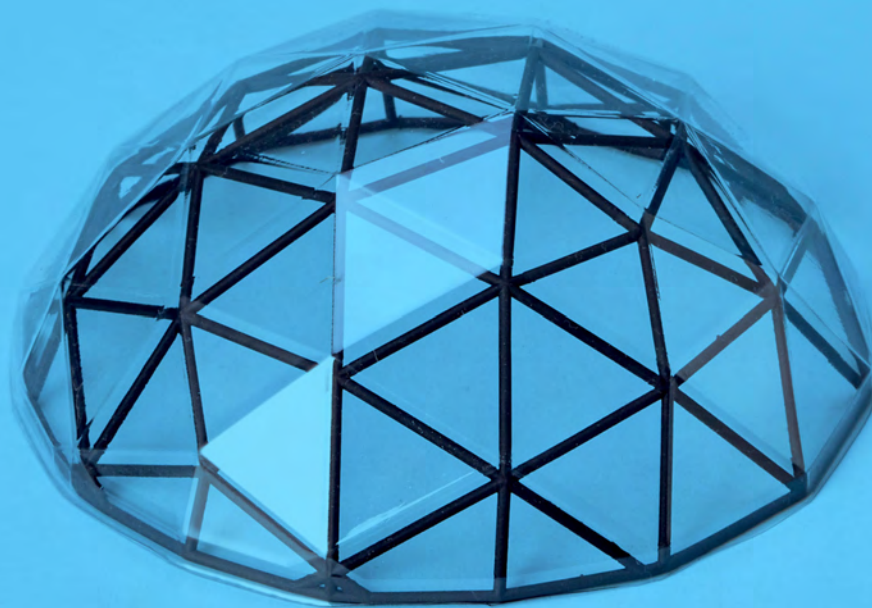


# Mayku FormBox Materials



Make fully transparent prototypes,  
detailed final parts, cast with resin, or create  
complex objects with flexible molds.

## MAYKU FORMBOX SHEET MATERIALS:

### p.02-03 Clear Sheets

- Transparent and food-safe

### p.04-05 Form Sheets

- Opaque for casings

### p.06-07 Flex Sheets

- Flexible for complex shapes

### p.08-09 Resin Sheets

- Suitable for casting with resin

# Mayku Clear Sheets

A transparent and food-safe sheet ideal for making reusable molds. The non-stick surface and high impact strength of these rigid sheets allows for easy de-molding. Perfect for making custom chocolate molds and product packaging.

Fully recyclable. Hand wash only.



Chocolate packaging made on the Mayku FormBox.



Synth mold made on the Mayku FormBox.

## GENERAL

| Property                     | Method                     | Unit              | HIPEX® G |
|------------------------------|----------------------------|-------------------|----------|
| Density                      | DIN EN ISO 1183-1          | g/cm <sup>3</sup> | 1.27     |
| Rockwell hardness            | EN ISO 2039-1 / ASTM D-785 | R-Scale           | 105      |
| Melting point                |                            | °C                | 230-250  |
| Glass transition temperature |                            | °C                | 80-85    |

## MECHANICAL

| Property                             | Method               | Unit              | HIPEX® G      |
|--------------------------------------|----------------------|-------------------|---------------|
| Flexural modulus                     | DIN EN ISO 178       | MPa               | 1900          |
| Flexural strength                    | DIN EN ISO 178       | MPa               | 70            |
| Tensile modulus                      | DIN EN ISO 527-2     | MPa               | 2000          |
| Tensile strength                     | DIN EN ISO 527-2     | MPa               | 50            |
| Elongation                           | DIN EN ISO 527-2     | %                 | 60            |
| Impact strength - Izod (notched)     | DIN EN ISO 180/4A    | kJ/m <sup>2</sup> | 11.5          |
| Impact strength - Charpy (notched)   | DIN EN ISO 179-1/1eA | kJ/m <sup>2</sup> | 7             |
| Impact strength - Charpy (unnotched) | DIN EN ISO 179-1     | kJ/m <sup>2</sup> | NB (no break) |

**OPTICAL**

| Property                                   | Method                 | Unit       | HIPEX® G           |
|--------------------------------------------|------------------------|------------|--------------------|
| Light transmisson (3 mm clear transparent) | DIN EN ISO 13468-1     | %          | 88                 |
| Refractive index                           | DIN EN ISO 489         | $n_D^{20}$ | 1.57               |
| Haze                                       | ISO 14782 / ASTM D1003 | %          | <1                 |
| Solar energy transmittance g-value         | DIN EN 410             | %          | 3 mm 83 / 10 mm 78 |

**THERMAL**

| Property                                | Method                         | Unit    | HIPEX® G  |
|-----------------------------------------|--------------------------------|---------|-----------|
| Forming Temperature                     |                                | °C      | 160       |
| VICAT - Temperature (method B50)        | DIN EN ISO 306                 | °C      | 70        |
| Heat Deflection Temp. (A/B)             | DIN EN ISO 75-2                | °C      | 72/68     |
| Specific Heat Capacity                  | DIN EN ISO 11357-4             | J/gK    | 1.1       |
| Coefficient of linear thermal expansion | DIN 53752 / ISO 11359-2        | mm/m °C | 0.068     |
| Thermal conductivity                    | DIN 52612 / DIN EN ISO 22007-1 | W/mK    | 0.20      |
| Degradation temperature                 |                                | °C      | >280      |
| Max. service temperature continuous use |                                | °C      | 60        |
| Max. service temperature short term use |                                | °C      | 70        |
| Forming temperature                     |                                | °C      | 120 - 160 |

**ELECTRICAL**

| Property                     | Method                                   | Unit                     | HIPEX® G   |
|------------------------------|------------------------------------------|--------------------------|------------|
| Dielectric constant (100 Hz) | IEC 250 / DIN 53483-2                    |                          | 2.6        |
| Volume Resistivity           | IEC 60093 / DIN EN 62631-1-3-1 ASTM D257 | $\Omega \cdot \text{cm}$ | $>10^{15}$ |
| Surface Resistivity          | IEC 60093 / DIN EN 62631-1-3-2 ASTM D257 | $\Omega$                 | $>10^{16}$ |
| Dielectric strength          | IEC 60243-1 / ASTM D149                  | kV/mm                    | 16         |
| Dissipation factor (50 Hz)   | IEC 250 / DIN53483-2                     |                          | 0.01       |

**OTHERS**

| Property                                        | Method         | Unit               | HIPEX® G      |
|-------------------------------------------------|----------------|--------------------|---------------|
| Fire performance (building product) up to 10 mm | DIN 4102-1     | Technical Approval | B1            |
| Fire performance up to 10 mm                    | DIN EN13501-1  | Classification     | B-s1, d0      |
| Biocompatibility (skin contact)                 | DIN EN 10993-5 | Classification     | not cytotoxic |

Note: These technical data of our products are typical ones; the actually measured values are subject to production variations.

# Mayku Form Sheets

A versatile sheet that delivers smooth white satin forms. Great for electrical product casings, product packaging and final parts. Sheet can be cast but not recommended for repeat applications.

Fully recyclable. Hand wash only.



Drone mold made on the Mayku FormBox.



Stationary set created on the Mayku FormBox.



**GENERAL**

| Property                     | Method         | Unit              | POLYCASA® HIPS Glossy/Matt | POLYCASA® HIPS Matt/Matt |
|------------------------------|----------------|-------------------|----------------------------|--------------------------|
| Density                      | ISO 1183       | g/cm <sup>3</sup> | 1.05                       | 1.05                     |
| Burning resistance           | UL standard 94 |                   | 94 HB                      | 94 HB                    |
| Melting point                |                | °C                | 160-180                    | 160-180                  |
| Glass transition temperature |                | °C                | 88-92                      | 88-92                    |
| Forming temperature          |                | °C                | 160                        | 160                      |

**MECHANICAL**

| Property                  | Method     | Unit              | POLYCASA® HIPS Glossy/Matt | POLYCASA® HIPS Matt/Matt |
|---------------------------|------------|-------------------|----------------------------|--------------------------|
| Flexural modulus          | ISO 178    | MPa               | 1850                       | 1800                     |
| Flexural strength         | SO 78      | MPa               | 34                         | 32                       |
| Tensile modulus           | ISO 527-2  | MPa               | 1730                       | 1670                     |
| Tensile strength          | ISO 527-2  | MPa               | 24                         | 20                       |
| Elongation at break       | ISO 527-2  | %                 | 2.9                        | 42                       |
| Stress at break           | ISO 527-2  | MPa               | 18                         | 16                       |
| Ball indentation hardness | ISO 2039-1 | N/mm <sup>2</sup> | 80                         | 80                       |

**THERMAL**

| Property                            | Method     | Unit                              | POLYCASA® HIPS Glossy/Matt | POLYCASA® HIPS Matt/Matt |
|-------------------------------------|------------|-----------------------------------|----------------------------|--------------------------|
| Vicat temperature (B 50)            | ISO 306    | °C                                | 92                         | 91                       |
| Heat deflection temperature (A)     | ISO 75-2   | °C                                | 82                         | 84                       |
| Linear thermal expansion            | DIN 53752  | K <sup>-1</sup> x10 <sup>-5</sup> | 8                          | 8                        |
| Service temperature continuous use  | DIN 52612* | °C                                | 70                         | 70                       |
| Thermal conductivity                | ISO 11501* | W/mK                              | 0.16                       | 0.16                     |
| Dimensional change on heating (4mm) | ISO 15015  | %                                 | 5                          | 5.5                      |

**ELECTRICAL (raw material specification)**

| Property                              | Method    | Unit  | POLYCASA® HIPS Glossy/Matt | POLYCASA® HIPS Matt/Matt |
|---------------------------------------|-----------|-------|----------------------------|--------------------------|
| Volume resistivity                    | IEC 93    | Ω.cm  | >10 <sup>16</sup>          | >10 <sup>16</sup>        |
| Surface resistivity                   | ICE 93    | Ω     | >10 <sup>13</sup>          | >10 <sup>13</sup>        |
| Dielectrical strength                 | IEC 243-1 | KV/mm | 155                        | 155                      |
| Dielectrical constant at 100Hz- 1 MHz | IEC 250   |       | 2.5                        | 2.5                      |
| Dielectrical factor at 100Hz- 1 MHz   | IEC 250   |       | >10 <sup>-4</sup>          | >10 <sup>-4</sup>        |

**IMPACT STRENGTHS**

| Property                            | Method        | Unit              | POLYCASA® HIPS Glossy/Matt | POLYCASA® HIPS Matt/Matt |
|-------------------------------------|---------------|-------------------|----------------------------|--------------------------|
| Charpy notched glossy side impacted | ISO 179-1/1fA | KJ/m <sup>2</sup> | 9                          | -                        |
| Charpy notched matt side impacted   | ISO 179-1/1fA | KJ/m <sup>2</sup> | 6                          | 10                       |

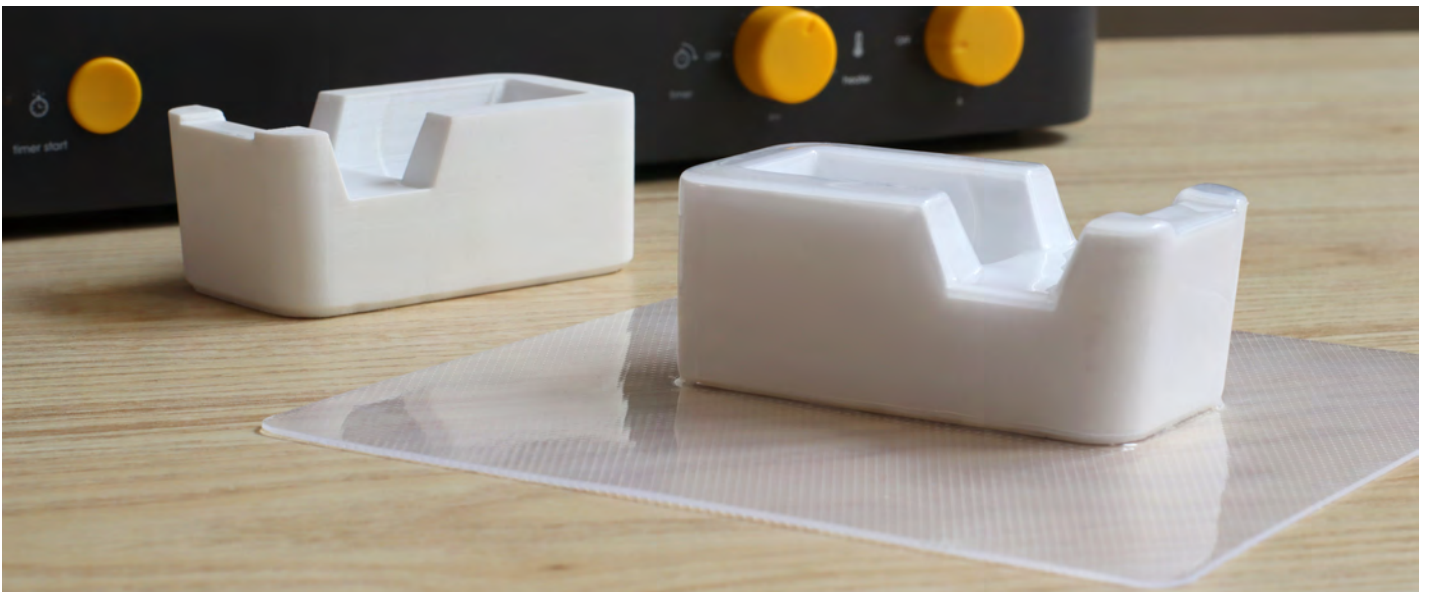
Note: all mentioned data is based on extruded sheets in a thickness of 4mm.

These technical data of our products are typical ones, the actually measured values are subject to production variations.

# Mayku Flex Sheets

A transparent sheet material that remains flexible after it has been formed. This flexibility improves the de-molding experience and enables users to incorporate small undercuts and vertical walls into their designs. It's natural softness makes it perfect for picking up very fine detail and high resolution textures.

Hand wash only.



Mold for tape dispenser made on The Mayku FormBox.



Mold for tape dispenser made on The Mayku FormBox.

**PHYSICAL**

| Property                                  | Nominal Value (English) | Nominal Value (SI)     | Test Method |
|-------------------------------------------|-------------------------|------------------------|-------------|
| Density                                   | 0.938 g/cm <sup>3</sup> | 0.938g/cm <sup>3</sup> | ASTM D1505  |
| Melt Mass-Flow Rate (MFR) (190°C/2.16 kg) | 2.5g/10 min             | 2.5g/10 min            | ASTM D1238  |
| Vinyl Acetate Content                     | 18.0 wt%                | 18.0 wt%               |             |

**MECHANICAL**

| Property                   | Nominal Value (English) | Nominal Value (SI) | Test Method |
|----------------------------|-------------------------|--------------------|-------------|
| Tensile Strength           |                         |                    | ASTM D638   |
| Yield                      | 640 psi                 | 4.41 MPa           |             |
| Break                      | 2130 psi                | 14.7 MPa           |             |
| Tensile Elongation (Break) | 800%                    | 800%               | ASTM D638   |
| Flexural Modulus           | 2130 psi                | 14.7 MPa           | ASTM D790   |

**HARDNESS**

| Property                     | Nominal Value (English)                                           | Nominal Value (SI)                                                | Test Method |
|------------------------------|-------------------------------------------------------------------|-------------------------------------------------------------------|-------------|
| Durometer Hardness (Shore A) | <ul style="list-style-type: none"><li>• 88</li><li>• 38</li></ul> | <ul style="list-style-type: none"><li>• 88</li><li>• 38</li></ul> | ASTM D2240  |

**THERMAL**

| Property                    | Nominal Value (English) | Nominal Value (SI) | Test Method |
|-----------------------------|-------------------------|--------------------|-------------|
| Brittleness Temperature     | -94.0°F                 | -70.0°C            | ASTM D746   |
| Vicat Softening Temperature | 140°F                   | 60.0°C             | ASTM D1525  |
| Melting Temperature         | 183°F                   | 84.0°C             |             |

**INJECTION**

| Property               | Nominal Value (English) | Nominal Value (SI) |
|------------------------|-------------------------|--------------------|
| Processing (Melt) Temp | 302 to 356°F            | 150 to 180°C       |

Note: Typical properties - these are not to be construed as specifications.

# Mayku Resin Sheets

Translucent, milky-coloured sheets made of low-density polyethylene. Designed specifically for making custom molds for casting resin. These sheets can also be used for prototyping, model-making and casting a world of other materials.

A Mayku Heat Shield is essential for Resin Sheets to ensure a consistent heating experience.



Resin being poured into a Resin Sheet mold.



Template and mold formed using a Resin Sheet.



Mayku Resin Sheets and Heat Shield.



**PHYSICAL**

| Property                     | Unit    | ISO  | Value   |
|------------------------------|---------|------|---------|
| Density                      | g/cc    | 1183 | 0.94    |
| Melt Flow 190°C/2.16kg       | g/10min | 118  | 0.2-0.4 |
| Melting point                | °C      |      | 170-180 |
| Glass transition temperature | °C      |      | -100    |
| Forming temperature          | °C      |      | 170-180 |

**MECHANICAL**

| Property              | Unit | ISO      | Value      |      |
|-----------------------|------|----------|------------|------|
| Impact strength       | kJ/m | 23°C     | ASTM D4272 | 42   |
| Strength @ yield      | MPa  | 50mm/min | 527/3      | 11   |
| Stress @ break        | MPa  |          | 527/3      | 28   |
| Elongation @ break    | MPa  |          | 527/3      | >500 |
| Modulus of elasticity | MPa  |          | 527/3      | 200  |
| Shore 'D' Hardness    |      |          | 868        | 49   |
| Tear strength         | kN/m |          | 6383/2     | 30   |

**THERMAL**

| Property        | Unit | ISO | Value |
|-----------------|------|-----|-------|
| VST@10N (VST/A) | °C   | 306 | 93    |

**FLAMMABILITY RATING**

| Property        | Unit   | ISO  | Value |
|-----------------|--------|------|-------|
| Horizontal burn | 1.5mm+ | UL94 | HB    |

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