

安全資料表 SAFETY DATA SHEET

一、物品與廠商資料

Section 1 - Chemical Product and Company Identification

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| 物品名稱：陶瓷晶片電阻 Product Name : Chip-Resistor |
| 其他名稱：----- Other name : ----- |
| 建議用途及限制使用：電器產品之內部組件 Recommended use and restrictions on use : Electronic and electric products. |
| 製造商或供應商名稱：華新科技股份有限公司 Manufacture or vender name : Walsin Technology Corporation |
| 製造商或供應商地址：台灣桃園市楊梅區高獅路 566-1 號 Manufacture or vender address : 566-1, Kao-Shi Road, Yang, Tao Yuan, Taiwan |
| 聯絡電話/傳真電話：+886-3-475-8711/+886-3-478-0913 Tel/Fax : +886-3-475-8711/+886-3-478-0913 |

二、危害辨識資料

Section 2 - Hazards Identification

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| 物品危害分類：不適用 Product hazard class : Not Available. |
| 標示內容：無 Label content: Not Available. |
| 其他危害：無 Other hazards : Not Available. |

三、成分辨識資料

Section 3 - Composition/information on ingredients Pure material/Mixtures

| WR12xxxxxxL | | 重量 Weight(mg) | 9.738 | |
|---------------------------|--------------------|---|----------------------|------------------|
| 物質 Substance | 化學文摘社號碼 CAS No. | 化學式 Formula | 主要用途 Main purpose | 典型% Typical % |
| 三氧化二鋁 Aluminum oxide | 1344-28-1 | Al ₂ O ₃ | Substrate | 90.3839 |
| 二氧化矽 Silicon dioxide | 14808-60-7 | SiO ₂ | Substrate | 2.3538 |
| 氧化鎂 Magnesium oxide | 1309-48-4 | MgO | Substrate | 1.4123 |
| 銀 Silver | 7440-22-4 | Ag | Backside layer | 0.3776 |
| 氧化鉍 Bismuth oxide | 1304-76-3 | Bi ₂ O ₃ | Backside layer | 0.0960 |
| 過氧化鈣 Calcium oxide | 1305-78-8 | CaO | Backside layer | 0.0384 |
| 氧化矽 Silicon oxide | 11126-22-0 | SiO | Backside layer | 0.0256 |
| 三氧化二鋁 Aluminum oxide | 1344-28-1 | Al ₂ O ₃ | Backside layer | 0.0256 |
| 樹脂 Resin | 9004-57-3 | [C ₆ H ₇ O ₂ (OH) _{3-n} (OC ₂ H ₅) _n] _x | Backside layer | 0.0768 |
| 銀 Silver | 7440-22-4 | Ag | Topside layer | 1.1662 |
| 鈀 Palladium | 7440-05-3 | Pd | Topside layer | 0.0083 |
| 樹脂 Resin | 9004-57-3 | [C ₆ H ₇ O ₂ (OH) _{3-n} (OC ₂ H ₅) _n] _x | Topside layer | 0.1070 |
| 無鉛玻璃膏 Lead Free Glass | 65997-18-4 | Lead Free Glass Frit | Topside layer | 0.0904 |
| 二氧化錳 Manganese dioxide | 1313-13-9 | MnO ₂ | Topside layer | 0.0181 |
| 銀 Silver | 7440-22-4 | Ag | Resistive layer | 0.3233 |
| 鈀 Palladium | 7440-05-3 | Pd | Resistive layer | 0.1293 |
| 氧化鈳 Ruthenium Dioxide | 12036-10-1 | RuO ₂ | Resistive layer | 0.0485 |

| | | | | |
|---|-------------|---|--------------------|--------|
| 氧化鉛 Lead oxide | 1317-36-8 | PbO | Resistive layer | 0.1617 |
| 氧化矽 Silicon oxide | 7631-86-9 | SiO ₂ | Resistive layer | 0.2425 |
| 無鉛玻璃膏 Lead Free Glass | 65997-18-4 | Lead Free Glass Frit | Resistive layer | 0.0647 |
| 無鉛玻璃膏 Lead Free Glass | 65997-18-4 | Lead Free Glass Frit | Primary coating | 1.0735 |
| 色料(三氧化二鉻) Pigment(Chromium(III) Oxide) | 1308-38-9 | CR ₂ O ₃ | Primary coating | 0.0079 |
| 樹脂 Resin | 9004-57-3 | [C ₆ H ₇ O ₂ (OH) _{3-n} (OC ₂ H ₅) _n] _x | Primary coating | 0.0486 |
| 環氧樹脂 Epoxy Resin | 25068-38-6 | (C ₁₅ -H ₁₆ -O ₂ · C ₃ -H ₅ -C ₁ -O) _x | Protective coating | 0.1100 |
| 聚合物 Polymer | 29661-89-0 | (C ₈ H ₁₀ · C ₆ H ₆ O · CH ₂ O) _x | Protective coating | 0.1210 |
| 銅銹黑 Color pigments | 68186-91-4 | Color pigments | Protective coating | 0.0660 |
| 二氧化矽 Silicon dioxide | 60676-86-0 | SiO ₂ | Protective coating | 0.1595 |
| 滑石粉 Talc | 14807-96-6 | 3MgO-4SiO ₂ -H ₂ O | Protective coating | 0.0275 |
| 添加物 Additives | 2530-83-8 | C ₉ H ₂₀ O ₅ Si | Protective coating | 0.0660 |
| 環氧樹脂 Epoxy Resin | 29690-82-2 | Epoxy Resin | Marking | 0.0183 |
| 二氧化矽 Silicon dioxide | 112945-52-5 | SiO ₂ · nH ₂ O | Marking | 0.0017 |
| 滑石粉 Talc | 14807-96-6 | 3MgO-4SiO ₂ -H ₂ O | Marking | 0.0017 |
| 氧化鈦 Titanium dioxide | 1317-80-2 | TiO ₂ | Marking | 0.0244 |
| 雙氰胺 Dicyandiamide | 461-58-5 | C ₂ H ₄ N ₄ | Marking | 0.0025 |
| 石油腦 Solvent naphtha | 64742-94-5 | Solvent naphtha | Marking | 0.0014 |
| 鎳 Nickel | 7440-02-0 | Ni | Side termination | 0.0056 |
| 鉻 Chromium | 7440-47-3 | Cr | Side termination | 0.0044 |
| 鎳 Nickel | 7440-02-0 | Ni | Plating Ni | 0.6100 |
| 錫 Tin | 7440-31-5 | Sn | Plating Sn | 0.5000 |

四、急救措施

Section 4 - First Aid Measures

不同暴露途徑之急救方法：

The first aid measures for different exposure routes:

- 吸入：非蒸發性物質
- Inhalation : Not Available.
- 皮膚接觸：無過敏反應
- Skin contact : Not Available.
- 眼睛接觸：不會接觸眼睛
- Eye contact : Not Available.
- 食入：不會食入
- Ingestion : Not Available.

最重要症狀及危害效應：無

The most important symptoms and hazardous effects : None.

對急救人員之防護：無

The protection of first-aiders : None.

對醫師之提示：不適用

Notes to Physician : None.

五、滅火措施

Section 5 - Fire-fighting measures

適用滅火劑：不燃物質

Suitable fire extinguishing media : This product is incombustible.

滅火時可能遭遇之特殊危害：無

Specific hazards may be encountered during fire-fighting : None.

特殊滅火程序：無

Specific fire-fighting methods : No.

消防人員之特殊防護設備：無

Special equipment for the protection of firefighters : No.

六、洩漏處理方法

Section 6 - Accidental release measures

個人應注意事項：無

Personal precautions : No.

環境注意事項：無

Environmental precautions : No.

清理方法：無

Methods for cleaning up : No.

七、安全處置與儲存方法

Section 7 - Handling and storage

處置：一般處置

Handling : No special advice.

儲存：依濕敏感係數等級一之方法貯存。

Storage : Following the method defined in MSL level 1.

八、暴露預防措施

Section 8 - Exposure controls/personal protection

工程控制：無

Engineering control: No

控制參數：

Control parameters :

· 八小時日時量平均容許濃度/短時間時量平均容許濃度/最高容許濃度：無

· 8 hours time weighted average exposure limits/Short-term exposure limits/maximum exposure limits : No.

· 生物指標：無

· Biological standards : No.

個人防護設備：

Personal protective equipment :

· 呼吸防護：無

· Respiratory protection : No.

· 手部防護：無

· Hand protection : No.

· 眼睛防護：無

· Eye protection : No.

· 皮膚及身體防護：無

· Skin and body protection : No.

衛生措施：無特殊要求

Hygiene measures: No special requirement.

九、物理及化學性質

Section 9 - Physical and chemical properties:

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| 外觀 (物質狀態、顏色等)：四方陶瓷體 | 氣味：無 |
| Appearance (physical state, color, etc.) : Cuboid ceramic. | Odor : No. |
| 嗅覺閾值：無 | 熔點：1500 °C |
| Odor threshold : No defined. | Melting point: 1500 °C |
| pH值：不適用 | 沸點/沸點範圍：未測試 |
| pH value : Not available. | Boiling point/boiling point range: Not be tested. |
| 易燃性 (固體、氣體)：不燃 | 閃火點：°F °C：未測試 |
| Flammability (solid, gas) : incombustible. | Flash point: °F °C : Not be tested. |
| 分解溫度：未測試 | 測試方法：開杯閉杯 |
| Decomposition temperature : Not be tested. | Test method : Open cup Closed cup. |
| 自燃溫度：不燃 | 爆炸界限：不會爆炸 |
| Auto-ignition temperature: incombustible. | Explosion limits : Not Available. |
| 蒸氣壓：--- | 蒸氣密度：不適用 |
| Vapor pressure: Not Available. | Vapor density : Not Available. |
| 密度：≐ 4 | 溶解度：不適用 |
| Density: ≐ 4 | Solubility : Not Available. |
| 辛醇/水分配係數 (log Kow) --- | 揮發速率：不適用 |
| Partition coefficient (n-octanol/water, log Kow) : --- | Evaporation rate : Not Available. |

十、安定性及反應性

Section 10 - Stability and reactivity

安定性：安定

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| Stability : Stable. |
| 特殊狀況下可能之危害反應：無 Possible hazardous reactions under specific conditions : No. |
| 應避免之狀況：無 Conditions to avoid : No. |
| 應避免之物質：無 Materials to avoid : No. |
| 危害分解物：無 Hazardous decomposition products : No. |

十一、毒性資料

Section 11 - Toxicological information

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| 暴露途徑：不適用 Routes of exposure: Not available. |
| 症狀：無 Symptoms: No. |
| 急性毒性：無 Acute toxicity: No. |
| 慢性或長期毒性：無 Chronic toxicity or long term toxicity: No. |

十二、生態資料

Section 12 - Ecological information:

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| 生態毒性：無 Ecotoxicity : No. |
| 持久性及降解性：--- Persistence and degradability : --- |
| 生物蓄積性：--- Bioaccumulative potential : --- |
| 土壤中之流動性：--- Mobility in soil : --- |
| 其他不良效應：無 Other adverse effects : No. |

十三、廢棄處置方法

Section 13 - Disposal considerations

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| 廢棄處置方法：依當地環保法規之規定處理 Methods of waste disposal : Follow the local regulation. |
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十四、運送資料

Section 14 - Transport information

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| 聯合國編號：不適用 United Nations number (UN No) : Not available. |
| 聯合國運輸名稱：不適用 UN Proper shipping name : Not available. |
| 運輸危害分類：不適用 Transport hazard class (es) : Not available. |
| 包裝類別：不適用 Packing group: Not available. |
| 海洋污染物 (是/否)：否 Marine pollutant (Yes/No) : No. |
| 特殊運送方法及注意事項：無 Specific transport measures and precautionary conditions : No. |

十五、法規資料

Section 15 - Regulatory information

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| 適用法規：2011/65/EU, EC-1907-2006 Applicable regulations: 2011/65/EU, EC-1907-2006 |
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十六、其他資料

Section 16 - Other information

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|---|--|--|
| 參考文獻 Literature references | | |
| 製表單位 Organization that prepared the MSDS | 名稱：華新科技股份有限公司 Name: Walsin Technology Corporation | |
| | 地址/電話：台灣桃園市楊梅區高獅路 566-1 號 Address/telephone number: 566-1, Kao-Shi Road, Yang Mei, Tao Yuan, Taiwan | |
| 製表人 Person who prepared the MSDS | 職稱：副理 Title: Asst. manager | 姓名(簽章)：鄭石毅 Name (signature) : Stone Cheng |
| 製表日期 Date that the MSDS was prepared: | 2017/3/31 | |