



## TECHNICAL INFORMATION

### EPOWELD® 3243 BLACK DOUBLE/BUBBLE® High Impact Shafting Adhesive – Reorder #04052

#### PRODUCT DESCRIPTION

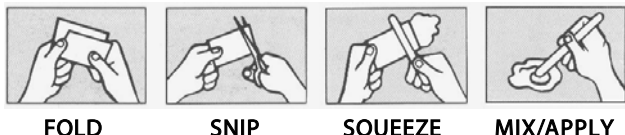
EPOWELD® 3243 BLACK is a two component, room temperature cure epoxy adhesive with excellent cohesive strength, pull out strength and torque resistance. The system offers a convenient mix ratio and is recommended for bonding golf clubs., striking tools, grinding wheel hubs, metal doors and windows.

#### PACKAGING

The DOUBLE/BUBBLE package is a handy, dual-pouch, one-shot, job-size packaging concept. It reduces the waste typically associated with the use of larger quantities of two-component adhesives. This unique packaging ensures that DOUBLE/BUBBLE adhesives are always factory fresh and accurately portioned for optimum adhesive performance.

#### HOW TO USE

Surface must be clean and dry before application. Remove all chemicals, dirt wax and oil.



Fold the DOUBLE/BUBBLE package along the center seal, snip the end, squeeze out the contents, mix thoroughly and apply.

The cure schedule is dependent upon the temperature. The recommended cure schedule will vary with the desired properties. The recommended schedule to achieve the typical properties is shown below:

7 days at 25 °C (77 °F) **OR** 2 hours at 66 °C (150°F) **OR** 10 minutes at 149 °C (300 °F).

#### TYPICAL UNCURED PROPERTIES

	<b>Part A</b>	<b>Part B</b>	<b>Mixed</b>
Color	Black	Amber	Black
Viscosity @ 25 °C, cps	24,000	20,000	22,000
Weight per Gallon, lbs.	11.5	8.1	9.8
Specific Gravity @ 25 °C	1.38	0.97	1.17
Gel time, minutes			
225 gm mass @ 25 °C	---	---	180
Filler Type	Non-Abrasive	None	Non-Abrasive
Shelf Life (in separate sealed containers), months	12	12	---

#### TYPICAL CURED PROPERTIES

(Tested at 25 °C unless otherwise indicated)

<b>Test</b>	<b>Result</b>
Hardness, Shore D	85
Tensile Strength, psi	7,310
Compressive Strength, psi	9,460
Impact Strength, ft. – lbs.	15

#### Lap Shear Strength

(Al/Al, 2024–T3 acid etched, various cure schedules)

Cure Schedule	24 hrs @ 25 °C	7 days @ 25 °C	2 hrs @ 66 °C
Shear Strength, psi	3,000	2,700	4,000

#### TYPICAL THERMAL PROPERTIES

(Cure schedule: 18 hours @ 25 °C plus 2 hours @ 100 °C)

	<b>Result</b>
Coefficient of Thermal Expansion (in./in./ °C x 10 <sup>-6</sup> )	140

#### GOLF CLUB PULL OUT STRENGTH

Graphite shafts were abraded to remove the polyurethane finish, followed by solvent wipe using 1,1,1- Trichloroethane. Adhesive was applied to both bonding surfaces and cured 20 minutes at 80 °C plus 7 days at 25 °C before testing.

	<b>Result</b>
Pull out strength @ 25 °C, lbs.	2,800

#### STORAGE AND HANDLING

Store DOUBLE/BUBBLE adhesives at room temperature in a dry environment. Extreme low temperatures may cause crystallization. Extreme high temperatures may degrade the properties.

A wide variety of cleaning solutions are available for cured and uncured epoxies and polyurethanes.

#### SAFETY

These materials are intended for commercial and industrial use only, and the practices of good housekeeping, safety and cleanliness should be followed before, during and after use.

Although the system contains low volatility materials, care should be taken in handling. Use adequate ventilation in the work area.

These materials may cause dermatitis in susceptible individuals. Keep off skin and out of eyes. In case of accidental skin contact, wash thoroughly with soap and water. In case of eye contact, flush eyes thoroughly with water and consult a physician immediately.

Refer to Material Safety Data Sheet for additional information.

### **ADDITIONAL INFORMATION**

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### **NOTE**

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