

本出版物被SCI收录

ISSN1002-185X
CODEN XJCGEA

稀有金属材料与工程

RARE METAL MATERIALS AND ENGINEERING

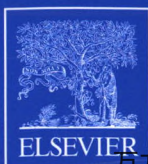


2018年9月
第47卷

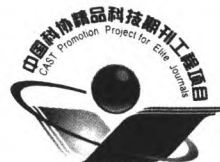
9



中国有色金属学会
中国材料研究学会 主 办
西北有色金属研究院
科学出版社 出 版



万方数据



主管单位 中国科学技术协会

主办单位 西北有色金属研究院 中国有色金属学会 中国材料研究学会

出版单位 科学出版社

月刊

国内外公开发刊

第 47 卷

第 9 期

总第 386 期

2018 年 9 月

• 美国 SCI Expanded[®], Research Alert[®],
Materials Science Citation Index[®]
收录期刊

- 美国工程索引 (EI) 文献源期刊
- 国家重点学术期刊
- 国家精品科技期刊
- 两届中国百强报刊
- 两届国家期刊奖
- 期刊数字影响力百强
- 国家数字出版示范单位
- 中国优秀科技期刊一等奖
- 首届中国科协优秀国际科技期刊奖
- 中国有色金属工业优秀科技期刊一等奖
- 全国有色金属优秀科技期刊一等奖
- 中国期刊方阵双奖期刊
- 中国最具国际影响力的学术期刊
- 中国权威学术期刊
- 陕西省首届“大报名刊工程”期刊
- 陕西省优秀科技期刊特等奖
- 陕西省科协精品科技期刊
- 陕西省第 2 届精品科技期刊
- 陕西省新闻出版行业文明单位
- 中国科技论文统计源期刊
- 中国科学引文数据库文献源
- 中文核心期刊
- 中国材料科学核心期刊
- 同方数据独家授权期刊
- 美国化学文摘 (CA) 文献源期刊
- 英国科学文摘 (INSPEC) 文献源期刊
- 日本科学技术文献速报 (JICST) 用刊
- 俄罗斯文摘杂志 (AJ) 文献源期刊
- 剑桥科学文摘 (CSA) 文献源期刊
- 美、英金属文摘 (MA) 文献源期刊
- 美国国会图书馆收藏刊物

目 次

材料科学

- Effect of Nb Solute Concentration on Crystallite Size Refinement and Strength Enhancement in Mechanically Alloyed Cu-Nb Alloys
.....Lei Ruoshan, Chen Guangrun, Wang Mingpu (2607)
- Failure Mechanisms of Ti-Al₃Ti metal-Intermetallic Laminate Composites Under High-Speed Impact
.....Fan Xueling, Yuan Meini, Qin Qiang (2615)
- Assessment of Stray Grain Formation in Weld Joint of Single Crystal Molybdenum by ANSYS FE Simulation
.....Ma Yan, Xu Yanze, Wang Jianju (2621)
- Effect of Rare Earth Oxide Addition on the Microstructure and Properties of Ultrafine Grain W-20Cu Composites
.....Chen Huipai, Cheng Jigui, Zhang Minglong *et al* (2626)
- Evolution of Microstructure in Al-Mn Alloy with a Low Ratio of Fe/Si During Homogenization
.....Hu Ting, Yin Dengfeng, Yu Xinxiang *et al* (2631)
- Surface Nanocrystallization of 7A52 Aluminum Alloy Welded Joint by Aging and Ultrasonic Impact Compound Treatment
.....Chen Chao, Chen Furong, Zhang Huijing (2637)
- Effect of Temperature on Corrosion Behavior of 304 Stainless Steel in Liquid Sn.....Chen Jiajun, Song Xiping, Wang Han *et al* (2642)
- Novel and Facile Synthesis of Nano SnO₂ with Various Morphologies by Electric Current Stressing
.....Li Wangyun, Cao Shanshan, Zhang Xinping (2647)
- Influence of Si on Microstructures and High-Temperature Properties of MCrAlY Type Coating
.....Zhang Shuting, Du Kaiping, Ren Xianjing *et al* (2652)
- Effect of Rare Earth Pr on Creep Behavior of Sn-0.3Ag-0.7Cu-0.5Ga Low-Ag Solder Alloys
.....Wang Bo, Xue Songbai, Wang Jianxin *et al* (2657)

XIYOU JINSHU CAILIAO YU GONGCHENG

稀有金属材料与工程



主管单位 中国科学技术协会
主办单位 西北有色金属研究院 中国有色金属学会 中国材料研究学会
出版单位 科学出版社
月刊 国内外公开发行 第 47 卷 第 9 期 总第 386 期 2018 年 9 月

- Biocompatible MgO Film on Titanium Substrate Prepared by Sol-gel Method.....Yu Shunzhi, Li Zhonghai, Han Liwei *et al* (2663)
- AlN/Ga-based Liquid Metal/PDMS Ternary Thermal Grease for Heat Dissipation in Electronic Devices
.....Liu Han, Liu Huiqiang, Lin Zuoye *et al* (2668)
- Microstructural Characterization and Growth Kinetics of the Reaction Layer in U-10wt% Zr/Zircaloy-4 Diffusion Couples
.....Zhang Yuting, Wang Xin, Liu Pengchuang *et al* (2675)
- Microstructure and Superconductivity of Bi-2223 Tape Prepared by Precursor Powders with Different Particle Sizes
.....Cui Lijun, Zhang Pingxiang, Li Jinshan *et al* (2682)
- Effects of Point Defects on Properties of B2 NiAl: A First-principles Study.....Niu Xiaofeng, Huang Zhiwei, Wang Baojian *et al* (2687)
- 铜模喷铸 Cu-Zr 合金非平衡凝固组织演变行为
.....何文, 杨伟, 余欢 (2693)
- Bi 掺杂 Mg₂Si 的稳定性, 弹性性能和电子结构的第一性原理计算
.....任玉艳, 王文欣, 李英民 (2699)
- 魏氏组织 TC17 钛合金绝热剪切带 (ASB) 的组织与结构
.....黄斌, 任维佳, 张艳敏等 (2705)
- β -CEZ 钛合金在固溶时效时 ω 相与 α 相的组织演化规律
.....何涛, 冯勇, 刘向宏等 (2711)
- Al₂O₃/Ti₂AlN 复合材料的高温抗氧化行为
.....郑卓, 孙维民, 刘正 (2717)
- ZrO₂ 加入量对 Zr-8Al 合金化学复合镀性能的影响
.....马静, 李强, 李建辉 (2723)
- 氧缺陷型金红石相 TiO_{2-x} (x=0~0.5) 光电性能理论研究
.....卫诗倩, 王芳, 曾凯悦等 (2728)
- AZ91-3Ca 镁合金组织结构和电化学行为的研究
.....王冬晓, 王忠军, 张涛等 (2735)
- FeCrNiAl 系高熵合金高温氧化行为及组织演变研究
.....刘勇, 朱景川, 赵晓亮等 (2743)

出版 科学出版社

(北京市东黄城根北街 16 号, 100717)

编辑 《稀有金属材料与工程》编辑部

主编 张平祥

副主编 石应江

编辑部主任 李哲

责任编辑 蒲正利 刘延昌 谢曼

梁燕 苑硕 衡梦娟

英文编辑 齐国翠

编务 刘亚利

排版 王嵘 杜亚凤

本期责任编辑 梁燕 蒲正利

印刷 西安创维印务有限责任公司

国内发行 中国邮政集团公司

陕西省报刊发行局

国内发行代号 52-172

国外发行 中国国际图书贸易有限公司

(北京市 399 信箱, 100048)

国外发行代号 M4873

编辑部地址 西安市 51 号信箱 710016

电话 029-86231117

传真 029-86231103

http://www.rmme.ac.cn

E-mail: rmme@c-nin.com

国内统一连续出版物号 CN 61-1154/TG

国际标准连续出版物号 ISSN 1002-185X

广告经营许可证号 6100004000085

国内外公开发行

定价 100 元

期刊基本参数: CN61-1154/TG * 1970 * m * A4 * 316 * zh * P * 100.00 * 2200 * 50 * 2018-09

XIYOU JINSHU CAILIAO YU GONGCHENG

稀有金属材料与工程



主管单位 中国科学技术协会
主办单位 西北有色金属研究院 中国有色金属学会 中国材料研究学会
出版单位 科学出版社
月刊 国内外公开发行 第 47 卷 第 9 期 总第 386 期 2018 年 9 月

- ZrCo 和 $Zr_{0.7}Hf_{0.3}Co$ 合金中氢泡演化和氢热释放研究·····彭丽霞, 赖新春, 蒋春丽等 (2749)
- Y、Gd、La 和 Ce 对 Zr(-Ti)-Cu-Ni-Al 非晶形成能力和力学性能的影响·····李正坤, 秦鑫冬, 刘丁铭等 (2755)
- Zr-Nb-Cu 合金在 500 °C/10.3 MPa 过热蒸汽中的腐蚀行为·····李 强, 马 帅, 杨艳平等 (2761)
- Hastelloy N 合金表面激光熔覆 NiCoCrAlY 涂层在 LiF-NaF-KF 熔盐中的腐蚀行为研究
·····朱红梅, 陈明慧, 唐忠锋等 (2767)
- $FeTiO_3$ - Fe_2O_3 固溶体合成及其非等温碳热还原研究·····邢相栋, 刘依然, 巨建涛等 (2775)
- $Co_{1.2}Mn_{0.8}B$ 化合物的磁性能与磁热效应·····王 岛, 马 垒, 赵世谦等 (2782)
- 具有高强高塑性和良好加工硬化行为的新亚稳 β 钛合金设计 & 发展·····张金勇, 李金山, 陈 正等 (2787)

材料工艺

- Ti-22Al-24Nb 合金热成形工艺参数优化研究·····任书杰, 王克鲁, 鲁世强等 (2793)
- 外能辅助下 Sn2.5Ag0.7Cu0.1RE0.05Ni/Cu 钎焊接头组织与性能·····崔建国, 张柯柯, 赵 迪等 (2800)
- 不同形貌 Pt 纳米颗粒有序阵列的可控制备及其光学特性·····王 楚, 向军淮, 张 涛等 (2807)
- 半固态挤压铸造铜合金的组织与力学性能·····李乃拥, 肖 寒, 熊 迟等 (2813)
- 不同应变比下 γ -TiAl 合金疲劳裂纹扩展机理·····冯瑞成, 卢建涛, 李海燕等 (2821)
- 退火对 CrCuFeMnTi 高熵合金组织结构和力学性能的影响·····农智升, 张 波, 朱景川 (2827)
- 等通道转角挤压对生物 Mg-Zn-Ca 合金显微组织与腐蚀行为的影响·····张润芳, 刘德宝, 李 华等 (2833)
- 复合喷丸强化对 EB-PVD 制备 CoCrAlY 涂层高温氧化性能的影响·····邓仲华, 刘其斌, 何利民等 (2840)
- 亚微米球形镍粉的两步法可控制备与表征·····邹俭鹏, 杨洪志, 刘如铁 (2847)
- 煅烧温度对锂电池正极材料 $LiNi_{0.5}Co_{0.2}Mn_{0.3}O_2$ 的结构和电学性能影响·····王 滨, 张海朗 (2852)
- 永磁场对金合金二次枝晶臂间距和析出相的影响·····张俊凯, 厉 英 (2857)
- 挤压参数和 Y 含量对 Mg-Y 合金棒材显微组织及拉-压变形行为的影响·····黄广号, 李 欣, 尹冬弟等 (2861)
- 相变温度附近热处理对 Mg97Zn1Y2 合金组织演化的影响·····万迪庆, 叶舒婷, 胡莹琳等 (2869)
- 5A02 铝合金表面微纳结构的制备及防腐行为研究·····刘 聪, 李雪伍, 雷勇杰等 (2875)
- 超声作用下 Sn-Ag-Ti(-Al) 活性钎料在石墨表面的铺展行为·····俞伟元, 颜泽华, 刘新亚等 (2881)
- 原料粉末对 SPS 烧结 W-10Ti 合金组织及性能的影响·····代卫丽, 梁淑华, 罗亚涛等 (2888)
- TC17 钛合金高温变形行为研究·····杨晓康, 王快社, 史佳敏等 (2895)
- BN 纤维束增强氮化物复合材料的制备与性能·····李建平, 成来飞, 叶 昉等 (2901)

综合评述

- 超高温 Nb-Si 基复合材料研究现状·····徐严谨, 褚 楚, 侯红亮等 (2909)

期刊基本参数: CN61-1154/TG * 1970 * m * A4 * 316 * zh * P * 100.00 * 2200 * 50 * 2018-09

RARE METAL MATERIALS AND ENGINEERING

This publication is covered in SCI Expanded®, Research Alert®, and Materials Science Citation Index®

Monthly, International Scholarly Journal, ISSN 1002-185X Vol. 47 No. 9 Sum 386 September 2018

CONTENTS

Materials Science

- Effect of Nb Solute Concentration on Crystallite Size Refinement and Strength Enhancement in Mechanically Alloyed Cu-Nb Alloys
.....Lei Ruoshan, Chen Guangrun, Wang Mingpu (2607)
- Failure Mechanisms of Ti-Al₃Ti metal-Intermetallic Laminate Composites Under High-Speed Impact
.....Fan Xueling, Yuan Meini, Qin Qiang (2615)
- Assessment of Stray Grain Formation in Weld Joint of Single Crystal Molybdenum by ANSYS FE Simulation
.....Ma Yan, Xu Yanze, Wang Jianju (2621)
- Effect of Rare Earth Oxide Addition on the Microstructure and Properties of Ultrafine Grain W-20Cu Composites
.....Chen Huipei, Cheng Jigui, Zhang Minglong *et al* (2626)
- Evolution of Microstructure in Al-Mn Alloy with a Low Ratio of Fe/Si During Homogenization
.....Hu Ting, Yin Dengfeng, Yu Xinxiang *et al* (2631)
- Surface Nanocrystallization of 7A52 Aluminum Alloy Welded Joint by Aging and Ultrasonic Impact Compound Treatment
.....Chen Chao, Chen Furong, Zhang Huijing (2637)
- Effect of Temperature on Corrosion Behavior of 304 Stainless Steel in Liquid Sn
.....Chen Jiajun, Song Xiping, Wang Han *et al* (2642)
- Novel and Facile Synthesis of Nano SnO₂ with Various Morphologies by Electric Current Stressing
.....Li Wangyun, Cao Shanshan, Zhang Xinping (2647)
- Influence of Si on Microstructures and High-Temperature Properties of MCrAlY Type Coating
.....Zhang Shuting, Du Kaiping, Ren Xianjing *et al* (2652)
- Effect of Rare Earth Pr on Creep Behavior of Sn-0.3Ag- 0.7Cu-0.5Ga Low-Ag Solder Alloys
.....Wang Bo, Xue Songbai, Wang Jianxin *et al* (2657)
- Biocompatible MgO Film on Titanium Substrate Prepared by Sol-gel Method
.....Yu Shunzhi, Li Zhonghai, Han Liwei *et al* (2663)
- AlN/Ga-based Liquid Metal/PDMS Ternary Thermal Grease for Heat Dissipation in Electronic Devices
.....Liu Han, Liu Huiqiang, Lin Zuoye *et al* (2668)
- Microstructural Characterization and Growth Kinetics of the Reaction Layer in U-10wt% Zr/Zircaloy-4 Diffusion Couples
.....Zhang Yuting, Wang Xin, Liu Pengchuang *et al* (2675)

This Journal is covered in SCI Expanded®, Research Alert®, Materials Science Citation Index® (MSCI); Engineering Index (EI); Chemical Abstracts (CA); Abstracts Journal (AJ); INSPEC; JICST; Cambridge Scientific Abstracts (CSA); Metals Abstracts (MA); World Aluminum Abstracts; Chinese Scientific and Technical Papers and Citations (CSTPC); Chinese Science Citation Index (CSCI).

Administrated by China Association for Science and Technology

Sponsored by Northwest Institute for Nonferrous Metal Research, the Nonferrous Metals Society of China, Chinese Materials Research Society

Published by Science Press
(16 Donghuangchenggen North Street, Beijing 100717, China)

Edited by Rare Metal Materials and Engineering Press

Editor in Chief: Zhang Pingxiang

Address: P. O. Box 51, Xi'an, Shaanxi, 710016, China

Tel: 0086-29-86231117

Fax: 0086-29-86231103

http: //www.rmme.ac.cn

E-mail: rmme@c-nin.com

Overseas Distributor: China International Book Trade Corporation
(P. O. Box 399, Beijing 100048, China)

Overseas Annual Subscription Rate: USD300

RARE METAL MATERIALS AND ENGINEERING

This publication is covered in SCI Expanded®, Research Alert®, and Materials Science Citation Index®

Monthly, International Scholarly Journal, ISSN 1002-185X Vol. 47 No. 9 Sum 386 September 2018

Microstructure and Superconductivity of Bi-2223 Tape Prepared by Precursor Powders with Different Particle Sizes

.....Cui Lijun, Zhang Pingxiang, Li Jinshan *et al* (2682)

Effects of Point Defects on Properties of B2 NiAl: A First-principles Study

.....Niu Xiaofeng, Huang Zhiwei, Wang Baojian *et al* (2687)

Microstructure Evolution of Non-equilibrium Solidified Cu-Zr Alloy by Spray Casting

.....He Wen, Yang Wei, Yu Huan (2693)

First Principles Study on Stability, Elastic Properties and Electronic Structure of Bi-Doped Mg₂Si

.....Ren Yuyan, Wang Wenxin, Li Yingmin (2699)

Microstructure and Texture of Adiabatic Shear Band (ASB) in TC17 Titanium Alloy with Widmanstätten Microstructure

.....Huang Bin, Ren Weijia, Zhang Yanmin *et al* (2705)

Microstructure Evolution of ω and α Phase of β -CEZ Alloy During the Solution Treatment and Aging Process

.....He Tao, Feng Yong, Liu Xianghong *et al* (2711)

Oxidation Behavior of Al₂O₃/Ti₂AlN Composite at High Temperature in Air

.....Zheng Zhuo, Sun Weimin, Liu Zheng (2717)

Effects of ZrO₂ Addition on Properties of Electroless Composite Plating on Zr-8Al Alloy

.....Ma Jing, Li Qiang, Li Jianhui (2723)

Theory Research on Photoelectric Properties of Oxygen-deficient Rutile TiO_{2-x} ($x=0\sim0.5$)

.....Wei Shiqian, Wang Fang, Zeng Kaiyue *et al* (2728)

Microstructure and Electrochemical Behavior of AZ91-3Ca Magnesium Alloy

.....Wang Dongxiao, Wang Zhongjun, Zhang Tao *et al* (2735)

Oxidation Behaviors of FeCrNiAl High Entropy Alloy and Its Microstructure Evolution

.....Liu Yong, Zhu Jingchuan, Zhao Xiaoliang *et al* (2743)

Helium Bubble Evolution and Thermal Helium Release Behavior in ZrCo and Zr_{0.7}Hf_{0.3}Co Alloys

.....Peng Lixia, Lai Xinchun, Jiang Chunli (2749)

Effect of Y, Gd, La and Ce on the Glass Forming Ability and Mechanical Properties of Zr(-Ti)-Cu-Ni-Al Metallic Glasses

.....Li Zhengkun, Qin Xindong, Liu Dingming *et al* (2755)

Corrosion Behavior of Zr-Nb-Cu Alloys in 500 °C/10.3 MPa Steam.....Li Qiang, Ma Shuai, Yang Yanping *et al* (2761)

Corrosion Behavior in Molten LiF-NaF-KF Salt of NiCoCrAlY Coating Prepared by Laser Cladding on Hastelloy N

.....Zhu Hongmei, Chen Minghui, Tang Zhongfeng *et al* (2767)

Synthesis and Non-isothermal Carbothermic Reduction of FeTiO₃-Fe₂O₃ Solid Solution Systems

.....Xing Xiangdong, Liu Yiran, Ju Jiantao *et al* (2775)

Magnetic Properties and Magnetocaloric Effect of Co_{1.2}Mn_{0.8}B Compound.....Wang Dao, Ma Lei, Zhao Shiqian *et al* (2782)

Design and Development of New β Titanium Alloys with High Strength, Large Ductility and Improved Strain-hardening Behavior

.....Zhang Jinyong, Li Jinshan, Chen Zheng *et al* (2787)

RARE METAL MATERIALS AND ENGINEERING

This publication is covered in SCI Expanded®, Research Alert®, and Materials Science Citation Index®

Monthly, International Scholarly Journal, ISSN 1002-185X Vol. 47 No. 9 Sum 386 September 2018

Materials Technology

- Optimization of Hot Forming Parameters for Ti-22Al-24Nb Alloy.....Ren Shujie, Wang Kelu, Lu Shiqiang *et al* (2793)
- Microstructure and Properties of Sn_{2.5}Ag_{0.7}Cu_{0.1}RE_{0.05}Ni/Cu Solder Joints Obtained by External Energy Assisted Soldering
.....Cui Jianguo, Zhang Keke, Zhao Di *et al* (2800)
- Controllable Fabrication of Pt Nanoparticle Arrays with Various Morphologies and Their Optical Properties
.....Wang Chu, Xiang Junhuai, Zhang Tao *et al* (2807)
- Microstructure and Mechanical Properties of Semi-Solid Squeeze Casting Copper Alloy
.....Li Naiyong, Xiao Han, Xiong Chi *et al* (2813)
- Fatigue Crack Propagation Mechanism of γ -TiAl Alloy under Different Strain Ratios
.....Feng Ruicheng, Lu Jiantao, Li Haiyan *et al* (2821)
- Effect of Annealing on Microstructures and Mechanical Properties of CrCuFeMnTi High Entropy Alloy
.....Nong Zhisheng, Zhang Bo, Zhu Jingchuan (2827)
- Effects of ECAP on Microstructure and Corrosion Behavior of Biomedical Mg-Zn-Ca Alloy
.....Zhang Runfang, Liu Debao, Li Hua *et al* (2833)
- Effect of Surface Compound Shot Peening Process on Isothermal Oxidation of CoCrAlY Coatings Prepared by EB-PVD
.....Deng Zhonghua, Liu Qibin, He Limin *et al* (2840)
- Controllable Preparation and Characterization of Sub-micron Spherical Ni Powder with Two Step Method
.....Zou Jianpeng, Yang Hongzhi, Liu Rutie (2847)
- Effect of Calcination Temperature on Structure and Electrical Properties of LiNi_{0.5}Co_{0.2}Mn_{0.3}O₂ as Cathode Material for
Lithium Battery.....Wang Bin, Zhang Hailang (2852)
- Effects of Permanent Magnetic Field on Secondary Dendrite Arm Spacing and Precipitate Phase of Gold Alloy
.....Zhang Junkai, Li Ying(2857)
- Effect of Extrusion Parameters and Y Content on the Microstructure and Tension-Compression Deformation Behavior of
Extruded Mg-Y Alloy Bars.....Huang Guanghao, Li Xin, Yin Dongdi *et al* (2861)
- Effect of the Isothermal Heat Treatment near the Phase Transition Temperature on Microstructure Evolution of Mg₉₇Zn₁Y₂ Alloy
.....Wan Diqing, Ye Shuting, Hu Yinglin *et al* (2869)
- Fabrication of Micro-Nano Structures on 5A02 Al Alloy Substrate Surface and Their Anti-corrosion Property
.....Liu Cong, Li Xuewu, Lei Yongjie *et al* (2875)
- Spreading Behaviors of Sn-Ag-Ti(-Al) Active Solder Droplets on the Surface of Graphite by Ultrasonic Vibration
.....Yu Weiyuan, Yan Zehua, Liu Xinya *et al* (2881)
- Effect of Raw Material Powders on Microstructure and Property of W-10Ti Alloy Prepared by Spark Plasma Sintering
.....Dai Weili, Liang Shuhua, Luo Yatao *et al* (2888)
- High Temperature Deformation Behaviour of TC17 Titanium Alloy.....Yang Xiaokang, Wang Kuaishen, Shi Jiamin *et al* (2895)
- Preparation and Properties of BN Fiber Reinforced Nitride Mini-composites.....Li Jianping, Cheng Laifei, Ye Fang *et al* (2901)

Reviews

- Research Status Quo of Ultrahigh-Temperature Nb-Si-Based Composites.....Xu Yanjin, Chu Chu, Hou Hongliang *et al* (2909)

Serial Parameters: CN61-1154/TG * 1970 * m * A4 * 316 * zh * P * 100.00 * 2200 * 50 * 2018-09



西安欧中材料科技有限公司

Sino-Euro Materials Technologies of Xi'an Co., Ltd.

西安欧中材料科技有限公司隶属于西北有色金属研究院(集团),专业从事金属球形粉末生产的高新技术企业,注册资本6000万元。公司引进国外成套等离子旋转电极制粉生产线,获授权国家专利10余项,主要致力于钛合金、高温合金、钴铬合金、特种不锈钢及难熔金属球形粉末的研发、生产和销售,产品主要应用于航空航天、金属增材制造、生物医疗等领域。

西安欧中材料科技有限公司已被西安市认定为高新技术企业,通过ISO9001质量体系认证、AS9100航空航天质量管理体系认证、ISO13485医疗器械体系认证。

SMT PREP Powder

Standard Spherical Powder Products

CP Titanium
Ti-6Al-4V Grade 5 & 23
Ti-6Al-4V 800ppm
BT20(TA15), Ti-6Al-7Nb
Maraging steel, Stainless steel
In625, In718, Hastelloy X
EP741NP
Co-Cr-W, Co-Cr-Mo

Customized Spherical Powder Products

Tantalum
Vanadium
TiAl, Ti₂AlNb
Specialty steel(AF1410, AeroMet 100)

地址: 陕西省西安市凤城二路45号

电话: 029-86261802

传真: 029-86261802

邮箱: market@c-semt.com

网址: www.c-semt.com



ISSN 1002-185X

CN 61-1154/TG



9 771002 185187