

# Supply Chain Explorer: Packaging materials

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## Packaging materials

Semiconductor packaging involves several steps to bond a fabricated chip to an encasing package, each requiring different materials. For example, a bond wire, typically made of aluminum, copper, silver, or gold, attaches the chip to a lead frame. The lead frame transfers data between the chip and external devices. A protective ceramic package, plastic substrate, or encapsulant resin can also be bonded to the chip. Die attach materials including polymers and eutectic alloys are used to attach the chip to packages or substrates.

### Supplier countries

- China (mainland)
- Germany
- Japan
- South Korea
- Taiwan
- United Kingdom
- United States

### Variants

- Bond wires
- Ceramic packages
- Die attach materials
- Encapsulation resins
- Lead frames
- Substrates

### Supplier countries (Variants)

- China (mainland)
- Germany
- Japan
- Singapore
- South Korea
- Taiwan
- United States

### Notable supplier companies (Variants)

- AKM - China (mainland)
- Alent - United Kingdom
- Amkor - United States
- ASM Pacific - China (mainland)
- BASF - Germany
- Darbond - China (mainland)
- Doublink - China (mainland)
- Henkel - Germany
- Heraeus - Germany

- HHCK - China (mainland)
- Hitachi - Japan
- Hysol Huawei - China (mainland)
- Ibiden - Japan
- Kangqiang - China (mainland)
- Kyocera - Japan
- LG - South Korea
- Mitsui High-Tec - Japan
- NanYa - Taiwan
- NGK - Japan
- Ningbo Hualong - China (mainland)
- Nippon Micro - Japan
- QP Technologies - United States
- Samsung - South Korea
- SH Material - Japan
- Shennan Circuits - China (mainland)
- Shinko - Japan
- Sinopaco - China (mainland)
- Sumitomo - Japan
- Tanaka - Japan
- Tanaka Denshi - Japan
- Toray - Japan
- Trinity Tech - China (mainland)
- YesDo - China (mainland)
- Yixing - China (mainland)
- Yongzhi - China (mainland)
- Zhongwei - China (mainland)
- Zhuhai Yueya - China (mainland)