

Directions for Use

PhotoChitosan[®]-Irgacure Methacrylated Chitosan Kit

CHITOSAN METHACRYLATE WITH IRGACURE KIT FOR PHOTOCROSSLINKABLE
HYDROGELS

Catalog Number #5443-1KIT

Product Description

Advanced BioMatrix offers PhotoChitosan[®], a purified chitosan methacrylate kit, which provides 3D chitosan gels with the unique attributes to be prepared at various concentrations and photocrosslinked to provide various gel stiffness.

The PhotoChitosan[®] Irgacure kit consists of Chitosan methacrylate and a visible light photoinitiator.

Table 1:

Item	Catalog No.	Package Size
Methacrylated Chitosan, Lyophilized	5428-100MG	100 mg
Photoinitiator Irgacure	5200-100MG	100 mg

Our Chitosan Methacrylate achieves a degree of substitution 2-15% for maximum crosslinking and range of stiffness.

The photoinitiator solution consists of irgacure which needs to be formulated in neat methanol in a 10% solution (100 mg/mL), allowing for photocrosslinking of the chitosan at 365 nm.

Storage/Stability:

The product ships on frozen gel packs. Upon receipt, store the chitosan methacrylate at -20°C. Store the irgacure at 2-8°C.

Preparation Instructions

PhotoChitosan is soluble in aqueous 20 mM acetic acid. For cell culture applications, 1X PBS is recommended for dissolution.

Note: Employ aseptic practices to maintain the sterility of the product throughout the preparation and handling of the chitosan and other solutions.

Note: The following instructions are for a 1% chitosan methacrylate solution for use with cells. Recommended concentrations are 0.5-1%

1. Add the 10 mL's of 1X PBS to the amber vial containing 100 mg of lyophilized chitosan methacrylate. The resulting pH should be ~6, and can be increased with addition of sterile 0.1M NaOH (order of microliters).
1. Gently mix on a shaker table or stir plate overnight or until fully solubilized. Avoid vortexing and shaking the bottle to prevent unsolubilized chitosan from sticking to the sides of the vial. Mixing may be done warm (up to ~65°C) or at room temperature.
2. Calculate the volume of photoinitiator to add by multiplying the volume of solubilized chitosan by 0.01. If the resulting number is 100 µl, for example, you will add 100 µl of irgacure.
3. Solubilize the required amount of (per step 3) at a concentration of 100 mg/ml in neat methanol. Photoinitiator can be sterilized through a 0.2 µm button filter.

4. Add the Irgacure to the chitosan solution and fully mix until solution is homogeneous.
5. Dispense your bioink solution into a well plate or petri dish for photocrosslinking or use for bioprinting at 365 nm.
6. For photocrosslinking, place printed structure directly under a 365 nm visible light crosslinking source.

Any excess material can be refrigerated and stored. Long term shelf-life studies are in process. We recommend only adding photoinitiator to the amount of chitosan to be used at that time.