

# Material Selection Guide for ProJet® MJP 2500 and 2500 Plus

VisiJet® M2 Multijet Printing materials for functional precision plastic and elastomeric parts

## MATERIAL PROPERTIES / CHARACTERISTICS

## KEY APPLICATION AREAS

|                                   | Accuracy | High Temp Resistance | Moisture Resistance | Optical Clarity | Durability | Color             | General Purpose Models | Functional Prototyping (Snap Fits) | Jigs, Fixtures and Tools | Patterns, Dies and Molds | Elastomeric Products Prototyping | Medical |
|-----------------------------------|----------|----------------------|---------------------|-----------------|------------|-------------------|------------------------|------------------------------------|--------------------------|--------------------------|----------------------------------|---------|
| <b>ENGINEERING CLASS</b>          |          |                      |                     |                 |            |                   |                        |                                    |                          |                          |                                  |         |
| VisiJet Armor M2G-CL <sup>1</sup> | ●●●●●    |                      | ●●●●                | ●●●●●           | ●●●●●      | Transparent Clear | ●●●●●                  | ●●●●●                              | ●●●●●                    | ●●●●●                    |                                  |         |
| VisiJet ProFlex M2G-DUR           | ●●●●●    |                      | ●●●●                | ●●●●            | ●●●●●      | Transparent Clear | ●●●●                   | ●●●●●                              | ●●●●                     | ●●●●                     |                                  |         |
| <b>RIGID CLASS</b>                |          |                      |                     |                 |            |                   |                        |                                    |                          |                          |                                  |         |
| VisiJet M2R-GRY <sup>1</sup>      | ●●●●●    | ●●●                  | ●●●●●               |                 | ●●●●       | Opaque Gray       | ●●●●●                  | ●●●●                               | ●●●●                     | ●●●                      |                                  | ●●●●●   |
| VisiJet M2R-WT                    | ●●●●●    | ●●●                  | ●●●●●               |                 | ●●●●       | Opaque White      | ●●●●●                  | ●●●●                               | ●●●●                     | ●●●                      |                                  | ●●●●●   |
| VisiJet M2R-BK                    | ●●●●●    | ●●●●                 | ●●●●●               |                 | ●●●        | Opaque Black      | ●●●●●                  | ●●●                                | ●●●                      | ●●●                      |                                  |         |
| VisiJet M2R-CL <sup>1</sup>       | ●●●●●    | ●●●                  | ●●●●●               | ●●●●●           | ●●●●       | Transparent Clear | ●●●●●                  | ●●●●                               | ●●●●                     | ●●●●                     |                                  | ●●●●●   |
| VisiJet M2R-TN <sup>1</sup>       | ●●●●●    | ●●●●                 | ●●●●●               |                 | ●●●        | Opaque Tan        | ●●●●●                  | ●●●                                | ●●●                      | ●●●                      |                                  | ●●●●●   |
| <b>SPECIALTY CLASS</b>            |          |                      |                     |                 |            |                   |                        |                                    |                          |                          |                                  |         |
| VisiJet M2S-HT90 <sup>1</sup>     | ●●●●●    | ●●●●●                | ●●●●●               | ●●●●            | ●●●        | Transparent Clear | ●●●                    | ●●●                                | ●●●●●                    | ●●●●●                    |                                  | ●●●●●   |
| VisiJet M2S-HT250 <sup>1</sup>    | ●●●●●    | ●●●●●                | ●●●●●               | ●●●●            | ●●●        | Amber Translucent | ●●●                    |                                    | ●●●●●                    | ●●●●●                    |                                  | ●●●●●   |
| <b>ELASTOMERIC CLASS</b>          |          |                      |                     |                 |            |                   |                        |                                    |                          |                          |                                  |         |
| VisiJet M2 ENT <sup>1</sup>       | ●●●●     |                      | ●●●                 |                 | ●●●●       | Amber Translucent |                        |                                    |                          |                          | ●●●●●                            |         |
| VisiJet M2 EBK <sup>1</sup>       | ●●●●     |                      | ●●●                 |                 | ●●●●       | Opaque Black      |                        |                                    |                          |                          | ●●●●●                            |         |
| VisiJet M2E-BK70 <sup>1</sup>     | ●●●●     |                      | ●●●                 |                 | ●●●●       | Opaque Black      |                        |                                    |                          |                          | ●●●●●                            | ●●●●●   |

**Ranking:** Ratings are relative to other materials presented.

<sup>1</sup> Material compatible with ProJet MJP 2500 Plus printer only.



| Properties                                   | ASTM  | ENGINEERING CLASS                 |                                  | RIGID CLASS               |                           |                           |                                 |  | SPECIALTY CLASS                                |   | ELASTOMERIC CLASS      |                       |                       | SUPPORTS  |
|--|-------|-----------------------------------|----------------------------------|---------------------------|---------------------------|---------------------------|---------------------------------|--|--|---|------------------------|-----------------------|-----------------------|---|
|  |       | Visijet Armor M2G-CL              | Visijet ProFlex M2G-DUR          | Visijet M2R-GRY           | Visijet M2R-WT*           | Visijet M2R-BK*           | Visijet M2R-CL*                 | Visijet M2R-TN   | Visijet M2S-HT90                               | Visijet M2S-HT250                       | Visijet M2 ENT         | Visijet M2 EBK        | Visijet M2E-BK70      | Visijet M2 SUP                                  |
| Composition                                  |       | UV curable plastic                |                                  | UV curable plastic        |                           |                           |                                 |  | UV curable plastic                             |   | UV curable elastomeric |                       |                       | Wax support                                     |
| Color  |       | Clear                             | Clear                            | Opaque gray               | Opaque white              | Opaque black              | Translucent clear               | Opaque tan   | Transparent                                    | Transparent Amber                       | Translucent natural    | Opaque black          | Opaque Black          | White   |
| USP Class VI and/or ISO 10993 Capable*       |       | No                                | No                               | Yes                       | Yes                       | No                        | Yes                             | Yes  | Yes  | Yes                                     | No                     | No                    | Yes                   |   |
| Bottle Quantity (kg)                         |       | 1.5                               | 1.5                              | 1.5                       | 1.5                       | 1.5                       | 1.5                             | 1.5  | 1.5  | 1.5                                     | 1.5                    | 1.5                   | 1.5                   | 1.4   |
| Density @ 20 °C (solid) (g/cm <sup>3</sup> ) | D792  | 1.14                              | 1.14                             | 1.16                      | 1.16                      | 1.16                      | 1.16                            | 1.16   | 1.15   | 1.15                                    | 1.12                   | 1.12                  | 1.17                  |   |
| Tensile Strength (MPa)                       | D638  | 30-35                             | 15-20                            | 35-45                     | 35-45                     | 45-55                     | 35-45                           | 60-70  | 70-80  | 51                                      | 0.2-0.4                | 0.2-0.4               | 2.9                   |   |
| Tensile Modulus (MPa)                        | D638  | 1500-2000                         | 250-350                          | 1500-2000                 | 1500-2000                 | 2000-2500                 | 1500-2000                       | 2500-3000  | 2500-3000                                      | 2800                                    | 0.27-0.43              | 0.27-0.43             | 6.4                   |   |
| Elongation at Break                          | D638  | 55-65 %                           | 65-75 %                          | 20-30 %                   | 20-30 %                   | 6-12 %                    | 20-30 %                         | 6-12 %   | 4-9 %  | 2 %                                     | 160-230 %              | 160-230 %             | 44 %                  |   |
| Flexural Strength (MPa)                      | D790  | 40-45                             | N/A                              | 50-60                     | 50-60                     | 80-90                     | 50-60                           | 90-100   | 105-120  | 83                                      |                        |                       |                       |   |
| Flexural Modulus (MPa)                       | D790  | 1000-1200                         | N/A                              | 1700-2200                 | 1700-2200                 | 2400-3000                 | 1700-2200                       | 2400-3000  | 2600-3000                                      | 3500                                    |                        |                       |                       |   |
| Impact Strength (Notched Izod) (J/m)         | D256  | 40-50                             | 70-80                            | 20-25                     | 20-25                     | 15-18                     | 20-25                           | 14-17  | 14-17  | 10                                      |                        |                       |                       |   |
| Shore A Hardness                             | D2240 |                                   |                                  |                           |                           |                           |                                 |  |  |   | 28-32                  | 28-32                 | 73                    |   |
| Shore D Hardness                             | D2240 | 70                                | 60                               | 77                        | 77                        | 81                        | 77                              | 72   | 77-84  | 83                                      |                        |                       |                       |   |
| Water Absorption (24 hr)                     | D570  | ≤ 0.5 %                           | ≤ 0.5 %                          | ≤ 0.5 %                   | ≤ 0.5 %                   | ≤ 0.5 %                   | ≤ 0.5 %                         | ≤ 0.5 %  | ≤ 0.5 %  | 0.22 %                                  | 0.9 %                  | 0.6 %                 | 1.2 %                 |   |
| Heat Distortion Temp @ 0.45 MPa              | D648  | 47 °C                             | N/A                              | 51 °C                     | 51 °C                     | 61 °C                     | 51 °C                           | 71 °C  | 90-100 °C                                      | 250 °C                                  |                        |                       |                       |   |
| Heat Distortion Temp @ 1.82 MPa              | D648  | 43 °C                             | N/A                              | 45 °C                     | 45 °C                     | 53 °C                     | 45 °C                           | 61 °C  | 80-90 °C                                       | 104 °C                                  |                        |                       |                       |   |
| UL Flammability                              | UL94  | HB                                | HB                               |                           | HB                        | HB                        | HB                              | HB   | HB   | HB                                      |                        |                       | HB                    |   |
| Melting Point                                |       |                                   |                                  |                           |                           |                           |                                 |  |  |   |                        |                       |                       | 60 °C   |
| Softening Point                              |       |                                   |                                  |                           |                           |                           |                                 |  |  |   |                        |                       |                       | 40 °C   |
| Printer Compatibility                        |       | ProJet MJP 2500 Plus              | ProJet MJP 2500/2500 Plus        | ProJet MJP 2500 Plus      | ProJet MJP 2500/2500 Plus | ProJet MJP 2500/2500 Plus | ProJet MJP 2500 Plus            | ProJet MJP 2500 Plus                                   | ProJet MJP 2500 Plus                           | ProJet MJP 2500 Plus                    | ProJet MJP 2500 Plus   | ProJet MJP 2500 Plus  | ProJet MJP 2500 Plus  | ProJet MJP 2500/2500 Plus                       |
| Description                                  |       | Transparent clear, simulating ABS | Transparent clear, simulating PP | Rigid gray, high contrast | High modulus, rigid white | High modulus, rigid black | High modulus, transparent clear | High contrast, high modulus, heat resistant, rigid tan | High temperature resistant, transparent, rigid | High temperature resistant, transparent | Flexible, rubber-like  | Flexible, rubber-like | Tough black elastomer | Non-toxic wax for hands-free melt-away supports |

\* Biocompatibility is based on testing by an independent lab on a single geometry and sample set per USP Class VI and/or ISO 10993. Users should confirm fitness for use and biocompatibility for their applications.

DISCLAIMER: It is the responsibility of each customer to determine that its use of any Visijet® material is safe, lawful and technically suitable to the customer's intended applications. The values presented here are for reference only and may vary. Customers should conduct their own testing to ensure suitability for their intended application.