

Description/Features:

Maximo-Gel juice is a fast and sensitive fluorescent dye for visualization and quantitation of proteins separated by 1-D or 2-D SDS-PAGE. It comes as a 100x stock solution that is simply diluted with water by the user to its working concentration. Maximo-Gel juice is normally low fluorescent but emits strong fluorescence (bright golden color) as bound to proteins. The staining procedure is a simple two-step protocol (fix and stain) that can be completed in as little as 30 minutes. Gels to be stained are fixed with ethanol/acetic acid solution prior to staining with Maximo-Gel juice solution. A de-staining step is not normally recommended, but may be employed to reduce background, simply by agitating the gel in water for 1-5 minutes. Gels stained with Maximo-Gel juice fluorescent gel stain may be directly visualized with a variety of different UV-based fluorescence imaging systems. The maximum emission wavelength of protein-bound Maximo-Gel juice is near 570 nm. Maximo-Gel juice gives exceptional sensitivity and wide dynamic range for protein detection. The bound Maximo-Gel juice dye is easily removed from the protein by immersing the gel in sufficient water, thus it is well compatible with subsequent enzymatic digestion and mass spectrometry for proteomics applications. Stained gels may be stored in stain solution in the dark at 2-8°C; imaging sensitivity might be moderately enhanced after 4°C storage of the stained gel.

Safety Considerations:

Maximo-Gel juice fluorescent gel stain is a 100x stock of an organic dye. It contains Propylene Glycol ~95% (v/v) EC#200-338-0, CAS#57-55-6 in its concentrated form and is suggested be handled with care. The diluted working solution is minimally hazardous and non-flammable. However, the complete properties of the dye component have not been investigated. Gloves and goggles should be worn and general laboratory safety precautions should be followed while handling both the undiluted and diluted products.

Disposal Considerations

Laws governing the disposal of laboratory chemicals vary by region. Consult the MSDS and check local laws for the proper disposal guidelines.

Storage and Transport

The product is stable for at least 16 months when stored at 2-8°C. Avoid exposure to temperatures greater than 37°C and protect from light. Transport with blue ice.

Fluorescence Characteristics

Maximo-Gel juice fluorescent gel stain has its excitation peaks at 330 and 390 nm and emission maximum at 570 nm, making it compatible with UV-based imagers.

Technical Information

Clean Technique

Maximo-Gel juice fluorescent gel stain is exceptionally fast and sensitive, Therefore, it is highly recommended to use clean technique to avoid dust or dirt transferred to the surface of the gel, which may appear in the fluorescence image as smudges or speckles. For best results, contaminant proteins such as keratins from skin and hair should also be minimized.

All containers used should be well cleaned and rinsed with distilled or deionized water. Glass plates used to cast gels in the laboratory should be thoroughly cleaned with lint-free wipes.

Use dust-free gloves and keep containers covered as much as possible.

Sensitivity of Maximo-Gel juice

Maximo-Gel juice fluorescent gel stain is highly sensitive, and the amount of proteins required to be visualized by it is much less than what is possible by using conventional Coomassie Blue stain. Sensitivity of Maximo-Gel juice is of the same general order as silver stain or other fluorescent protein stains. The limit of sensitivity for individual proteins is around 1 ng or less.

Dynamic Range of Maximo-Gel juice

Maximo-Gel juice has a wide dynamic range with linearity covering three orders of magnitude. If needed, adjust the imaging conditions such as the exposure time to accommodate variability in the amount of protein to be visualized. As a general principle, the maximum quantity of protein recommended for visualization with Maximo-Gel juice is 1–2 µg for individual proteins and 10–20 µg for complex mixtures on 1-D gels.

Kinetics of Maximo-Gel juice

Maximo-Gel juice is fast to achieve saturation of protein binding at room temperature. Thirty minutes of incubation in the product is generally sufficient to obtain 50% saturation, and 45 minutes of staining at 25°C is close to saturation of detection. It's noted that stain at 4°C will delay the time to reach saturation but might enhance the sensitivity as compared with 25°C stain incubation.

Gels Suitable for Maximo-Gel juice

Maximo-Gel juice is intended mainly for staining 1-D and 2-D SDS-PAGE for a variety of buffer systems and gel sizes. Instructions given here are for standard 1 mm thick gels. Thicker gels may benefit from longer stain times and larger volumes of stain solution.

Protein Markers Suitable for Maximo-Gel juice

Molecular weight standards that have been prestained with a visible dye do not stain with Maximo-Gel juice and thus cannot be imaged by fluorescence in gels stained with Maximo-Gel juice. We recommend additional use of unstained protein standards on gels for Maximo-Gel juice.

Instructions for Use of Maximo-Gel juice

Prepare Fix Solution

The fix solution consists of 40% (v/v) ethanol* and 7% (v/v) acetic acid. Prepare the solution with distilled or deionized water that has been filtered. The quantity of fix solution required depends on the number of gels to be stained and the size of the gel as indicated in the table below. As a general guide, use an amount of fix solution equal to 10–15 times the volume of the gel.

Gel Size	Volume of Fix Solution per Gel
~ 9 cm × 7 cm (general mini-gel)	~ 100 ml
~ 13 cm × 9 cm	~ 200 ml
~ 16 cm × 16 cm	~ 500 ml
~ 26 cm × 23 cm	~ 1,000 ml

* 40% ethanol can be replaced with 50% methanol, but methanol is not recommended in consideration of safety and stain performance.

Fix Gels

Remove the gel(s) from the gel cassette or plates. Place gel in a clean glass or plastic tray with the volume of fix solution indicated above. Cover the tray, place on a rocker or shaker and agitate gently.

For standard protocol, fix at room temperature for 60 minutes.

For quick fixing, microwave the fix solution with the gel to boil (~1.5 minutes for 100 ml of fixing solution; dependent on volume and microwave power), and then agitate gently at room temperature for 15 minutes.

Note: Either shortened or prolonged fix time may reduce sensitivity.

Prepare Working (1x) Stain Solution

Working (1x) stain solution is prepared by diluting one volume of Maximo-Gel juice with 100 volumes of distilled or deionized water that has been filtered. The quantity of stain solution required depends on the number of gels to be stained and the size of the gel as indicated in the table below. As a general guide, use an amount of working stain solution equal to 10 times the volume of the gel.

Gel-size	Volume of Stain Solution
~ 9 cm × 7 cm	~ 60 ml
~ 13 cm × 9 cm	~ 120 ml
~ 16 cm × 16 cm	~ 300 ml
~ 26 cm × 23 cm	~ 600 ml

Working (1x) stain solution is recommended to be freshly prepared prior to its intended use.

Stain Gels:

Carefully pour off the fix solution and add Maximo-Gel juice (1x working solution) to the staining tray. Cover the tray, place on a rocker or shaker and agitate gently at room temperature. For standard protocol, stain for at least 45 minutes. For rapid analysis, stain for 15-45 minutes.

Generally, proteins (5 ng or below) might be detectable after 15 minutes of staining.

Gels may be left in the Maximo-Gel juice solution for extended periods, with care to limit light exposure. Stained gels may be stored for up to three months without significant loss of fluorescent signals. For long-term storage, gels should be placed in sealable plastic bags with 5–10 ml of stain solution and stored in the dark at 2–8 °C.

NOTE: Destaining is not necessary. However, it might be helpful to remove excess dye from the gel surface by quickly rinsing the gel with clean water. Staining intensity persists or even increases when the gel is stored in Maximo-Gel juice solution at 4 °C.

Gel Imaging

Gels stained with Maximo-Gel juice are visualized using UV light excitation. We recommend to adjust excitation/emission to around 330nm/570nm for best results. If the imaging equipment has no preprogrammed imaging function for Maximo-Gel juice, the imaging setting for SYPRO Ruby stain or Ethidium bromide that uses UV transillumination is recommended. Any imaging system using UV light excitation may be used to image Maximo-Gel juice.

Ordering information

Prod. No.	Description	Quantity
3910012	Maximo Gel juice fluorocent gel stain	10 ml
3910012-L	Maximo Gel juice fluorocent gel stain	10 x 10 ml