


**IBOCO®**

# Wire Duct – Material Specifications

| Material Specifications            |               |                 |                    |                  |                       |                       |                     |                              |
|------------------------------------|---------------|-----------------|--------------------|------------------|-----------------------|-----------------------|---------------------|------------------------------|
| Materials                          | Test Standard | Unit of Measure | Rigid PVC          | Polypropylene    | PVC Molded Components | Polyamide 6           | Polyethylene        | Flame Retardant Polyethylene |
| Technical Characteristics          |               |                 |                    |                  |                       |                       |                     |                              |
| Chemical/Physical Properties       |               |                 |                    |                  |                       |                       |                     |                              |
| Specific Gravity                   | ASTM D792     | g/cm³           | 1.55               | 1.01             | 1.32                  | 1.14                  | 0.92                | 0.97                         |
| H <sub>2</sub> O 73.4°F Absorption | ISO 62        | %               | < 0.1              | 0.02             | < 0.1                 | 2.5                   | < 0.1               | < 0.1                        |
| Formaldehyde                       | –             | ppm             | absent             | absent           | absent                | absent                | absent              | absent                       |
| Cadmium                            | –             | ppm             | absent             | absent           | absent                | absent                | absent              | absent                       |
| Mechanical Properties              |               |                 |                    |                  |                       |                       |                     |                              |
| Tensile Stress at Break            | ASTM D638     | MPa             | 39                 | 28               | 30                    | 45                    | 17                  | 15                           |
| Traction Strength                  | ASTM D638     | MPa             | 44                 | 27               | 27                    | 55                    | 9.5                 | 9                            |
| Elongation at Break                | ASTM D638     | %               | 130                | 200              | 97                    | 250                   | 400                 | 600                          |
| Modulus of Elasticity at Traction  | ASTM D638     | MPa             | 4400               | n/a              | –                     | 950                   | –                   | 240                          |
| Modulus of Elasticity at Flexion   | ASTM D790     | MPa             | 3200               | 2100             | –                     | 1100                  | 210                 | 130                          |
| Thermal Properties                 |               |                 |                    |                  |                       |                       |                     |                              |
| Temperature VICAT                  | ASTM D1525    | °C              | 84                 | 95               | 70                    | 198                   | 89                  | –                            |
| HDT                                | ASTM D648     | °C              | 72                 | 60               | 60                    | 185                   | –                   | –                            |
| Coefficient of Expansion           | ASTM D696     | K <sup>-1</sup> | 6x10 <sup>-5</sup> | 10 <sup>-5</sup> | 8x10 <sup>-5</sup>    | 8-10x10 <sup>-5</sup> | 22x10 <sup>-5</sup> | 10 <sup>-5</sup>             |
| Specific Heat                      | ASTM C351     | kJ/kgK          | 0.94               | n/a              | 1.24                  | 1.7                   | –                   | –                            |
| Thermal Conductivity               | ASTM C177     | W/mK            | 0.14               | 0.21             | 0.14                  | 0.29                  | 0.32                | 0.32                         |
| Electrical Properties              |               |                 |                    |                  |                       |                       |                     |                              |
| Dielectric Constant                | ASTM D150     | –               | 3.2 - 4.0          | 2.5              | 3.2                   | 5.0                   | 2.4                 | 2.3                          |
| Dielectric Strength                | IEC 243       | kV/mm           | 70                 | 25               | 60                    | 35                    | 90                  | 90                           |
| Surface Resistance                 | IEC 93        | Ω               | 10 <sup>13</sup>   | 10 <sup>13</sup> | 10 <sup>13</sup>      | 5x10 <sup>11</sup>    | 10 <sup>13</sup>    | 10 <sup>13</sup>             |
| Self-Extinguishing                 |               |                 |                    |                  |                       |                       |                     |                              |
| Self-Extinguishing UL 94 1.6 mm    | UL 94         | –               | V-0                | V-0              | V-0                   | V-2                   | HB                  | V-2                          |
| Self-Extinguishing UL 94 3.2 mm    | UL 94         | –               | V-0                | V-0              | V-0                   | V-2                   | HB                  | V-2                          |
| Hot Wire Test (2 mm)               | IEC 695-2-1   | °C              | 960                | 960              | 960                   | 650                   | 650                 | 850                          |
| Oxygen Number                      | ASTM D2863    | %               | 43                 | 30               | 34                    | 25                    | –                   | 25                           |