

CONTENTS, ABSTRACTS AND KEYWORDS OF PAPERS

WAYS OF ENRICHMENT OF IODINE JELLIED SWEET DISHES

A.V. Snegireva, L.E. Meleshkina

A study of different methods of preparation of dry seaweed for inclusion in the formulation of jellied sweet dishes. Theoretically and experimentally substantiated the time of soaking seaweed in water, the optimal amount of water, the particle size of the kelp and dosage of iodine-containing ingredient in the recipe of a sweet dish. Selected aromatic component, allowing beneficial to emphasize the organoleptic characteristics of the finished dish.

Keywords: jellied sweet dishes, seaweed, kelp, iodine, kiwi, starch, alginic acid.

DEVELOPMENT AND EVALUATION OF QUALITY BY DESIGN

A.A. Maliszewski, S.L. Tikhonov, N.V. Tikhonova

The characteristics of BAD «Eramin», proved the possibility of using eramina for food fortification. Developed new products, special purpose «Hematogen with extract of alfalfa» and porridge «Toast». Set regulated rates for quality, timing and mode of storage, recommendations for use. Eating the recommended dose hematogen provides 10 to 30 % of the daily needs of people in these minerals and up to 50 % in bioflavonoids. One serving of cereal (4–6 tablespoons of dry cereal) provides the daily requirement of flavonoids by 50 % and from 12.9 to 73.2 % – in minerals.

Keywords: fortified foods, dietary supplements, consumer characteristics, quality.

THE SEARCH FOR ADDITIONAL TOOLS TO INFLUENCE THE FOOD MARKET DOES NOT FALL UNDER THE WTO LIMITATIONS

A.V. Kurdyumov

The article deals with the obligations of the Russian Federation on compliance with the rules established for the members of the world trade organization. The additional instruments of influence on the market of the food which aren't getting under restrictions of the WTO within the mechanism of ensuring food security of Russia are offered.

Keywords: food security, food market, measures of state support, customs duties, World trade organization.

FEATURES REQUIREMENTS FOR FOOD LABELLING WITH THE INCLUSION OF NON-TRADITIONAL BIOLOGICALLY VALUABLE RAW MATERIALS

E.Ju. Egorova

The article is devoted to the analysis of current requirements for the labeling of food products functional and specialized purposes, including with respect to the information on the composition, nutritional value and effectiveness of these products. Discusses the nature of the labelling requirements of food products functional and specialized purposes, containing traditional and non-traditional types of valuable animal, vegetable and mineral raw materials; raw material acts as a source of functional food ingredients, having different physiological effects.

Keywords: labeling, food products functional and specialized purposes, bioactive substance, identification, nutritional value, quality inspection, efficiency evaluation.

INFLUENCE OF MECHANOACTIVATION ON TECHNOLOGICAL PROPERTIES OF FLOUR

S.S. Kuzmina, L.A. Kozubaeva, D.N. Protopopov

Work is devoted to definition of influence of mechanoactivation of bran on an exit and quality of flour. It is established, at a relative speed of fingers in a disintegrator to 129 meters per second from wheat bran 40 % of a mealy product which can be added to wheat flour of the 1st grade in an amount to 20 % without significant deterioration of its technological properties. Thus water-absorbing ability, a mass fraction of a gluten and quality of a gluten improve.

Keywords: mechanoactivation, disintegrator, bran, quality indicators, water absorbing capacity, flour.

THE RESULTING DAIRY PRODUCTS USING FOOD PROCESSING SEA BUCKTHORN

O.V. Koltugina

Expanding the range of cheese products and soft cheeses thermoacid by entering into a normalized formula milk supplements buckthorn: dry, juice, sauce and juice. As a result, a product with new taste characteristics: dry curd product with sea buckthorn fruits, curd product with sea buckthorn puree, thermoacid cheese product, cottage cheese product based on milk albumin with puree buckthorn.

Keywords: curd and cheese products, buckthorn, dried fruits, puree, juice.

STUDY OF THE STABILIZATION SYSTEMS FOR CONDENSED CANNED MILK

E.V. Pisareva

Discussed the possibility of stabilizing the consistency of condensed milk. Describes the characteristics of the stabilizers used in the production of canned milk. Recommendations on the use of combinations of stabilization systems to produce products with an adjustable structure.

Keywords: condensed canned milk, canned condensed milk, stabilizers, stabilization system, structure, texture of dairy products.

DIFGNOSISOF STRESS IN POULTRY AND CHICKEN MEAT QUALITY WITH DIFFERENT STRESSOUSTOICHIVOSTI

E.G. Vaganov, S.L. Tihonov, N.V. Tikhonova, A.V. Miftahutdinov

The characteristics of the various methods of diagnosis of stress in chickens. Methods for determining the stress is divided into direct and indirect. One of the informative methods for the diagnosis of a stress state is the ratio of chickens to heterophilic blood lymphocytes. High diagnostic value in the diagnosis of chronic stress indicators have general plumage hens. Samples of meat stressochuvstivitelnyh broiler characterized PSE – properties: pale coloring, less elastic and watery on the cut, when pressing a finger visible pit that slowly leveled; by functional-technological properties: low SCD, pH and high lactic acid content.

Keywords: chicken, stress, quality, organoleptic, physical and chemical properties, chemical composition.

RESEARCH OF MICROBIOLOGICAL AND SAFETY INDICATORS OF CONFECTIONERY PRODUCTS DURING STORAGE

A.E. Frolova

The change of microbiological and safety indicators of quality of confectionery products during storage have been explored. The results of the verification of conformity confectionery pastes with regulated safety indicators of food products are given. The shelf life and conditions of storage of confectionery pastes have been defined.

Keywords: confectionery, microbiological indicators, food safety, conditions of storage, shelf life.

MECHANICS-MATHEMATICAL MODEL OF THE ARTICULATED VEHICLE

V.I. Poddubnyi, A.I. Valekzhanin, M.L.Poddubnaja

The description of the mechanical-mathematical model of articulated vehicle in the application software package CAMeL-View and the results of mathematical modeling of standard maneuvers. The prospects of further use of the model.

Keywords: mechanics-mathematical model, articulated vehicle, tandem-axle semitrailer, application packages CAMeL-View, mathematic modeling.

THE COMPARATIVE MODELING-THEORETICAL INVESTIGATIONS OF NOZZLES WITH DIFFERENT DESIGN AT HIGH VALUES OF THE RAIL PRESSURES

V.E. Lazarev, G.V. Lomakin, E.A. Lazarev, K.A. Matsulevich

The ways of perfection of the nozzle's design as main components of modern diesel engine's fuel systems (Common Rail – CR) are considered with specialties of exploitation at high values (up to 250...300 MPa) of rail-pressures. For estimation of effectiveness of proposed technical solutions, which are providing the decreasing the nozzle's loading and increasing its service life, the finite-element (FE) method is used.

The comparative analysis of achieved results and application of proposed technical solutions, which are providing the decreasing the nozzle's loading and increasing the nozzle's exploitation service life at high values (up to 250...300 MPa) of rail-pressures is represented.

Keywords: the nozzle of diesel engine's fuel injector, rail-pressure of the fuel, directing precision interface, locking precision interface, differential platform needle.

ULTRASONIC DEVICE FOR RESEARCH OF EROSION RESISTANCE OF MATERIALS

V.N. Khmelev, Yu.M. Kuzovnikov, S.S. Khmelev, M.S. Sander

The article is devoted to the creation of ultrasonic equipment designed to research erosion resistance of various materials to cavitation. Research results have been provided regarding the functional properties of created ultrasonic device.

Keywords: ultrasound, cavitation, erosion resistance of materials.

USE ANAEROBIC FERMENTATION METHOD FOR SOLVING PROBLEMS OF ACCUMULATION ACTIVATED SLUDGE

I.V. Kozlova, A.G. Ushakov, E.S. Ushakova

Biological treatment of waste water is an integral part of the process of many industrial enterprises nowadays. Due to the fact that the activated sludge, grows consuming bacteria, its excess needs to be constantly removed and disposed. Excessive activated sludge is inevitable, though unwanted waste of biological treatment system of industrial and domestic wastewater.

The essence of the work – is the application of anaerobic fermentation method in the research of waste water of biological treatment system.

Keywords: activated sludge, anaerobic digestion, the digester, wastewater recycling.

ANIONIC POLYMERIZATION OF 2,4,6-TRINITROSTYRENE

A.V. Kalinin, A.P. Voznyakovskii

Anionic polymerization of 2,4,6-trinitrostyrene have studied and it's mechanism have proposed. The resulting polymer was studied using gel permeation chromatography (GPC), infrared spectroscopy, electronic spectroscopy, ¹H-NMR-spectroscopy methods.

Keywords: trinitrostyrene, anionic polymerization, Meisenheimer complex, σ -complex Janowski. Gel permeation chromatography.

HYDROTROPIC PULP FROM SECONDARY AGRICULTURAL RAW MATERIALS

M.N. Denisova

The paper presents the study results for hydrotropic delignification of secondary agricultural raw materials, particularly wheat straw and oat straw. The yields and basic characteristics are given as a function of delignification conditions such as temperature and time. The pulp samples, obtained at 180 °C for 3 h, were shown to have a minimum content of non-celulosic components.

Keywords: wheat straw, oat straw, hydrotropic delignification, pulp.

THERMODYNAMIC ANALYSIS OF REACTIONS OF FORMATION OF XONOTLITE FROM LIME-SILICA BINDER-AUTOCLAVE HARDENING

M.V. Kaftaeva, S.M. Rakhimbayev, N.D. Komarova, V.L. Kurbatov

The results of the thermodynamic analysis of reactions of formation of calcium silicate hydrate – xonotlite – from a mixture of calcium hydroxide and silicon dioxide at temperatures of 25 and 190 °C. Calculated ion activity of calcium, silica and hydroxyl, which used thermodynamic Born-Haber cycle within the limits of the formula of the Debye – Hukkala. Verification of the results of calculations made on the basis of literature data. It is established that the limiting stage of synthesis of xonotlite is the formation in solution of calcium ions and related ions, so the most important way of acceleration is the use of mineral supplements and electrolytes that increase their activity in the liquid phase.

Keywords: chemical thermodynamics, gas silicate building materials, auto klauna treatment, activity of ions, synthesis of xonotlite.

RESEARCH OF EFFECT OF HIGH TEMPERATURES AND PICK OF DISK RADIATORS PARAMETERS DURING THE ULTRASONIC INFLUENCE ON GAS MEDIA

V.N. Khmelev, A.V. Shalunov, V.A. Nesterov, R.S. Dorovskikh, R.N. Golykh

The article is devoted to choose of parameters of ultrasonic disk radiators to provide maximum energy efficiency impact on the processes in gaseous mediums at temperatures up to 200 °C. The article presents results of investigation of temperature influence on the frequency and power characteristics of piezoelectric transducers with flexural-vibrating titanium disk radiators. The results allowed evaluating operating frequency, oscillation amplitude of disk radiator surface, sound pressure level dependences on treated medium temperature.

Keywords: ultrasonic coagulation, ultrasonic disk radiator, piezoelectric transducer, cleaning of dusty gases.

BRIQUETTING LOCAL FUELS AND WASTE TO ENERGY SYSTEMS IN RURAL AREAS

M.S. Nikishanin, R.Sh. Zagrutdinov, P.K. Senachin

The paper deals with the briquetting of carbonaceous materials based on local fuels and waste of various origins. We describe the technology and equipment for making briquettes for systems of individual and centralized power supply in rural areas. The problem of waste and the use of municipal solid waste for briquetting, including with the use of mechanical activation, for further processing of energy.

Keywords: briquette, briquetting, Equipment for briquetting, local fuels, municipal solid waste, recycling, energy recycling, mechanical activation.

EVAPORATION OF WATER SUSPENSION DROPLETS WITH GRAPHITE INCLUSIONS IN HIGH-TEMPERATURE GASES

O.V. Vysokomornaya, M.V. Piskunov, A.A. Shcherbinina

Using high-speed video recording, we performed the experimental research on the evaporation of water suspension droplets containing graphite inclusions of different sizes when heating in a gas flow with temperature of 300–900 K. In particular, lifetimes of 5 μ l heterogeneous (with large graphite particle of 2 or 3 mm in size) water droplets have decreased by addition of small graphite inclusions of 0.05 mm and 0.2 mm in size. When increasing the initial volume of droplet to 15 μ l, lifetimes (at 850 K) of heterogeneous droplets with addition of small graphite inclusions have grown.

Keywords: evaporation, droplet of suspension, graphite inclusion, high-temperature gases, heat transfer enhancement.

FEATURES OF THE IMPLEMENTATION TECHNOLOGICAL PROCESS MODIFICATION OF EPOXY COMPOUNDS WITH CARBON NANOTUBES AND PARTICLES ULTRADISPERSE

E.A. Novikovsky, E.S. Ananyeva

The features of the process of combining ultra-dispersed fillers and epoxy compounds studied. Recommendations for the implementation of technological process of filling is given. System epoxy resin and ultra-dispersed graphite, epoxy resin and carbon nanotubes (masterbatch) were investigated.

Keywords: technology, epoxy resin, compound, ultrafine particles, diamond graphite, nanotubes.

COMPARISON OF EFFICIENCY OF A LIQUID HEAT-INSULATING COATING

E.M. Tausenev, K.V. Koh, A.G. Glushchenko, A.E. Svistula, E.A. German

Results of probe of efficiency of a liquid heat-insulating coating are presented. The assessment is carried out by comparison of curves of cooling of water in the vessel covered with a heat insulator. The heat-insulating ability were worse declared by the producer.

Keywords: heat insulation, liquid heat-insulating coating, ceramic silicate microspheres, coefficient of heat conductivity of a liquid heat-insulating coating, shortcomings and advantages of a liquid heat-insulating coating.

**HIGH-TECH PROCESSES AS AN INSTRUMENT FOR MAKING
THE COMPETATIVE COMPOSITE MATERIALS BASED
ON THE FIBER FILLERS FROM ULTRA-HIGH MOLECULAR
POLYETHYLENE (UHMWPE) OF DOMESTIC PRODUCTION**

E.A. Belyaeva, A.F. Kosolapov, S.V. Shatsky, V.P. Galitsyn,
V.S. Osipchik, O.I. Kladovschikova

In the process of making those composites there were presented the main factors of controlling the performance properties of the composite materials (CM), based on fiber fillers from UHMWPE and the results of high-tech solutions.

Keywords: UHMWPE, interphase interaction, activation of the surface of fibrous filler, low-temperature plasma, solutions and suspensions nanomaterials.