

ENERGY TECHNOLOGIES AND RESOURCE SAVING

Scientific-Technical Journal

Founded in January, 1960. Comes out 6 times a year

№ 1, 2009

Contents

From Chief-Editor

Fuel and Energetics

- 4 **Maystrenko A.Yu., Rohman B.B., Vyfatniuk V.G., Chernyavskiy N.V.** The Development of New Solid Fuels Fluidized Bed Combustion Technologies. 1. The Engineering Calculation Method
- 13 **Savitskiy D.P., Egurnov A.I., Makarov A.S., Zavgorodnii V.A.** Liquid-Fuel on Coal Wastes and Brown Coal Basis (Review)

Energy Saving Technologies

- 18 **Nikitin E.E.** The System Approach for Energy Efficiency Procedures Selection at Settlements Heat Supply Systems Modernization in Conditions of Financial Restrictions

Raw Materials Processing and Resource Saving

- 27 **Brazhnyk D.V., Zazhigalov V.A., Grigoryan R.R., Vartykian L.A., Garibyan T.A.** Natural Zeolites Application for Blowout Gases Neutralization Catalysts Production. 2. Carbon Oxide Oxidation
- 33 **Tjulpinov D.A., Suvorin A.V., Tjulpinov A.D.** Catalyst Layer Application as Flame Barrier Head
- 37 **Barbash V.A., Trembus I.V., Shevchenko B.M.** Organic Solvent Methods of Fibrous Half-Finished Products Manufacture from Wheat Straw

Wastes Purification and Processing

- 42 **Maidukov G.L., Kislov B.I., Grigoruk M.Ye.** Economical and Ecological Analysis of Coal Enterprises Solid Wastes
- 49 **Nagursky O.A., Vashchuk V.V.** The Investigation of Polystyrene Wastes Biological Decomposition at Natural Polysaccharide Presence
- 52 **Magunov R.L., Magunov I.R.** Hydroxide Methods of Germanium Recovery from Industrial Waters of Coke Chemistry
- 58 **Kuchera Ya.I., Vasiychuk V.O., Gritsiv Yu.M.** The Efficient Method of Sulphide-Alkaline Sewages of Ethylene Manufacture Purification Development

Environment Protection

- 62 **Gumnitsky J.M., Ljuta O.V., Sabadash V.V.** Mineral Fertilizers Components Elution from Soil Natural Environment
- 65 **Petrova M.A., Petrushka I.M., Krip I.M.** The Influence of Hydrodynamic Modes on Cesium and Strontium by Modified Clay Minerals Sorption Process
- 71 **Priemov S.I., Serebryansky D.A., Dolgarev G.V.** The Efficiency Estimation of Superfine Carbon-Black Catching from Smoke Gases during Coke-Oven Batteries Loading

Devices and Equipment

- 73 **Pikashov V.S., Trotsenko L.N., Novikov N.V., Dunaychuk S.N., Tsvetkov S.V., Prusskiy A.A.** The Experience of Drum-Type Furnaces Conversion for Natural Gas Heating
- 76 **Budnyak S.V., Kalashnikov O.V., Gamaleya R.V.** The Subsystem of Shell and Tube Heat Exchangers for Natural Gas Field Preparation. 2. Interaction with Database

ENERGY TECHNOLOGIES AND RESOURCE SAVING

Scientific-Technical Journal

Founded in January, 1960. Comes out 6 times a year

№ 2, 2009

Contents

From Chief-Editor

Fuel and Energetics

- 4 **Maystrenko A.Yu., Rohman B.B., Vyfatniuk V.G., Chernyavskiy N.V.** The Development of New Solid Fuels Fluidized Bed Combustion Technologies. 1. The Engineering Calculation Method
- 11 **Filippenko Yu.N., Rudavina E.V., Sklar P.T., Chernyavskiy N.V.** The Reliability of Bituminous Coals Calorific Value and Volatile Yield Determination in Large Range of Ash Content

Energy Saving Technologies

- 18 **Karp I.N., Pjanyh K.E., Nikitin E.E.** Power-Producing Gas Application in Municipal Heat and Power Engineering
- 25 **Nikitin E.E.** The Conception of Energy Efficiency Management for Settlements Heat Supply Systems

Raw Materials Processing and Resource Saving

- 34 **Brazhnyk D.V., Zazhigalov V.A., Grigoryan R.R., Vartykian L.A., Garibyan T.A.** Natural Zeolites Application for Blowout Gases Neutralization Catalysts Production. 3. Methane Oxidation
- 39 **Antonenko L.P., Vasilchuk O.V., Kulikovska M.V., Siroshtan N.K.** Low-Temperature Oxidative Delignification by Hydrogen Peroxide. 3. Wheat Straw Delignification
- 44 **Sologub V.A., Garkusha I.M., Ploskonos V.G., Gilevich Yu.V., Grechko M.M., Konoval V.P.** The Influence of Carbon Fillers on Electrical and Physical and Mechanical Properties of Insole Board Examples
- 49 **Makarov A.S., Vodyanka V.R., Boruk S.D., Tevtul Ya.Yu.** The Inhibition of Copper and Copper Alloys Dissolution in Acid Medium with Thioamides Derivatives

Wastes Purification and Processing

- 53 **Pasichnyy V.V., Korchemnaya V.S., Ostapenko S.A., Pasichnaya M.S.** The Features of Thermal Treatment by Concentrated Radiant Heating Process of Mo-Ni (1 %) Pseudoalloy
- 58 **Pavlenko V.M., Iatsenko A.P., Kornilovych B.Yu.** Radioactive Liquid Wastes Immobilization by Vitrification

Environment Protection

- 63 **Stavitskaya S.S., Vikarchuk V.M., Petrenko T.P., Kovtun M.F.** Cations and Complex Anions of Transition Metals Sorption by SCS Modified Carbons
- 68 **Gomelya M.D., Glushko E.V., Krysenko T.V.** Zinc and Cadmium Ions Electrochemical Extraction from Regeneration Solutions at Ion-Exchange Water Purification
- 72 **Yavorskiy V.T., Kuntiy O.I., Sribna A.V., Ivashkiv V.R.** Technological Process of Tungsten Carbide of Secondary WC-Ni Pseudoalloy Electrochemical Conversion into Ammonium Paratungstate and Nickel (II) Sulfate
- 76 **Starchak V.G., Zamay G.V., Dzuba V.A., Puschkoryova I.D., Kostenko I.A.** The Influence of Strigen River Hydrochemical Status on Metal Constructions Corrosion Resistance

ENERGY TECHNOLOGIES AND RESOURCE SAVING

Scientific-Technical Journal

Founded in January, 1960. Comes out 6 times a year

№ 3, 2009

Contents

From Chief-Editor

Fuel and Energetics

- 4 Chernyavskiy N.V., Maystrenko A.Yu., Golenko I.L. Different Ash Content Energy Coals Burning-Out Character in Fluidized Bed
- 10 Dunaevskaya N.I., Zasyadko Y.I., Schudlo T.S., Bezzeniy I.V., Bondzik D.L. The Experimental Research of Torch Anthracite Coal and Wood Biomass Co-Combustion
- 18 Ryzhkov A.F., Popov A.V., Bogatova T.F., Osipov P.V. The Efficiency of Coal Steam and Gas Installations

Energy Saving Technologies

- 27 Pinchuk V.A., Potapov B.B. The Prospects of Ecologically Safe Energy Technologies for Low-Grade Ukrainian Coals Processing Installation

Raw Materials Processing and Resource Saving

- 33 Ulberg Z.R., Kosorukov P.A., Nadel L.G., Lebovka N.I. Mineral and Raw Potential of Ukrainian Bentonite Clays
- 41 Gelmboldt V.O. Hydrofluorides of the Organic Bases and «Onium» Salts of Polyhydrofluorides Anions as Fluoridizer Agents New Generation (Review)

Wastes Purification and Processing

- 47 Gladkov V.S., Guchenko A.A., Vavriv L.V., Shesterikov A.V. High-Efficient, Ecologically Clean and Non-Waste Utilization of Concrete and Ferro-Concrete Products by Nanosecond Voltage Pulses
- 50 Sych N.V., Volynets V.P., Trofimenko S.I., Kovtun M.F., Tsyba N.N., Mironyuk T.I. Activated Carbons from Coffee Residues Production and Efficiency Estimation

Environment Protection

- 55 Denisov A.A. Outburst Gases Clearing from Sulphur Compounds (Review)
- 61 Malovanny M.S., Krip I.M., Kyrychenko O.V. Absorption Purification of Aquatic Medium from Oil Pollution by Carbonate Containing Sorbents

Devices and Equipment

- 64 Maystrenko A.Yu., Rokhman B.B., Topal A.I., Vyfatnyuk V.G. Various Factors Impact on Transfer Processes in Free-board Space of Circulating Fluidized Bed Reactor
- 68 Bystry A.I., Kvitsinsky V.A., Krivosheev S.I., Makarchuk V.N., Hilko I.N. Computer-Aided Mass-Spectrometrical Complex with Gas Flow Cryogenic Adsorption Modulator
- 74 Kalashnikov O.V., Budniak S.V., Melnichuk R.N., Soroka V.V. The Subsystem of Shell-and-Tube Heat Exchangers Selection for Complex Natural Gas Treatment Plant. 3. Calculated and Factual Operational Data of Gas Plant Heat-Exchange Apparatus

ENERGY TECHNOLOGIES AND RESOURCE SAVING

Scientific-Technical Journal

Founded in January, 1960. Comes out 6 times a year

№ 4, 2009

Contents

- 3** 60 years to the Gas Institute of NASU
- 10** Karp I.N., Dobrokhotov N.N. – the Founder and the First Director of the Gas Institute of NASU
- 16** Karp I.N., Nikitin E.E., Pjanykh K.E., Zajvy A.N. The Main Directions of Natural Gas Substitution by Alternative Kinds of Fuel And Energy in Industry and Municipal Energetics
- 26** Sigal I.Ya. Gas Combustion in Boilers and Air Basin Protection
- 35** Marchenko G.S., Lyubchik G.N., Makarenko V.A. The Gaseous Carrier Heaters
- 42** Khvastukhin Ju.I., Olabin V.M., Orlyk V.N. Energy-Saving Technologies of Layer Heat Treatment of Disperse Materials
- 51** Pikashov V.S. Energy and Resource Saving Technologies for Fuel Combustion and Equipment for their Realization
- 58** Chetverykov V.V. The Tendencies in New Technologies for Thermal Processing of Municipal Solid Waste (MSW) Development
- 62** Soroka B.S. Performing of Developments by Gas Institute of NASU in Area of Mathematical and CFD Modelling of Gas Combustion and Furnace Processes
- 73** Kalashnikov O.V. The Sources and Achievements of Hydrocarbons «Machine Thermodynamics»
- 80** Korchevoy Yu.P., Maystrenko A.Yu., Topal A.I. The Present-Day Status of Pure Coal Technologies in Power Engineering Development
- 89** Nikitin E.E. The System Approach to Energy Efficient Heat Supply Schemes for Cities and Settlements Development
- 97** Zhovtyanskiy V.A. The Gas Institute Developments in the Field of Plasma Technologies and Equipment
- 109** Pyatnichko A.I., Krushnevich T.K. Biomethane Manufacture from Biogas

ENERGY TECHNOLOGIES AND RESOURCE SAVING

Scientific-Technical Journal

Founded in January, 1960. Comes out 6 times a year

№ 5, 2009

Contents

Fuel and Energetics

- 3** **Maystrenko A.Yu., Rohman B.B., Vifatnyuk V.G., Chernyavskiy N.V.** The Development of New Solid Fuels Fluidized Bed Combustion Technologies. 3. The Dynamics of Coke Particles Burning-Out. The Basic Scheme Decisions of Fluidized Bed Boiler Unit with 10 t/h Steam Production Rate
- 9** **Troshenkin V.B., Troshenkin B.A., Markosova V. P.** Electrochemical Coal Gasification. 1. The Problem Status and Experiment
- 16** **Wilharm Th., Bernath J., Vasilev I.P.** The Requirements for Vegetable Oils as Diesel Engines Fuels Development
- 23** **Soroka B.S.** Definition of Principal Characteristics of Gas Mixtures Combustion. 1. Physical Background of Advanced Models of Flame Front

Energy Saving Technologies

- 31** **Strashko V.V.** Energy-Active Enclosure Structure and Soil Seasonal Heat Accumulator in Charge Mode Combined Operation
- 37** **Pikaschov V.S., Velikodnyy V.A.** Energy Saving Technology and Equipment for Organic Substances in Water Thermal Utilization

Raw Materials Processing and Resource Saving

- 41** **Demidik V.N., Kolodnaya T.P.** Energy and Ecological Evaluation of Iron Direct Reduction Methods
- 45** **Gomelya M.D., Nezvyskaya T.A., Omelchuk U.A., Stavskaya S.S.** The Inhibitors of Scale Formation and Corrosion of Metals Application for Atomic Power Stations Circulating Water Systems
- 50** **Bezuglyi V.K., Bondarenko B.I.** Heterogeneous Systems Thermodynamics: the Method of Chemical Elements Potential
- 55** **Bondarenko B.I., Nebesniy A.A., Filonenko D.S., Svyatenko A.M.** The Generalized Analysis of Carbon Exchange in H-O-C-(C_{graph}) Systems. 2. The Pressure Influence

Wastes Purification and Processing

- 58** **Kupchik L.A., Gasuk S.G., Nikolaychuk A.A., Goncharenko L.M.** The Sorbents from Pictin Containing Food Industry Wastes Production and Properties
- 62** **Dmitrikov V.P., Protsenko A.V.** Reagent Recycling of Waste Iron-Nickel Accumulators. 1. The Basic Stages and Processing Procedures

Environment Protection

- 65** **Stavitskaya S.S., Strelko V.V., Emelyanov V.A., Panko A.V., Petrenko T.P., Nikipelova E.M.** Structural and Mechanical Properties of Different Structure Composites based on Bottom Sediments with Modified Carbon KAU
- 71** **Radovenchick V.M., Otrokh E.A., Dovbnaya E.S.** Disperse Sorbents with Magnetic Properties Moisture Regulation
- 75** **Chabanovich L.B., Nechaev Yu.A.** The Underground Storages of Helium in Salt Cavities Construction

Devices and Equipment

- 78** **Rusinkovsky O.Ju., Kostogryz K.P., Suhorukov V.I.** Drying Efficiency in Rotating Drums Increase

ENERGY TECHNOLOGIES AND RESOURCE SAVING

Scientific-Technical Journal

Founded in January, 1960. Comes out 6 times a year

№ 6, 2009

Contents

- 4 **Bekturganov S.N., Surkova T.Ju., Pavlov A.V., Julusov S.B.** Physical and Chemical Investigation of Carbonate Uranium Containing Kazakhstan Ores and Rare-Earth Elements Extraction Prospects
- 9 **Volodin V.N., Akchulakova S.T., Ruzahunova G.S., Khrapunov V.Ye.** Distillation Refinement of Draft Cadmium with Impurities High Content
- 13 **Kovzalenko V. A, Myltykbaeva L.A., Tastanov E.A., Bejsembekova K.O.** Silica-Alumina Raw Materials Processing by Hydrochemical Method with Preliminary Chemical Enrichment
- 18 **Rakitskaya T.L., Kiose T.A., Volkova V.Ya., Ennan A.A.** Ukrainian Natural Silica-Alumina Application for New Metal Complex Catalysts of Air Purification from Gaseous Toxic Substances Development
- 24 **Semenchenko G.V., Berkinbayeva A.N., Mukusheva A.S., Ponomaryeva E.I.** Silver Biochemical Extraction from Kazakhstan Deposits Ores
- 29 **Tusupbaev N.K., Kalieva R.S., Turysbekov D.K., Semushkina L.V., Nurahmetova G.B.** Shugite Adsorption and Electrokinetic Properties in Various Reagents Presence
- 36 **Boruk S.D., Vodyanka V.R.** The Interpartial Interactions Intensity in Metal and Corrosion Products System Influence on the Parameters of Steel Surface Chemical Treatment Process
- 41 **Birjukova A.A., Tikhonova T.A., Boronina A.V., Ospanov N.A.** The Influence Gas Environment on Structural and Phase Transformations in Refractory Brick System – Pb (PbO)
- 46 **Tusupbaev N.K., Semushkina L.V., Kalieva R.S., Kairzhanova N.S., Suleimenova U.Ya.** Ecologically Safe Nanosized Sphalerite Activator Application for Polymetallic Ores Flotation
- 49 **Myltykbaeva L.A.** Zeolites Obtaining Technology from Thermal Power Stations Ashes
- 53 **Najmanbaev M. A, Lokhova N.G., Baltabekova Z.A., Kvjatkovskaya M. H.** The Investigation of Rare-Earth Elements Leaching Conditions from Uranium Sorption Tails
- 58 **Nohrina O.I., Rozhihina I.D.** The Methods of Ferroalloys Manufacture Wastes Products Processing
- 61 **Kwapniewski P., Kalinichenko V.M.** The Results of Solar Collectors Operation in Krakow Analysis
- 65 **Bogatyeva G.P., Ilnitskaja G.D., Olejnik N.A., Nevstruev G.F., Zajtseva I.N.** The Modern Ecological Safety Technologies for Superhard Materials Powders Processing
- 70 **Nitsenko A.V., Khrapunov V.E., Abramov A.S., Trebukhov S.A, Moldabaev M.** Arsenium Vacuum and Thermal Extraction from End Products and Metallurgy Wastes by Sulfide Agents Application
- 74 **Dragan G.S., Koskin Y.V.** Nonhomogeneous Distribution of Aerosol Charged Particles and Combustion Products