



Materials Declaration Form

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|------------------------|-------------------------------------|------------------------|--------------------------------------|
| IPC Form Type * | 1752 Distribute | Version | 2 |
| Sectionals * | Material Info Manufacturing Info | Subsectionals * | A-D <i>* : Required Field</i> |

| Supplier Information | | | |
|------------------------------------|--|-------------------------------|-----------------------------------|
| Company Name * | STMicroelectronics | Response Date * | 2022-02-17 |
| Company Unique ID | NL 008751171B01 | | |
| Contact Name * | Refer to Supplier Comment section | | Refer to Supplier Comment section |
| Contact Phone * | Refer to Supplier Comment section | Contact Email * | Refer to Supplier Comment section |
| Authorized Representative * | giovanni giacopello | Representative Title | ADG Material Declaration champion |
| Representative Phone * | Refer to Supplier Comment section | Representative Email * | Refer to Supplier Comment section |
| Supplier Comment | Online Technical Support - STMicroelectronics : http://www.st.com/web/en/support/support.html | | |

Uncertainty Statement


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| Legal Statement | | |
|------------------------------|------|-------------------------------------|
| Supplier Acceptance * | true | Legal Declaration * Standard |

Legal Statement

Supplier certifies that it gathered the provided information and such information is true and correct to the best of its knowledge and belief, as of the date that Supplier completes this form. Supplier acknowledges that Company will rely on this certification in determining the compliance of its products. Company acknowledges that Supplier may have relied on information provided by others in completing this form, and that Supplier may not have independently verified such information. However, in situations where Supplier has not independently verified information provided by others, Supplier agrees that, at a minimum, its suppliers have provided certifications regarding their contributions to the part(s), and those certifications are at least as comprehensive as the certification in this paragraph. If the Company and the Supplier enter into a written agreement with respect to the identified part(s), the terms and conditions of that agreement, including any warranty rights and/or remedies provided as part of that agreement, will be the sole and exclusive source of the Supplier's liability and the Company's remedies for issues that arise regarding information the Supplier provides in this form.

| Product | | | | |
|-----------------|---|---------|-----------|------------------|
| Mfr Item Number | Mfr Item Name | Version | Mfr Site | Date |
| TN8050H-12PI | QAVS*80HVMMQ | A | 993J | 2022-02-17 |
| | Amount | UoM | Unit type | ST ECOPACK Grade |
| | 4776.70 | mg | Each | ECOPACK® 2 |
| Comment | ECOPACK® 2 is STMicroelectronics trade name for ROHS compliant device without Brominated and Chlorinated compound (900ppm) and without Antimony oxide flame retardant (in each organic material) | | | |

| Manufacturing information | | | | |
|---------------------------|---------------------------|----------------------|------------|---|
| J-STD-020 MSL Rating | Classification Temp | Nbr of Reflow Cycles | |  life.augmented |
| Not Applicable | Not Applicable | Not Applicable | | |
| Bulk Solder Termination | Terminal Plating | Terminal Base Alloy | Comment | |
| Not Applicable | Tin (Sn), matte, annealed | Copper Alloy | DM00827025 | |

| Package Designator | Package Size | Nbr of instances | Shape | |
|--------------------|------------------|------------------|--------------|--|
| SIP | 15.30,12.63,4.50 | 3 | through-hole | |
| Comment | TOP3 ISOL | | | |

| QueryList : RoHS Directive 2011/65/EU- 8 June 2011 – Annex II amended by Delegated Directive 2015/863 - 31 March 2015 | |
|--|--|
| Query | Response |
| 1 - Product(s) meets EU RoHS requirement without any exemptions | false |
| 2 - Product(s) meets EU RoHS requirements except lead in solder and this usage may qualify under the lead in solder '7b' exemption (other selected exemptions may apply) | false |
| 3 - Product(s) meets EU RoHS requirements by application of the selected exemption(s) | true |
| 4 - Product(s) does not meet EU RoHS requirements and is not under exemptions | false |
| Exemption id. | Description |
| 7a | Lead in high melting temperature type solders (i.e. lead-based alloys containing 85 % by weight or more lead) |
| 7c-I | Electrical and electronic components containing lead in a glass or ceramic other than dielectric ceramic in capacitors, e.g. piezoelectric devices, or in a glass or ceramic matrix compound |

| QueryList : ELV directive - 2000/53/EC amended 2020/363_March 2020 | |
|---|---|
| Query | Response |
| 1 - Product(s) meets EU ELV requirements without any exemptions | false |
| 2 - Product(s) meets EU RoHS requirements by application of the selected exemption(s) | true |
| Exemption id. | Description |
| 8(e) | 8(e) - Lead in high melting temperature type solders (i.e. lead-based alloys containing 85 % by weight or more lead) |
| 10(a) | 10(a) - Electrical and electronic components which contain lead in a glass or ceramic, in a glass or ceramic matrix compound, in a glass-ceramic material, or in a glass-ceramic matrix compound. This exemption does not cover the use of lead in: – glass in bulbs and glaze of spark plugs, – dielectric ceramic materials of components listed under 10(b), 10(c) and 10(d) |

| QueryList : California Prop65 list, dated 17th Dec 2021 | | | |
|--|------------------------|----------------------------|----------------|
| Query | Response | | |
| 1 - The product does not contain identified substance from California Prop 65 List, no exposure to consumers is foreseen | false | | |
| 2 - The product is containing below substance(s) from California Prop 65 List, no exposure to consumers is foreseen | true | | |
| Substance | amount in product (mg) | Application | ppm in product |
| Nickel | 2.201 | die - leadframe - heatsink | 461 |
| Lead | 142.777 | soft solder | 29890 |
| Lead-Borate Glass | 5.316 | die | 1113 |

| QueryList : Chinese RoHS, references : SJT 11364 – 2014 and GB/T 26572 – 2014 | | | | |
|---|--------------|--------------|-----------------------------|------------|
| Query | Response | | | |
| 1 - Product(s) requires marking for the presence of restricted substances and must be marked with an Environmental Protection Use Period under China's Measures for Administration of the control of pollution by Electronic Information Products | true | | | |
| 2 - Product(s) is eligible for marking with the e code under China's Measures for Administration of the control of pollution by Electronic Information Products | false | | | |
| Hazardous substance | | | | |
| Lead (Pb) | Cadmium (Cd) | Mercury (Hg) | Hexavalent Chromium (Cr VI) | PBB & PBDE |
| X | O | O | O | O |
| Die,Soft solder,Soft solder 2,solder paste | | | | |
| Homogeneous Material(s) containing Lead | | | | |

| QueryList : REACH-17 Jan 2022 | | | | |
|---|-------------------------|--|--|--------------------------------------|
| Query | Response | | | |
| 1 - Product(s) does not contain REACH Substances Of Very High Concern above the limits per the definition within REACH | false | | | |
| CategoryLevel_Name | CategoryLevel_Threshold | amount in product (mg) | Application | ppm in product |
| Lead | 1000 ppm | 418.71 | Soft solder, Soft solder 2, solder paste | 87660 |
| | | | | |
| 2 - Product(s) does not contain REACH Substances Of Very High Concern in any Embedded article nor Homogeneous Material above the limits per the definition within REACH | false | | | |
| CategoryLevel_Name | CategoryLevel_Threshold | Amount in Embedded Article / Homogeneous Material (mg) | Application - Article / Homogeneous Material | ppm in Article /Homogeneous Material |
| Lead | 1000 ppm | 115.03 | Soft solder | 935006 |
| Lead | 1000 ppm | 12.576 | Soft solder 2 | 934949 |
| Lead | 1000 ppm | 11.964 | solder paste | 920308 |

| QueryList : Responsible metals sourcing | |
|---|------------|
| Query | Response |
| The component is containing at least one of the following metals : Cobalt , Gold , Tantalum , Tin , Tungsten. | true |
| The following metals are present in the component : | Gold, Tin, |
| This product is in the scope of the responsible metals sourcing, its compliance is covered by our company processes . | |

| QueryList : Korea Chemical Control Act_ 27 Dec 2017 update | |
|--|----------|
| Query | Response |
| The Product does contain at least one of the substances listed in Chemical Control Act | false |

| China GB 33372-2020 Limit standard for volatile organic compounds content in adhesives - 4 March 2020 application date 1st December 2020 | |
|--|----------|
| Query | Response |
| The product contains adhesives identified under GB 33372 | false |

| Stockholm Convention Persistent Organic Pollutants | |
|--|----------|
| Query | Response |
| Product is compliant with Stockholm Convention Persistent Organic Pollutants Annex I | true |

| Material Composition Declaration : note : Substance present with less 0.001mg will not be declared in this document | | | | | | Mfr Item Name | QAVS*80HVMMQ | | | | | |
|--|---------------------------------|----------------|-----------|----------|-----------------------|-----------------------------|------------------|--------------------------------|--------------------------------|-------|---|--------------------------------|
| Homogeneous Material | Material Group | Mass | UoM | Level | Substance Category | Substance | CAS | Exempt | Mass | UoM | Concentration in homogeneous material (ppm) | Concentration in product (ppm) |
| Die | M-011 Other inorganic materials | 31.038 | mg | supplier | die | Silicon(Si) | 7440-21-3 | | 24.258 | mg | 781558 | 5076 |
| | | | | supplier | metallisation | Gold(Au) | 7440-57-5 | | 0.123 | mg | 3963 | 26 |
| | | | | supplier | metallisation | Nickel(Ni) | 7440-02-0 | | 1.146 | mg | 36922 | 240 |
| | | | | supplier | passivation | Silicon oxide | 7631-86-9 | | 0.195 | mg | 6283 | 41 |
| | | | | | JIG-R & California 65 | glass | Lead-BorateGlass | 65997-18-4 | 7c-I-Electrical and electronic | 5.316 | mg | 171274 |
| leadframe | M-004 Copper and its alloys | 681.701 | mg | supplier | alloy | Copper (Cu) | 7440-50-8 | | 680.609 | mg | 998398 | 142485 |
| | | | | supplier | alloy | Iron(Fe) | 7439-89-6 | | 0.682 | mg | 1000 | 143 |
| | | | | supplier | metallization | Nickel (Ni) | 7440-02-0 | | 0.205 | mg | 301 | 43 |
| | | | | supplier | metallization | Phosphorus (P) | 7723-14-0 | | 0.205 | mg | 301 | 43 |
| Soft solder | Solder | 123.027 | mg | SVHC | solder | Lead(Pb) | 7439-92-1 | 7a-Lead in high melting temper | 115.031 | mg | 935006 | 24082 |
| | | | | supplier | solder | Tin(Sn) | 7440-31-5 | | 6.151 | mg | 49997 | 1288 |
| | | | | supplier | solder | Silver(Ag) | 7440-22-4 | | 1.845 | mg | 14997 | 386 |
| Soft solder 2 | Solder | 13.451 | mg | SVHC | solder | Lead(Pb) | 7439-92-1 | 7a-Lead in high melting temper | 12.576 | mg | 934950 | 2633 |
| | | | | supplier | solder | Tin(Sn) | 7440-31-5 | | 0.673 | mg | 50033 | 141 |
| | | | | supplier | solder | Silver(Ag) | 7440-22-4 | | 0.202 | mg | 15017 | 42 |
| Encapsulation | M-011 Other inorganic materials | 983.087 | mg | supplier | mold compound | Silica vitreous | 60676-86-0 | | 729.473 | mg | 742023 | 152715 |
| | | | | supplier | mold compound | Phenol resin | 9003-35-4 | | 49.150 | mg | 49996 | 10290 |
| | | | | supplier | mold compound | Epoxy Cresol Novolac | 29690-82-2 | | 108.130 | mg | 109990 | 22637 |
| | | | | supplier | mold compound | other | proprietary | | 88.470 | mg | 89992 | 18521 |
| | | | | supplier | mold compound | Carbon black | 1333-86-4 | | 7.864 | mg | 7999 | 1646 |
| solder paste | Solder | 13.000 | mg | SVHC | solder | Lead(Pb) | 7439-92-1 | | 11.964 | mg | 920308 | 2505 |
| | | | | supplier | solder | Silver(Ag) | 7440-22-4 | | 0.324 | mg | 24923 | 68 |
| | | | | supplier | solder | Tin(Sn) | 7440-31-5 | | 0.647 | mg | 49769 | 135 |
| | | | | supplier | solder | Flux residue | proprietary | | 0.065 | mg | 5000 | 14 |
| Connections coating | Solder | 10.975 | mg | supplier | solder alloy | Tin (Sn) | 7440-31-5 | | 10.975 | mg | 1000000 | 2298 |
| Connection 1 | M-004 Copper and its alloys | 8.210 | mg | supplier | alloy | Copper(Cu) | 7440-50-8 | | 8.210 | mg | 1000000 | 1719 |
| Coonection 2 | M-004 Copper and its alloys | 66.080 | mg | supplier | alloy | Copper(Cu) | 7440-50-8 | | 66.047 | mg | 999501 | 13827 |
| Heatsink | M-004 Copper and its alloys | 2656.630 | mg | supplier | alloy | Copper Posporous | 12517-41-8 | | 0.033 | mg | 499 | 7 |
| | | | | supplier | alloy | Copper(Cu) | 7440-50-8 | | 2652.379 | mg | 998400 | 555274 |
| | | | | supplier | alloy | Iron(Fe) | 7439-89-6 | | 2.657 | mg | 1000 | 556 |
| | | | | supplier | metallization | Phosphorus(P) | 7723-14-0 | | 0.797 | mg | 300 | 167 |
| Ceramic base | M-010 Ceramics / glass | 189.501 | mg | supplier | metallization | Nickel(Ni) | 7440-02-0 | | 0.797 | mg | 300 | 167 |
| | | | | supplier | Ceramic | Aluminium oxide (Al 2 O 3) | 1344-28-1 | | 179.820 | mg | 948913 | 37645 |
| | | | | supplier | Ceramic | Silicon oxide (SiO2) | 7631-86-9 | | 5.679 | mg | 29968 | 1189 |
| | | | | supplier | Ceramic | Magnesium Oxide (MgO) | 309-48-4 | | 3.786 | mg | 19979 | 793 |
| | | | | supplier | Ceramic | Molybdenum (Mo) | 7439-98-7 | | 0.154 | mg | 813 | 32 |
| | | | | supplier | Ceramic | (Mo-Mn) Manganese (Mn) | 7439-96-5 | | 0.008 | mg | 42 | 2 |
| | | | | supplier | metallization | Nickel (Ni) | 7440-02-0 | | 0.053 | mg | 280 | 11 |
| supplier | metallization | Phosphorus (P) | 7723-14-0 | | 0.001 | mg | 5 | 0 | | | | |