

# LORD® 7542 Urethane Adhesive

## Technical Data Sheet

LORD® 7542 adhesive is an equal-mix, two-component urethane adhesive system used to bond FRP, SMC and other plastics with little surface preparation. This adhesive will also bond primed metals. LORD 7542 adhesive system is available in a range of working times to accommodate a wide variety of process requirements.

### Features and Benefits:

**Non-Flammable** – does not require explosion-proof equipment.

**Environmentally Recommended** – does not contain ozone depleting chemicals.

**Environmentally Resistant** – resists weathering, humidity and salt spray.

**Chemically Resistant** – solvent resistant when cured. Painting and most cleaning processes do not affect bond strength.

**UL Approved** – UL 746C certified.

### Application:

**Surface Preparation** – Surfaces should be free of grease, dirt and other contaminants. For plastics, clean the surface with a dry rag wipe or a rag dampened with solvent. For metals, priming or powder painting is recommended.

**Mixing** – Mix LORD 7542-A resin with the appropriate curative at a 1:1 ratio, by volume. Handheld cartridges will automatically dispense the correct volumetric ratio of each component. Once mixed, the adhesive cures rapidly.

**Applying** – Apply adhesive using handheld cartridges or automatic meter/mix/dispense equipment.

- Handheld Cartridges
  1. Load the cartridge into the applicator gun and remove the end caps.
  2. Level the plungers by expelling a small amount of material to ensure both sides are level.
  3. Attach mixing tip and expel a mixer's length of adhesive.
  4. Apply adhesive to substrate and mate the parts within the working time of the adhesive. Clamp in position until adhesive reaches handling strength.
- Meter/Mix/Dispense Equipment  
Contact your Parker Lord representative if assistance is needed using this equipment.

For optimum adhesion, bondline thickness of LORD 7542 adhesive should be 10-40 mil (254-1016 micron). During use, limit the exposure of LORD 7542 adhesive containers to cold temperatures.

**Curing** – LORD 7542 adhesive will cure to full strength in 24 hours or less at 75°F (24°C), depending on the curative used.

### Typical Properties\*

|   | 7542-A Resin                   | 7542-B Curative              | 7542-C Curative              | 7542-D Curative              |
|---|--------------------------------|------------------------------|------------------------------|------------------------------|
| Appearance                                | Dark Brown Liquid              | Tan, Black or Green Liquid   | Tan Liquid                   | Tan Liquid                   |
| Viscosity, cP @ 77°F (25°C)               | 1500 - 4500                    | 7000 - 14,000                | 4000 - 14,000                | 5000 - 14,000                |
| Density<br>lb/gal<br>(kg/m <sup>3</sup> ) | 11.45 - 11.75<br>(1372 - 1408) | 10.3 - 10.6<br>(1234 - 1270) | 10.3 - 10.6<br>(1234 - 1270) | 10.3 - 10.6<br>(1234 - 1270) |
| Flash Point, °F (°C)<br>Closed Cup        | >200 (>93)                     | >200 (>93)                   | >200 (>93)                   | >200 (>93)                   |

\*Data is typical and not to be used for specification purposes.

**Cleanup** – Clean equipment and tools prior to the adhesive cure with organic solvents such as acetone or methyl ethyl ketone (MEK). Do not use alcohol. Once adhesive is cured, heat the adhesive to 300°F (149°C) or above to soften the adhesive. This allows the parts to be separated and the adhesive to be more easily removed. Some success may be achieved with commercial adhesive strippers.

## Shelf Life/Storage:

Shelf life is six months when stored in a clean, dry environment at 65-85°F (18-30°C) in original, unopened container. Excluding LORD 7542-B Black and 7542-C curatives, prolonged exposure to temperatures below 50°F (10°C) during shipping or storage may cause variations in cured properties and/or significant reduction in shelf life.

After opening, protect adhesive from excessive exposure to moisture by installing desiccant cartridges and/or using dry nitrogen as an inert cover.

## Cautionary Information:

Before using this or any Parker Lord product, refer to the Safety Data Sheet (SDS) and label for safe use and handling instructions.

*For industrial/commercial use only.* Must be applied by trained personnel only. Not to be used in household applications. Not for consumer use.

### Typical Properties\*\* of Resin Mixed with Curative

|  | 7542-A/B | 7542-A/C | 7542-A/D |
|--|----------|----------|----------|
| Mix Ratio by Volume, Resin to Curative         | 1:1      | 1:1      | 1:1      |
| Solids Content by Weight, %                    | 100      | 100      | 100      |
| Working Time, minutes @ 75°F (24°C)            | 4 - 7    | 11 - 15  | 20 - 30  |
| Time to Handling Strength, hours @ 75°F (24°C) | 1-2      | 2        | 3        |

\*\*Data is typical and not to be used for specification purposes. Given a 1/2 inch (12.7 mm) bead.

### Typical Cured Properties\*

|   |               |
|---|---------------|
| Hardness<br>ASTM D2240, Method A                                      | 87            |
| Tensile Strength at Break, psi (MPa)<br>ASTM D882                     | 1767 (12.18)  |
| Elongation, %<br>ASTM D882  | 102           |
| Young's Modulus, psi (MPa)<br>ASTM D882                               | 12,900 (88.9) |
| Glass Transition Temperature (T <sub>g</sub> ), °F (°C)<br>ASTM D3418 | 115 (46)      |
| Coefficient of Linear Thermal Expansion, ppm/°C<br>ASTM E381          |               |
| below T <sub>g</sub>  | 69            |
| above T <sub>g</sub>  | 162           |
| Moisture Absorption, %<br>ASTM D570                                   | 1.65          |
| Poisson's Ratio<br>ASTM D638  | 0.414         |

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**Bond Performance\***

| Substrates  | SMC        | E-coated Steel | CFRP         |
|---|------------|----------------|--------------|
| Lap Shear @ Room Temperature, psi (MPa)   | 600 (4.10) | 2600 (17.90)   | 3200 (22.1)  |
| Failure Mode  | SF         | CF/C           | FT           |
| Lap Shear @ 180°F (82°C), psi (MPa)   | 200 (1.38) | 1200 (8.27)    | 890 (6.14)   |
| Failure Mode  | –          | C              | C            |
| Lap Shear @ -30°F (-34°C), psi (MPa)  | 820 (5.65) | 3300 (22.75)   | 2800 (19.31) |
| Failure Mode  | SF         | CF             | SF           |
| Lap Shear after 500 hours Salt Spray Exposure, psi (MPa)<br>Tested after 24 hours | 700 (4.80) | 1200 (8.27)    | 3244 (22.37) |
| Failure Mode  | SF         | –              | SF/C         |
| Test after 168 hours Water Immersion @ 150°F (65°C), psi (MPa)                    | 600 (4.10) | –              | 3086 (21.28) |
| Failure Mode  | SF         | –              | SF           |
| Test after 500 hours Humidity Exposure, psi (MPa)<br>100%RH, 165°F (74°C)         | 640 (4.40) | 3300 (22.75)   | 3221 (21.52) |
| Failure Mode  | SF         | –              | SF/C         |

| Substrate                              | Surface Treatment |
|--|-------------------|
| Sheet Molded Compound (SMC)            | IPA Rag Wipe      |
| E-coated Steel                         | Dry Rag Wipe      |
| Carbon Fiber Reinforced Plastic (CFRP) | 80 Grit Scuff     |

| Bonded Parameters    | Bond Area | Film Thickness | Cure       | Mix Ratio     |
|----------------------|-----------|----------------|------------|---------------|
| Composite Lap Shears | 1.0"x1.0" | 0.030"         | 24 hr @ RT | 1:1 by Volume |
| Metal Lap Shears     | 1.0"x0.5" | 0.010"         | 24 hr @ RT | 1:1 by Volume |

| Failure Mode Definition | Abbreviation |
|-------------------------|--------------|
| Coating Failure         | CF           |
| Cohesive Failure        | C            |
| Fiber Tear              | FT           |
| Sub Failure             | SF           |

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Values stated in this document represent typical values as not all tests are run on each lot of material produced. For formalized product specifications for specific product end uses, contact the Customer Support Center.

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