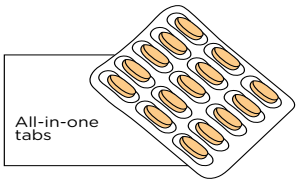
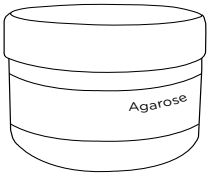
# Three ways to prepare agarose gels




All-in-one Agarose Tabs™
e.g., SeeGreen™ all-in-one tabs or GelGreen® all-in-one tabs (supplied with Learning Lab Companion Kit)


Agarose Tabs™




Agarose powder

**There are several ways to prepare agarose gels**

- Watch a video outlining three methods to cast agarose gels by scanning the QR code.
- See the following pages for detailed instructions on how to prepare 2% agarose gels using each method.

www.minipcr.com/agarose-gel/

**Important notes**

- These instructions are designed for use with the blueGel™ electrophoresis system by miniPCR bio™. If using another electrophoresis system, these instructions may need to be adjusted according to the manufacturer's instructions.
- These instructions are for preparing 2% agarose gels. If you plan to pour gels of a different percentage, adjust volumes proportionally, as in the table below.

| All-in-one Agarose Tabs™ | | | |
|---|---|---|---|
| **Gel %** | **Agarose format** | **Liquid** | **Yield** |
| **2%** | 1 all-in-one tab | 20 ml $H_2O$ | 1 gel |
| **1%** | 1 all-in-one tab | 40 ml $H_2O$ | 2 gels |

| Agarose Tabs™ | | | |
|---|---|---|---|
| **Gel %** | **Agarose format** | **Liquid** | **Yield** |
| **2%** | 1 agarose tab | 25 ml 1X TBE | 1 gel |
| **1%** | 1 agarose tab | 50 ml 1X TBE | 2 gels |

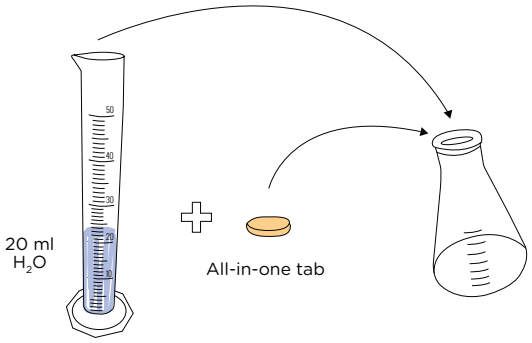
| Agarose powder | | | |
|---|---|---|---|
| **Gel %** | **Agarose format** | **Liquid** | **Yield** |
| **2%** | 0.4 g agarose powder | 20 ml 1X TBE | 1 gel |
| **1%** | 0.2 g agarose powder | 20 ml 1X TBE | 1 gel |

# Option 1: All-in-one Agarose Tabs™

## Tabs contain agarose, TBE buffer, and DNA stain. Just add water!

**A. Prepare a 2% agarose solution**

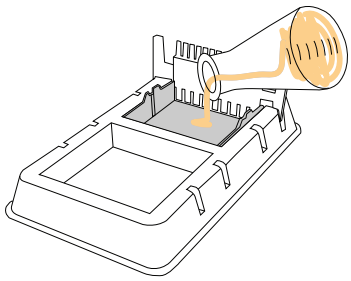
- Obtain a heat-resistant container such as a glass Erlenmeyer flask or beaker that is at least three times the volume you wish to add.
- Combine 20 ml room temperature distilled water and one all-in-one tab for each gel you plan to pour.
- Allow the tabs to soak until they fully disintegrate (this could take a few minutes).
- Swirl the flask or beaker until reagents are well mixed.




**B. Heat solution**

- Expect to heat for about 60 seconds per 20 ml of liquid in a standard microwave.
- If a microwave is not available, a hotplate can be used. Note that this option takes more time.
- Heat until the solution boils and continue until agarose is fully dissolved. No agarose particles should remain.
- Note: The included DNA stain will give the solution a yellow/orange tinge.

Caution: The solution may boil over the top of some containers. The solution will be very hot.



**C. Pour the agarose solution into the prepared casting platform with a gel tray and comb**

- The agarose solution should cover the bottom of the gel tray and the bottom 3 mm of the comb (roughly the bottom 1/3 of the comb).

**D. Allow gel to solidify completely, then remove the comb by pulling firmly upwards**

- Gels will typically be ready in about 10 minutes.
- Gel is ready when cool and firm to the touch.
- Gels can be stored for up to three days at room temperature in an airtight container protected from light.

**E. Prepare 1X TBE buffer**

- Prepare approximately 30 ml of buffer for every blueGel™ electrophoresis system you plan to use. This will be used as running buffer.
- TBE buffer is often provided as liquid concentrate or powder.
- Follow manufacturer's instructions to prepare 1X TBE buffer solution.

# Option 2: Agarose Tabs™

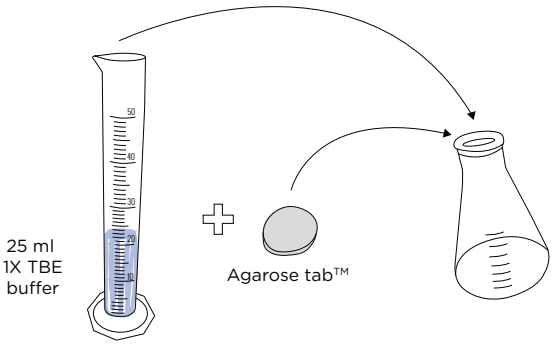
## Tabs contain pre-weighed agarose. Add TBE buffer and DNA stain.

**A. Prepare 1X TBE buffer**

- Prepare at least 60 ml of buffer for every blueGel™ electrophoresis system you plan to use.
- You will use 25 ml of 1X TBE to make the gel and 30 ml as running buffer.
- TBE buffer is often provided as liquid concentrate or powder.
- Follow manufacturer's instructions to prepare 1X TBE buffer solution.

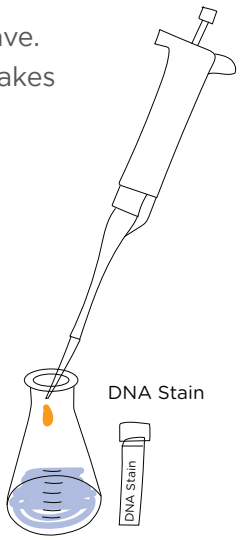
**B. Prepare a 2% agarose solution**

- Obtain a heat-resistant container such as a glass Erlenmeyer flask or beaker that is at least three times the volume you wish to add.
- Combine 25 ml room temperature 1X TBE buffer and one Agarose Tab™ for each gel you plan to pour.
- Allow the tabs to soak until they fully disintegrate (this could take a few minutes).
- Swirl the flask or beaker until reagents are well mixed.




**C. Heat solution**

- Expect to heat for about 60 seconds per 25 ml of liquid in a standard microwave.
- If a microwave is not available, a hot plate can be used. Note that this option takes more time.
- Heat until the solution boils and continue until agarose is fully dissolved. No agarose particles should remain.



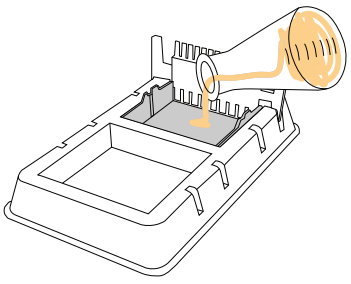

Caution: The solution may boil over the top of some containers. The solution will be very hot.

**D. Add DNA stain to the solution**

- Add 2.5 µl of SeeGreen™ stain or GelGreen® stain for each 25 ml of solution.
- Swirl solution in flask or beaker until dye appears evenly distributed.

**E. Pour the agarose solution into the prepared casting platform with a gel tray and comb**

- The agarose solution should cover the bottom of the gel tray and the bottom 3 mm of the comb (roughly the bottom 1/3 of the comb).



**F. Allow gel to solidify completely, then remove the comb by pulling firmly upwards**

- Gels will typically be ready in about 10 minutes.
- Gel is ready when cool and firm to the touch.
- Gels can be stored for up to three days at room temperature in an airtight container protected from light.

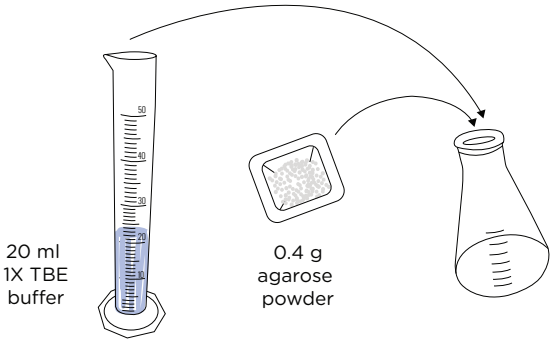
# Option 3: Agarose powder

**A. Prepare 1X TBE buffer**

- Prepare at least 50 ml of buffer for every blueGel™ electrophoresis system you plan to use.
- You will use 20 ml of 1X TBE to make the gel and 30 ml as running buffer.
- TBE buffer is often provided as liquid concentrate or powder.
- Follow manufacturer's instructions to prepare 1X TBE buffer solution.

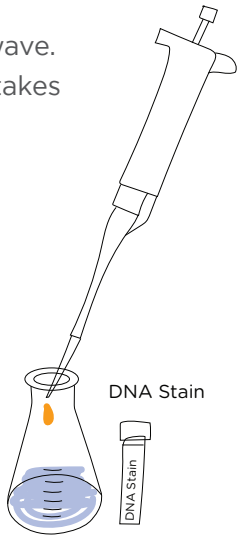
**B. Prepare a 2% agarose solution**

- Obtain a heat-resistant container such as a glass Erlenmeyer flask or beaker that is at least three times the volume you wish to add.
- Combine 20 ml 1X TBE buffer and 0.4 g agarose powder for each gel you plan to pour.
- Swirl the flask or beaker until reagents are well mixed.




**C. Heat solution**

- Expect to heat for about 60 seconds per 20 ml of liquid in a standard microwave.
- If a microwave is not available, a hotplate can be used. Note that this option takes more time.
- Heat until the solution boils and continue until agarose is fully dissolved. No agarose particles should remain.



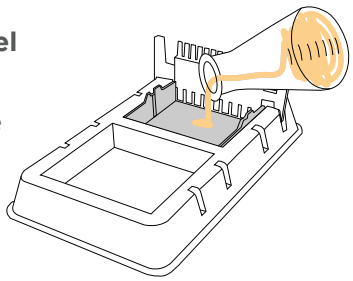

Caution: The solution may boil over the top of some containers. The solution will be very hot.

**D. Add DNA stain to the solution**

- Add 2 µl of SeeGreen™ stain or GelGreen® stain for each 20 ml of solution.
- Swirl solution in flask or beaker until dye appears evenly distributed.

**E. Pour the agarose solution into the prepared casting platform with a gel tray and comb**

- The agarose solution should cover the bottom of the gel tray and the bottom 3 mm of the comb (roughly the bottom 1/3 of the comb).



**F. Allow gel to solidify completely, then remove the comb by pulling firmly upwards**

- Gels will typically be ready in about 10 minutes.
- Gel is ready when cool and firm to the touch.
- Gels can be stored for up to three days at room temperature in an airtight container protected from light.