

# Data sheet: Hand/vacuum casting resin 410

| Description                  |                                  |                                      | Hand/vacuum casting resin                                    |
|------------------------------|----------------------------------|--------------------------------------|--|
| Features                     |                                  |                                      | Outstanding mechanical properties                            |
| Suitable for                 |                                  |                                      | Low volume model production, mould proving, foundry patterns |
| Cured properties             |                                  |                                      | Test / ISO standard where applicable                         |
| Colour                       |                                  | White                                |  |
| Transparency                 |                                  | Translucent                          |  |
| Shore hardness               | At 23 °C<br>At 60 °C<br>At 80 °C | 75 D<br>Not measured<br>Not measured | 868  |
| Flexural strength            |                                  | 40 N/mm <sup>2</sup>                 | 178  |
| Flexural modulus             |                                  | 1020 N/mm <sup>2</sup>               | 178  |
| Tensile strength             |                                  | 30 N/mm <sup>2</sup>                 | R 527  |
| Tensile modulus              |                                  | Not measured                         | R 527  |
| Izod impact                  |                                  | Not measured                         | 180  |
| Yield strength               |                                  | Not measured                         | R 527  |
| Elongation yield             |                                  | Not measured                         |  |
| Elongation at break          |                                  | Not measured                         | R 527  |
| Tear strength                |                                  | Not measured                         | 34   |
| Thermal conductivity         |                                  | Not measured                         | BS 874   |
| Heat deflection temperature  |                                  | 68 °C                                | (test piece 110 mm × 12.7 mm × 6.4 mm)                       |
| Glass transition temperature |                                  | 80 °C                                |  |
| Processing information       |                                  |                                      | Notes  |
| Viscosity                    | Part A<br>Part B                 | 80 cPs<br>80 cPs                     | At 25 °C   |
| Specific gravity             | Part A<br>Part B                 | 1.02<br>1.08                         | At 25 °C   |
| Mix ratio A:B                |                                  | 100:100                              | By weight  |
| Mixing time                  |                                  | 30 s                                 |  |
| Resin temperature            |                                  | 20 °C or 40 °C*                      | Heating chamber  |
| Mould temperature            |                                  | 30 °C or 70 °C*                      | Heating chamber  |
| Curing temperature           |                                  | 30 °C or 70 °C*                      | Heating chamber  |
| Curing time in mould         |                                  | 40 min or 25 min*                    |  |
| Pot life                     |                                  | 180 s                                | 100 g at 25 °C   |
| Post curing process          |                                  | None                                 |  |
| Typical shrinkage            |                                  | 0.5 % to 1 %                         |  |

\*Depending on the casting method - see over

All information is based on results gained from experience and tests and is believed to be accurate but is given without acceptance of liability for loss or damage attributable to reliance thereon. Users should always carry out sufficient tests to establish the suitability of any products for their intended applications.

# Handling procedure

## Casting procedure for vacuum casting

- Shake unopened A and B component cans vigorously for 10 s to 15 s
- Pre-heat mold in oven at 70 °C
- Pre-heat unopened A and B component cans in oven at 70 °C for 2 hours, then place in oven at 40 °C to stabilise prior to use
- Weigh A and B components into separate cups, allowing for cup loss (the amount of resin left in cup A after tipping)
- Add no more than 2 % of total weight colour pigment to cup A
- Place filled cups in the machine and attach mixing paddle to cup B
- Start vacuum pump
- Switch on mixer motor
- Wait 10 minutes after reaching maximum vacuum level before mixing
- Pour contents of cup A into cup B and mix as fast as possible without splashing
- Pour mixed resin into silicone mould and leak vacuum chamber before the end of the pot life
- Place filled mold in oven to cure resin
- For full instructions on casting procedures refer to *Vacuum Casting Technique: a guide for new users*, available at [www.renishaw.com](http://www.renishaw.com)

## Product information

- **Mould life**  
Mould life can be increased by using the correct Renishaw release agent and demoulding the casting immediately after curing.
- **Storage**  
Store unopened cans at > 20 °C. Protect against frost. For hand casting, store opened cans at 20 °C with caps on. For vacuum casting, store opened cans in oven at 40 °C with caps on. Both components are sensitive to humidity.
- **In case of crystallisation of B-component**  
Place cans in oven at 70 °C for 2 hours then stabilise before use at: 20 °C for hand casting; 40 °C for vacuum casting.

## Casting procedure for hand casting

- Shake unopened A and B component cans vigorously for 10 s to 15 s
- Pre-heat mold in oven at 30 °C
- Stabilise unopened A and B component cans at 20 °C and process throughout at 20 °C
- Weigh A and B components into separate cups, allowing for cup loss (the amount of resin left in cup A after tipping)
- Add no more than 2 % of total weight colour pigment to cup A
- Pour contents of cup A into cup B and mix as fast as possible without splashing
- Pour contents of cup A into cup B and mix as fast as possible without splashing
- Pour mixed resin into silicone mould
- Place filled mold in oven to cure resin
- For full instructions on casting procedures refer to *Vacuum Casting Technique: a guide for new users*, available at [www.renishaw.com](http://www.renishaw.com)



Please follow the procedure for preparing the vacuum casting system as described in the system operation manual!



Always observe the instructions in the Safety Data Sheets of the product and always work in accordance with the safety instructions of the materials manufacturer! Safety Data Sheets can be found at [www.renishaw.com](http://www.renishaw.com)



Wear suitable respiratory protection, safety gloves and safety goggles during the entire filling procedure in accordance with the Safety Data Sheets.

