



## گروه صنعتی دیاکو

«ما برای ساخت یک استاندارد صنعتی تلاش میکنیم»

راه های ارتباطی با گروه صنعتی دیاکو:

وبسایت: [www.diakomold.com](http://www.diakomold.com)

شماره تماس: ۰۹۱۲۷۹۵۱۸۷۸

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این محتوا صرفاً جهت اهداف آموزشی تهیه شده است.

## جدول نرخ جمع شدگی یا انقباض (Shrinkage) (پلیمر و پلاستیک)

در قالب سازی تزریق پلاستیک

| نام پلیمر                                                                              | نام دقیق پلیمر                                                                         | (%) حداقل | (%) حداکثر |
|----------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------|-----------|------------|
| ABS                                                                                    | Acrylonitrile-Butadiene Styrene                                                        | 0.7       | 1.6        |
| ABS FR                                                                                 | Acrylonitrile-Butadiene Styrene flame retardant                                        | 0.3       | 0.8        |
| ABS High Heat                                                                          | Acrylonitrile-Butadiene Styrene High Heat                                              | 0.4       | 0.9        |
| ABS High Impact                                                                        | Acrylonitrile-Butadiene Styrene High Impact                                            | 0.4       | 0.9        |
| ABS/PC                                                                                 | Acrylonitrile-Butadiene Styrene/Polycarbonate                                          | 0.5       | 0.7        |
| ABS/PC 20% GF                                                                          | Acrylonitrile-Butadiene Styrene/Polycarbonate 20% glass fiber                          | 0.2       | 0.3        |
| ABS/PC FR                                                                              | Acrylonitrile-Butadiene Styrene/Polycarbonate flame retardant                          | 0.3       | 0.6        |
| Amorphous TPI Blend, Ultra-high heat, Chemical Resistant (High Flow)                   | Amorphous TPI Blend, Ultra-high heat, Chemical Resistant (High Flow)                   | 0.8       | 1          |
| Amorphous TPI Blend, Ultra-high heat, Chemical Resistant (Standard Flow)               | Amorphous TPI Blend, Ultra-high heat, Chemical Resistant (Standard Flow)               | 0.8       | 1          |
| Amorphous TPI, High Heat, High Flow, Transparent, Lead-Free Solderable (High Flow)     | Amorphous TPI, High Heat, High Flow, Transparent, Lead-Free Solderable (High Flow)     | 1         | 1.2        |
| Amorphous TPI, High Heat, High Flow, Transparent, Lead-Free Solderable (Standard Flow) | Amorphous TPI, High Heat, High Flow, Transparent, Lead-Free Solderable (Standard Flow) | 1         | 1.2        |
| Amorphous TPI, Moderate Heat, Transparent                                              | Amorphous TPI, Moderate Heat, Transparent                                              | 0.5       | 0.7        |
| Amorphous TPI, Moderate Heat, Transparent (Food Contact Approved)                      | Amorphous TPI, Moderate Heat, Transparent (Food Contact Approved)                      | 0.5       | 0.7        |
| Amorphous TPI, Moderate Heat, Transparent (Mold Release grade)                         | Amorphous TPI, Moderate Heat, Transparent (Mold Release grade)                         | 0.5       | 0.7        |
| Amorphous TPI, Moderate Heat, Transparent (Powder form)                                | Amorphous TPI, Moderate Heat, Transparent (Powder form)                                | 0.5       | 0.7        |
| ASA                                                                                    | Acrylonitrile Styrene Acrylate                                                         | 0.4       | 0.7        |
| ASA/PC                                                                                 | Acrylonitrile Styrene Acrylate/Polycarbonate                                           | 0.3       | 0.7        |
| ASA/PC FR                                                                              | Acrylonitrile Styrene Acrylate/Polycarbonate flame retardant                           | 0.4       | 0.8        |
| ASA/PVC                                                                                | Acrylonitrile Styrene Acrylate/Polyvinyl Chloride                                      | 0.3       | 0.7        |
| CA – Cellulose Acetate                                                                 | Cellulose Acetate                                                                      | 0.3       | 1          |
| CAB – Cellulose Acetate Butyrate                                                       | Cellulose Acetate Butyrate                                                             | 0.2       | 0.9        |
| Cellulose Diacetate- Pearlescent Films                                                 | Cellulose Diacetate- Pearlescent Films                                                 | 1         | 1.5        |
| Cellulose Diacetate-Matt Film                                                          | Cellulose Diacetate-Matt Film                                                          | 1         | 1.5        |
| CP – Cellulose Propionate                                                              | Cellulose Propionate                                                                   | 0.1       | 0.9        |
| CPVC – Chlorinated Polyvinyl Chloride                                                  | CPVC – Chlorinated Polyvinyl Chloride                                                  | 0.3       | 0.7        |
| ETFE                                                                                   | Ethylene Tetrafluoroethylene                                                           | 3         | 4          |
| EVA                                                                                    | Ethylene Vinyl Acetate                                                                 | 0.4       | 3.5        |
| FEP                                                                                    | Fluorinated Ethylene Propylene                                                         | 3         | 6          |
| HDPE – High Density Polyethylene                                                       | HDPE – High Density Polyethylene                                                       | 1.5       | 4          |
| HIPS – High Impact Polystyrene                                                         | HIPS – High Impact Polystyrene                                                         | 0.2       | 0.8        |
| HIPS FR V0                                                                             | High Impact Polystyrene flame retardant V0                                             | 0.3       | 0.6        |
| LCP                                                                                    | Liquid Crystal Polymer                                                                 | 0.1       | 0.6        |
| LCP CF                                                                                 | Liquid Crystal Polymer carbon fiber                                                    | 0.1       | 0.5        |
| LCP GF                                                                                 | Liquid Crystal Polymer glass fiber                                                     | 0.1       | 0.4        |
| LCP MINERAL                                                                            | Liquid Crystal Polymer mineral                                                         | 0.1       | 0.5        |
| LDPE – Low Density Polyethylene                                                        | LDPE – Low Density Polyethylene                                                        | 2         | 4          |
| LLDPE – Linear Low Density Polyethylene                                                | LLDPE – Linear Low Density Polyethylene                                                | 2         | 2.5        |
| MABS                                                                                   | Transparent Acrylonitrile Butadiene Styrene                                            | 0.4       | 0.7        |
| PA 11 30% Glass fiber reinforced                                                       | Polyamide 11 30% Glass fiber reinforced                                                | 0.5       | 0.5        |
| PA 11 conductive                                                                       | Polyamide 11 conductive                                                                | 0.7       | 2          |
| PA 11 flexible                                                                         | Polyamide 11 flexible                                                                  | 1.4       | 1.8        |

|                                      |                                                               |       |       |
|--------------------------------------|---------------------------------------------------------------|-------|-------|
| <b>PA 11 rigid</b>                   | Polyamide 11 rigid                                            | 0.7   | 2     |
| <b>PA 12 conductive</b>              | Polyamide 12 conductive                                       | 0.7   | 2     |
| <b>PA 12 fiber reinforced</b>        | Polyamide 12 fiber reinforced                                 | 0.7   | 2     |
| <b>PA 12 flexible</b>                | Polyamide 12 flexible                                         | 0.7   | 2     |
| <b>PA 12 glass filled</b>            | Polyamide 12 glass filled                                     | 0.7   | 2     |
| <b>PA 12 rigid</b>                   | Polyamide 12 rigid                                            | 0.7   | 2     |
| <b>PA 46</b>                         | Polyamide 46                                                  | 1.5   | 2     |
| <b>PA 46 30% GF</b>                  | Polyamide 46 30% glass fiber                                  | 0.3   | 1.3   |
| <b>PA 6</b>                          | Polyamide 6                                                   | 0.5   | 1.5   |
| <b>PA 6-10</b>                       | Polyamide 6-10                                                | 1     | 1.3   |
| <b>PA 66</b>                         | Polyamide 6-6                                                 | 0.7   | 3     |
| <b>PA 66 30% GF</b>                  | Polyamide 6-6 30% glass fiber                                 | 0.5   | 0.5   |
| <b>PA 66 30% mineral filled</b>      | Polyamide 6-6 30% mineral filled                              | 0.6   | 1     |
| <b>PA 66 IM 15-30% GF</b>            | Polyamide 6-6 impact modified 15-30% glass fiber              | 0.2   | 0.6   |
| <b>PA 66 impact modified</b>         | Polyamide 6-6 impact modified                                 | 1.2   | 3     |
| <b>PAI</b>                           | Polyamide-Imide                                               | 0.6   | 1     |
| <b>PAI 30% GF</b>                    | Polyamide-Imide 30% glass fiber                               | 0.1   | 0.3   |
| <b>PAI low friction</b>              | Polyamide-Imide low friction                                  | 0.1   | 0.5   |
| <b>PAN</b>                           | Polyacrylonitrile                                             | 0.2   | 0.5   |
| <b>PAR</b>                           | Polyarylate                                                   | 0.9   | 1.2   |
| <b>PARA 30-60% GF</b>                | Polyarylamide 30-60% glass fiber                              | 0.1   | 0.4   |
| <b>PBT</b>                           | Polybutylene Terephthalate                                    | 0.5   | 2.2   |
| <b>PBT 30% GF</b>                    | Polybutylene Terephthalate 30% glass fiber                    | 0.2   | 1     |
| <b>PC 20-40% GF</b>                  | Polycarbonate 20-40% glass fiber                              | 0.1   | 0.5   |
| <b>PC 20-40% GF FR</b>               | Polycarbonate 20-40% glass fiber flame retardant              | 0.1   | 0.5   |
| <b>PC high heat</b>                  | Polycarbonate high heat                                       | 0.7   | 1     |
| <b>PC/PBT</b>                        | Polycarbonate/Polybutylene Terephthalate blend                | 0.6   | 1.1   |
| <b>PCTFE</b>                         | Polymonochlorotrifluoroethylene                               | 0.5   | 1.5   |
| <b>PE 30% GF</b>                     | Polyethylene 30% glass fiber                                  | 0.2   | 0.6   |
| <b>PEEK</b>                          | Polyetheretherketone                                          | 1.2   | 1.5   |
| <b>PEEK 30% CF</b>                   | Polyetheretherketone 30% carbon fiber                         | 0     | 0.5   |
| <b>PEEK 30% GF</b>                   | Polyetheretherketone 30% glass fiber                          | 0.4   | 0.8   |
| <b>PEI</b>                           | Polyetherimide                                                | 0.7   | 0.8   |
| <b>PEI 30% GF</b>                    | Polyetherimide 30% glass fiber                                | 0.2   | 0.4   |
| <b>PEI mineral filled</b>            | Polyetherimide mineral filled                                 | 0.5   | 0.7   |
| <b>PEKK– Low cristallinity grade</b> | Polyetherketoneketone– Low cristallinity grade                | 0.004 | 0.005 |
| <b>PESU</b>                          | Polyethersulfone                                              | 0.6   | 0.7   |
| <b>PESU 10-30% GF</b>                | Polyethersulfone 10-30% glass fiber                           | 0.2   | 0.3   |
| <b>PET</b>                           | Polyethylene Terephthalate                                    | 0.2   | 3     |
| <b>PET 30% GF</b>                    | Polyethylene Terephthalate 30% glass fiber                    | 0.2   | 1     |
| <b>PET 30/35% GF Impact modified</b> | Polyethylene Terephthalate 30/35% glass fiber impact modified | 0.2   | 0.9   |
| <b>PET G</b>                         | Polyethylene Terephthalate Glycol                             | 0.2   | 1     |
| <b>PE-UHMW</b>                       | Polyethylene -Ultra High Molecular Weight                     | 4     | 4     |
| <b>PFA</b>                           | Perfluoroalkoxy                                               | 3     | 5     |
| <b>PHB – Polyhydroxybutyrate</b>     | Polyhydroxybutyrate                                           | 1.2   | 1.6   |
| <b>PI</b>                            | Polyimide                                                     | 0.2   | 1.2   |
| <b>PLA-injection molding</b>         | Poly lactide-injection molding                                | 0.3   | 0.5   |
| <b>PMMA</b>                          | Polymethylmethacrylate (Acrylic)                              | 0.2   | 0.8   |
| <b>PMMA high heat</b>                | Polymethylmethacrylate (Acrylic) high heat                    | 0.2   | 0.8   |
| <b>PMMA Impact modified</b>          | Polymethylmethacrylate (Acrylic) impact modified              | 0.2   | 0.8   |
| <b>PMP</b>                           | Polymethylpentene                                             | 1.6   | 2.1   |
| <b>PMP 30% GF</b>                    | Polymethylpentene 30% glass fiber                             | 0.3   | 1.2   |

|                                                                                            |                                                                                     |      |      |
|--------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|------|------|
| <b>PMP mineral filled</b>                                                                  | Polymethylpentene mineral filled                                                    | 1.4  | 1.7  |
| <b>Polyamide 66 (Nylon 66)/Carbon Fiber, Long, 30 % Filler by Weight</b>                   | Polyamide 66 (Nylon 66)/Carbon Fiber, Long, 30 % Filler by Weight                   | 0.3  | 0.3  |
| <b>Polyamide 66 (Nylon 66)/Carbon Fiber, Long, 40 % Filler by Weight</b>                   | Polyamide 66 (Nylon 66)/Carbon Fiber, Long, 40 % Filler by Weight                   | 0.3  | 0.3  |
| <b>Polyamide 66 (Nylon 66)/Glass Fiber, Long, 40 % Filler by Weight</b>                    | Polyamide 66 (Nylon 66)/Glass Fiber, Long, 40 % Filler by Weight                    | 0.3  | 0.3  |
| <b>Polyamide 66 (Nylon 66)/Glass Fiber, Long, 40 % Filler by Weight</b>                    | Polyamide 66 (Nylon 66)/Glass Fiber, Long, 40 % Filler by Weight                    | 0.3  | 0.3  |
| <b>Polyamide 66 (Nylon 66)/Glass Fiber, Long, 50 % Filler by Weight</b>                    | Polyamide 66 (Nylon 66)/Glass Fiber, Long, 50 % Filler by Weight                    | 0.3  | 0.3  |
| <b>Polyamide 66 (Nylon 66)/Glass Fiber, Long, 50 % Filler by Weight</b>                    | Polyamide 66 (Nylon 66)/Glass Fiber, Long, 50 % Filler by Weight                    | 0.3  | 0.3  |
| <b>Polyamide 66 (Nylon 66)/Glass Fiber, Long, 60 % Filler by Weight</b>                    | Polyamide 66 (Nylon 66)/Glass Fiber, Long, 60 % Filler by Weight                    | 0.3  | 0.3  |
| <b>Polyamide 66 (Nylon 66)/Glass Fiber, Long, 60 % Filler by Weight</b>                    | Polyamide 66 (Nylon 66)/Glass Fiber, Long, 60 % Filler by Weight                    | 0.3  | 0.3  |
| <b>Polypropylene Homopolymer (PP Homopolymer)/Glass Fiber, Long, 30 % Filler by Weight</b> | Polypropylene Homopolymer (PP Homopolymer)/Glass Fiber, Long, 30 % Filler by Weight | 0.4  | 0.4  |
| <b>Polypropylene Homopolymer (PP Homopolymer)/Glass Fiber, Long, 40 % Filler by Weight</b> | Polypropylene Homopolymer (PP Homopolymer)/Glass Fiber, Long, 40 % Filler by Weight | 0.3  | 0.3  |
| <b>Polypropylene Homopolymer (PP Homopolymer)/Glass Fiber, Long, 40 % Filler by Weight</b> | Polypropylene Homopolymer (PP Homopolymer)/Glass Fiber, Long, 40 % Filler by Weight | 0.3  | 0.3  |
| <b>Polypropylene Homopolymer (PP Homopolymer)/Glass Fiber, Long, 50 % Filler by Weight</b> | Polypropylene Homopolymer (PP Homopolymer)/Glass Fiber, Long, 50 % Filler by Weight | 0.3  | 0.3  |
| <b>Polypropylene Homopolymer (PP Homopolymer)/Glass Fiber, Long, 50 % Filler by Weight</b> | Polypropylene Homopolymer (PP Homopolymer)/Glass Fiber, Long, 50 % Filler by Weight | 0.3  | 0.3  |
| <b>POM</b>                                                                                 | Polyoxymethylene (acetal)                                                           | 1.8  | 2.5  |
| <b>POM impact modified</b>                                                                 | Polyoxymethylene (acetal) impact modified                                           | 1    | 2.5  |
| <b>POM low friction</b>                                                                    | Polyoxymethylene (acetal) low friction                                              | 1.8  | 3    |
| <b>POM mineral filled</b>                                                                  | Polyoxymethylene (acetal) mineral filled                                            | 1.5  | 2    |
| <b>PP 10-20% GF</b>                                                                        | Polypropylene 10-20% glass fiber                                                    | 0.3  | 1    |
| <b>PP 10-40% mineral filled</b>                                                            | Polypropylene 10-40% mineral filled                                                 | 0.6  | 1.4  |
| <b>PP 10-40% TALC</b>                                                                      | Polypropylene 10-40% talc                                                           | 0.9  | 1.4  |
| <b>PP 30-40% GF</b>                                                                        | Polypropylene 30-40% glass fiber                                                    | 0.1  | 1    |
| <b>PP copo</b>                                                                             | Polypropylene copolymer                                                             | 2    | 3    |
| <b>PP homo</b>                                                                             | Polypropylene homopolymer                                                           | 1    | 3    |
| <b>PP impact modified</b>                                                                  | Polypropylene impact modified                                                       | 2    | 3    |
| <b>PPA</b>                                                                                 | Polyphthalamide                                                                     | 1.5  | 2.2  |
| <b>PPA – 30% mineral</b>                                                                   | Polyphthalamide– 30% mineral                                                        | 1    | 1.2  |
| <b>PPA – 33% glass fiber</b>                                                               | Polyphthalamide – 33% glass fiber                                                   | 0.5  | 0.7  |
| <b>PPA – 33% glass fiber – high flow</b>                                                   | Polyphthalamide– 33% glass fiber – high flow                                        | 0.74 | 0.76 |
| <b>PPA – 45% glass fiber</b>                                                               | Polyphthalamide– 45% glass fiber                                                    | 0.1  | 0.3  |
| <b>PPE</b>                                                                                 | Polyphenylene Ether                                                                 | 0.5  | 0.8  |
| <b>PPE 30% GF</b>                                                                          | Polyphenylene Ether 30% glass fiber                                                 | 0.1  | 0.4  |
| <b>PPE FR</b>                                                                              | Polyphenylene Ether flame retardant                                                 | 0.6  | 1    |
| <b>PPE impact modified</b>                                                                 | Polyphenylene Ether impact modified                                                 | 0.6  | 1    |
| <b>PPE mineral filled</b>                                                                  | Polyphenylene Ether mineral filled                                                  | 0.3  | 0.7  |
| <b>PPS</b>                                                                                 | Polyphenylene Sulfide                                                               | 0.6  | 1.4  |
| <b>PPS 20-30% GF</b>                                                                       | Polyphenylene Sulfide 20-30% glass fiber                                            | 0.2  | 0.5  |
| <b>PPS 40% GF</b>                                                                          | Polyphenylene Sulfide 40% glass fiber                                               | 0.2  | 0.5  |
| <b>PPS conductive</b>                                                                      | Polyphenylene Sulfide conductive                                                    | 0.3  | 1    |
| <b>PPS GF &amp; mineral</b>                                                                | Polyphenylene Sulfide glass fiber & mineral                                         | 0.3  | 0.7  |
| <b>PS 30 % GF</b>                                                                          | Polystyrene 30% glass fiber                                                         | 0.2  | 0.2  |
| <b>PS crystal</b>                                                                          | Polystyrene crystal                                                                 | 0.1  | 0.7  |

|                                        |                                             |     |     |
|----------------------------------------|---------------------------------------------|-----|-----|
| <b>PS high heat</b>                    | Polystyrene high heat                       | 0.2 | 0.7 |
| <b>PSU</b>                             | Polysulfone                                 | 0.7 | 0.7 |
| <b>PSU 30% GF</b>                      | Polysulfone 30% glass fiber                 | 0.1 | 0.6 |
| <b>PSU mineral filled</b>              | Polysulfone mineral filled                  | 0.4 | 0.5 |
| <b>PTFE</b>                            | Polytetrafluoroethylene                     | 3   | 6   |
| <b>PTFE 25% GF</b>                     | Polytetrafluoroethylene 25% glass fiber     | 1.8 | 2   |
| <b>PVC 20% GF</b>                      | Polyvinyl Chloride 20% glass fiber          | 0.1 | 0.2 |
| <b>PVC plasticized</b>                 | Polyvinyl Chloride plasticized              | 0.2 | 4   |
| <b>PVC plasticized filled</b>          | Polyvinyl Chloride plasticized filled       | 0.8 | 5   |
| <b>PVC rigid</b>                       | Polyvinyl Chloride rigid                    | 0.1 | 0.6 |
| <b>PVDC</b>                            | Polyvinylidene Chloride                     | 0.5 | 2.5 |
| <b>PVDF</b>                            | Polyvinylidene Fluoride                     | 2   | 4   |
| <b>SAN</b>                             | Styrene Acrylonitrile                       | 0.3 | 0.7 |
| <b>SAN 20% GF</b>                      | Styrene Acrylonitrile 20% glass fiber       | 0.1 | 0.3 |
| <b>SMA</b>                             | Styrene Maleic Anhydride                    | 0.4 | 0.8 |
| <b>SMA 20% GF</b>                      | Styrene Maleic Anhydride 20% glass fiber    | 0.2 | 0.3 |
| <b>SMA FR V0</b>                       | Styrene Maleic Anhydride flame retardant V0 | 0.5 | 0.5 |
| <b>TPS-Injection General Purpose</b>   | Thermoplastic Starch GP                     | 0.6 | 1.5 |
| <b>TPS-Injection Water Resistant</b>   | Thermoplastic Starch WR                     | 0.6 | 0.9 |
| <b>XLPE – Crosslinked Polyethylene</b> | XLPE – Crosslinked Polyethylene             | 0.7 | 5   |

این محتوا توسط گروه صنعتی دیاکو و صرفاً جهت اهداف آموزشی تهیه شده است.

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