中熵多功能超級沃斯田鐵系不銹鋼及其製法

（以下內容一頁為限，不可揭露關鍵技術內容；填表完成後請刪除此行）

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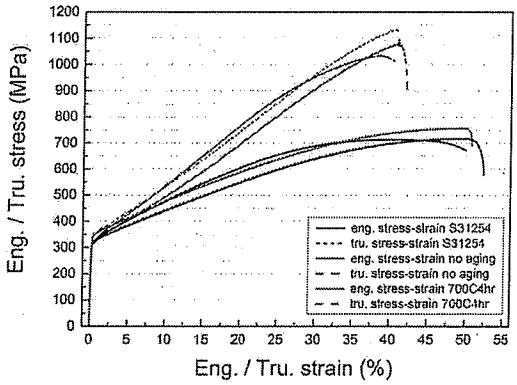
http://www.mse.ntu.edu.tw/images/publish/20181012/2018Publication-Yen_Hung-Wei.pdf



市場及需求: 運用於超級沃斯田鐵系不銹鋼的強度與延展性提升領域，並且提高材料的耐蝕性與抗菌能力。

技術摘要(含成果): 本發明為一種中熵多功能沃斯田鐵系不銹鋼，該鋼材包含以下成份：< 0.02 wt%的碳、23.0~25.0 wt%的鉻、20.0~23.0 wt%的鎳、4.0~7.0 wt%的鉬、3.5~5.0 wt%的銅、< 1.0 wt%的錳和 0.1~0.3wt%的氮，且該鋼材的顯微結構為單相不銹鋼沃斯田鐵相以及無硬脆 sigma 相殘留，經時效退火後，其強度及延展性皆表現優於商用超級沃斯田鐵系合金，且其生物抗菌實驗與抗腐蝕的極化鈍化效果，並符合產業利用性且具有進步性。

優勢: 降伏強度：344 MPa、抗拉強度：757 MPa、延伸率：53.9%、高抗腐蝕性、抗菌特性

競爭產品: 商用合金 SS316、SS31254 和 SS31266

專利現況:
(1) 本案為團隊首次申請之專利

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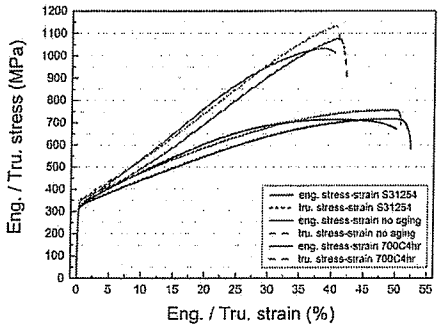
Developments of medium-entropy multifunctional super austenitic stainless steels

(Below is limited to 1-page only; be careful not to disclose vital technology content. Please delete these words when the document is finished)

PI： Prof. Hung-Wei Yen, Department of Material Science and Engineering, National Taiwan University.



Experience:

http://www.mse.ntu.edu.tw/images/publish/20181012/2018Publication-Yen_Hung-Wei.pdf

Market Needs:

Improvement in the field of strength and ductility of super austenitic stainless steel, and the corrosion resistance and antibacterial ability of materials.

Our Technology:

The current invention is a super austenitic stainless steel comprising the following components: < 0.02 wt.% carbon, 23.0~25.0 wt.% chromium, 20.0~23.0 wt.% nickel, 4.0~7.0 wt.% molybdenum, 3.5~5.0 wt.% copper, < 1.0 wt.% manganese and 0.1~0.3 wt.% nitrogen. After proper heat treatments, the microstructure of the steel alloy designed comprises FCC single phase without sigma phase which is hard and brittle. After proper annealing and aging, the strengths and ductility of the steel is execellent. (Yield Strength: 344 MPa, Ultimate Tensile Strength: 757MPa, Total Elongation: 53.9%, high anti-corrosion, and anti-becteria) Moreover, its biological antibacterial and anti-corrosion polarization passivation effect are also outstanding, and obeyed by the industrial utilization and progressive of the patent act of Taiwan Intellectual Property Office.

Competing Products: Commercial stainless steel of SS304, SS31254, and SS31266

Intellectual Properties:

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