# DURANEX®

Polybutylene Terephthalate (PBT)

## Grade Compositions

WinTech Polymer Ltd.

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**DURANEX® is a crystalline thermoplastic based on polybutylene terephthalate (PBT) that can be readily strengthened, modified, or otherwise performance-enhanced through the addition of glass fibers or other inorganic filler additives. Therefore, as grades can be optimally designed depending on the application, various grades are provided, including flame-retardant grades, reinforced grades, and impact-resistant grades.**

### Well-balanced highly reliable plastics

**DURANEX®, due to its mechanical strength, heat stability, electrical resistivity and wear and abrasion-resistance, offers great potential as a well-balanced, highly reliable material, having a wide variety of applications including electronic / electro-mechanical and automobile parts and various other functional parts.**

### Sophisticated quality to fit your precise needs

**Not only does it have well-balanced properties as a raw material, DURANEX® also assures moldability, dimensional stability, glossy surfaces and various fabrication capabilities providing higher added value.**

| Item | Unit | Testing method | Standard | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | 2000 | 2002 | 3105 | 3200 | 3300 | 3400 | 3405 | 3100H | 3105H | 3300H |
| | | | Unfilled | Unfilled | GF15%filled | GF20%filled | GF30%filled | GF40%filled | GF45%filled | GF7.5%filled | GF15%filled | GF 30%filled |
| | | | High flow | Standard | | | | | | Toughness | | |
| Density | g/cm³ | ISO 1183 | 1.31 | 1.31 | 1.41 | 1.45 | 1.53 | 1.64 | 1.70 | 1.36 | 1.41 | 1.53 |
| Tensile strength | MPa | ISO 527-1, 2 | 60 | 60 | 105 | 120 | 140 | 155 | 162 | 81 | 108 | 140 |
| Strain at break | % | ISO 527-1, 2 | 20* | 100* | 2.5 | 2.8 | 2.2 | 2.0 | 1.7 | 4.0 | 3.3 | 2.4 |
| Flexural strength | MPa | ISO 178 | 89 | 95 | 160 | 176 | 220 | 245 | 254 | 135 | 170 | 215 |
| Flexural modulus | MPa | ISO 178 | 2,500 | 2,630 | 5,330 | 6,570 | 9,030 | 12,500 | 14,500 | 3,830 | 5,270 | 9,000 |
| Charpy notched impact strength | kJ/m² | ISO 179/1eA | 3.2 | 3.4 | 5.8 | 6.7 | 10.5 | 12.0 | 16.0 | 4.0 | 6.6 | 11.4 |
| Temperature of deflection under load (1.8MPa) | ℃ | ISO 75-1, 2 | 73 | 70 | 207 | 207 | 213 | 214 | 214 | 199 | 206 | 210 |
| Coefficient of linear thermal expansion (23-55°C) Flow direction | ×10⁻⁵/℃ | ISO 11359-2 | 10 | 10 | 4 | 3 | 2 | — | — | — | 4 | 2 |
| Coefficient of linear thermal expansion (23-55°C) Transverse direction | ×10⁻⁵/℃ | ISO 11359-2 | 10 | 10 | 11 | 10 | 9 | — | — | — | 11 | 9 |
| Dielectric breakdown strength | kV/mm | IEC 60243-1 | 17 | 14 | 20 | 22 | 23 | 24 | 24 | — | 20 | — |
| Volume resistivity | Ω·cm | IEC 60093 | $5\times10^{16}$ | $5\times10^{16}$ | $5\times10^{15}$ | $5\times10^{16}$ | $5\times10^{16}$ | $3\times10^{16}$ | $3\times10^{16}$ | — | $5\times10^{16}$ | — |
| Surface resistivity | Ω | IEC 60093 | $7\times10^{16}$ | $2\times10^{17}$ | $9\times10^{15}$ | $3\times10^{17}$ | $6\times10^{16}$ | $2\times10^{16}$ | $4\times10^{16}$ | — | $9\times10^{16}$ | — |
| Comparative tracking index | CTI | IEC 60112 | — | — | — | — | 375 | — | — | — | — | — |
| Flammability | | UL94 | HB | HB | HB | HB | HB | HB | HB | HB | HB | (HB) |

*Nominal strain at break

| Item | Standard, FR, UL approved regrind 50%** | | | | | | | | Low gas generation, Low contact contamination, FR, UL approved regrind 50%** | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | 2016 | 3116 | 3216 | 3226 | 3316 | CN7000 | CN7015 | CN7030 | CRN7000 | CRN7015 | CRN7030 |
| | Unfilled | GF 7.5% filled | GF 15% filled | GF 20% filled | GF 30% filled | Unfilled | GF 15% filled | GF 30% filled | Unfilled | GF 15% filled | GF 30% filled |
| | Standard | | | | | | | | Standard | | |
| Density | 1.43 | 1.49 | 1.54 | 1.57 | 1.66 | 1.42 | 1.55 | 1.67 | 1.48 | 1.61 | 1.69 |
| Tensile strength | 59 | 91 | 113 | 123 | 143 | 56.1 | 101.7 | 126.5 | 58.9 | 93.4 | 131.9 |
| Strain at break | 20* | 3.4 | 2.7 | 2.3 | 2.0 | 10.4* | 2.3 | 1.9 | 11.1* | 2.0 | 1.8 |
| Flexural strength | 98 | 144 | 173 | 189 | 224 | 88.6 | 158.5 | 199.6 | 93.3 | 137.4 | 194.5 |
| Flexural modulus | 2,850 | 4,710 | 6,050 | 7,390 | 10,000 | 2,530 | 6,240 | 10,310 | 3,050 | 6,720 | 10,530 |
| Charpy notched impact strength | 4.6 | 5.1 | 7.1 | 8.0 | 10.0 | 3.5 | 5.0 | 7.0 | 4.2 | 6.3 | 8.8 |
| Temperature of deflection under load (1.8MPa) | 82 | 201 | 208 | 206 | 211 | 70 | 205 | 208 | 82 | 202 | 209 |
| Coefficient of linear thermal expansion (23-55°C) Flow direction | — | 5 | 4 | 3 | 2 | — | — | — | — | — | — |
| Coefficient of linear thermal expansion (23-55°C) Transverse direction | — | 10 | 10 | 10 | 9 | — | — | — | — | — | — |
| Dielectric breakdown strength | 24 | 22 | 20 | 20 | 20 | — | — | — | — | — | — |
| Volume resistivity | $4\times10^{16}$ | $3\times10^{16}$ | $2\times10^{16}$ | $1\times10^{16}$ | $1\times10^{16}$ | — | — | — | — | — | — |
| Surface resistivity | $1\times10^{17}$ | $3\times10^{16}$ | $4\times10^{16}$ | $1\times10^{16}$ | $1\times10^{17}$ | — | — | — | — | — | — |
| Comparative tracking index | 250 | 250 | 250 | 250 | 250 | — | — | — | — | — | — |
| Flammability | V-0 | V-0 | V-0 | V-0 | V-0 | V-0 | V-0 | V-0 | V-0 | V-0 | V-0 |

*Nominal strain at break **Flame retardancy (UL certification) is unaffected even at recyclate loadings up to 50%

- All figures in the table are the typical values of the material and not the minimum values of the material specifications.
- For qualified values of UL (Underwriters Laboratories Inc.) refer to the yellow card (File No.E 213445) issued by UL.

All grades are subjected to Japan's Ministerial Ordinance for Export Trade Control.

Due to ongoing research and development, the data contained in this catalog is subject to change without notice.
The latest data can be found on our Website. Please download from the following address.
http://www.polyplastics.com/en/product/

| Item | Unit | Testing method | Low warpage | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | 733LD | H7500 | 750LD | HN7315 | HN7330 | 7307 | 7407 | 7400W | 7195W | 7390W | CN7740XB |
| | | | GF 30% filled | Unfilled | GF 30% filled | GF 15% filled | GF 30% filled | GF filled | GF filled | GF filled | GF filled | GF filled | GF filled |
| | | | Standard | | | | | Super low warpage | | | | | |
| Density | g/cm³ | ISO 1183 | 1.46 | 1.23 | 1.60 | 1.52 | 1.64 | 1.47 | 1.57 | 1.63 | 1.56 | 1.65 | 1.76 |
| Tensile strength | MPa | ISO 527-1, 2 | 139 | 55.5 | 135 | 99.5 | 132.3 | 106 | 117 | 94 | 86 | 103 | 100.6 |
| Strain at break | % | ISO 527-1, 2 | 2.0 | 64.7* | 1.8 | 2.0 | 1.9 | 2.8 | 2.5 | 2.2 | 2.8 | 2.0 | 1.1 |
| Flexural strength | MPa | ISO 178 | 180 | 82.9 | 206 | 150.4 | 195.8 | 168 | 180 | 151 | 128 | 166 | 157.3 |
| Flexural modulus | MPa | ISO 178 | 9,500 | 2,160 | 10,100 | 6,100 | 9,880 | 6,500 | 9,500 | 9,500 | 6,130 | 9,470 | 13,960 |
| Charpy notched impact strength | kJ/m² | ISO 179/1eA | 7.8 | 48.9 | 7.9 | 4.2 | 8.1 | 8.0 | 8.8 | 4.1 | 3.9 | 5.0 | 4.7 |
| Temperature of deflection under load (1.8MPa) | ℃ | ISO 75-1, 2 | 195 | 112 | 205 | 192 | 200 | 195 | 200 | 200 | 205 | 210 | 201 |
| Coefficient of linear thermal expansion (23-55°C) Flow direction | $\times10^{-5}$/℃ | ISO 11359-2 | 2 | — | 2 | — | — | 3 | 2 | 3 | — | 3 | — |
| Coefficient of linear thermal expansion (23-55°C) Transverse direction | $\times10^{-5}$/℃ | ISO 11359-2 | 8 | — | 8 | — | — | 9 | 7 | 6.8 | — | 7 | — |
| Dielectric breakdown strength | kV/mm | IEC 60243-1 | 26 | — | — | — | — | — | 26 | 28 | — | — | — |
| Volume resistivity | Ω·cm | IEC 60093 | $2\times10^{16}$ | — | — | — | — | — | $3\times10^{15}$ | $2\times10^{15}$ | — | $5\times10^{16}$ | — |
| Surface resistivity | Ω | IEC 60093 | $2\times10^{17}$ | — | — | — | — | — | $4\times10^{17}$ | $2\times10^{15}$ | — | $3\times10^{16}$ | — |
| Comparative tracking index | CTI | IEC 60112 | — | — | 225 | — | — | — | 325 | 325 | — | 275 | — |
| Flammability | | UL94 | HB | (HB) | V-0 | V-0 | V-0 | HB | HB | HB | V-0 | V-0 | V-0 |

*Nominal strain at break

| Item | Low warpage | | | | | | | | | Hydrolysis resistant | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | 6300B | 6370B | 601SA | 304SA | 701SA | 711SA | 361SA | 751SA | 652SA | 330HR | 531HS |
| | GB 30%filled | | Mineral filled | GF filled | GF filled | GF filled | GF filled | GF filled | Mineral filled | GF 30%filled | Heat shock resistant |
| | Anisotropy improvement | | Low density, Low wear | | | | | | | Hydrolysis resistant | |
| Density | 1.53 | 1.67 | 1.34 | 1.28 | 1.43 | 1.45 | 1.43 | 1.56 | 1.45 | 1.53 | 1.47 |
| Tensile strength | 53 | 47 | 45 | 96.1 | 96 | 93 | 90 | 99 | 51 | 149 | 118 |
| Strain at break | 2.5 | 1.8 | 6.0 | 2.3 | 2.3 | 2.0 | 2.1 | 1.8 | 3.3 | 2.6 | 2.7 |
| Flexural strength | 91 | 84 | 84 | 139 | 140 | 130 | 129 | 149 | 95 | 230 | 187 |
| Flexural modulus | 3,900 | 4,360 | 4,600 | 5,310 | 7,000 | 7,620 | 5,700 | 8,680 | 5,500 | 9,100 | 8,100 |
| Charpy notched impact strength | 2.0 | 1.9 | 3.1 | 6.0 | 6.0 | 5.3 | 6.0 | 4.6 | 2.9 | 11.0 | 10.8 |
| Temperature of deflection under load (1.8MPa) | 110 | 90 | 105 | 120 | 180 | 180 | 125 | 190 | 110 | 209 | 208 |
| Coefficient of linear thermal expansion (23-55°C) Flow direction | 9 | 7 | — | — | 3 | — | 3 | 3 | — | 2 | 2 |
| Coefficient of linear thermal expansion (23-55°C) Transverse direction | 9 | 8 | — | — | 6 | — | 7 | 6 | — | 9 | 13 |
| Dielectric breakdown strength | 20 | 15 | — | 24 | 22 | — | 20 | 19 | — | 26 | 16 |
| Volume resistivity | $8\times10^{15}$ | $2\times10^{15}$ | — | $4\times10^{16}$ | $1\times10^{16}$ | — | $2\times10^{16}$ | $7\times10^{16}$ | — | — | $1\times10^{16}$ |
| Surface resistivity | $5\times10^{16}$ | $3\times10^{16}$ | — | $8\times10^{15}$ | $1\times10^{17}$ | — | $1\times10^{17}$ | $9\times10^{16}$ | — | — | — |
| Comparative tracking index | 300 | 225 | — | — | — | — | — | 275 | — | — | — |
| Flammability | HB | V-0 | HB | HB | HB | HB | V-0 | V-0 | V-1 | HB | HB |

*Nominal strain at break

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All grades are subjected to Japan's Ministerial Ordinance for Export Trade Control.

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| Item | Unit | Testing method | Resin adhesion improved for multiple injection molding | | | Epoxy adhesion improved | Higher gloss, Better surface appearance | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | 313RA | 303RA | 353RA | 3105A | 3306 | C5315 | C5330 | CN5315 | CN5330 | 702MS |
| | | | GF 15%filled | GF 30%filled | GF 30%filled | GF 15%filled | GF 30%filled | GF 15%filled | GF 30%filled | GF 15%filled | GF 30%filled | GF filled |
| | | | Standard | | Hydrolysis resistant | Standard | Standard | | | | | High stiff, Low warp, Less sinking |
| Density | g/cm³ | ISO 1183 | 1.41 | 1.53 | 1.68 | 1.38 | 1.54 | 1.43 | 1.55 | 1.50 | 1.65 | 1.73 |
| Tensile strength | MPa | ISO 527-1, 2 | 110 | 153 | 143 | 105 | 140 | 110 | 136 | 103 | 138 | 153 |
| Strain at break | % | ISO 527-1, 2 | 3.0 | 2.8 | 2.1 | 3.0 | 2.2 | 2.6 | 2.1 | 2.3 | 1.8 | 1.3 |
| Flexural strength | MPa | ISO 178 | 160 | 230 | 221 | 160 | 210 | 172 | 212 | 166 | 212 | 205 |
| Flexural modulus | MPa | ISO 178 | 5,330 | 8,700 | 10,330 | 5,330 | 9,100 | 5,650 | 9,700 | 6,900 | 9,940 | 15,500 |
| Charpy notched impact strength | kJ/m² | ISO 179/1eA | 6.0 | 11.4 | 10.0 | 7.0 | 8.1 | 5.6 | 7.8 | 4.9 | 8.0 | 6.5 |
| Temperature of deflection under load (1.8MPa) | ℃ | ISO 75-1, 2 | 197 | 197 | 197 | 206 | 210 | 202 | 205 | — | 205 | 197 |
| Coefficient of linear thermal expansion (23-55°C) Flow direction | $\times10^{-5}$/℃ | ISO 11359-2 | — | 2 | 2 | 4 | 2 | — | — | — | — | — |
| Coefficient of linear thermal expansion (23-55°C) Transverse direction | $\times10^{-5}$/℃ | ISO 11359-2 | — | 10 | 9 | 12 | 9 | — | — | — | — | — |
| Dielectric breakdown strength | kV/mm | IEC 60243-1 | 24 | 24 | 20 | 19 | 23 | — | — | — | — | — |
| Volume resistivity | Ω·cm | IEC 60093 | $2\times10^{16}$ | $2\times10^{16}$ | $1\times10^{16}$ | $6\times10^{15}$ | $1\times10^{17}$ | — | — | — | — | — |
| Surface resistivity | Ω | IEC 60093 | $2\times10^{16}$ | $2\times10^{16}$ | $5\times10^{16}$ | $8\times10^{16}$ | $2\times10^{16}$ | — | — | — | — | — |
| Comparative tracking index | CTI | IEC 60112 | 350 | 350 | — | — | 350 | — | — | — | — | — |
| Flammability | | UL94 | HB | HB | V-0 | HB | HB | HB | HB | V-0 | V-0 | (HB) |

*Nominal strain at break

| Item | Low friction, Low wear | | | | | | Weather resistance | Antistatic | Electric conductive | Higher comparative Tracking index,FR | Unfilled PBT for film, Extrusion | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 2002K | 6302T | 6300T | 7400F | 209AW | CN7130 | 2002U | CA7200NX | 7300E | CTN7133 | 200FP | 300FP | 500FP | 700FP | 800FP |
| | Unfilled | Mineral filled | Mineral filled | GF 30%filled | Unfilled | GF filled | Unfilled | Unfilled | GF filled | GF filled | Super high flow | High flow | standard | High viscosity | Super high viscosity |
| | Standard | | | | | | Standard | Standard | Standard | Standard, CTI rank 0 | standard | | | | |
| Density | 1.36 | 1.60 | 1.60 | 1.61 | 1.45 | 1.75 | 1.31 | 1.31 | 1.48 | 1.70 | 1.31 | 1.31 | 1.31 | 1.31 | 1.31 |
| Tensile strength | 57 | 105 | 105 | 131 | 52 | 123 | 60 | 43 | 110 | 77 | 60 | 60 | 58 | 53 | 53 |
| Strain at break | 12* | 3.5 | 3.0 | 2.3 | 5.0 | 1.8 | 100* | 125.2* | 2.3 | 1.6 | 6.0 | 10.0 | 80* | 108* | 108* |
| Flexural strength | 95 | 174 | 180 | 202 | 82 | 195 | 95 | 66 | 171 | 120 | — | — | — | — | — |
| Flexural modulus | 3,100 | 9,000 | 9,200 | 8,776 | 2,780 | 10,460 | 2,630 | 1,780 | 7,000 | 8,350 | 2,440 | 2,440 | 2,440 | 2,440 | 2,440 |
| Charpy notched impact strength | 3.2 | 4.0 | 4.0 | 10.2 | 3.5 | 8.1 | 3.4 | 5.0 | 6.0 | 5.8 | 1.6 | 2.0 | 2.7 | 3.9 | 4.9 |
| Temperature of deflection under load (1.8MPa) | 80 | 196 | 196 | 216 | 73 | 211 | 70 | 59 | 205 | 205 | 78 | 70 | 66 | 59 | 56 |
| Coefficient of linear thermal expansion (23-55°C) Flow direction | — | 3 | 3 | — | — | — | 10 | — | 3 | — | — | — | — | — | — |
| Coefficient of linear thermal expansion (23-55°C) Transverse direction | — | 8 | 8 | — | — | — | 10 | — | 10 | — | — | — | — | — | — |
| Dielectric breakdown strength | — | 14 | 14 | 21 | — | — | 14 | — | — | 22 | — | — | — | — | — |
| Volume resistivity | — | $5\times10^{14}$ | $6\times10^{14}$ | $3\times10^{16}$ | — | — | $5\times10^{16}$ | $1.5\times10^{13}$ | $2\times10^{11}$ | — | — | — | — | — | — |
| Surface resistivity | — | $3\times10^{13}$ | $1\times10^{15}$ | $1\times10^{17}$ | — | — | $2\times10^{17}$ | $7\times10^{12}$ | $2\times10^{10}$ | — | — | — | — | — | — |
| Comparative tracking index | — | 280 | 280 | 425 | — | — | — | — | | 600 | — | — | — | — | — |
| Flammability | HB | HB | HB | HB | V-0 | V-0 | HB | HB | HB | V-0 | (HB) | (HB) | (HB) | (HB) | (HB) |

*Nominal strain at break

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WinTech Polymer Ltd.

## NOTES TO USERS

- All property values shown in this brochure are the typical values obtained under varying conditions prescribed by applicable standards and test methods.
- This brochure has been prepared based on our own experiences and laboratory test data, and therefore all data shown here are not always applicable to parts used under different conditions. We do not guarantee that these data are directly applicable to the application conditions of users and we ask each user to make his own decision on the application.
- It is the users' responsibility to investigate patent rights, service life and potentiality of applications introduced in this brochure.
  Materials we supply are not intended for the implant applications in the medical and dental fields, and therefore are not recommended for such uses.
- For all works done properly, it is advised to refer to the appropriate **"Technical Catalog"** for specific material processing.
- For safe handling of materials we supply, it is advised to refer to the Material Safety Data Sheet **"MSDS"** of the proper material.
- This brochure is edited based on reference literatures, information and data currently available to us. So the contents of this brochure are subject to change without notice due to new data.
- Please contact our office for any questions about products we supply, descriptive literatures or any description in this brochure.

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* WinTech Polymer Ltd. is a member of the Polyplastics Group, while the "DURANEX®" PBT resin manufactured and sold by that firm is marketed by Polyplastics affiliated companies in the regions listed below.
* "DURANEX®" is a trademark of Polyplastics Co., Ltd. in Japan and other countries.

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**Polyplastics Marketing (India) Private Ltd. (India)**
**Polyplastics Marketing (T) Ltd. (Bangkok)**
**Polyplastics Taiwan Co., Ltd. (Taipei)**
**Polyplastics China Ltd. (Hong Kong)**
**Polyplastics Trading (Shanghai) Ltd. (Shanghai)**
**Polyplastics (Shanghai) Ltd. (Shanghai)**
**PTM Engineering Plastics (Nantong) Co.,Ltd. (Nantong)**

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