

Making Gel Plates

2026

Historical Background

The gel printing plate has its origins in the hectograph (also called jellygraph or gelatine duplicator), a printing process from the 1860s. The name comes from the Greek “hecto” (hundred), though plates actually produced 20–80 copies rather than 100.

Historically, in Australia, gel printing was used in classrooms for printing directly into students’ exercise books (*Schoolhouse Museum, NSW*).

Gel printing was used by POWs at *Stalag Luft III* and *Colditz Castle*. They made improvised plates to print escape documents during WWII. There are hectograph maps used for escape in the Jack Millet collection at the Australian War Memorial.

Why it Works

Gelatine is a protein derived from animal collagen. When dissolved in hot water and cooled, the molecules trap water to create a colloid (gel). Glycerine (glycerol) acts as a plasticiser, it interacts with the gelatine proteins to elongate them, creating a flexible material.

Isopropyl alcohol is another plasticiser that works with glycerine. Yet many makers omit it; some report it causes shrinkage.

Bloom strength refers to how firmly the gelatine sets. Higher bloom = stiffer gel. McKenzie’s Gelatine Powder has a bloom strength of 210–230, which works well for printing plates.

Recipes

Kim Herringe's Recipe

INGREDIENTS

125ml cold water

375ml glycerine (vegetable glycerine)

115g powdered gelatine (McKenzie's works well)

375ml boiling water

EQUIPMENT

22cm × 33cm tray (or similar, aiming for ~1cm thickness)

Mixing bowl, spatula

Spirit level and cardboard strips (to level the tray)

Strips of newspaper (to skim bubbles)

METHOD

1. Prepare everything first as gelatine sets quickly
2. Check tray is level on bench
3. Pour cold water into bowl
4. Add half the glycerine (200ml), stir slowly to avoid bubbles
5. Sprinkle ALL gelatine powder into the water/glycerine mix
6. Mix and squish slowly to remove all lumps (this takes 5-10 minutes, rushing creates bubbles)

7. Add boiling water, continue stirring slowly until all gelatine crystals dissolve
8. Add remaining 175ml glycerine, stir slowly to blend
9. Pour slowly into tray
10. Skim bubbles off surface with newspaper strips
11. Leave to set on bench 1-2 hours
12. Refrigerate overnight for final setting (helps it shrink slightly for easier removal)

STORAGE: Between two sheets of acetate or stiff plastic. Does not require refrigeration.

LIFESPAN: Years, with proper care. Can be melted and re-poured.

Linda Germain's Recipe

INGREDIENTS

- 85g gelatine (MacKenzie's)
- 355ml glycerine
- 2 cups boiling water (500ml)

METHOD

1. Let the gelatine and glycerine "bloom" together before adding hot water.
2. Use microwave or double boiler to finish dissolving if needed.

RATIO GUIDELINE

2 tablespoons (heaped) gelatine per 1 cup of liquid.

The Frugal Crafter's Recipe

Source: Lindsay Weirich

INGREDIENTS

6 tablespoons unflavored gelatine

1½ cups glycerine

1½ cups boiling water

METHOD

1. Dissolve gelatine in glycerine
2. Add boiling water
3. Stir until dissolved
4. Pour into shallow pan to set

Traditional Hectograph

Source: *Schoolhouse Museum Australia*

INGREDIENTS

375ml glycerine

250ml water

60g gelatine

METHOD

1. Melt all ingredients together in saucepan over low heat, stirring gently
2. Pour into rust-proof, shallow rectangular dish
3. Allow to set hard on a flat surface
4. Can be re-melted if damaged or bubbled

Simple Gelatine-Only Plate

For testing or short-term use

INGREDIENTS

2 tablespoons gelatine per 1 cup water

CHARACTERISTICS

Must be refrigerated

More fragile

Lasts days to weeks, not months

Can go mouldy

Still prints well

Very cheap to make

Troubleshooting

Plate too soft/won't hold shape

Not enough gelatine, or low bloom strength gelatine.

Use more gelatine; use higher bloom gelatine (210+).

Plate falls apart

Not enough gelatine.

Use heaped tablespoons; plate should be yellowish, not clear.

Too many lumps

Gelatine not fully dissolved.

Mix slowly for 10 minutes before adding hot water.

Too many bubbles

Stirred too vigorously.

Skim bubbles with newspaper strips.

Plate tears when removing from mould

Too thin, not set properly, or mixture too weak.

Make plate thicker (1cm+); let set fully; add more gelatine.

Plate becomes sticky over time

Normal wear.

Melt and re-pour. See below.

Plate develops mould

Too much moisture, no glycerine, or stored improperly.

Use glycerine recipe; store in airtight container.

Re-melting and Re-pouring

To restore a damaged, stained, or sticky plate:

1. Cut plate into small pieces (<2cm)
2. Place in microwave-safe bowl
3. Spray with water (8 sprays) to replace evaporated moisture
4. Microwave in 1-minute intervals, stirring between, until clear
5. Strain through fine mesh if lumps remain
6. Pour into tray, skim bubbles, let set
7. Refrigerate overnight

Temperature warning: Heat gently. Overheating can affect texture.

Storage

Glycerine plates:

- Do NOT require refrigeration

- Store flat between sheets of acetate, stiff plastic, or perspex

- Keep in airtight container to prevent drying/cracking

- Store away from heat and direct sunlight

- Can last months to years

Gelatine-only plates:

- MUST be refrigerated

- Cover loosely (plastic wrap can leave texture marks)

- Will be moist when you take them out – wipe before printing

- May need re-melting before mould develops

- Last 1-4 weeks typically

Agar Agar

For those avoiding animal products, agar agar can work, but with differences.

Plates tend to be stiffer and more brittle than gelatine. Reported results are mixed.

Requires experimentation with ratios. Must be boiled to activate (unlike gelatine which dissolves in hot water). Sets faster and at higher temperature. Linda Germain reports using ½ bag agar flakes for 4 cups water; the plate was stiff and brittle, but printable.

Ingredients

Gelatine:

McKenzie's Gelatine Powder — available at Coles, Woolworths

Glycerine (Glycerol):

Available at chemists (often in skin care section)

Bunnings

Online — check you're getting vegetable glycerine

Isopropyl alcohol (if using):

Bunnings

Jaycar

Not essential — many recipes now omit it

