

# SILICONE SELECTION GUIDE

## ADDITION/PLATINUM CURE

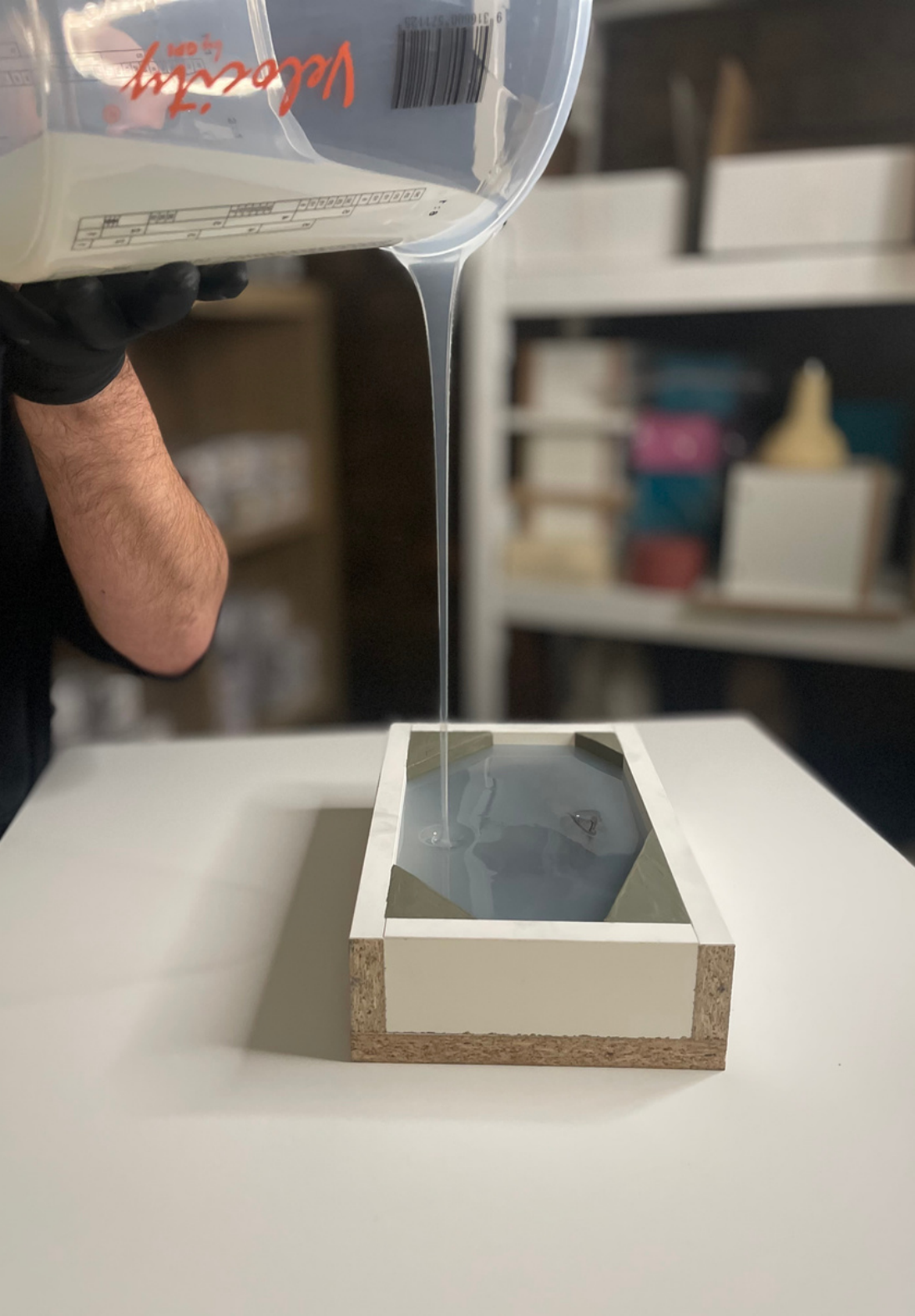
| NAME                  | RATIO           | POT LIFE   | DE-MOULD @ 23°C | SHORE    | TEAR STRENGTH | VISCOSITY     | CERTIFICATION     | COLOUR            | THIXOTROPIC |
|-----------------------|-----------------|------------|-----------------|----------|---------------|---------------|-------------------|-------------------|-------------|
| <u>PINKYSIL</u>       | 100:100 PBV/PBW | 6 MINS     | 20+ MINS        | 20A      | 4.5 N/mm      | 2,500 mPa s   | SKIN SAFE         | PINK              | SIL-THIX    |
| <u>ODDBOD</u>         | 100:100 PBV/PBW | 5-6 MINS   | 20+ MINS        | 25A      | 4 N/mm        | BRUSHABLE     | SKIN SAFE         | PINK              | N/A         |
| <u>PINKYSIL PUTTY</u> | 100:100 PBV/PBW | 2 MINS     | 8-12+ MINS      | 25A      | 20 ppi        | PUTTY         | SKIN SAFE         | PINK              | N/A         |
| <u>GREENSIL SLOW</u>  | 100:100 PBV     | 20-30 MINS | 3-4 HOURS       | 20A      | 31 KN/M       | 7,000cps      | FOOD SAFE         | GREEN             | SIL-THIX    |
| <u>TRANSIL 5A</u>     | 100:100 PBV/PBW | 8-10 MINS  | 90+ MINS        | 5A       | 135 pli       | 2,500 cps     |                   | TRANSLUCENT       | SIL-THIX    |
| <u>TRANSIL</u>        | 100:100 PBV/PBW | 8-10 MINS  | 60-90 MINS      | 25A      | 115 pli       | 5,430 cps     |                   | TRANSLUCENT       | SIL-THIX    |
| <u>VARIO 15</u>       | 100:10 PBW      | 90+ MINS   | 6+ HOURS        | 15A      | 15 N/m        | 3,000 mPa s   | FOOD CONTACT SAFE | TRANSLUCENT       | SIL-THIX    |
| <u>VARIO 40</u>       | 100:10 PBW      | 90+ MINS   | 6+ HOURS        | 40A      | 15 N/m        | 10,000 mPa s  | FOOD CONTACT SAFE | TRANSLUCENT       | SIL-THIX    |
| <u>RTV 3428</u>       | 100:10 PBW      | 60 MINS    | 16 HOURS        | 28A      | 20 KN/m       | 20,000 mPa s  |                   | TRANSLUCENT       | SIL-THIX    |
| <u>M4601</u>          | 90:10 PBW       | 90 MINS    | 12 HOURS        | 28A      | >30 N/mm      | 20,000 mPa s  | FOOD CONTACT SAFE | SALMON RED        | SIL-THIX    |
| <u>M4642</u>          | 100:10 PBW      | 90 MINS    | 12 HOURS        | 37A      | >30 N/mm      | 15,000 mPa s  | FOOD CONTACT SAFE | DARK RED          | SIL-THIX    |
| <u>M4644</u>          | 100:10 PBW      | 90 MINS    | 15 HOURS        | 40A      | >25 N/mm      | 50,000 mPa s  | FOOD CONTACT SAFE | TRANSLUCENT       | SIL-THIX    |
| <u>M4670</u>          | 100:10 PBW      | 60 MINS    | 24 HOURS        | 55A      | >12 N/mm      | 80, 000 mPa s | FOOD CONTACT SAFE | BEIGE             | SIL-THIX    |
| <u>PLATSIL FS-00</u>  | 100:100 PBV/PBW | 8 MINS     | 30 MINS         | OO52/A5  | 120 pli       | 5,000 cps     |                   | MILKY TRANSLUCENT | SIL-THIX    |
| <u>PLATSIL FS-10</u>  | 100:100 PBV/PBW | 8 MINS     | 25 MINS         | OO60/A13 | 157.9 pli     | 4,200 cps     |                   | MILKY WHITE       | SIL-THIX    |

|                         |             |         |          |       |          |            |                             |                   |          |
|-------------------------|-------------|---------|----------|-------|----------|------------|-----------------------------|-------------------|----------|
| <u>PLATSIL GEL 0020</u> | 100:100 PBW | 40 MINS | 120 MINS | 00-20 | 24.8 pli | 3,900 cps  | SKIN SAFE                   | MILKY TRANSLUCENT | SIL-THIX |
| <u>PLATSIL GEL 0030</u> | 100:100 PBW | 45 MINS | 240 MINS | 00-30 | 36.6 pli | 6,200 cps  | SKIN SAFE                   | MILKY TRANSLUCENT | SIL-THIX |
| <u>PLATSIL GEL00</u>    | 100:100 PBW | 6 MINS  | 30 MINS  | 00-30 | 56 pli   | 15,000 cps | SKIN SAFE                   | MILKY TRANSLUCENT | SIL-THIX |
| <u>PLATSIL GEL10</u>    | 100:100 PBW | 6 MINS  | 30 MINS  | 10A   | 80 pli   | 15,000 cps | SKIN & FOOD<br>CONTACT SAFE | MILKY TRANSLUCENT | SIL-THIX |
| <u>PLATSIL GEL25</u>    | 100:100 PBW | 5 MINS  | 60 MINS  | 25A   | 146 pli  | 6,000 cps  | SKIN & FOOD<br>CONTACT SAFE | MILKY TRANSLUCENT | SIL-THIX |

## CONDENSATION/TIN CURE

| NAME             | RATIO                | POT LIFE                     | DE-MOULD @ 23°C                | SHORE    | TEAR STRENGTH | VISCOSITY    | CERTIFICATION | COLOUR    | THIXOTROPIC |
|------------------|----------------------|------------------------------|--------------------------------|----------|---------------|--------------|---------------|-----------|-------------|
| <u>M4503/T51</u> | 100:7.5 PBW          | 30 MINS                      | 10-20 HOURS                    | 25A +/-3 | >20 N/MM      | 38,000 cps   | N/A           | WHITE     | THIXO C     |
| <u>M4470</u>     | 100:3 & 100:4<br>PBW | 90 MINS @ 3%<br>80 MINS @ 4% | 20-24 HRS @ 3%<br>5-6 HRS @ 4% | 60A      | >4 N/mm       | 10,000 mPa s | N/A           | RED OXIDE | N/A         |
| <u>TUFSIL</u>    | 100:2.5 PBW          | 20 MINS                      | 24 HOURS                       | 28A      | 2.8 KN/m      | 30,000 cps   | N/A           | WHITE     | SIL-THIX    |

PLEASE NOTE THERE MAY BE FURTHER INFORMATION AVAILABLE ON EACH SILICONE PRODUCT PAGE OF OUR WEBSITE, AND OUR SDS & TDS DOCUMENTS. THERE ARE OTHER ANCILLARY PRODUCTS THAT MAY BE USED WITH OUR SILICONE SYSTEMS SUCH AS PIGMENTS, SILICONE DILUENT, FAST CATALYSTS, PRIMERS AND ADHESIVES. PLEASE EMAIL [TECH@BARNES.COM.AU](mailto:TECH@BARNES.COM.AU) FOR CLARITY REGARDING COMPATABILITY.



# WHAT SILICONE SHOULD I USE?

Have you asked yourself the following questions?

- Do the dimensions need to be very accurate i.e. shrinkage?
- What material will be cast into the mould and how aggressive is it?
- How quickly does the mould need to be ready?
- Will the silicone be poured or brushed on?
- Is good flowability important?
- How hard or soft does the finished mould need to be?
- Will the mould be subject to strong forces i.e. are there any undercuts?
- The design of the mould such as single part block mould, two-part block mould, brush on silicone skin, or matrix mould
- Are there any special requirements e.g. colour, suitable for food contact, heat resistance?

# WHICH TYPE OF SILICONE IS MOST SUITABLE?



## Addition/Platinum Cure Silicones

- Maximum reproduction accuracy & dimensional stability
- Multiple reproductions may be produced
- Fast set times available
- No volatile reaction produced upon cure
- Ready for immediate use
- Compatible with a wide variety of casting materials
- Curing may be disrupted by substances that block the catalyst, also referred to as inhibition
- Available in food contact and skin contact safe formulas



## Condensation/Tin Cure Silicones

- A more cost-effective option for making reproductions
- Low to no risk of inhibition
- Shrinkage of the cured rubber is on average between 0.4 to 0.8%
- Requires approx. 50% relative humidity to cure in conjunction with the catalyst
- Mould may require cleaning, post-curing, and/or sacrificial cast
- Additional & special catalysts available for altering cure times





# THE LIFESPAN OF A SILICONE MOULD



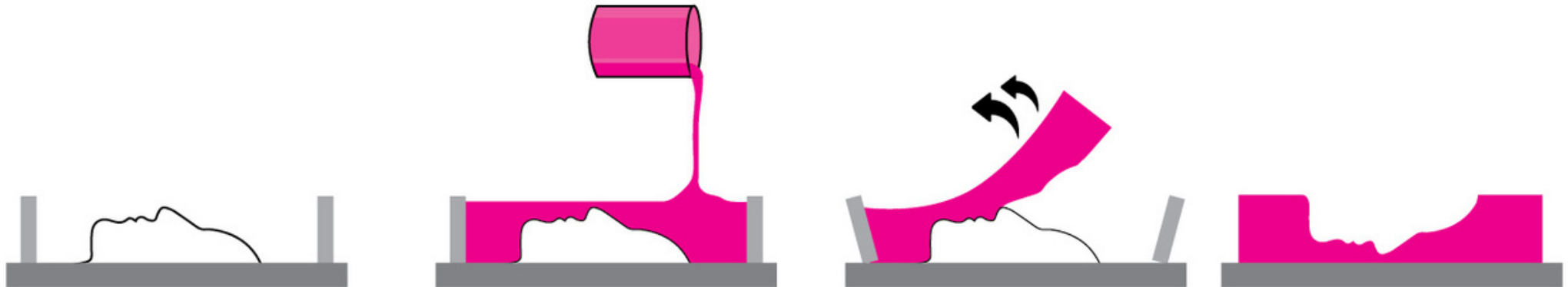
“How many casts will I get?” is something we often get asked. Silicone rubber moulds are capable of producing many reproductions; however, there are variables that will effect the final number. The mechanical properties of the silicone, the mould design, and the casting material are some key factors in the number of casts that may be produced.

- We recommend storing your mould in a cool, dry space, and if possible, cover it from dust and contamination but allow ventilation. You may also need to store your mould upside down and/or add additional support to avoid warping in storage.
- Try to avoid casting different materials into the same mould and let it rest in between casts.
- If your mould needs to be cleaned, avoid aggressive solvents and use warm soapy water, rinse thoroughly and sufficiently air dry.
- Try to design your mould and select a silicone that will avoid stretching the cured silicone as much as possible during de-moulding.
- In some instances, release agents may help protect the mould and delay burnout.
- The casting material you select may fall somewhere on the scale between aggressive to non-aggressive. Epoxides and Polyurethanes would be considered aggressive, through to Waxes and Plasters being considered non-aggressive.

# COMMON MOULD-MAKING TECHNIQUES



## 1. BLOCK MOULD

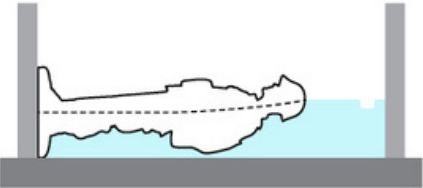
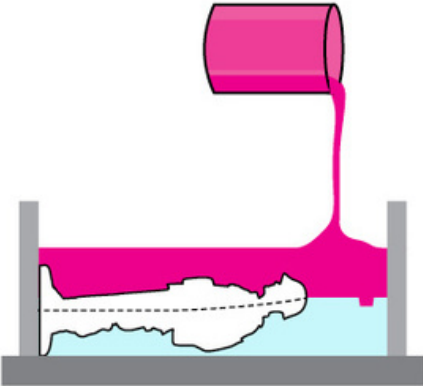
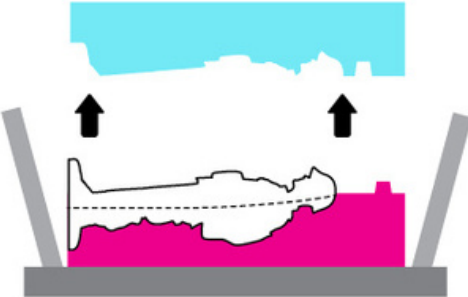
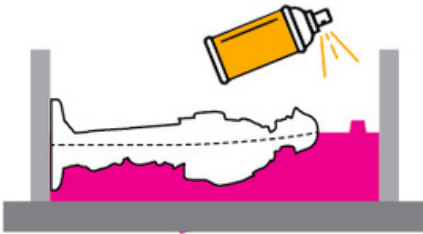


| Step 1: Prepare Your Object and Mould Box                                                                                                                                                                                                                                                                                                                                      | Step 2: Mix and Pour the Mould Material                                                                                                                                                                                                                                                                                                                                                                                                                                          | Step 3: Demoulding                                                                                                                                                                                                                                                                                                                                                     | Step 4: Prepare for Casting                                                                                                                                                                                                                                                                   |
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| <p>Place your object into a non-porous mould box that is appropriately sized for your project. Ensure the object is clean and free from oils, fingerprints, or debris. Secure it to the base of the mould box to prevent floating during pouring. If you're unsure of the object's material compatibility with the mould material, conduct a small test before proceeding.</p> | <p>Measure and mix your mould material according to the manufacturer's instructions. If required, vacuum degas to remove trapped air. When pouring, hold the container at least 20–30cm above the mould box and pour slowly in a thin, steady stream. This technique helps reduce air bubbles. Pour into the lowest section of the mould box, allowing the material to flow naturally. Minimize movement while pouring and take your time if the material's pot life allows.</p> | <p>Once the mould material has fully cured, carefully remove the mould box walls. Gently peel the mould away from the object. If the object does not release easily, make an "S" shaped cut using a scalpel or similar tool—this prevents the mould from tearing over time. Some materials may require post-curing before use, while others are ready immediately.</p> | <p>Place your mould on a clean, flat surface, ready for casting. For added support, you can reassemble the mould box around it. If you made a slit in the mould for de-moulding, secure it with rubber bands, painter's tape, or the original mould box to maintain shape during casting.</p> |

# COMMON MOULD-MAKING TECHNIQUES



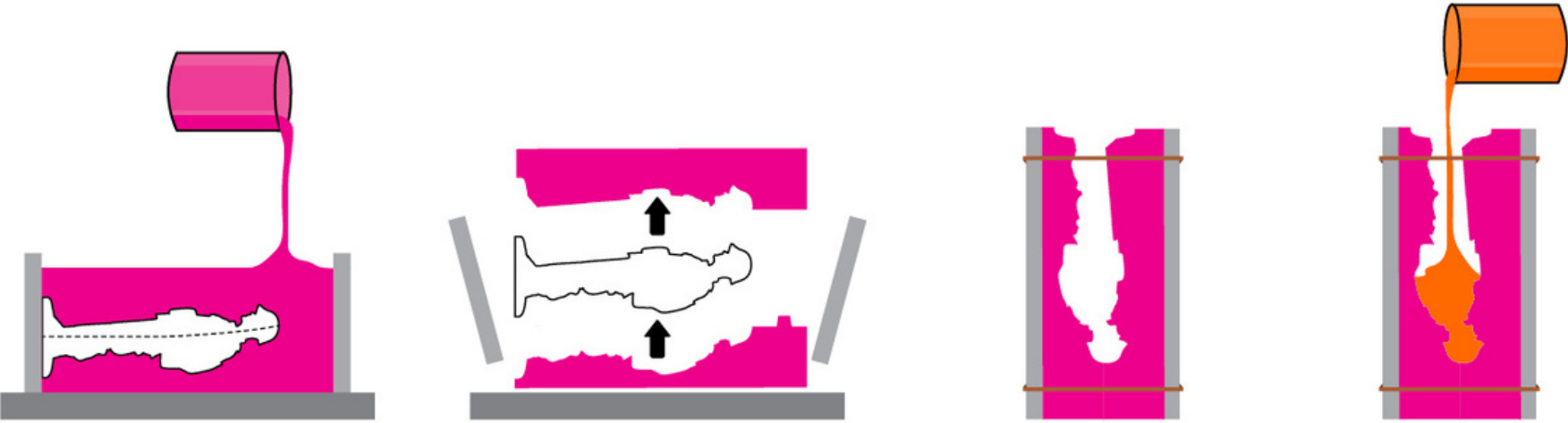
## 2. TWO-PART MOULD - POURED

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                                |
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| Step 1: Prepare & Create the First Half of the Mould                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Step 2: Mix and Pour the Mould Material                                                                                                                                                                                                                                                                                                                                                                                                                                          | Step 3: Removing the Clay                                                                                                                                                                                                                                                                                                                                                                                                     | Step 4: Prepare for the Second Pour                                                                                                                                                                                                                                                                               |
| <p>Place your object into a non-porous mould box that is appropriately sized for your project, and work out where the pour point will be located. If this is not obvious, you may need to create a sprue. Ensure your object is clean and free from oils, fingerprints, or debris. Use a product such as oil-based clay to embed the object up to the halfway point, pressing it firmly to create a clean parting line. Add registration keys in the clay to help the mould halves align. If you're unsure of the object's compatibility with the mould material, conduct a small test before proceeding.</p> | <p>Measure and mix your mould material according to the manufacturer's instructions. If required, vacuum degas to remove trapped air. When pouring, hold the container at least 20–30cm above the mould box and pour slowly in a thin, steady stream. This technique helps reduce air bubbles. Pour into the lowest section of the mould box, allowing the material to flow naturally. Minimize movement while pouring and take your time if the material's pot life allows.</p> | <p>Once the silicone has cured, remove the mould box walls and carefully flip the half silicone/half clay slab over. Gently remove the clay, taking care not to disturb the original object. If the object dislodges from the first half of the silicone mould, it may cause inaccuracies and unwanted air pockets. Ensure the surface of both the object and surrounding area is as clean as possible before proceeding.</p> | <p>Reassemble and secure the mould box around the cured silicone slab. Apply an appropriate release agent to prevent the two halves from bonding together. For the best coverage, spray or apply the release agent at different angles. Once fully coated, you're ready to pour the second half of the mould.</p> |

# COMMON MOULD-MAKING TECHNIQUES



## 2. TWO-PART MOULD - POURED

|  |                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                |
|------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Step 5: Pour the Second Half of the Mould                                          | Step 6: Disassemble and De-mould                                                                                                                                                                                                                                                               | Step 7: Prepare the Mould for Casting                                                                                                                                                                                                                                                                                                                                                 | Step 8: Cast Into Your Mould                                                                                                                                                                                                                                                                                                                                                                                                   |
| Follow the same process as step 2.                                                 | Remove the mould box walls and carefully peel back the most recently poured layer. Extract the original object and inspect the mould for any imperfections. Some moulds may require post-curing before use, while others benefit from a gentle wash with warm soapy water and thorough drying. | Even with registration keys, the two mould halves must be securely strapped together. Use rubber bands or gentle tape, but be mindful that these can create pressure points or distort the mould. To prevent this, consider placing the mould between two baseboards for added support, ensuring even pressure distribution. Apply any relevant release prior to strapping the mould. | Now your mould is ready for use. Place it on a level surface and cast your material into the mould. Once you have finished using your mould, it may require a gentle clean prior to storing it away. Consider covering it in a sheet of plastic, or placing it into zip lock bag or storage tub. These do not need to be air tight to allow for some ventilation, but they should be kept in a cool, dark place for longevity. |

# COMMON MOULD-MAKING TECHNIQUES



## 3. BRUSH ON MOULD



| Step 1: Prepare Your Object and Mould Box                                                                                                                                                                                                                                                                                                | Step 2: Brush On Mould Material                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Step 3: Create Rigid Support                                                                                                                                                                                                                                       |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>Place your object on to a clean, non-porous base board and ensure the object is free from oils, fingerprints, or debris. Secure it to the board by either strong adhesive or screws to prevent movement. If you're unsure of the original object's compatibility with the mould material, conduct a small test before proceeding.</p> | <p>Measure and mix your brushable mould material, starting with a thinner print coat. As you apply the material with your brush, work at different angles to ensure it gets into every detail and potential undercut of the object. Allow this first layer to nearly cure before applying subsequent layers to build the appropriate thickness.</p> <p>For added stability, create a flange around the object by brushing an additional 3cm or more onto the board. This extra room will allow for a more finished edge and an easier de-mould.</p> | <p>Assemble some walls around your object that has now been covered sufficiently. If necessary,, apply a release agent to the surface of the mould and the mould box itself. Mix and pour your rigid support material such as plaster, and wait for it to set.</p> |

# COMMON MOULD-MAKING TECHNIQUES



## 3. BRUSH ON MOULD



Step 4: De-mould

Remove the mould box walls and gently pry away the rigid support. You may also remove the mould material from the master which may need a gentle wash at this point with some warm soapy water and thorough dry.

Step 5: Prepare Your Mould

Place the rigid support on to a level, clean surface. At this point you may want to lightly talc the outside of your mould prior to placing it in the rigid support. The talc can relieve surface tension and make it much easier to remove and slot into place. Once your mould skin is positioned, you are ready to cast.

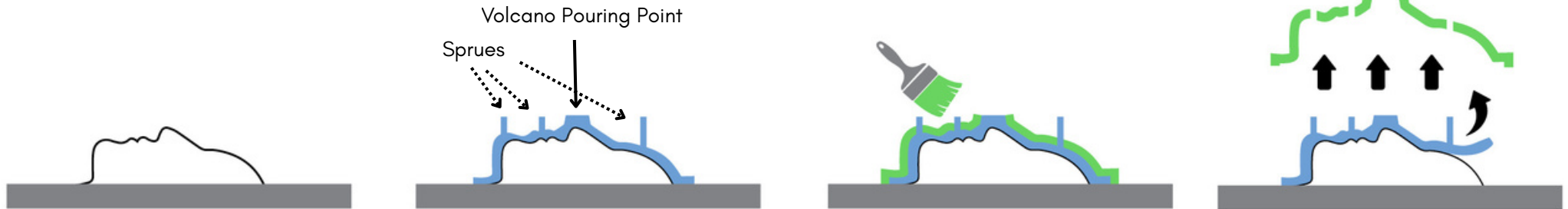
Step 6: Cast into Your Mould

Apply a release if necessary, then cast into your mould. Once cured, see how easy it is to pull at the flange and lift out the mould. At this point you should be able to easily remove the skin from your cast. Once you have finished using your mould, place the skin back into the rigid support and covered for storage in a cool, dark place.

# COMMON MOULD-MAKING TECHNIQUES



## 4. MATRIX MOULD

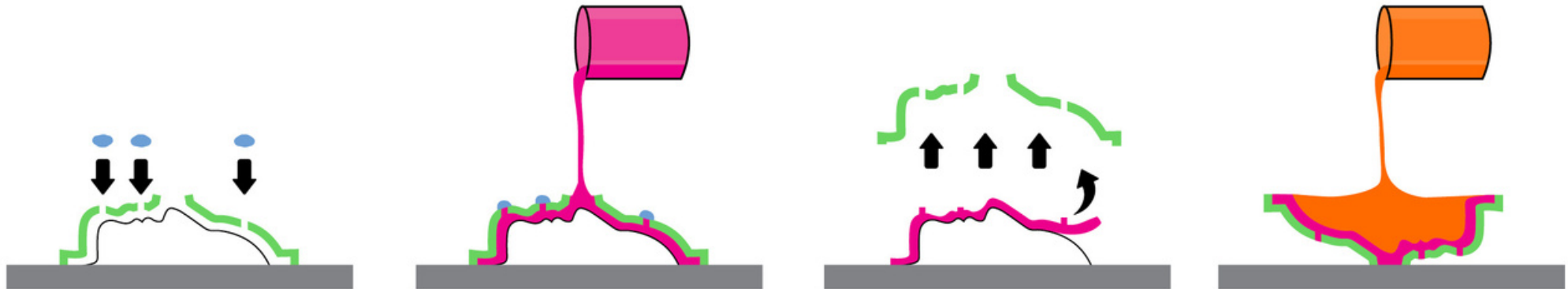


| Step 1: Prepare Your Object                                                                                                                                                                                                                                                                                                              | Step 2: Cover With Clay                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Step 3: Brush On Shell                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Step 4: Remove the Shell & Clay                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>Place your object on to a clean, non-porous base board and ensure the object is free from oils, fingerprints, or debris. Secure it to the board by either strong adhesive or screws to prevent movement. If you're unsure of the original object's compatibility with the mould material, conduct a small test before proceeding.</p> | <p>Use a clay to cover the object averaging 8 to 20mm in thickness. Keep in mind this is to imitate the thickness of the mould material that will take its place. Include sprues to assist with air release and a pouring point which helps the skin mould fit securely into the rigid shell without shifting.</p> <p>The location of the sprues will be determined by the high points of your master. We would suggest a sulfur-free, oil-based clay; however, your clay selection may be dictated by your shell mould material. Make sure to create a flange with the clay.</p> | <p>There are a number of terms used for this process such as shell, mother mould, case mould, and jacket. There are also a number of different materials that may be used such as plasters, laminating resins, brush on resins, and 3D prints. Depending on the material selected, you will need to ensure the appropriate release agent and possible barrier product is used.</p> <p>The shell material is then applied over the clay, around the volcano &amp; sprues allowing them to stay visible. Make sure the flange is well covered, as the shell needs this part to be secured in an upcoming step.</p> | <p>Once your shell has cured, you can use a marker to draw around the base, or pre-drill holes before removing to screw the flange back down. This ensures accuracy of shell placement. Next you may remove the shell from the clay, and then the clay from your master object.</p> <p>At this point you may need to gently clean the surface of your master and the interior of your shell, as the mould material will pick up a high level of detail and the clay has likely disturbed the surface finish. Ensure all surfaces are dried thoroughly.</p> |

# COMMON MOULD-MAKING TECHNIQUES



## 4. MATRIX MOULD



| Step 5: Re-assemble & Secure the Shell                                                                                                                                                                                                                                                                                                                                                                | Step 6: Pour Your Mould Material                                                                                                                                                                                                                                                                                                                                                     | Step 7: Remove the Shell & Skin Mould                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Step 8: Cast Into Your Mould                                                                                                                                                                                                                                                                        |
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| <p>The shell is now placed over the master into position, and may be secured by screws or clamps. The shell will need to be secured in order to ensure the mould material does not leak, or shift the shell. Using the same clay, you can plug the smaller sprue cavities. Again, depending on the shell and skin materials selected, you may need to apply a release agent before this assembly.</p> | <p>Measure, mix, vacuum and pour your mould material into the volcano pouring point. If the pot-life allows, pour slow and steady to minimize any air bubbles. A fast pour may also create pressure inside the sprues and create unnecessary leaks and air pockets. If a blocked sprue starts to leak during a slow pour, it is more likely that you are at the end of you pour.</p> | <p>Once the mould material has cured, you may first remove your shell and then remove the flexible skin. The volcano and sprues will act as keys to ensure the skin slots nicely into position and doesn't move.</p> <p>If you use a silicone, you may want to carefully dust talc on the outside of the skin, to create less surface tension when slotting into place inside the shell. Another consideration is to embed a frame or legs when making the shell, so it may stabilize on a flat surface.</p> | <p>Now that the shell and skin are ready to use, assemble on a clean and stable surface. You may now cast into your mould. Although this may be a more time consuming method, it is often more economical and you will find the skin mould will peel off your cast creating an easier de-mould.</p> |