

## Gels

### How to Cast a Gel

Gel Caster

Gel Tray

30ml (Small Gel Tray), 50ml (Monster Gel Tray) 1% Agarose Solution

10,000X Sybr Safe

50ml Conical Tube

Gel Comb

1. Secure gel tray into gel caster.
2. Microwave or make new bottles of 1% agarose (refer to “How to Make 1% Agarose”) and pour it into a 50ml conical tube when it has cooled down enough.
3. Add Sybr safe. For every 30ml of 1% agarose, use 3ul Sybr safe.
4. Invert tube *gently* to avoid creating bubbles until the red Sybr safe is evenly distributed.
5. Place gel comb into notches. Check to be sure the comb is evenly submerged into agarose.
6. Pour contents of conical tube into tray. Make sure there are no bubbles in your gel (if the comb can't get the bubble out, try using a pipette tip).
7. Let the gel set at room temperature ~20 minutes. Gel is ready when it looks opaque.
8. Pull out comb carefully in an upward motion to prevent causing damage to the wells.

### How to Run a Gel

Small Wells – Restriction Digests, Diagnostic Gels

Large Wells – Gel Extractions

- 1) Make sure the solution you are going to run through a gel is separated into a different tube from your stock or original product tube. For every 9  $\mu$ L of product, mix it thoroughly with 1  $\mu$ L of loading dye.
- 2) Make a gel map.
- 3) Load your solution into the correct well.
- 4) Run at 120V. Keep watch; when the dye is about halfway down the gel (depending on how big your product should be), the gel should be done.

### How to Make 1X TAE Gel Buffer

Add 20mL of 50X TAE to 980mL H<sub>2</sub>O.

## How to Make 1% Agarose

1% by weight of agar in TAE. We assume that TAE is about the same density as water, 1g/ml.

1. Add 2-4g agar to glass bottle.
2. Add 200-400ml 1X TAE.
3. Screw cap on *loosely*.
4. Microwave (watch closely and stop when boiling).
5. Using hot gloves, swirl bottle gently while checking that the agar has dissolved completely. If not, pop in the microwave for another minute and continue watching it while repeating the same procedure.
6. Label: 1% agarose, initials, date.
7. If you need it for an experiment right away and you need it to cool down faster, run it under cold water or place it in a tub of ice. (Make sure you watch it to check that it doesn't start turning solid while cooling, or else you'll have to microwave it again.)