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Polymer Design***  
**TOOLING**

## **Epoxy & Polyurethanes Resin Systems**

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**Casting Resins ■ Surface Coats ■ Laminating Resins ■ Polyurethanes ■ Adhesives**

|   | Description                       | Product                        | Mix Ratio                |           | Pot Life  |           | Viscosity   | Den-              |      |
|---|-----------------------------------|--------------------------------|--------------------------|-----------|-----------|-----------|-------------|-------------------|------|
|   |                                   |                                | Parts A : Parts B        |           | Minutes   |           | Mixed       | Mixed             |      |
|   |                                   |                                | By Weight                | By Volume | 1 lb Mass | 150g Mass | Centipoise  | g/cm <sup>3</sup> |      |
| <b>Casting Resins</b><br><b>Room Temperature</b>    | Aluminum Filled, Cast ≤ ¼" Thick  | 301A/301B <sup>1</sup>         | 12 : 1                   | 6.2 : 1   | 45        | 65        | 7,000       | 1.85              |      |
|   | Aluminum Filled, Cast ≤ ¼" Thick  | 302A/302B                      | 12 : 1                   | 5.8 : 1   | 35        | 55        | 6,200       | 1.94              |      |
|   | Aluminum Filled, Cast ≤ 1¼" Thick | 302A/731B                      | 9 : 1                    | 4.2 : 1   | 50        | 80        | 6,000       | 1.88              |      |
|   | Aluminum Filled, Cast ≤ 5" Thick  | 302A/308B                      | 7 : 1                    | 3.2 : 1   | 80        | 110       | 6,000       | 1.83              |      |
|   | Iron Filled, Cast 2" To 5" Thick  | 305A/305B                      | 9 : 1                    | 3.9 : 1   | 40        | 60        | 21,000      | 1.94              |      |
|   | <b>High Temperature</b>           | 275°F Service, Cast ≤ 4" Thick | 2144A/9243B <sup>2</sup> | 100 : 10  | 6 : 1     | 140       | 180         | 23,000            | 1.61 |
|   |                                   | 350°F Service, Cast ≤ 2" Thick | 9533A/9286B <sup>2</sup> | 100 : 6   | 9.25 : 1  | 60        | 90          | 18,000            | 1.63 |
| 450°F Service, Cast ≤ 2" Thick                      |                                   | 2136A/9276B <sup>2</sup>       | 100 : 6                  | 9.25 : 1  | 60        | 90        | 18,500      | 1.63              |      |
| <b>Surface Coats</b><br><b>Room Temperature</b>     | General Purpose                   | 401A/401B <sup>1</sup>         | 7.5 : 1                  | 5 : 1     | 25        | 30        | 22,000      | 1.52              |      |
|   | General Purpose                   | 402A/402B                      | 7.5 : 1                  | 5 : 1     | 25        | 30        | 21,200      | 1.50              |      |
|   | General Purpose, Low Cost         | 406A/406B                      | 10 : 1                   | 6.6 : 1   | 20        | 25        | Thixotropic | 1.54              |      |
|   | For Plastic Faced Plaster Molds   | 415A/415B <sup>2</sup>         | 6 : 1                    | 4.1 : 1   | 11        | 17        | Paste       | 1.39              |      |
|   | <b>High Temperature</b>           | 275°F Service                  | 2102A/9245B <sup>2</sup> | 100 : 14  | 6 : 1     | 45        | 60          | Paste             | 1.22 |
|   |                                   | 350°F Service                  | 2132A/9284B <sup>2</sup> | 100 : 10  | 7 : 1     | 25        | 30          | Paste             | 1.35 |
|   |                                   | 450°F Service                  | 2137A/9274B <sup>2</sup> | 100 : 10  | 7 : 1     | 25        | 30          | Paste             | 1.35 |
| <b>Laminating Resins</b><br><b>Room Temperature</b> | General Purpose                   | 501A/501B <sup>1</sup>         | 6 : 1                    | 4.5 : 1   | 20        | 25        | 5,200       | 1.36              |      |
|   | General Purpose                   | 502A/502B                      | 6 : 1                    | 4.5 : 1   | 20        | 25        | 5,140       | 1.36              |      |
|   | General Purpose, Low Cost         | 506A/506B                      | 100 : 17                 | 4.25 : 1  | 22        | 30        | 3,000       | 1.36              |      |
|   | Low Viscosity, Toughened          | 574A/574B                      | 100 : 25                 | 3.5 : 1   | 15        | 20        | 700         | 1.12              |      |
|   | Low Viscosity, Toughened          | 574A/734B                      | 100 : 25                 | 3.5 : 1   | 25        | 35        | 800         | 1.11              |      |
|   | <b>High Temperature</b>           | 275°F Service                  | 2165A/9245B <sup>2</sup> | 100 : 25  | 3.5 : 1   | 40        | 50          | 2,500             | 1.13 |
|   |                                   | 350°F Service                  | 2134A/9286B <sup>2</sup> | 100 : 14  | 6 : 1     | 40        | 50          | 1,800             | 1.15 |
| 450°F Service                                       |                                   | 2135A/9276B <sup>2</sup>       | 100 : 14                 | 6 : 1     | 40        | 50        | 1,900       | 1.15              |      |
| <b>Polyurethanes</b>                                | 40 Shore A, 24 Hour Demold        | 840A/840B                      | 100 : 80                 | 1 : 1     | 25        | 30        | 1,600       | 1.17              |      |
|   | 83 Shore A, 16-24 Hour Demold     | 9107A/9107B                    | 100 : 25                 | 100 : 25  | 20        | 25        | 3,850       | 1.03              |      |
|   | 95 Shore A, 16-24 Hour Demold     | 9748A/9748B                    | 100 : 40                 | 100 : 39  | 25        | 30        | 2,400       | 1.04              |      |
|   | 60 Shore D, Wear Resistant        | 960A/960B                      | 100 : 60                 | 100 : 60  | 20        | 25        | 2,200       | 1.06              |      |
|   | 60 Shore D, Low Cost              | 9160A/9160B                    | 100 : 75                 | 100 : 74  | 28        | 38        | 1,600       | 1.08              |      |
|   | 70 Shore D, 16-24 Hour Demold     | 7020A/7020B                    | 100 : 60                 | 100 : 63  | 14        | 21        | 2,100       | 1.05              |      |
|   | 75 Shore D, Prototyping           | 7120A/7120B <sup>2</sup>       | 100 : 100                | 90 : 100  | 16        | 20        | 300         | 1.10              |      |
|   | 80 Shore D, General Purpose       | 8127A/8127B <sup>2</sup>       | 100 : 100                | 100 : 90  | 5         | 7         | 250         | 1.08              |      |
|   | 80 Shore D, Clear Casting         | 8008A/8008B <sup>2</sup>       | 100 : 100                | 100 : 104 | 6         | 8         | 800         | 1.06              |      |
|   | <b>Fast Cast</b>                  | Easy Cast                      | 910A/910B <sup>2</sup>   | 1 : 1     | 1 : 1     | 8         | 10          | 1,000             | 1.77 |
|   |                                   | Easy Cast Aluminum Filled      | Part A/Part B            | 1 : 1     | 1 : 1     | 8         | 10          | 1,000             | 1.83 |

Footnotes: <sup>1</sup> Contains n-Butyl Glycidyl Ether (CAS No. 2426-08-6)

<sup>3</sup> Post Cure Recommended

<sup>2</sup> Other hardeners or curatives are available if a longer or shorter pot life is desired.

| -sity              | Hardness | Compressive Strength | Tensile Strength | Heat Deflection  |           | Shrinkage | Machinability | Color         |
|--------------------|----------|----------------------|------------------|------------------|-----------|-----------|---------------|---------------|
|                    |          |                      |                  | Room Temp.       | Post Cure |           |               |               |
| lb/in <sup>3</sup> | Shore    | psi                  | psi              | °F               | °F        | in/in     |               |               |
| Mixed              |          |                      |                  |                  |           |           |               |               |
| 0.067              | 92D      | 13,500               | 4,500            | 135              | 170       | < 0.002   | Very Good     | Grey          |
| 0.070              | 92D      | 13,800               | 4,700            | 135              | 170       | < 0.002   | Very Good     | Grey          |
| 0.068              | 88D      | 13,200               | 4,800            | 130              | 160       | < 0.003   | Very Good     | Grey          |
| 0.066              | 83D      | 10,300               | 4,100            | 128              | 155       | < 0.005   | Very Good     | Grey          |
| 0.070              | 87D      | 10,000               | 4,600            | 120              | 140       | < 0.0009  | Poor          | Black         |
| 0.058              | 90D      | 17,800               | 6,000            | PCR <sup>3</sup> | 272       | < 0.001   | Excellent     | Grey          |
| 0.059              | 89D      | 35,000               | 6,800            | PCR <sup>3</sup> | 355       | < 0.002   | Very Good     | Grey          |
| 0.059              | 91D      | 36,000               | 6,700            | PCR <sup>3</sup> | 455       | < 0.002   | Very Good     | Grey          |
| 0.055              | 90D      | 15,000               | 4,500            | 135              | 170       | < 0.0002  | Fair          | Blue          |
| 0.054              | 90D      | 15,400               | 4,600            | 135              | 170       | < 0.0002  | Fair          | Blue          |
| 0.056              | 89D      | 13,800               | 6,800            | 130              | 165       | < 0.0003  | Fair          | White         |
| 0.050              | 85D      | 13,000               | 4,700            | 140              | 175       | < 0.0001  | Fair          | White         |
| 0.044              | 89D      | 25,000               | 4,400            | PCR <sup>3</sup> | 282       | < 0.002   | Good          | Black         |
| 0.049              | 92D      | 28,500               | 7,800            | PCR <sup>3</sup> | 355       | < 0.002   | Good          | Grey          |
| 0.049              | 93D      | 29,000               | 8,100            | PCR <sup>3</sup> | 455       | < 0.002   | Good          | Grey          |
| 0.049              | 79D      | 30,000               | 24,400           | 135              | 180       | < 0.001   | Fair          | Blue          |
| 0.049              | 80D      | 30,500               | 24,800           | 135              | 180       | < 0.001   | Fair          | Blue          |
| 0.049              | 89D      | 38,000               | 25,000           | 135              | 200       | < 0.001   | Fair          | White         |
| 0.040              | 82D      | 27,800               | 13,900           | 140              | 190       | < 0.001   | Fair          | Amber         |
| 0.040              | 81D      | 27,600               | 14,100           | 140              | 190       | < 0.001   | Fair          | Amber         |
| 0.041              | 93D      | 18,800               | 12,900           | PCR <sup>3</sup> | 272       | < 0.002   | Fair          | Amber         |
| 0.041              | 88D      | 21,500               | 12,400           | PCR <sup>3</sup> | 355       | < 0.002   | Fair          | Amber         |
| 0.041              | 90D      | 25,500               | 11,800           | PCR <sup>3</sup> | 455       | < 0.002   | Fair          | Amber         |
| 0.042              | 40A      |                      | 550              |                  |           | < 0.002   | Poor          | Beige         |
| 0.037              | 83A      |                      | 1,730            |                  |           | < 0.002   | Poor          | Amber         |
| 0.037              | 95A      |                      | 2,550            |                  |           | < 0.002   | Poor          | Amber         |
| 0.038              | 60D      | 3,600                | 3,400            | 135              | 150       | < 0.002   | Fair          | Amber, Black  |
| 0.039              | 60D      |                      | 3,700            | 145              | 151       | < 0.003   | Fair          | Amber, Yellow |
| 0.038              | 70D      |                      | 5,150            | 140              | 160       | < 0.001   | Fair          | Amber         |
| 0.040              | 75D      |                      | 5,500            | 140              | 160       | < 0.001   | Fair          | White         |
| 0.039              | 80D      |                      | 5,200            | 145              | 163       | < 0.003   | Good          | White         |
| 0.038              | 80D      | 7,800                | 5,000            | 135              | 150       | < 0.005   | Good          | Clear         |
| 0.063              | 82D      | 6,500                | 3,200            | 140              | 190       | < 0.0002  | Poor          | Grey          |
| 0.065              | 82D      | 7,200                | 1,800            | 140              | 190       | < 0.0003  | Excellent     | Grey          |

## Specialty Products

| Product Description                        | Product Number          | Color  | Machinability | Density, lbs/ft <sup>3</sup> |
|--|-------------------------|--------|---------------|------------------------------|
| Low Density Filler System                  | <b>CPD 540</b>          | Blue   | Poor          | 34                           |
| RT Lightweight Epoxy Resin Backfill        | <b>CPD 544</b>          | Green  | Poor          | 44                           |
| HT Lightweight Epoxy Resin Backfill        | <b>CPD 545</b>          | Grey   | Poor          | 51                           |
| Tooling Dough                              | <b>CPD 620</b>          | White  | Very Good     | 51                           |
| 250°F Tooling Board Sealer and Finish Coat | <b>CPD 692</b>          | Amber  | Fair          | 72                           |
| Plaster Sealer and Release Coating         | <b>CPD 7001</b>         | Orange |               |                              |
| 275°F Hot Melt For Mold and Mandrel Forms  | <b>Cast-A-Form 9600</b> | Blue   |               | 131                          |
| 350°F Hot Melt For Mold and Mandrel Forms  | <b>Cast-A-Form 9601</b> | Green  |               | 131                          |
| 450°F Hot Melt For Mold and Mandrel Forms  | <b>Cast-A-Form 9602</b> | White  |               | 131                          |

Endurance Technologies, Inc. manufactures many products that do not appear in this brochure. This brochure lists our standard products only. In addition to these standard products, Endurance Technologies, Inc. manufactures specially formulated room temperature curing epoxy resin casting and laminating systems, elevated temperature epoxy resin systems for service temperatures up to 450°F, long pot life epoxy resin systems for “wet-preg,” epoxy resin systems for infusion and RTM, high peel strength resin systems for bonding, resin systems for prototyping and press molding, specialty hardeners for epoxy resin, and polyurethane casting systems. Additional literature is available upon request.