reactivity
- Low osmolality: Percoll PLUS can easily be adjusted with physiological saline, other balanced salt solutions, or cell culture media, to give gradients that are iso-osmotic throughout
- Low viscosity resulting in rapid formation of gradients and particle separation at low centrifugal forces

Specifications for Percoll PLUS are shown in Table 1.

Percoll PLUS gradients

Percoll PLUS can be used in density centrifugation applications for the isolation and purification of cells, subcellular particles, and viruses down to ~70S. The medium offers both high resolution and biological compatibility. The low intrinsic osmolality and viscosity are particularly useful when isolating organelles where maintenance of membrane integrity is important.



Fig 1. Percoll PLUS provides reliable separation of cells, subcellular particles, and viruses by density gradient centrifugation.

Table 1. Percoll PLUS specifications

Composition	Colloidal silica sol with covalently linked silane
Density	1.130 ± 0.005 g/ml
Osmolality	< 30 mOsm/kg H ₂ O
Viscosity	< 15 cP at 20°C
pH	9.4 ± 0.5 at 20°C
Carbon content in dry residue	4.0–5.5%
Endotoxin activity max.	2 EU/ml
Shelf life	5 yr

Percoll PLUS can be used to produce preformed, continuous or discontinuous gradients. Under moderate centrifugal force, the colloidal particles that comprise Percoll PLUS sediment to form smooth, continuous density gradients. This property can be exploited in either fixed-angle or vertical rotors.

The medium is also suited to applications where high-speed centrifugation is required. In this case, the sample can be premixed with the medium and subsequently separated on the continuous gradient formed *in situ*. Thus, gradient formation and sample separation can be achieved in one step. All experiments described in the literature using Percoll can also be performed with Percoll PLUS.

Percoll

Percoll is a silica-based colloidal medium for cell separation by density gradient centrifugation (see Percoll specifications in Table 2). The silica particles of the medium are coated with polyvinylpyrrolidone (PVP), which gives low osmolality and low viscosity. Cell separation with Percoll is performed under gentle conditions, facilitating the isolation of a variety of cells, subcellular particles, and viruses. Iso-osmotic Percoll gradients can be formed within the density range of 1.0 to 1.3 g/ml. This density range is optimized for separation of most cells, subcellular particles, and larger viruses, which have a buoyant density of 1.0 to 1.2 g/ml in Percoll.

Percoll offers:

- Low osmolality: Percoll can easily be adjusted with physiological saline, cell culture medium, or sucrose to give gradients that are iso-osmotic throughout
- Low viscosity resulting in rapid formation of gradients and particle separation at low centrifugal forces
- Support through extensive research use: Thousands of publications on Percoll in scientific journals
- Formation of either continuous preformed or self-generated gradients by centrifugation at moderate speeds

Table 2. Percoll specifications

Composition	Colloidal silica sol with nondialyzable PVP coating, 15–30 nm diameter beads
Density	1.130 ± 0.005 g/ml
Conductivity max	1.0 mS/cm
Osmolality	max 25 mOsm/kg H ₂ O
Viscosity	10 ± 5 cP at 20°C
pH	9.0 ± 0.5 at 20°C
Shelf life	5 yr

Ordering information

Product	Pack Size	Code number
Percoll PLUS	250 ml	17-5445-02
	1 l	17-5445-01
Percoll	250 ml	17-0891-02
	1 l	17-0891-01

Related products

Ficoll™ PM400	100 g	17-0300-10
	500 g	17-0300-50
Ficoll-Paque™ PLUS	6 × 100 ml	17-1440-02
	6 × 500 ml	17-1440-03
Ficoll-Paque PREMIUM	6 × 100 ml	17-5442-02
	6 × 500 ml	17-5442-03

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CY13702-14Aug20-DF

