



Material declaration form

| General Information | | | |
|---------------------|---------------------------|----------------|-----|
| IPC | 1752 | Version | 2 |
| Form type* | Distribute | | |
| Sectionals* | Material information | Subsectionals* | A-D |
| | Manufacturing information | | |

| Supplier Information | | | |
|----------------------------|--|-----------------------|-----------------------------------|
| Company name* | STMicroelectronics | Response Date* | 2025-03-06 |
| 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* | MDG CHAMPION | Representative title | MDGMaterial 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 |
|---|------|--------------------|----------|
| 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 | Manufacturing site | date |
| STM32L451VET6 | 531L*462XXXY | A | 9998 | 2025-03-06 |
| | Amount | Unit of measure | Unit type | ST ECOPACK grade |
| | 678 | mg | Each | ECOPACK® 2 |

| Manufacturing information | | | | |
|---------------------------|---|-------------------------|-----------|--|
| J-STD-020 MSL rating | Classification temperature | Number of reflow cycles | | |
| 3 | 260 | 3 | | |
| Bulk solder termination | Terminal plating | Terminal base alloy | Comment | |
| Not Applicable | Tin (Sn), matte, annealed | Copper Alloy | 0 | |
| Package designator | Package size | Number of instances | Shape | |
| QFP | 14x14 | 100 | Gull wing | |
| Comment | Package : 1L LQFP 100 14x14x1.4 1 0086901 | | | |

| QueryList : RoHS Directive 2011/65/EU - 8 June 2011 – Annex II amended by Delegated Directive 2015/863 - 31 March 2015 | | Response |
|--|-------------|----------|
| 1 - Product(s) meets EU RoHS requirement without any exemptions | | true |
| 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) | | false |
| 4 - Product(s) does not meet EU RoHS requirements and is not under exemptions | | false |
| Exemption Id. | Description | |
| , | | |

| QueryList : REACH-21st January 2025 | | | | Response |
|--|-------------------------|------------------------|-------------|----------------|
| QUERY | | | | Response |
| 1 - Product(s) does not contain REACH Substances Of Very High Concern above the limits per the definition within REACH | | | | true |
| CategoryLevel_Name | CategoryLevel_Threshold | amount in product (mg) | Application | ppm in product |
| , | #N/A | | | |



| Material Composition Declaration : note : Substance present with less 0.001mg will not be declared in this document | | | | | | Mfr Item Name | 531L*462XXXY | | 677.7798 | | 7000000.0 | 1000000.0 | | | | |
|--|---------------------------------|-------------|-----------------|-------------------|---------------------------------|---|--------------|----------|--------------|-----------------|---|--------------------------------|-------|----|--------|---------|
| Homogeneous material | Material group | Mass | Unit of measure | Level | Substance category | Substance | CAS | Exempt | Mass | Unit of measure | Concentration in homogeneous material (ppm) | Concentration in product (ppm) | | | | |
| Die or dies | M-011 Other inorganic materials | 12.523 | mg | supplier | die | Silicon (Si) | 7440-21-3 | | 12.030 | mg | 960597 | 23749.38 | | | | |
| | | | | supplier | metallization | Aluminium (Al) | 7429-90-5 | | 0.023 | mg | 1876 | 46.38 | | | | |
| | | | | supplier | metallization | Copper (Cu) | 7440-50-8 | | 0.209 | mg | 16686 | 412.54 | | | | |
| | | | | supplier | metallization | Cobalt (Co) | 7440-48-4 | | 0.001 | mg | 67 | 1.66 | | | | |
| | | | | supplier | metallization | Tantalum (Ta) | 7440-25-7 | | 0.068 | mg | 5428 | 134.20 | | | | |
| | | | | supplier | metallization | Titanium (Ti) | 7440-32-6 | | 0.003 | mg | 201 | 4.97 | | | | |
| | | | | supplier | metallization | Tungsten (W) | 7440-33-7 | | 0.002 | mg | 134 | 3.31 | | | | |
| | | | | supplier | Passivation | Silicon Nitride | 12033-89-5 | | 0.053 | mg | 4222 | 104.38 | | | | |
| | | | | supplier | Passivation | Silicon Oxide | 7631-86-9 | | 0.135 | mg | 10789 | 266.74 | | | | |
| | | | | supplier | ALLOY | Copper (Cu) | 7440-50-8 | | 149.243 | mg | 975000 | 220226.20 | | | | |
| Leadfram (C194 + Ag) | Copper and its alloy | 153.070 | mg | supplier | ALLOY | Iron (Fe) | 7439-89-6 | | 3.597 | mg | 23500 | 5308.02 | | | | |
| | | | | supplier | ALLOY | Zinc (Zn) | 7440-66-6 | | 0.184 | mg | 1200 | 271.05 | | | | |
| | | | | supplier | ALLOY | Metallic Phosphorus (P) | 7723-14-0 | | 0.046 | mg | 300 | 67.76 | | | | |
| | | | | supplier | COATING | Silver (Ag) | 7440-22-4 | | 5.288 | mg | 1000000 | 7802.36 | | | | |
| Leadframe platin (Ag) | M-011 Other inorganic materials | 5.288 | mg | supplier | GLUE | Silver (Ag) | 7440-22-4 | | 0.440 | mg | 766500 | 872.70 | | | | |
| | | | | supplier | GLUE | 2,2'-(Methylenebis(phenyleneoxymethylene))bisox | 39817-09-9 | | 0.043 | mg | 75000 | 85.39 | | | | |
| | | | | supplier | GLUE | Organic anhydride | 26544-38-7 | | 0.043 | mg | 75000 | 85.39 | | | | |
| | | | | supplier | GLUE | 1,3-Di-2-propenyl-2-(2-propenyloxy) benzene, ep | Proprietary | | 0.017 | mg | 30000 | 34.16 | | | | |
| | | | | supplier | GLUE | Epoxide | 3234-28-4 | | 0.017 | mg | 30000 | 34.16 | | | | |
| | | | | supplier | GLUE | 1,4-Bis(2,3-epoxypropoxy)butane | 2425-79-8 | | 0.010 | mg | 17500 | 19.92 | | | | |
| | | | | supplier | GLUE | Copper oxide | 1317-38-0 | | 0.001 | mg | 1000 | 1.14 | | | | |
| | | | | supplier | GLUE | Maleic anhydride | 108-31-6 | | 0.003 | mg | 5000 | 5.69 | | | | |
| | | | | Bonding Wire (Cu) | M-011 Other inorganic materials | 1.442 | mg | supplier | BONDING WIRE | Copper (Cu) | 7440-50-8 | | 1.392 | mg | 964990 | 1683.62 |
| | | | | | | | | supplier | BONDING WIRE | Palladium (Pd) | 7440-05-3 | | 0.043 | mg | 30000 | 52.34 |
| supplier | BONDING WIRE | Silver (Ag) | 7440-22-4 | | | | | | 0.000 | mg | 10 | 0.02 | | | | |
| supplier | BONDING WIRE | Gold (Au) | 7440-57-5 | | | | | | 0.007 | mg | 5000 | 8.72 | | | | |
| Encapsulation (G631HQ) | M-011 Other inorganic materials | 500.123 | mg | supplier | MOLDING COMPOUND | Epoxy Resin A | Proprietary | | 5.001 | mg | 10000 | 7316.94 | | | | |
| | | | | supplier | MOLDING COMPOUND | Epoxy Resin B | Proprietary | | 5.001 | mg | 10000 | 7316.94 | | | | |
| | | | | supplier | MOLDING COMPOUND | Phenol Resin | Proprietary | | 25.006 | mg | 50000 | 36584.68 | | | | |
| | | | | supplier | MOLDING COMPOUND | Silica(Amorphous) A | 60676-86-0 | | 410.101 | mg | 820000 | 599888.70 | | | | |
| | | | | supplier | MOLDING COMPOUND | Silica(Amorphous) B | 7631-86-9 | | 50.012 | mg | 100000 | 73169.35 | | | | |
| | | | | supplier | MOLDING COMPOUND | Carbon Black | 1333-86-4 | | 5.001 | mg | 10000 | 7316.94 | | | | |
| External Plating (Sn) | M-011 Other inorganic materials | 4.760 | mg | supplier | EXTERNAL PLATING | Tin (Sn) | 7440-31-5 | | 4.760 | mg | 1000000 | 7024.26 | | | | |