

## R-1566W and R-1551W

Multifunctional Epoxy Resin System, Halogen-Free, and Low Flow Option

**R-1566W** is a multilayer laminate system that is Halogen-free and Antimony-free. This laminate system processes in a similar fashion as our other conventional FR-4 systems. The following guidelines are provided as general recommendations; process optimization may be necessary.

### Material Storage

Laminate should be stored in a cool dry environment. Avoid bending or scratching the laminate surface. When possible, store the laminate in its original packaging and protect the surface. Prepreg should be stored flat in a temperature controlled environment (cool and dry) : 68°F (21°C) and less and 50% RH. For prolonged storage, keep prepreg at a reduced temperature of 40°F (4.5°C). Open bags should be resealed when not in use.

### Laminate Surface Preparation

Regular shiny copper can be cleaned using industry standard chemical clean or mechanical clean. Reverse treat copper should be cleaned using industry standard chemical clean.

### Inner Layer Bond Treatment

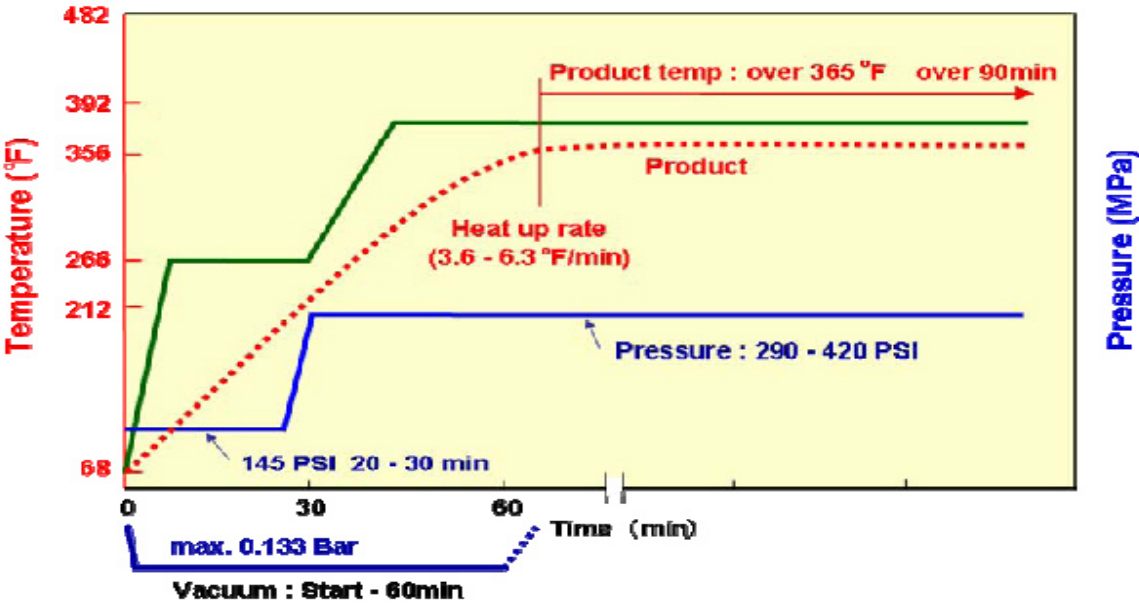
Black or Brown Oxide can be used. Alternative Oxide Treatment using Peroxide / Sulfuric Etch technology can also be used.

### Drying

Dry finished inner layers completely to remove any absorbed moisture or surface moisture. A racked back at 225°F (105°C) for 20-30 minutes is preferred for black and brown oxide. For conveyORIZED alternative oxide processing, some equipment have sufficient drying capability, however, a similar rack bake is suggested.

### Lamination Cycle

Multilayer Lamination Cycle (US)



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**Drilling Parameters**

diameter	spindle	velocity	min		max		bit life
			infeed	chipload	infeed	chipload	
mm	rpm	m/min	m/min	μ/rev	m/min	μ/rev	hits
0.20	160,000	100	1.6	10	2.4	15	750-2,000
0.25	160,000	126	1.8	11	2.8	18	750-2,000
0.30	160,000	151	1.9	12	3.2	20	1,500-3,000
0.35	137,000	151	1.8	13	3.0	22	1,500-3,000
0.40	120,000	151	1.8	15	2.9	24	1,500-3,000
0.45	107,000	151	1.8	17	2.7	25	1,500-3,000
0.50	96,000	151	1.8	19	2.7	28	1,500-3,000
0.55	87,000	150	1.8	21	2.6	30	1,500-3,000
0.60	80,000	151	1.7	21	2.6	33	1,500-3,000
0.65	74,000	151	1.7	23	2.6	35	1,500-3,000
0.70	68,000	149	1.7	25	2.6	38	1,500-3,000
0.75	64,000	151	1.6	25	2.6	41	1,500-3,000
0.80	60,000	151	1.6	27	2.5	42	1,500-3,000
0.85	56,000	149	1.6	29	2.4	43	1,500-3,000
0.90	53,000	150	1.6	30	2.4	45	1,500-3,000

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**Hole Preparation and Smear Removal**

The weight loss of R-1566W laminate and R-1551W prepreg is greater than that of standard FR-4 materials.

Process	Reagent Type	Temp (°C)	Time (min)
Swelling	Alkaline	65 - 85	5 - 10
Etching	Permanganate	70 - 85	10 - 15
Swelling	Organic Solvent	35 - 40	6 - 10
Etching	Permanganate	70 - 85	10 - 15

**Tracking Resistance**

