**Supplementary** **Information**

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Table S1 The formula of traditional RFL dipping solution.

|  |  |  |
| --- | --- | --- |
| Component | Dry weight(g) | Wet weight(g) |
| Resorcinol | 11.0 | 11.0 |
| Formaldehyde | 6.0 | 16.2 |
| Sodium hydroxide | 0.3 | 3.0 |
| Deionized water | - | 235.8 |
| Maturation: 25℃, 6h | 17.3 | 266.0 |
| Ammonia (28%) | - | 11.3 |
| Deionized water | 0 | 59.2 |
| Vinyl-pyridine latex (40%) | 100 | 250 |
| Maturation: 25℃, 20h | 117.3 | 586.5 |

Table S2 The Rubber Compound Composition.

|  |  |
| --- | --- |
| Component | Content (Phr) |
| SBR | 70 |
| NR | 30 |
| Aromatic oil | 15 |
| Antioxidant (4010NA) | 1.5 |
| Carbon black (N330) | 30 |
|  Adhesive RS (Compound of resorcinol and stearic acid) | 1.5 |
| Silica | 15 |
| ZnO | 5 |
| CZ Accelerator CZ(N-Cyclohexyl-2-truxene thiazole sulfonamide) | 4 |
| SA (Stearic acid)) | 2 |
| RA Adhesive (2,4,6-Tris[bis(methoxymethyl)amino]-1,3,5-triazine) | 1.5 |
| Sulfur | 1 |
| Toatal | 186.5 |