

DIRECTIONS FOR USE

PEGDA Hydrogels | FB5928–FB5931

Document	Revision	Effective Date	Status
DFU-PEGDA	01	10-08-2026	APPROVED

Product Information

Available grades: PEGDA 3.4 kDa (FB5928), 6 kDa (FB5929), 10 kDa (FB5930), and 20 kDa (FB5931). Supplied as a non-sterile, white to off-white powder. Store dry material at $\leq -20^{\circ}\text{C}$. PEGDA is soluble in deionized water at 20 wt.% under the supplier specification.

Preparation of PEGDA Solutions

1. Allow the sealed PEGDA vial to reach room temperature before opening to minimize moisture condensation.
2. Dissolve PEGDA in deionized water or another application-appropriate aqueous medium at the desired concentration. PEGDA can be readily dissolved at concentrations up to 20 wt.% in deionized water. Adjust concentration to achieve the desired hydrogel properties.
3. Mix gently by inversion or on a rocker until fully dissolved. The solution should appear clear; viscosity depends on molecular weight and concentration.
4. PEGDA is supplied non-sterile. If a sterile solution is required, sterile filter through a $0.2\ \mu\text{m}$ membrane. Filtration feasibility depends on molecular weight, concentration, viscosity, and membrane compatibility; do not assume every formulation can be filtered.
5. Prepare the selected photoinitiator according to its instructions and add at an application-appropriate concentration. If incorporating other components such as ECM proteins or bioinks, mix them into the formulation using conditions compatible with their stability and intended use. Protect light-sensitive mixtures from light.
6. Dispense the PEGDA/photoinitiator mixture into the desired mold, well plate, or other format. Expose to a compatible light source under conditions established for the chosen photoinitiator and hydrogel geometry.
7. After crosslinking, wash or equilibrate the hydrogel as appropriate for the intended research application to reduce residual soluble components.

Combining PEGDA with ECM Proteins and Bioinks

PEGDA can be blended with compatible extracellular matrix (ECM) proteins, peptides, or bioink formulations to introduce cell-interactive components and create more physiologically relevant research hydrogels. Depending on the formulation, ECM additions may provide cell-binding sites or influence cell behavior. Confirm compatibility, uniform distribution, and retention of added materials; physical blending alone does not guarantee their immobilization in the crosslinked network.

Crosslinking Considerations

Hydrogel stiffness, gelation time, swelling, and network properties depend on PEGDA molecular weight and concentration, photoinitiator chemistry and concentration, light wavelength/intensity/exposure, sample thickness, and added components. Optimize conditions for each formulation and application.

Storage and Handling

Store unopened PEGDA powder at $\leq -20^{\circ}\text{C}$, tightly closed and protected from moisture. Prepare aqueous solutions fresh when possible. If unused solution must be stored, protect from light and freeze at -20°C only after confirming that freezing/thawing is suitable for the intended formulation; avoid repeated freeze–thaw cycles. Do not assume prepared solutions remain sterile or stable without validation.

Notes

These instructions provide general research guidance, not a validated formulation for a particular cell type or application. PEGDA alone does not inherently provide cell-adhesive motifs; added ECM components may provide biological cues, depending on their identity and retention within the hydrogel. For Research Use Only. Not for human or clinical use.