

TSC Materials Composition Declaration

Part Number:TQL821CSV50
 Part Weight Amount(g):0.074
 SCIP:N/A

| Material Name | Substance Name | CAS No. | Raw Material Proportion | Proportion | ID | Exemption RoHS | Exemption ELV |
|--------------------------|---------------------|-----------------|-------------------------|------------|-------|----------------|---------------|
| Dice | Silver(Ag) | 7440-22-4 | 0.01% | 7.12% | PD-01 | | |
| | Silicon(Si) | 7440-21-3 | 99.85% | | | | |
| | Aluminum(Al) | 7429-90-5 | 0.12% | | | | |
| | Titanium(Ti) | 7440-32-6 | 0.01% | | | | |
| | Nickel(Ni) | 7440-02-0 | 0.01% | | | | |
| Die Attach(Epoxy) | Silver(Ag) | 7440-22-4 | 79.5% | 0.08% | PP-03 | | |
| | Epoxy Resin A | Trade secret 2 | 2% | | | | |
| | Acrylate | Trade Secret 10 | 5% | | | | |
| | Addicative | Trade Secret 12 | 1% | | | | |
| | Acrylic Resin | Trade Secret 13 | 6% | | | | |
| | Butadiene Copolymer | Trade Secret 14 | 1% | | | | |
| | Peroxide | Trade Secret 15 | 0.5% | | | | |
| Polybutadiene Derivative | Trade Secret 9 | 5% | | | | | |
| Lead Frame | Silver(Ag) | 7440-22-4 | 0.7% | 31.977% | PL-10 | | |
| | Copper(Cu) | 7440-50-8 | 96.68% | | | | |
| | Phosphorus(P) | 7723-14-0 | 0.08% | | | | |
| | Iron(Fe) | 7439-89-6 | 2.4% | | | | |
| | Lead(Pb) | 7439-92-1 | 0.01% | | | | |
| | Zinc(Zn) | 7440-66-6 | 0.13% | | | | |
| Molding Compound | Carbon Black | 1333-86-4 | 1% | 57.815% | PM-09 | | |
| | Silica Glass | 60676-86-0 | 80% | | | | |
| | Silicon Dioxide | 7631-86-9 | 10% | | | | |
| | Epoxy Resin A | Trade secret 2 | 6% | | | | |
| | Phenol Resin | Trade Secret 6 | 3% | | | | |
| Plating | Tin(Sn) | 7440-31-5 | 100% | 2.998% | RP-02 | | |
| Wire | Gold(Au) | 7440-57-5 | 100% | 0.01% | PW-14 | | |

Tolerance ±10%

Created On: 2024-06-12

Materials Disclosure Disclaimer: TSC, based on its material content information provided by third-party suppliers, has taken and will continue to take reasonably diligent steps to provide any required or available information. TSC may not have conducted destructive testing or chemical analysis on incoming materials and chemicals. TSC and TSC suppliers may consider certain information to be proprietary, and thus certain information may not be available for release by TSC. Thus this information is provided only as estimates, and do not include trace levels of dopants and metal materials contained within devices in the finished products.

Safety Data Sheet

1. PRODUCT AND COMPANY IDENTIFICATION

- Part Number: TQL821CSV50
- Supplier Name: Taiwan Semiconductor Co., Ltd.
- Supplier Address: 11Fl., No. 205, Sec. 3, Beishin Rd., Xindian Dist., New Taipei City 231, Taiwan, R.O.C.
- Contact Tel/Fax: +886-2-8912-1588 / +886-2-8913-1788

2. HAZARDS IDENTIFICATION

- Health Hazards: May cause an allergic skin reaction.
- Flammability: None
- Reactivity: None

3. COMPOSITION/INFORMATION ON INGREDIENTS

| Material Name | Substance Name | CAS No. | Raw Material Proportion | Proportion |
|-------------------|--------------------------|-----------------|-------------------------|------------|
| Dice | Silver(Ag) | 7440-22-4 | 0.01% | 7.12% |
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| | Phosphorus(P) | 7723-14-0 | 0.08% | |
| | Iron(Fe) | 7439-89-6 | 2.4% | |
| | Lead(Pb) | 7439-92-1 | 0.01% | |
| | Zinc(Zn) | 7440-66-6 | 0.13% | |
| Molding Compound | Carbon Black | 1333-86-4 | 1% | 57.815% |
| | Silica Glass | 60676-86-0 | 80% | |
| | Silicon Dioxide | 7631-86-9 | 10% | |
| | Epoxy Resin A | Trade secret 2 | 6% | |
| | Phenol Resin | Trade Secret 6 | 3% | |
| Plating | Tin(Sn) | 7440-31-5 | 100% | 2.998% |
| Wire | Gold(Au) | 7440-57-5 | 100% | 0.01% |

4. FIRST-AID MEASURES

- Oral Exposure: N/A
- Inhalation Exposure: N/A
- Dermal Exposure: Wash off in flowing water or shower with soap. If irritation occurs, get medical attention.
- Eye Exposure: N/A

5. FIREFIGHTING MEASURES

- Self-Ignition Temp.: N/A (Non self-ignition product)
- Flammability: N/A (Product is unflammable.)
- Extinguishing Media:
- Suitable: Use water, carbon dioxide, dry chemical powder or appropriate foam if packing materials catch fire.
- Firefighting: Protective Equipment: Wear self-contained breathing apparatus and protective clothing to prevent contact with skin and eye and respiratory system.
- Specific Hazard(s): Emits toxic fumes under fire conditions.

6. ACCIDENTAL RELEASE MEASURES

- Procedure(s) of personal precaution(s): Exercise appropriate precautions to minimize direct contact with skin.
- Methods for Cleaning Up: Sweep up, place in a bag and hold for waste disposal. Ventilate area and wash spill site after material pickup is complete.

7.HANDLING AND STROAGE

The product shall be stored in manufacturer's original package, with the stockroom temperature with +10°C to +30°C and the air humidity – sustained within under 70%. The recommended uttermost storage period is 2 year. When transporting products from the storeroom and during the manufacturing process, the FCFC (first-in-first-out) condition should be observed.

8.EXPOSURE CONTROLS / PERSONAL PROTECTION

- Design of technical: N/A (IC are solid.)
- Occupational exposure: N/A
- Personal Protection
- Respiratory protection: N/A
- Hand protection: N/A
- Eye protection: N/A
- Body protection: N/A

9.PHYSICAL AND CHEMICAL PROPERTIES

| | |
|-----------------|---------|
| Physical State | Solid |
| Odor | No odor |
| Specific Weight | N/A |
| Vapor pressure | N/A |
| Vapor density | N/A |
| Boiling po | N/A |
| Freezing point | N/A |
| Melting point | N/A |
| PH | N/A |

10.STABILITY AND REACTIVITY

- Stability
- Stable: Stable
- Material to Avoid: Strong oxidizing agents.
- Hazardous Decomposition Products: None
- Hazardous Polymerization: Will not occur.

11.ECOLOGICAL INFORMATION

No data available.

12.TOXICOLOGICAL INFORMATION

| | |
|---|--|
| Possibility of irritation | No |
| Possibility of allergic reaction | Possibility of allergic reaction Skin contact and irritation |
| Toxicity affecting the reproductive functions | No |
| Substance, which are toxic as a result of | N/A |

13.DISPOSAL CONSIDERATIONS

Waste disposal takes place with observance of all local and state laws. There are no special disposal procedures.

14.TRANSPORT INFORMATION

Do not fling package with product.

15. REGULATORY INFORMATION

No particular. Please refer to the local regulatory information.

16.INFORMATION

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| Supplier | Taiwan Semiconductor Co., Ltd. |
| Address | 11Fl., No. 205, Sec. 3, Beishin Rd., Xindian Dist., New Taipei City 231, |
| Contact Tel/Fax | (T) +886-2-8912-1588(F) +886-2-8913-1788 |
| Date | 2024-06-12 |