



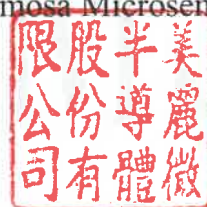
美 麗 微 半 導 體 股 份 有 限 公 司
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Declaration of Non-Use of Rare Earth Elements

美麗微半導體股份有限公司(以下簡稱本公司)特此聲明，本公司全產品均未刻意使用附表(一)所列之稀土元素。

Formosa Microsemi Co., Ltd. (herein after referred to as "the Company") hereby declares that none of the Company's products intentionally contain any of the rare earth elements listed in Appendix (I).

美麗微半導體股份有限公司
Formosa Microsemi Co., Ltd.



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附表(一) 稀土元素清單

Symbol	Name	Selected applications
Sc	釷 (Scandium)	用於航太組件的輕質鋁-釷合金、金屬鹵素燈與汞氣燈添加劑、煉油中的放射性示踪劑
Y	鐿 (Yttrium)	YAG 鐿鋁石榴石雷射、YVO ₄ 鐿釩酸鹽 (電視紅色螢光劑用)、YBCO 高溫超導體、YSZ 穩定氧化鋯、YIG 微波濾波器、節能燈泡、火星塞、氣燈燈罩、鋼材添加劑、癌症治療
La	鐳 (Lanthanum)	高折射率與耐鹼玻璃、燧石、氫儲存、電池電極、相機鏡頭、煉油催化劑
Ce	鈰 (Cerium)	化學氧化劑、拋光粉、玻璃與陶瓷的黃色染劑、自潔烤箱催化劑、煉油催化劑、打火機鐵
Pr	鐕 (Praseodymium)	稀土磁鐵、雷射、碳弧燈光源材料、玻璃與搪瓷著色劑、焊接護目鏡用 Didymium 玻璃添加劑、打火鋼產品
Nd	釹 (Neodymium)	稀土磁鐵、雷射、玻璃與陶瓷的紫色染劑、Didymium 玻璃、陶瓷電容器、電動汽車馬達
Pm	鉕 (Promethium)	核電池、夜光塗料
Sm	釷 (Samarium)	稀土磁鐵、雷射、中子吸收、微波放大器、核反應爐控制棒
Eu	鈾 (Europium)	紅藍螢光劑、雷射、汞氣燈、日光燈、核磁共振鬆弛劑
Gd	鐿 (Gadolinium)	高折射玻璃與石榴石、雷射、X 光管、電腦記憶體、MRI 造影劑、核磁共振鬆弛劑、磁致伸縮合金 (如 Galfenol)、鋼材添加劑
Tb	鉕 (Terbium)	釹磁鐵添加劑、綠色螢光劑、雷射、日光燈、磁致伸縮合金 (如 Terfenol-D)、海軍聲納系統、燃料電池穩定劑
Dy	鐿 (Dysprosium)	釹磁鐵添加劑、雷射、磁致伸縮合金 (如 Terfenol-D)、硬碟
Ho	釹 (Holmium)	雷射、光譜儀波長校正標準、磁鐵
Er	鐿 (Erbium)	紅外線雷射、鈮鋼、光纖技術
Tm	釹 (Thulium)	攜帶型 X 光機、金屬鹵素燈、雷射
Yb	鐿 (Ytterbium)	紅外線雷射、化學還原劑、干擾彈、不鏽鋼、壓力感測器、核醫學、地震監測
Lu	鐿 (Lutetium)	正子斷層掃描 (PET) 偵測器、高折射率玻璃、鐿鉕酸鹽為螢光劑載體、煉油催化劑、LED 燈泡



Appendix (I) :Rare Earth Elements

Symbol	Name	Selected applications
Sc	Scandium	Light aluminium-scandium alloys for aerospace components, additive in metal-halide lamps and mercury-vapor lamps, radioactive tracing agent in oil refineries
Y	Yttrium	Yttrium aluminium garnet (YAG) laser, yttrium vanadate (YVO4) as host for europium in television red phosphor, YBCO high-temperature superconductors, yttria-stabilized zirconia (YSZ), yttrium iron garnet (YIG) microwave filters, energy-efficient light bulbs, spark plugs, gas mantles, additive to steel, cancer treatments
La	Lanthanum	High refractive index and alkali-resistant glass, flint, hydrogen storage, battery-electrodes, camera lenses, fluid catalytic cracking catalyst for oil refineries
Ce	Cerium	Chemical oxidizing agent, polishing powder, yellow colors in glass and ceramics, catalyst for self-cleaning ovens, fluid catalytic cracking catalyst for oil refineries, ferrocerium flints for lighters
Pr	Praseodymium	Rare-earth magnets, lasers, core material for carbon arc lighting, colorant in glasses and enamels, additive in didymium glass used in welding goggles, ferrocerium firesteel products
Nd	Neodymium	Rare-earth magnets, lasers, violet colors in glass and ceramics, didymium glass, ceramic capacitors, electric motors of electric automobiles
Pm	Promethium	Nuclear batteries, luminous paint
Sm	Samarium	Rare-earth magnets, lasers, neutron capture, masers, control rods of nuclear reactors
Eu	Europium	Red and blue phosphors, lasers, mercury-vapor lamps, fluorescent lamps, NMR relaxation agent
Gd	Gadolinium	High refractive index glass or garnets, lasers, X-ray tubes, computer memories, MRI contrast agent, NMR relaxation agent, magnetostrictive alloys such as Galfenol, steel additive
Tb	Terbium	Additive in Neodymium based magnets, green phosphors, lasers, fluorescent lamps, magnetostrictive alloys such as terfenol-D, naval sonar systems, stabilizer of fuel cells
Dy	Dysprosium	Additive in Neodymium based magnets, lasers, magnetostrictive alloys such as terfenol-D, hard disk drives
Ho	Holmium	Lasers, wavelength calibration standards for optical spectrophotometers, magnets
Er	Erbium	Infrared lasers, vanadium steel, fiber-optic technology
Tm	Thulium	Portable X-ray machines, metal-halide lamps, lasers
Yb	Ytterbium	Infrared lasers, chemical reducing agent, decoy flares, stainless steel, stress gauges, nuclear medicine, monitoring earthquakes
Lu	Lutetium	Positron emission tomography – PET scan detectors, high-refractive-index glass, lutetium tantalate hosts for phosphors, catalyst used in refineries, LED light bulb