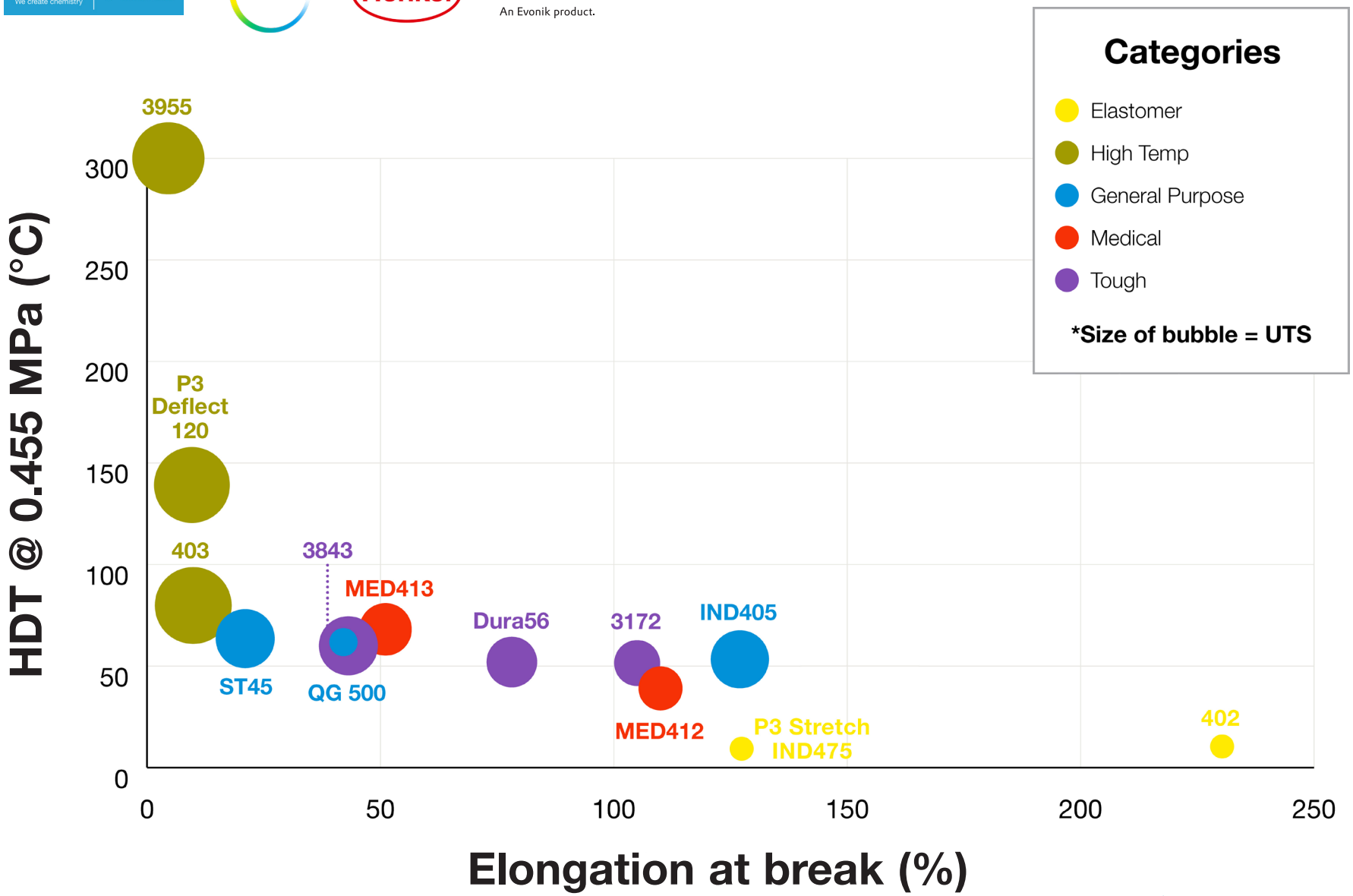
# Origin® One Validated Materials Overview



## Origin® One Validated Materials Overview

| Material name | Description | Categories | Ultimate tensile strength | Elongation at break | Tensile modulus | HDT | Notched izod impact | Hardness | Colors | Consider replacing | Partner page |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 3955 | Very high temperature, high stiffness FST | ● | 67 MPa | 2.10% | **3556 MPa** | **> 300 °C** | 23 J/m | 84 D | Black | Ultem, phenolic, PBT, aluminum | LOCTITE AM |
| P3 Deflect 120 | High temperature resistance and rigid material with good elongation at break | ● | 89 MPa | 6% | 3200 MPa | 120 °C | 22 J/m | **89 D** | Black | Nylon 6, PBT | EVONIK |
| 403 | High strength, stiffness, and good HDT | ● | **72 MPa** | 10% | 2572 MPa | 80 °C | 27 J/m | 81 D | Black | Nylon 6/6 | LOCTITE AM |
| 3843 | Versatile, good all-around engineering polymer | ● | 53 MPa | 43% | 1806 MPa | 60 °C | 53 J/m | 74 D | Black, Clear, White | ABS, delrin, polypropylene | LOCTITE AM |
| Dura56 | Durable, impact-resistant, exceptional surface finish, low cost per kg | ● | 44 MPa | 78% | 1595 MPa | 52 °C | 56 J/m | 72 D | Black | ABS, delrin, polypropylene | TDS |
| 3172 | Moderately flexible, ductile, great impact strength | ● | 39 MPa | 105% | 1494 MPa | 51 °C | **73 J/m** | 72 D | Cyan, Grey | Impact modified polypropylene, nylon 6, HDPE | LOCTITE AM |
| IND405 | Clear, moderately flexible, ductile, great impact strength | ● | 52 MPa | 127% | 1378 MPa | 53 °C | 72 J/m | 79 D | Clear | Impact modified polypropylene, nylon 6, HDPE | LOCTITE AM |
| ST45 | Versatile, good all-around engineering polymer | ● | 53 MPa | 21% | 2000 MPa | 63 °C | 20 J/m | 81 D | Black, Clear | ABS, delrin | BASF Forward AM |
| QG 500 | Uniquely flexible engineering material with great impact strength | ● | 20 MPa | 42% | 465 MPa | 62 °C (Tg) | 70 J/m | 76 D | Clear | LDPE | DSM Somos |
| 402 | TPU-like elastomer with good tear strength and elongation at break | ● | 5.5 MPa | **230%** | 42 MPa | -- | -- | 75-90 A | Black | 70-90 A TPU, flexible foam | LOCTITE AM |
| P3 Stretch 475 | Resilient, low shore hardness elastomer with good tear strength | ● | 2.4 MPa | 122% | 2.5 MPa | -- | -- | 49 A, 45 A (0s, 5s) | Black | Low durometer TPU | LOCTITE AM |
| MED412 | Moderately flexible, ductile, great impact strength | ● | 37 MPa | 110% | 1305 MPa | 39 °C | 50 J/m | 78 D | Clear | Medical-grade polypropylene | TDS |
| MED413 | Versatile engineering medical grade material | ● | 46 MPa | 51% | 1673 MPa | 68 °C | 59 J/m | 79 D | Clear, White | Medical-grade ABS | TDS |

*Bold blue values = Highest value in it's category. Material categories: ●Elastomer ●High temp ●General purpose ●Medical ●Tough

## Origin® One Advanced Materials Comparison

| Material name | Temperature resistance | Flame | Chemical resistance | UV stability | Dielectric strength | Low water absorption | Strength | Stiffness | Toughness | Biocompatibility testing | Print speed | Material cost |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3955 | Strong | Strong | Refer to data sheet | Good | Strong | – | Strong | Strong | Low | – | Strong | $$$ |
| 403 | Strong | – | – | Good | Strong | – | Strong | Strong | Low | – | Good | $$ |
| 3843 | Good | – | Refer to data sheet | Good | Strong | Good | Good | Good | Good | Cyto, irritation | Good | $$ |
| Dura56 | Low | – | – | Good | – | Low | Good | Good | Strong | – | Good | $ |
| 3172 | Low | – | – | Good | – | Good | Good | Good | Strong | Cyto, irritation | Good | $$ |
| IND405 | Low | – | – | Good | – | Good | Good | Good | Strong | Cyto, irritation | Good | $$ |
| ST45 | Good | Good | – | Good | Strong | – | Good | Strong | Low | Cyto, irritation, sensitization | Strong | $ |
| QG 500 | Good | – | – | Good | – | Strong | Low | Low | Strong | – | Strong | $$ |
| 402 | – | – | Refer to data sheet | Good | – | Low | Low | Low | – | Irritation | Low | $$ |
| MED412 | Low | – | – | Good | – | Strong | Good | Good | Good | Cyto, irritation, sensitization | Good | $$$ |
| MED413 | Good | – | – | Good | – | Low | Good | Good | Strong | Cyto, irritation, sensitization | Good | $$$ |
| P3 Deflect 120 | Strong | TBD | TBD | TBD | TBD | Strong | Strong | Strong | Low | TBD | Strong | $$ |
| P3 Stretch 475 | – | – | TBD | TBD | Strong | Low | Low | Low | – | TBD | Strong | $$ |

*– = Data unavailable

Note: This guide should be used to compare Origin certified materials with each other. Please refer to individual material data sheets for more info.