



Package Chemistry Substances Analysis Table

| | |
|--------------------------------|---------------------------------------|
| Package Type: | VBK 048 (Pb-free solder balls) |
| Dimension: | 8.15 x 6.15 x 1 mm |
| Weight of Unit Package: | 82.6mg |
| Temperature rating: | 260°C |
| MSL: | 3 |
| Assembly Location: | BKK |
| | Product is RoHS Compliant |

| Description | Chemicals Present | CAS Number | unit weight(mg) | unit weight/package (%) | Amount (ppm) |
|----------------------|--------------------------------|--------------|-----------------|-------------------------|------------------|
| Silicon Die | #1 Silicon | 7440-21-3 | 6.9414 | 8.4081 | 84,081 |
| | subtotal | | 6.9414 | 8.4081 | 84,081 |
| Bond wire | #1 Copper | 7440-50-8 | 0.2521 | 0.3054 | 3,054 |
| | #2 Palladium | 7440-05-3 | 0.0044 | 0.0053 | 53 |
| | subtotal | | 0.2565 | 0.3107 | 3,107 |
| Die Attach | #1 Epoxy resin | Trade Secret | 0.1521 | 0.1842 | 1,842 |
| | #2 Polytetrafluoroethylene | 9002-84-0 | 0.1244 | 0.1507 | 1,507 |
| | subtotal | | 0.2765 | 0.3349 | 3,349 |
| Substrate | #1 Brominated Epoxy Resins | Trade Secret | 1.5204 | 1.8416 | 18,416 |
| | #2 Copper | 7440-50-8 | 10.9131 | 13.2189 | 132,189 |
| | #3 Gold | 7440-57-5 | 0.0522 | 0.0633 | 633 |
| | #4 Nickel | 7440-02-0 | 0.2409 | 0.2918 | 2,918 |
| | #5 Epoxy resin | Trade Secret | 9.0503 | 10.9626 | 109,626 |
| | #6 Silica | 14808-60-7 | 1.2865 | 1.5583 | 15,583 |
| | #7 SiO2 Glass Cloth | 65997-17-3 | 5.6137 | 6.7999 | 67,999 |
| subtotal | | | 28.6771 | 34.7364 | 347,364 |
| Mold compound | #1 Silica (fused) | 60676-86-0 | 32.6899 | 39.5970 | 395,970 |
| | #2 Carbon Black | 1333-86-4 | 0.0961 | 0.1165 | 1,165 |
| | #3 Epoxy resin | Trade Secret | 5.3265 | 6.4520 | 64,520 |
| | #4 Phosphoric organic catalyst | Trade Secret | 0.1154 | 0.1398 | 1,398 |
| | #5 Metal Oxides | Trade Secret | 0.2308 | 0.2795 | 2,795 |
| subtotal | | | 38.4587 | 46.5848 | 465,848 |
| Solder ball | #1 Tin | 7440-31-5 | 7.6681 | 9.2884 | 92,884 |
| | #2 Silver | 7440-22-4 | 0.2384 | 0.2888 | 2,888 |
| | #3 Copper | 7440-50-8 | 0.0397 | 0.0481 | 481 |
| | subtotal | | | 7.9462 | 9.6252 |
| TOTAL PACKAGE | | | 82.5564 | 100.0000 | 1,000,000 |

Disclaimer:

In general, four decimal values are shown. However, some variance remains from package to package. The mass values presented are thought to be accurate to within 20 percent. The report does not include materials not intentionally added to our products (impurities), or material concentrations less than 1 ppm.

Document History Page

Document Title: Material Declaration Datasheet (MDDS) - FBGA048 (VBK048) - BKK - CuPd
Document Number: 002-12862

| Rev. | ECN No. | Orig. of Change | Description of Change |
|------|---------|-----------------|-----------------------|
| ** | 5260063 | AAC | NEW RELEASE |