



Department: School of Chemical Engineering
Professional field: Chemical Engineering and Technology
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Profile

National supervisor, National 863 program resource and environment (subject) expert, member of expert review group of Engineering Materials Department of NSFC, member of chemical engineering and technology discipline review group of Academic Degree Committee of the State Council, and vice chairman of Chemical Engineering Professional Teaching Steering Committee of the Ministry of Education (2014-2018)

He graduated from East China University of science and technology in 1982 with a master's degree in inorganic chemical engineering from East China University of science and technology in 1988 and a doctor's degree in chemical engineering from East China University of science and technology in 1998. He once went to the reaction and Separation Engineering Laboratory (Isre) of Porto University in Portugal to engage in doctoral joint training and research.

Research Field

(1) advanced separation technology of complex material system

The theory of reaction engineering, separation engineering and computer hydrodynamics are systematically studied, and the unit technologies of reaction crystallization coupling, liquid-liquid extraction, liquid-solid flotation, liquid-solid hydrocyclone are developed.

(2) preparation and material chemistry of inorganic functional materials

The preparation technology and material chemistry theory of new adsorption materials, inorganic whiskers and flame retardant materials with high added value and fine inorganic functional materials were systematically studied.

(3) industrial waste recycling technology

In view of the typical industrial waste, coal gangue, potassium feldspar, alunite and other efficient transformation and utilization technologies, technical emission reduction and resource utilization research are carried out.

Research results and selected published papers

1. Impurity Ions Effect on CO₂ Mineralization via Coupled Reaction-Extraction-Crystallization Process of CaCl₂ Waste Liquids[J]. Journal of CO₂ Utilization, 2018, 27, 115-128.
2. Insight into Thermal Dissociation of Tri-n-octylamine Hydrochloride: The Key to Realizing CO₂ Mineralization with Waste Calcium/Magnesium Chloride Liquids[J]. Energy Science and Engineering, 2018, 6(5), 437-447.
3. Investigation of amorphous calcium carbonate's formation under high concentration of magnesium: The prenucleation cluster pathway. Journal of Crystal Growth, 2018, 494, 8-16.
4. Synergistic catalytic effect of light rare earth element and other additives on the degree of graphitization and properties of graphite[J]. Journal of Materials Science, 2017, 52(2): 663-673.
5. Further investigation into lithium recovery from salt lake brines with different feed characteristics by electrodialysis[J]. Journal of Membrane Science, 2017, 530: 185-191.
6. Leaching process for recovering valuable metals from the LiNi_{1/3}Co_{1/3}Mn_{1/3}O₂ cathode of lithium-ion batteries[J]. Waste Management, 2017.
7. Enrichment of ventilation air methane by adsorption with displacement chromatography technology: Experiment and numerical simulation[J]. Chemical Engineering Science, 2016, 149: 215-228.
8. A pseudo-3D model with 3D accuracy and 2D cost for the CFD-PBM simulation of a pilot-scale rotating disc contactor[J]. Chemical Engineering Science, 2016, 139: 27-40.
9. Mineralizing CO₂ as MgCO₃·3H₂O Using Abandoned MgCl₂ Based on a Coupled Reaction-Extraction-Alcohol Precipitation Process[J]. Energy & Fuels, 2016, 30(9): 7551-7559.
10. Crystal structure of aluminum sulfate hexadecahydrate and its morphology[J]. Crystal Research & Technology, 2015, 50(4): 293-298.
11. Effect of additives on the morphology of calcium sulfate hemihydrate: Experimental and molecular dynamics simulation studies[J]. Chemical Engineering Journal, 2015, 278: 320-327.
12. Colloidal Processing of Mg(OH)₂ Aqueous Suspensions Using Sodium Polyacrylate as Dispersant[J]. Industrial & Engineering Chemistry Research, 2014, 53(12): 4755-4762.