

## Environment Hazardous Substances Compliance

Taiwan Semiconductor hereby declare that all of our products and packaging materials are compliant on RoHS directives and do not contain any of the hazardous substances except for currently exempted RoHS directive or impurities listed on Table 1. Hazardous Substance List

Taiwan Semiconductor is committed in conforming to our corporate responsibilities for the protection of the environment.

**Table 1. Hazardous Substance List**

| No.                                | Substance Name                                                                                            | CAS Number | Targets                               | Limit (ppm) |
|------------------------------------|-----------------------------------------------------------------------------------------------------------|------------|---------------------------------------|-------------|
| <b>RoHS directive (2011/65/EU)</b> |                                                                                                           |            |                                       |             |
| 1                                  | Cadmium and cadmium compounds<br>鎘以及鎘化合物                                                                  | 7440-43-9  | Plastics , Ink<br>塑膠 , 油墨             | 100         |
|                                    |                                                                                                           |            | Solders 錫料                            | 20          |
|                                    |                                                                                                           |            | Other all applications uses<br>其他所有用途 | 100         |
| 2                                  | Lead and lead compounds<br>鉛以及鉛化合物 (Note1)                                                                | 7439-92-1  | Plastics , Ink<br>塑膠 , 油墨             | 100         |
|                                    |                                                                                                           |            | other all applications uses<br>其他所有用途 | 1000        |
| 3                                  | Mercury and mercury compounds<br>汞以及汞化合物                                                                  | 7439-97-6  | All uses 所有用途                         | 1000        |
| 4                                  | Hexavalent chromium compounds<br>六價鉻化合物                                                                   | 1333-82-0  | All uses 所有用途                         | 1000        |
| 5                                  | Polybrominated biphenyls (PBB) 多溴聯苯                                                                       | -          | All uses 所有用途                         | 1000        |
| 6                                  | Polybrominated diphenylethers (PBDE)<br>(including decabromodiphenyl ether [DecaBDE]) 20<br>多溴聯苯醚 包含十溴聯苯醚 | -          | All uses 所有用途                         | 1000        |
| <b>RoHS directive(2015/863/EU)</b> |                                                                                                           |            |                                       |             |
| 7                                  | Bis (2- ethylhexyl) phthalate (DEHP)<br>鄰苯二甲酸二(2-乙基己基)酯                                                   | 117-81-7   | All uses 所有用途                         | 1000        |
| 8                                  | Butyl benzyl phthalate (BBP)<br>鄰苯二甲酸甲苯基丁酯                                                                | 85-68-7    | All uses 所有用途                         | 1000        |

| No.                                          | Substance Name                                                                                        | CAS Number | Targets                                  | Limit (ppm) |
|----------------------------------------------|-------------------------------------------------------------------------------------------------------|------------|------------------------------------------|-------------|
| 9                                            | Dibutyl phthalate (DBP) 鄰苯二甲酸二丁酯                                                                      | 84-74-2    | All uses 所有用途                            | 1000        |
| 10                                           | Diisobutyl phthalate (DIBP) 鄰苯二甲酸二異丁酯                                                                 | 84-69-5    | All uses 所有用途                            | 1000        |
| <b>PFOA/PFOS directive (2006/122/EC)</b>     |                                                                                                       |            |                                          |             |
| 11                                           | Perfluorooctanoic acid (PFOA)<br>全氟辛酸                                                                 | 335-67-1   | All uses 所有用途                            | 1000        |
| 12                                           | Perfluorooctane sulfonates (PFOS)<br>全氟辛烷硫磺酸                                                          | 2795-39-3  | All uses 所有用途                            | 1000        |
| <b>SONY SS-00259 18<sup>th</sup> edition</b> |                                                                                                       |            |                                          |             |
| 13                                           | Cadmium and cadmium compounds<br>鎘以及鎘化合物                                                              | 7440-43-9  | Plastics , Ink<br>塑膠 , 油墨                | 100         |
|                                              |                                                                                                       |            | Solders 錫料                               | 20          |
|                                              |                                                                                                       |            | other all<br>applications uses<br>其他所有用途 | 100         |
| 14                                           | Lead and lead compounds<br>鉛以及鉛化合物 (Note1)                                                            | 7439-92-1  | Plastics , Ink<br>塑膠 , 油墨                | 100         |
|                                              |                                                                                                       |            | other all<br>applications uses<br>其他所有用途 | 1000        |
| 15                                           | Mercury and mercury compounds<br>汞以及汞化合物                                                              | 7439-97-6  | All uses 所有用途                            | 1000        |
| 16                                           | Hexavalent chromium compounds<br>六價鉻化合物                                                               | 1333-82-0  | All uses 所有用途                            | 1000        |
| 17                                           | Polybrominated biphenyls (PBB)<br>多溴聯苯                                                                | -          | All uses 所有用途                            | 1000        |
| 18                                           | Polybrominated diphenylethers (PBDE)<br>(including decabromodiphenyl ether [DecaBDE])<br>多溴聯苯醚包含十溴聯苯醚 | -          | All uses 所有用途                            | 1000        |
| 19                                           | Hexabromocyclododecane (HBCDD)<br>六溴環十二烷                                                              | 25637-99-4 | All uses 所有用途                            | 100         |
| 20                                           | Other brominated organic compounds<br>其他有機溴化合物                                                        | -          | Plastics 塑膠                              | 900         |
| 21                                           | Polychlorinated biphenyls (PCB) 多氯聯苯                                                                  | 1336-36-3  | All uses 所有用途                            | Banned 禁用   |
| 22                                           | Polychlorinated naphthalenes (PCN) 多氯化萘                                                               | 70776-03-3 | All uses 所有用途                            | Banned 禁用   |

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| No. | Substance Name                                                                                 | CAS Number                | Targets                                                        | Limit (ppm) |
|-----|------------------------------------------------------------------------------------------------|---------------------------|----------------------------------------------------------------|-------------|
| 23  | Polychlorinated terphenyls (PCT)<br>多氯三聯苯                                                      | 61788-33-8                | All uses 所有用途                                                  | Banned 禁用   |
| 24  | Short-chain chlorinated paraffins (SCCP)<br>短鍊型氯代烷烴                                            | -                         | All uses 所有用途                                                  | 1000        |
| 25  | Tris(2-chloroethyl) phosphate (TCEP)<br>磷酸三(2-氯乙基)酯                                            | 115-96-8                  | Flame retardants<br>use in plastics and<br>resins.<br>塑膠,樹脂阻燃劑 | 1000        |
| 26  | Tris(2-chloro-1 methylethyl) phosphate (TCPP)<br>磷酸三(2-氯丙基)酯                                   | 13674-84-5                | Flame retardants<br>use in plastics and<br>resins.<br>塑膠,樹脂阻燃劑 | 1000        |
| 27  | Tris(1,3-dichloro-2-propyl) phosphate (TDCPP)<br>磷酸三(2,3-二-氯丙基)酯                               | 13674-87-8                | Flame retardants<br>use in plastics and<br>resins.<br>塑膠,樹脂阻燃劑 | 1000        |
| 28  | Perchlorates 高氯酸鹽                                                                              | -                         | All uses 所有用途                                                  | 0.006       |
| 29  | Polyvinyl chloride (PVC) and PVC blends<br>聚氯乙炔以及聚氯乙炔混合物                                       | 9002-86-2                 | All uses 所有用途                                                  | 1000        |
| 30  | Other chlorinated organic compounds<br>其他有機氯化物                                                 | -                         | Plastics 塑膠                                                    | 900         |
| 31  | Hydrofluorocarbon (HFC) 氫氟碳化合物,<br>Perfluorocarbon (PFC) 全氟化碳<br>Sulfur hexafluoride(SF6) 六氟化硫 | -<br>75-73-0<br>2551-62-4 | All uses 所有用途                                                  | Banned 禁用   |
| 32  | Ozone depleting substances (ODS) 臭氧層破壞物質                                                       | -                         | All uses 所有用途                                                  | Banned 禁用   |
| 33  | Hydrochlorofluorocarbons (HCFC) 氫氯氟烴                                                           | -                         | All uses 所有用途                                                  | Banned 禁用   |
| 34  | Perfluorooctane sulfonates (PFOS) 全氟辛烷硫磺酸                                                      | 2795-39-3                 | All uses 所有用途                                                  | 1000        |
| 35  | Perfluorooctanoic acid (PFOA) 全氟辛酸                                                             | 335-67-1                  | All uses 所有用途                                                  | 1000        |
| 36  | Trisubstituted organotin compounds (including tributyltin<br>(TBT) 三丁基錫化合物                     | -                         | All uses 所有用途                                                  | Banned 禁用   |
| 37  | Dibutyltin (DBT) compounds 二丁基錫化合物                                                             | -                         | All uses 所有用途                                                  | 1000        |
| 38  | Diocetyl tin (DOT) compounds 二辛基錫化合物                                                           | -                         | All uses 所有用途                                                  | 1000        |
| 39  | 2-ethylhexyl<br>10-ethyl-4,4-dioctyl-7-oxo-8-oxa-3,5-dithia-4-stannatetra                      | 15571-58-1                | All uses 所有用途                                                  | 1000        |

| No. | Substance Name                                                                                                                                                                                                                                                                                                                                         | CAS Number               | Targets       | Limit (ppm) |
|-----|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------|---------------|-------------|
|     | decanoate ( DOTE )<br>硫代甘醇酸異辛酯二正辛基錫                                                                                                                                                                                                                                                                                                                    |                          |               |             |
| 40  | Reaction mass of 2-ethylhexyl<br>10-ethyl-4,4-dioctyl-7-oxo-8-oxa-3,5-dithia-4-stannatetra<br>decanoate and 2-ethylhexyl<br>10-ethyl-4-[[2-[(2-ethylhexyl)oxy]-2-oxoethyl]thio]-4-octyl-<br>7-oxo-8-oxa-3,5-dithia-4-stannatetradecanoate<br>(reaction mass of DOTE and MOTE)<br>以硫代甘醇酸異辛酯二正辛基錫和甲基錫三(巰基乙酸異<br>辛酯)為組成要素的物質 (以 DOTE 和 MOTE 為組成要素<br>的物質) | -                        | All uses 所有用途 | 1000        |
| 41  | Beryllium oxide 氧化鈹                                                                                                                                                                                                                                                                                                                                    | 1304-56-9                | All uses 所有用途 | Banned 禁用   |
| 42  | Beryllium copper 鈹青銅                                                                                                                                                                                                                                                                                                                                   | -                        | All uses 所有用途 | Banned 禁用   |
| 43  | Cobalt dichloride 二氯化鈷                                                                                                                                                                                                                                                                                                                                 | 7646-79-9                | All uses 所有用途 | Banned 禁用   |
| 44  | Diarsenic trioxide 三氧化二砷                                                                                                                                                                                                                                                                                                                               | 1327-53-3                | All uses 所有用途 | 1000        |
| 45  | Diarsenic pentaoxide 五氧化二砷                                                                                                                                                                                                                                                                                                                             | 1303-28-2                | All uses 所有用途 | 1000        |
| 46  | Bis (2- ethylhexyl) phthalate (DEHP)<br>鄰苯二甲酸二(2-乙基己基)酯                                                                                                                                                                                                                                                                                                | 117-81-7                 | All uses 所有用途 | 1000        |
| 47  | Dibutyl phthalate (DBP) 鄰苯二甲酸二丁酯                                                                                                                                                                                                                                                                                                                       | 84-74-2                  | All uses 所有用途 | 1000        |
| 48  | Butyl benzyl phthalate (BBP) 鄰苯二甲酸甲基丁酯                                                                                                                                                                                                                                                                                                                 | 85-68-7                  | All uses 所有用途 | 1000        |
| 49  | Diisobutyl phthalate (DIBP) 鄰苯二甲酸二異丁酯                                                                                                                                                                                                                                                                                                                  | 84-69-5                  | All uses 所有用途 | 1000        |
| 50  | Di-isononyl phthalate (DINP) 鄰苯二甲酸二異壬酯                                                                                                                                                                                                                                                                                                                 | 28553-12-0<br>68515-48-0 | All uses 所有用途 | 1000        |
| 51  | Di-isodecyl phthalate (DIDP) 鄰苯二甲酸二異癸酯                                                                                                                                                                                                                                                                                                                 | 26761-40-0<br>68515-49-1 | All uses 所有用途 | 1000        |
| 52  | Di-n-octyl phthalate (DNOP) 鄰苯二甲酸二異辛酯                                                                                                                                                                                                                                                                                                                  | 117-84-0                 | All uses 所有用途 | 1000        |
| 53  | Dihexyl phthalate (DNHP) 鄰苯二甲酸二乙酯                                                                                                                                                                                                                                                                                                                      | 84-75-3                  | All uses 所有用途 | 1000        |
| 54  | (1,2-Benzenedicarboxylic acid, di-C6-8-branched alkyl<br>esters, C7-rich (DIHP)<br>鄰苯二甲酸二(C6-8 支鏈)烷基酯富 C7                                                                                                                                                                                                                                              | 71888-89-6               | All uses 所有用途 | 1000        |
| 55  | (1,2-Benzenedicarboxylic acid, di-C7-11-branched and<br>linear alkyl esters) (DHNUP)<br>鄰苯二甲酸二(C7-11 支鏈與直鏈)烷基酯                                                                                                                                                                                                                                         | 68515-42-4               | All uses 所有用途 | 1000        |

| No. | Substance Name                                                                         | CAS Number                              | Targets       | Limit (ppm) |
|-----|----------------------------------------------------------------------------------------|-----------------------------------------|---------------|-------------|
| 56  | Bis(2-methoxyethyl) phthalate (DMEP)<br>鄰苯二甲酸二甲氧乙酯                                     | 117-82-8                                | All uses 所有用途 | 1000        |
| 57  | Diisopentylphthalate (DIPP)<br>鄰苯二甲酸二異戊酯                                               | 605-50-5                                | All uses 所有用途 | 1000        |
| 58  | 1,2-Benzenedicarboxylic acid, dipentylester, branched and linear<br>支鏈與直鏈的鄰苯二甲酸二戊酯     | 84777-06-0                              | All uses 所有用途 | 1000        |
| 59  | N-pentyl-isopentylphthalate<br>鄰苯二甲酸正戊基異戊基酯                                            | 776297-69-9                             | All uses 所有用途 | 1000        |
| 60  | Dipentyl phthalate (DPP)<br>鄰苯二甲酸二戊酯                                                   | 131-18-0                                | All uses 所有用途 | 1000        |
| 61  | Asbestos 石棉                                                                            | 1332-21-4<br>132207-32-0<br>132207-33-1 | All uses 所有用途 | Banned 禁用   |
| 62  | Specific azo compounds 特定偶氮化合物                                                         | -                                       | All uses 所有用途 | 30          |
| 63  | Formaldehyde 甲醛                                                                        | 50-00-0                                 | All uses 所有用途 | Banned 禁用   |
| 64  | 1,2-Benzenedicarboxylic acid, dihexylester, branched and linear<br>支鏈和直鏈鄰苯二甲酸二庚酯       | 68515-50-4                              | All uses 所有用途 | 1000        |
| 65  | 2-(2H-benzotriazol-2-yl)-4,6-ditertpentylphenol (UV-328)<br>2-(2'-羥基-3',5'-二叔戊基苯基)苯並三唑 | 25973-55-1                              | All uses 所有用途 | 1000        |
| 66  | Specific benzotriazole<br>特定苯並三氮唑                                                      | 3846-71-7                               | All uses 所有用途 | Banned 禁用   |
| 67  | Dimethyl fumarate (DMF)<br>富馬酸二甲酯                                                      | 624-49-7                                | All uses 所有用途 | 0.1         |
| 68  | Polycyclic aromatic hydrocarbons(PAHs)<br>多環芳香烴化合物                                     | -                                       | Plastics 塑膠   | 0.1         |
| 69  | Boric acid, specific sodium borates<br>硼酸、特定硼酸鈉                                        | -                                       | All uses 所有用途 | 1000        |
| 70  | 4-(1,1,3,3-tetramethylbutyl) phenol<br>4-(1,1,3,3-四甲基丁基)苯酚                             | 140-66-9                                | All uses 所有用途 | 1000        |
| 71  | Bis(2-methoxyethyl) ether<br>二乙二醇二甲醚                                                   | 111-96-6                                | All uses 所有用途 | 1000        |

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| No.                                                       | Substance Name                                   | CAS Number | Targets                                    | Limit (ppm)   |
|-----------------------------------------------------------|--------------------------------------------------|------------|--------------------------------------------|---------------|
| 72                                                        | N,N-dimethylacetamide(DMAC)<br>N,N-二甲基乙醯胺        | 127-19-5   | All uses 所有用途                              | 1000          |
| 73                                                        | Ethylene glycol dimethyl ether (EGDME)<br>乙二醇二甲醚 | 110-71-4   | All uses 所有用途                              | 1000          |
| 74                                                        | Trixylyl phthalate (TXP) 磷酸三(二甲苯)酯               | 25155-23-1 | All uses 所有用途                              | 1000          |
| 75                                                        | Nickel 鎳                                         | 7440-02-0  | All uses 所有用途                              | Declarable 宣告 |
| 76                                                        | Brominated flame retardants<br>溴系阻燃劑 (BFR)       | -          | Non-metallic category, plastics<br>非金屬, 塑膠 | 900           |
| 77                                                        | Chlorinated flame retardants<br>氯系阻燃劑 (CFR)      | -          | Non-metallic category, plastics<br>非金屬, 塑膠 | 900           |
| 78                                                        | Radioactive substances 放射性物質                     | -          | All uses 所有用途                              | Banned 禁用     |
| <b>Halogen 鹵素 (IEC 61249-2-21 definition) (Note 2)</b>    |                                                  |            |                                            |               |
| 79                                                        | Total Bromine (Br) 總溴                            | 10097-32-2 | Non-metallic category, plastics<br>非金屬, 塑膠 | 900           |
| 80                                                        | Total Chlorine (Cl) 總氯                           | 22537-15-1 | Non-metallic category, plastics<br>非金屬, 塑膠 | 900           |
| 81                                                        | Br+Cl 總溴+總氯                                      | -          | Non-metallic category, plastics<br>非金屬, 塑膠 | 1500          |
| <b>Packaging and Packaging Waste directive (94/62/EC)</b> |                                                  |            |                                            |               |
| 82                                                        | Packaging 包裝材 (Pb+Cd+Hg+Cr+6)                    | -          | Packaging Materials 包裝材                    | <100          |
| <b>PAHs directive</b>                                     |                                                  |            |                                            |               |
| 83                                                        | Sum of 18 PAHs (多環芳香烴)                           | -          | Plastics 塑膠                                | 0.1           |
| <b>Other Hazardous Substances</b>                         |                                                  |            |                                            |               |
| 84                                                        | Phosphorus 磷                                     | 7723-14-0  | Plastics 塑膠                                | 1000          |
| 85                                                        | Red Phosphorus 紅磷                                | 7723-14-0  | Plastics 塑膠                                | Banned 禁用     |
| 86                                                        | Sb <sub>2</sub> O <sub>3</sub> 三氧化二銻             | 1309-64-4  | Non-metallic category, plastics<br>非金屬, 塑膠 | 1000          |
| 87                                                        | Beryllium 鈹                                      | 7440-41-7  | All uses 所有用途                              | 1000          |

| No.                                      | Substance Name                                                         | CAS Number                                                                                                                                                      | Targets       | Limit (ppm) |
|------------------------------------------|------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|-------------|
| <b>POPs Regulation (EU) No 2019/1021</b> |                                                                        |                                                                                                                                                                 |               |             |
| 88                                       | <b>Tetrabromodiphenyl Ether 四溴二苯醚</b>                                  | 40088-47-9                                                                                                                                                      | All uses 所有用途 | Banned 禁用   |
| 89                                       | 1,3-dibromo-2-(3,4-dibromophenoxy)benzene<br>1,3-二溴-2-(3,4-二溴苯氧基)苯     | 189084-62-6                                                                                                                                                     | All uses 所有用途 | Banned 禁用   |
| 90                                       | 1,2-Dibromo-4-(3,4-dibromophenoxy)benzene<br>1,2-二溴-4-(3,4-二溴苯氧基)苯     | 93703-48-1                                                                                                                                                      | All uses 所有用途 | Banned 禁用   |
| 91                                       | 2,3',4,4'-Tetrabromodiphenyl ether<br>2,3',4,4'-四溴二苯醚                  | 189084-61-5                                                                                                                                                     | All uses 所有用途 | Banned 禁用   |
| 92                                       | 2,4,4',6-Tetrabromodiphenyl ether<br>2,4,4',6-四溴二苯醚                    | 189084-63-7                                                                                                                                                     | All uses 所有用途 | Banned 禁用   |
| 93                                       | <b>Pentabromodiphenyl Ether 五溴二苯醚</b>                                  | 32534-81-9                                                                                                                                                      | All uses 所有用途 | Banned 禁用   |
| 94                                       | 2,2',3,4,4'-Pentabromodiphenyl ether<br>2,2',3,4,4'-五溴二苯醚              | 182346-21-0                                                                                                                                                     | All uses 所有用途 | Banned 禁用   |
| 95                                       | 2,3',4,4',6-Pentabromodiphenyl ether<br>2,3',4,4',6-五溴二苯醚              | 189084-66-0                                                                                                                                                     | All uses 所有用途 | Banned 禁用   |
| 96                                       | <b>Hexabromodiphenyl Ether 六溴二苯醚</b>                                   | 36483-60-0                                                                                                                                                      | All uses 所有用途 | Banned 禁用   |
| 97                                       | 2,2',3,4,4',5'-Hexabromodiphenyl ether<br>2,2',3,4,4',5'-六溴二苯醚         | 182677-30-1                                                                                                                                                     | All uses 所有用途 | Banned 禁用   |
| 98                                       | <b>Heptabromodiphenyl Ether 七溴二苯醚</b>                                  | 68928-80-3                                                                                                                                                      | All uses 所有用途 | Banned 禁用   |
| 99                                       | <b>Bis(Pentabromophenyl)Ether 雙(五溴苯基)醚</b>                             | 1163-19-5                                                                                                                                                       | All uses 所有用途 | Banned 禁用   |
| 100                                      | Perfluorooctane Sulfonic Acid And Its Derivatives<br>(PFOS)全氟辛烷磺酸及其衍生物 | 307-35-7<br>1691-99-2<br>1763-23-1<br>2795-39-3<br>4151-50-2<br>24448-09-7<br>29081-56-9<br>29457-72-5<br>31506-32-8<br>56773-42-3<br>70225-14-8<br>251099-16-8 | All uses 所有用途 | Banned 禁用   |

| No. | Substance Name                                                                       | CAS Number                                  | Targets       | Limit (ppm) |
|-----|--------------------------------------------------------------------------------------|---------------------------------------------|---------------|-------------|
| 101 | DDT (1,1,1-Trichloro-2,2-Bis(4-Chlorophenyl)Ethane)<br>滴滴涕 (1,1,1-三氯-2,2-雙(4-氯苯基)乙烷) | 50-29-3                                     | All uses 所有用途 | Banned 禁用   |
| 102 | Chlordane 氯丹                                                                         | 57-74-9                                     | All uses 所有用途 | Banned 禁用   |
| 103 | Hexachlorocyclohexanes, Including Lindane<br>六氯環己烷, 包括林丹                             | 58-89-9<br>319-84-6<br>319-85-7<br>608-73-1 | All uses 所有用途 | Banned 禁用   |
| 104 | Dieldrin 狄氏劑                                                                         | 60-57-1                                     | All uses 所有用途 | Banned 禁用   |
| 105 | Endrin 異狄氏劑                                                                          | 72-20-8                                     | All uses 所有用途 | Banned 禁用   |
| 106 | Heptachlor 七氯                                                                        | 76-44-8                                     | All uses 所有用途 | Banned 禁用   |
| 107 | Endosulfan 硫丹                                                                        | 115-29-7<br>959-98-8<br>33213-65-9          | All uses 所有用途 | Banned 禁用   |
| 108 | Hexachlorobenzene 六氯苯                                                                | 118-74-1                                    | All uses 所有用途 | Banned 禁用   |
| 109 | Chlordecone 十氯酮                                                                      | 143-50-0                                    | All uses 所有用途 | Banned 禁用   |
| 110 | Aldrin 奧爾德林                                                                          | 309-00-2                                    | All uses 所有用途 | Banned 禁用   |
| 111 | Pentachlorobenzene 五氯苯                                                               | 608-93-5                                    | All uses 所有用途 | Banned 禁用   |
| 112 | <b>Polychlorinated Biphenyls (PCB) 多氯聯苯</b>                                          | 1336-36-3                                   | All uses 所有用途 | Banned 禁用   |
| 113 | Pentachloro[1,1'-biphenyl] 五氯[1,1'-聯苯]                                               | 25429-29-2                                  | All uses 所有用途 | Banned 禁用   |
| 114 | 2,2',4,4'-tetrachlorobiphenyl 2,2', 4,4'-四氯聯苯                                        | 2437-79-8                                   | All uses 所有用途 | Banned 禁用   |
| 115 | Chloro-1,1'-biphenyl 氯-1,1'-聯苯                                                       | 27323-18-8                                  | All uses 所有用途 | Banned 禁用   |
| 116 | Heptachloro-1,1'-biphenyl 七氯-1,1'-聯苯                                                 | 28655-71-2                                  | All uses 所有用途 | Banned 禁用   |
| 117 | Tetrachloro(tetrachlorophenyl)benzene<br>四氯(四氯苯基)苯                                   | 31472-83-0                                  | All uses 所有用途 | Banned 禁用   |
| 118 | 2,2',4,4',6,6'-hexachlorobiphenyl<br>2,2', 4,4', 6,6'-六氯聯苯                           | 33979-03-2                                  | All uses 所有用途 | Banned 禁用   |
| 119 | Nonachloro-1,1'-biphenyl 九氯-1,1'-聯苯                                                  | 53742-07-7                                  | All uses 所有用途 | Banned 禁用   |
| 120 | 2,4,4'-trichlorobiphenyl 2,4,4'-三氯聯苯                                                 | 7012-37-5                                   | All uses 所有用途 | Banned 禁用   |
| 121 | 1,1'-Biphenyl, chloro derivs. 1,1'-聯苯, 氯衍生物。                                         | 1336-36-3                                   | All uses 所有用途 | Banned 禁用   |



| No. | Substance Name                                                                                                    | CAS Number                                                           | Targets       | Limit (ppm) |
|-----|-------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------|---------------|-------------|
| 122 | 4,4'-dichlorobiphenyl 4,4'-二氯聯苯                                                                                   | 2050-68-2                                                            | All uses 所有用途 | Banned 禁用   |
| 123 | Decachloro-1,1'-biphenyl 十氯-1,1'-聯苯                                                                               | 2051-24-3                                                            | All uses 所有用途 | Banned 禁用   |
| 124 | 2-chlorobiphenyl 2-氯聯苯                                                                                            | 2051-60-7                                                            | All uses 所有用途 | Banned 禁用   |
| 125 | 3-chlorobiphenyl 3-氯聯苯                                                                                            | 2051-61-8                                                            | All uses 所有用途 | Banned 禁用   |
| 126 | 4-chlorobiphenyl 4-氯聯苯                                                                                            | 2051-62-9                                                            | All uses 所有用途 | Banned 禁用   |
| 127 | Dichlorobiphenyl 二氯聯苯                                                                                             | 25512-42-9                                                           | All uses 所有用途 | Banned 禁用   |
| 128 | Mirex 滅蟻靈                                                                                                         | 2385-85-5                                                            | All uses 所有用途 | Banned 禁用   |
| 129 | Toxaphene 毒殺芬                                                                                                     | 8001-35-2                                                            | All uses 所有用途 | Banned 禁用   |
| 130 | Hexabromobiphenyl 六溴代二苯                                                                                           | 36355-01-8                                                           | All uses 所有用途 | Banned 禁用   |
| 131 | Hexabromocyclododecane 六溴環十二烷                                                                                     | 25637-99-4<br>3194-55-6<br>134237-50-6<br>134237-51-7<br>134237-52-8 | All uses 所有用途 | Banned 禁用   |
| 132 | Hexachlorobutadiene 六氯丁二烯                                                                                         | 87-68-3                                                              | All uses 所有用途 | Banned 禁用   |
| 133 | <b>Pentachlorophenol And Its Salts And Esters</b><br>五氯苯酚及其鹽和酯                                                    | 87-86-5                                                              | All uses 所有用途 | Banned 禁用   |
| 134 | N2-benzyl pentachlorophenyl<br>N2-carboxy-L-(2-aminoglutaramate)<br>N2-苄基五氯苯基 N2-羧基-L-(2-氨基戊二酸酯)                  | 13673-51-3                                                           | All uses 所有用途 | Banned 禁用   |
| 135 | Perchlorophenyl N-(benzyloxycarbonyl)-L-isoleucinate<br>N-(苄氧羰基)-L-異亮氨酸全氯苯基                                       | 13673-53-5                                                           | All uses 所有用途 | Banned 禁用   |
| 136 | Perchlorophenyl<br>S-benzyl-N-(benzyloxycarbonyl)-L-cysteinate<br>全氯苯基 S-苄基-N-(苄氧羰基)-L-半胱氨酸                       | 13673-54-6                                                           | All uses 所有用途 | Banned 禁用   |
| 137 | Pentachlorophenyl<br>N-[[[(4-methoxyphenyl)methoxy]carbonyl]-L-serinate<br>五氯苯基 N-[[ ( (4-甲氧基苯基) 甲氧基] 羰基 ] -L-絲氨酸 | 23234-97-1                                                           | All uses 所有用途 | Banned 禁用   |
| 138 | Perchlorophenyl 5-oxo-L-prolinate<br>5-氯-L-脯氨酸全氯苯基                                                                | 28990-85-4                                                           | All uses 所有用途 | Banned 禁用   |
| 139 | Sodium pentachlorophenolate 五氯酚鈉                                                                                  | 131-52-2                                                             | All uses 所有用途 | Banned 禁用   |

| No.                                                              | Substance Name                                                                                       | CAS Number | Targets       | Limit (ppm) |
|------------------------------------------------------------------|------------------------------------------------------------------------------------------------------|------------|---------------|-------------|
| 140                                                              | Pentachlorophenol esters 五氯酚酯                                                                        | -          | All uses 所有用途 | Banned 禁用   |
| 141                                                              | Pentachlorophenol salts 五氯酚鹽                                                                         | -          | All uses 所有用途 | Banned 禁用   |
| 142                                                              | Zinc bis(pentachlorophenolate) 雙(五氯酚酸鋅)                                                              | 2917-32-0  | All uses 所有用途 | Banned 禁用   |
| 143                                                              | Pentachlorophenyl laurate 五氯苯基月桂酸酯                                                                   | 3772-94-9  | All uses 所有用途 | Banned 禁用   |
| 144                                                              | Potassium pentachlorophenolate 五氯酚酸鉀                                                                 | 7778-73-6  | All uses 所有用途 | Banned 禁用   |
| 145                                                              | Polychlorinated Naphthalenes 多氯萘                                                                     | 70776-03-3 | All uses 所有用途 | Banned 禁用   |
| 146                                                              | Alkanes C10-C13, Chloro (SCCPs)<br>烷烴 C10-C13, 氯(短鏈氯化石蠟)                                             | 85535-84-8 | All uses 所有用途 | Banned 禁用   |
| 147                                                              | Polychlorinated Dibenzo-P-Dioxins And Dibenzofurans<br>(PCDD/PCDF) 多氯二苯並對二噁英和二苯並呋喃                   | -          | All uses 所有用途 | Banned 禁用   |
| 148                                                              | Polycyclic Aromatic Hydrocarbons (PAHS) 多環芳烴                                                         | -          | All uses 所有用途 | Banned 禁用   |
| 149                                                              | Perfluorooctanoic acid (PFOA), its salts and<br>PFOA-related compounds<br>全氟辛酸(PFOA), 其鹽和 PFOA 相關化合物 | 335-67-1   | All uses 所有用途 | Banned 禁用   |
| 150                                                              | Dicofol 三氯殺蟎醇                                                                                        | 115-32-2   | All uses 所有用途 | Banned 禁用   |
| <b>Toxic Substances Control Act (EPA-HQ-OPPT-2019-0080-0001)</b> |                                                                                                      |            |               |             |
| 151                                                              | Decabromodiphenyl ether (DecaBDE)<br>十溴二苯醚                                                           | 1163-19-5  | All uses 所有用途 | Banned 禁用   |
| 152                                                              | Phenol, isopropylated phosphate (3:1) (PIP (3:1))<br>苯酚, 異丙基磷酸酯(3:1)                                 | 68937-41-7 | All uses 所有用途 | Banned 禁用   |
| 153                                                              | 2,4,6-tris(tert-butyl) phenol (2,4,6-TTBP)<br>2,4,6-三(叔丁基)苯酚                                         | 732-26-3   | All uses 所有用途 | Banned 禁用   |
| 154                                                              | Hexachlorobutadiene (HCBD)<br>六氯丁二烯                                                                  | 87-68-3    | All uses 所有用途 | Banned 禁用   |
| 155                                                              | Pentachlorothiophenol (PCTP)<br>五氯硫酚                                                                 | 133-49-3   | All uses 所有用途 | Banned 禁用   |

**Notes:**

1. The following applicable exemptions are currently outlined in RoHS directive 2011/534/EU.

These are identified in the product lists ([TSC Environmental Compliance](#))

- 1.1 7a. Lead in high melting temperature type solders (i.e. lead-based alloys containing 85% by weight or more lead)
- 1.2 7(C)-I. Electrical and electronic components containing lead in a glass or ceramic other than dielectric ceramic in capacitors, e.g. piezoelectronic devices, or in a glass or ceramic matrix compound.

2. Halogen (Cl / Br ) PPM limit only applies to Halogen Free products.



**Smile Chung**  
**Quality Reliability Assurance**  
**Taiwan Semiconductor Co., Ltd.**  
**March 19, 2021**

**Signature:** Smile Chung