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Energy Conservation (Monthly)**Sponsor:** Liaoning Provincial Institute of Science and Technology Information**Publisher:** Energy Conservation Magazine Publishing House**Chief Editor:** JIN Na**Address:** No. 274, Qingnian Boulevard, Shenyang City, Liaoning Province, China**Post Code:** 110016**CONTENTS**

Mar. 2011 Vol. 30, No. 3 Total Issue No. 344

Review of the low-temperature waste heat recovery technology in distributed energy systemsPENG Han-ming, YANG Min-lin, JIANG Run-hua, et al
(School of Electric Power, South China University of Technology, Guangzhou 510640, China)

Abstract: The use of low-temperature waste heat is an important part of the energy conservation and emissions reduction. This paper introduces the application of low-temperature waste heat in China, especially analyses and compares the common low-temperature waste heat recovery technology at home and abroad. In the Eleventh Five-Year Plan of China's energy clear pointed out that the distributed energy system should be developed. According to the concept of energy grade and its background, this article studies the low-temperature waste heat recovery technology in the distributed energy system.

Key words: low-temperature waste heat; recovery technology; distributed energy system

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Analysis of the application of low temperature storage energy-saving technology in freezing construction technologyZHENG Hong-tao, SHU Ji-qiang, LIU Hai-xin, et al
(State Key Laboratory of deep rock mechanics and underground works of Wenchang campus of China University of mining and technology, Xuzhou 221008, China)

Abstract: With the increasingly shortage of energy and the development of the city, the coal exploitation in deep topsoil with complex geological conditions, and construction of underground engineering, has been put on the agenda. As a special technology of underground construction, freezing method is one of the best choices. But the high cost limits its wide application. The paper introduces its development status, and analysis the application prospects and feasibility of the cold storage energy-saving technology in freezing method, put forward to solve technical problems. Finally, taking a project to analysis economic and technical problems.

Key words: cold storage energy-saving; freezing method; low temperature

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General review of the application of flue gas purification technology for MSW incineration power plantCAO Li-hong
(Guangzhou Yuntai Power Sets Equipment Co. Ltd., Guangzhou 510530, China)

Abstract: This essay talks about the features of the Municipal Solid Waste (MSW) in our country as at present, and suggests the necessity of MSW incineration. It briefly introduces the process of MSW incineration and the pollutant it create. According to the country's requirements and discharge standard about flue gas treatment of MSW incin-

eration power plant, in this essay, put forward three kinds of flue gas purification technology for MSW power plant which are popular around the world nowadays. State out the advantages and disadvantages, sum up the features of the most prevailing technology and lay examples of practice case. At last, find out the semi-dry flue gas purification technology is the most efficient one with less investment and running cost, also easier in operation procedure. It is a very promising technology for MSW incineration power plant.

Key words: MSW incineration; power generate; flue gas purification technology; semi-dry

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Basic characteristics experimental study on gas ash in rotary kiln of the technology of preparing Strontium CarbonateLI Fei-xiang, WANG Xue-bin, ZHAO Qin-xin, et al
(State Key Laboratory of Multiphase Flow in Power Engineering, Xi'an Jiaotong University, Xi'an 710049, China)

Abstract: A burning test on gas ash in rotary kiln of the technology of preparing stontium carbonate, which comprised strontium carbonate ash burning at temperature 100 ~ 600°C, the surface and microscopic features of ash being observed by advanced microscope, and particle size distribution got at variable temperature conditions by Mivnt image analyzer. The result shows that: the weight and appearance color of ash changed obviously when temperature was over 450°C, the influence of the temperature to particle size distribution is weak except the setion 300 ~ 450°C. It possesses guiding significance for waste-heat recovering very well.

Key words: stontium carbonate gas ash; burning; appearance; particle size distribution

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The analysis on the impacts of the unit economical efficiency about spraying desuperheating
ZHANG Shu-fang, ZANG Yu-jia
(North China Electric Power University, School of Energy and Power Engineering, Baoding 071003, China)

Abstract: Gives the universal thermo economic equation, analysed the influences on the thermo economics of the unit caused by different spray positions of superheater and reheater based on domestic 300MW unit. The result shows that, attemperating water discharged from the highest heater of superheater and reheater has the least influence. And the water from reheater has a larger effect on thermo economics of the unit than the water from superheater.

Key words: regulation of steam temperature; state equation; economical efficiency

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Comparing heat exchanger components in a tube based on numerical simulation and experimental studyFAN Yong-zhao, GUAN Chang-feng, YAN Hua, et al
(College of Mechanical and Electrical Engineering, Beijing University of Chemical Technology, Beijing 100029, China)

Abstract: Using numerical simulation software Fluent 6.0 to analyse the performance of the heat exchanger components in a tube, besides, contrast the result by experiment under the same conditions. Compared with the disadvantage of the radial spoiler of the twisted tape, conclude that the self-rotating rotor is better. In this way, it can improve the coefficient of heat transfer, and it can forceful guide the practical use.

Key words: enhancement of heat transfer; self-rotating rotor; twisted tape; numerical simulation

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Optimal matching design example of wind and solar energy hybrid independent power supply system
FANG Yan, GAO Shan-feng, SHAO Shi-pu, et al
(YANCON Group Donghua Dikuang Construction Company, Zoucheng 273500, China)

Abstract: For wind and solar energy hybrid independent power supply system, design of system components is a reasonable match full advantage of wind and solar power supply system independent of the key. However, due to complementary scenery extensive use of independent power supply system, the traditional wind power systems or experience in the design of photovoltaic power generation system has been difficult to meet the system requirements of economy and reliability, which uses computer simulation and optimization of matching design becomes very necessary. So this paper, the minimum system installation cost as the optimization target, the system reliability of power supply constraints, a resident of the city of Inner Mongolia, Manchuria, home wind and solar power supply system independent of computer simulation-based optimization of matching design.

Key words: wind and solar energy hybrid independent power supply system; simulation calculation; optimal matching design

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The application of desulphurization technique in the plant of CPCC QILU branch company
WANG Lin, LIU Zhi-gang, GAO Qiang
(Qilu petrochemical coal-fired power station, Zibo 255000, China)

Abstract: The desulphurization equipment firstly in China adopting MARSULEX process is the most advanced technique in the world, which has been applied successfully to the thermal power plant of CPCC QILU Branch Company for the first time in operation on 22nd, 8, 2009. The output products ammonium sulphate fertilizer has quite good quality with its norms reaching or even exceeding the designed value and sells greatly well. The equipment has some distinguishing features as following: high-efficiency, low resources consumption (water, ammonia), and steady-going, etc, which attract a lot of petrification and chemical industry company members coming for a visit.

This paper particularly introduces the structure and every component of the desulphurization equipment, analyzes and researches every system of the equipment. The paper also expounds the feasibility and the necessity of desulphurization, combined with its efficiency as well as the production and consumption situation of ammonium.

The whole year steady operation of the equipment of CPCC QILU Company bears out that the method of ammonium desulphurization is great and clears up the old perceptions that ammonium desulphurization is immature. And it has paved the way for extension and further development of the ammonium desulphurization in China since then.

Key words: MARSULEX; ammonia process of desulfurization; chemical fertilizer of ammonia sulfate

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The economic analysis on solid-adsorption desiccant technology used in the central air-conditioning system of civil buildings
CHEN Huan, LI Wei, CAI Wei-li, et al
(Energy college, Nanjing University of Technology, Nanjing 210009, China)

Abstract: According to the high energy consumption of traditional dehumidification mode, the technology of solid-adsorption desiccant is

proposed to be used in the central air-conditioning system of civil buildings, and the economic analysis of an example using dry fan coil units plus fresh air system with solid-adsorption desiccant and traditional fan-coil unit plus fresh air system separately is given. The results showed, compared with traditional fan-coil unit plus fresh air system, the dry fan coil units plus fresh air system with solid-adsorption desiccant can save 14W/m² in the summer per day and it decrease the building energy consumption.

Key words: solid desiccant; central air-conditioning; economy

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The economic analysis between the ground source heat pump performance and the length of tube

CAO Xue-ming
(Communication Planning and Design Institute of Hubei Province, Wuhan 430051, China)

Abstract: From the investment costs and operating costs, analyzing the different length of underground heat pipe impact on the ground source heat pump performance, in the procedure of the ground heat exchanger design, appropriate to increase the length of pipe in the case of meeting the load can improve the unit coefficient of performance, save operating costs, conditions, and provide some valuable information for the design of underground heat exchanger.

Key words: COP; tube length; initial investment; operating costs

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Study on high efficient low resistance boiler with direct contact heat exchanger

LIU Xiao-zhou
(Faculty of materials and energy, Guangdong University of Technology, Guangzhou 510006, China)

Abstract: In order to substantially increase the efficiency of natural gas boiler, a new boiler with the direct contact heat exchanger. recover gas waste heat was put forward experimental studies were obtained for the engineering design of the empirical formula. Base on the formula, a new two tons of natural gas boilers with new energy-saving devices was design and worked well. Finally, the main impact factors of effect of the energy-saving heat exchanger was analysed, and the trend of liquid-gas ratio, energy saving devices gas flow resistance along with exhaust gas temperature was studied.

Key words: natural gas boiler; waste heat recovery; energy-saving devices in direct contact; high resistivity

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Technical retrofit of air flow measure set in boiler

ZHAO An-min, HUANG Da-sheng
(Huaneng Pingliang Electric Power Co. Ltd., Pingliang 74400, China)

Abstract: Air flow measure set in Huaneng Pingliang Power 4 x 300MW unit boiler used airplane. The set sampling tubes are often dust that jam. Air flow cannot be measured accurately. Often appear larger or smaller or sudden wave phenomenon. Air flow automatic control often solution. The serious influence of boiler combustion efficiency and boiler protection device reliability. Therefore, start technical reformation, user new measure set. To improve the accuracy of measurement, to improve unit the security and reliability.

Key words: boiler; air flow; set; reliability

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企业名录

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