



IZDEVNIECĪBA
BALTĪJA
PUBLISHING

CERTIFICATE

This is to certify that

Hanna Hryshko

has participated successfully in the International Scientific Conference

DEVELOPMENT OF MODERN SCIENCE
UNDER GLOBAL CHANGES

held in Riga, Latvia, May 22, 2020



Anita Jankovska
Anita Jankovska
Managing Editor.

Publishing house «Baltija Publishing»



INTERNATIONAL SCIENTIFIC CONFERENCE
**DEVELOPMENT OF MODERN SCIENCE
UNDER GLOBAL CHANGES**

May 22th, 2020

Proceedings of the Conference

**Riga, Latvia
2020**

UDK 001(062)

De933

International Scientific Conference **Development of Modern Science Under Global Changes**: Conference Proceedings, 22th May, 2020. Riga, Latvia: Baltija Publishing. 104 pages.

ISBN: 978-9934-588-52-5

DOI: <https://doi.org/10.30525/978-9934-588-52-5>

Conference proceedings are devoted to the development of modern science under global changes. General issues of the engineering, medical, psychological, philological, economic sciences, history of art, social communications and so on are considered. The publication is designed for scientists, lecturers, postgraduate students, students, as well as for the general readers.

© Publishing House “Baltija Publishing”, 2020

© Authors of the articles, 2020

Contents

ARCHITECTURE

AN OLD WAREHOUSE – A MODERN HOTEL:
DESIGN TECHNIQUES IN RENOVATION DESIGN
(USING THE EXAMPLE OF «OVOLO 1888»
HOTEL IN SYDNEY)

He Xingyi..... 1

HISTORY OF ART

«SICKLY» TRANSFORMATIONS OF PROTECTIVE
EQUIPMENT INTO FASHIONABLE ACCESSORIES

Viktoriia Budiak, Oksana Lahoda 4

MANNEQUINS IN A SHOP WINDOW
AS AN OBJECT OF SCIENTIFIC CONSIDERATION

Oksana Lahoda, Liu Peiwei 7

PEDAGOGICAL SCIENCES

ACTUAL PROBLEMS OF PHYSICAL EDUCATION SCHOOL
OF HIGHER EDUCATION

Zhana Antipova, Marina Fedirko 10

ARRANGEMENT OF DISTANT ENGLISH LEARNING
IN PRIMARY SCHOOL:
MECHANISMS OF IMPLEMENTATION

Alina Vynokurova, Yuliia Masych 12

USING OF INTELLECTUAL MAPS AT THE LESSONS
OF MATHEMATICS AT GENERAL
SECONDARY EDUCATION INSTITUTIONS

Alina Klimishyna 16

TYPES OF TOLERANT INTERACTION
OF PRIMARY SCHOOL TEACHERS WITH STUDENTS

Anna Lyulka..... 23

EDUCATION PROGRAMS OF PROFESSIONAL
ENGLISH COURSE FOR MANAGEMENT
STUDENTS IN UKRAINIAN ENVIRONMENT:
COMPETENCE APPROACH

Roliak Angelina..... 25

PHILOLOGICAL SCIENCES

BASIC CONCEPTS OF THE THEORY AND TECHNIQUE OF TRANSLATION OF SCIENTIFIC AND TECHNICAL LITERATURE Oleksandra Bondarenko	28
VERBAL EXPRESSION OF FEMINITIVES IN CARMEN LAFORET'S NOVEL «NOTHING» Karina Ibryshymova, Liudmyla Shuppe	30
GRAMMATICAL TRANSPOSITION IN LITERARY TEXT Oksana Kuntso	34
CORRESPONDENCE BETWEEN W. CHURCHILL AND F. ROOSEVELT: GENRE-STYLE DOMINANTS Olga Semeniuk	36

PSYCHOLOGICAL SCIENCES

PSYCHOLOGICAL RISKS OF INFORMATION OVERLOAD AMONG SMARTPHONE USERS Olena Musakovska	41
MOTIVATION AND CAREER DEVELOPMENT AS KEY FACTORS IN THE UKRAINIAN POLICE Kateryna Tymofiiva	44

SOCIAL COMMUNICATIONS

INTERNAL PROBLEMS IN THE CROSSMEDIA STRATEGIES Hanna Shevchenko	48
---	----

LAW SCIENCES

NEW JUDICIAL REFORM STRATEGY IN TURKEY-MAIN AIMS, OBJECTIVES AND ACTIVITIES Elmira Akhmedova	51
CIVIL LAW TRANSACTIONS ON THE INTERNET Anastasiia Borysova	54
TO THE QUESTION ON THE CIVIL LEGAL NATURE OF EMBRYOS IN VITRO IN UKRAINE Hanna Krushelnytska	58

MEDICAL SCIENCES

THE RELATIONSHIP OF SOME SYSTEMIC FACTORS WITH THE
SUCCESS OF TREATMENT OF DIABETIC MACULAR EDEMA

Valeriia Kolodiashna, Sofia Shvid 61

BIOLOGICAL SCIENCES

ATF-LONG AS AN ALTERNATIVE FOR PROHIBITED PREPARATORS:
EFFICIENCY AND SAFETY OF ITS APPLICATION IN SPORT

Mariya Kuzmenko 65

AGRICULTURAL SCIENCES

FEATURES OF INNOVATIVE TECHNOLOGIES
IN AGRICULTURE OF UKRAINE

Danylo Klochkov 70

ENGINEERING SCIENCES

INVESTIGATING THE EFFECT OF PLASTICIZERS
ON STRUCTURE FORMATION OF GYPSUM BASED SYSTEMS

Hanna Hryshko 72

ATMOSPHERIC AIR PROTECTION TECHNOLOGIES
IN POWDER METALLURGY

Yurij Derkach, Yevhenij Poznij 75

ENVIRONMENTAL PROTECTION TECHNOLOGIES
IN THE PRODUCTION OF SODIUM HYPOCHLORITE

Svitlana Kovalenko, Maryna Gorbulja 76

ENVIRONMENTAL PROTECTION TECHNOLOGIES
IN POWDER METALLURGY

Volodymyr Koloskov, Daryna Lupjavka 78

DEVELOPMENT OF ENVIRONMENTAL PROTECTION TECHNOLOGY
FROM THE NEGATIVE IMPACT OF THE PRODUCTION ACTIVITY
OF THE ASPHALT CONCRETE PRODUCTION FACTORY

Olexandr Kondratenko, Iryna Onysko 80

NATIONAL SECURITY

PROVIDING NATIONAL SECURITY IN CONDITIONS
EUROPEAN AND EURO-ATLANTIC COURSE OF UKRAINE

Nataliya Tkachova, Olena Kazanska 85

ECONOMIC SCIENCES

IMPORTS AND EXPORTS OF SERVICES IN UKRAINE

Yevheniia Kyrychenko **88**

THE DIRECTIONS OF STIMULATING INNOVATIVE ACTIVITIES

Oksana Prodius **92**

SERVICE AS PART OF THE COUNTRY'S ECONOMY

Marina Shipulya, Tatiana Tolmacheva..... **96**

ENGINEERING SCIENCES

INVESTIGATING THE EFFECT OF PLASTICIZERS ON STRUCTURE FORMATION OF GYPSUM BASED SYSTEMS

Hanna Hryshko¹

DOI: <https://doi.org/10.30525/978-9934-588-52-5-22>

Relevance. Relevance of using gypsum binders is that their production requires extremely low energy consumption and the hydration process can be controlled broadly. Besides, the single-phase structure significantly simplifies the product manufacturing technology. These advantages encourage researchers to proceed with further attempts to obtain a gypsum structure exhibiting the properties of cement binders. One of the trends is the study of impact of additives on the hydration processes of gypsum binders.

Problem statement. Structure formation process generally depends on the initial content of binding substances interacting during the hydration process. The analysis of technical publications shows that production of composite binders is a priority in the manufacture of mineral binders [1, p. 15; 2, p. 217; 3, p. 291; 4, p. 104]. The second trend is the use of various additives and factors affecting the hydration process [1, p. 41].

One of these factors is an increased interfacial surface energy arising in 'binder-water' systems [5, p. 577; 6, p. 93].

However, most studies involving additives were focused on trying to structure gypsum and cement materials in order to obtain products with enhanced structural and physical, physical and mechanical as well as engineering and performance properties.

The analysis of publications conducted by the authors showed a lack of information on reliable mechanisms of hydration processes of mineral binding substances in the presence of modifiers.

Purpose of the Article. To assess the effects of surfactants on the hydration process, structure formation and main physical and mechanical properties of mineral binding substances.

According to the purpose, the research program involves exploring the structure of gypsum binder formed with minimal impact of other factors. Counterdiffusion crystal growth technique was applied for this reason using solutions of CaCl₂, Na₂SO₄, and H₂O.

¹ Dnipro State Agrarian and Economic University, Ukraine

The second research technique includes counterdiffusion growth of gypsum crystals in the presence of surfactants, i.e., the effects of surfactants on the structure and properties of hydrated gypsum and cement binders.

Conclusion. The studies conducted helped identify the effects of surfactants on the structure and properties of hydrated gypsum binder and cement binder; furthermore, the most effective additives were identified allowing to reduce water-to-gypsum ratio significantly, improve strength values and obtain a binder with a higher density structure.

If crystals are grown using a solution of $\text{CaCl}_2 + \text{Na}_2\text{SO}_4 + 2\text{H}_2\text{O} \rightarrow \text{CaSO}_4 \cdot 2\text{H}_2\text{O} + 2\text{NaCl}$, gypsum specimens will have a high-porosity fibrous microstructure.

As a result of counterdiffusion growth of gypsum crystals in the presence of surfactants, filling of interlayer voids can be observed in the microphotographs. Furthermore, the crystals shape and size begin to change as well as the framework structure and strength (Figure 1).

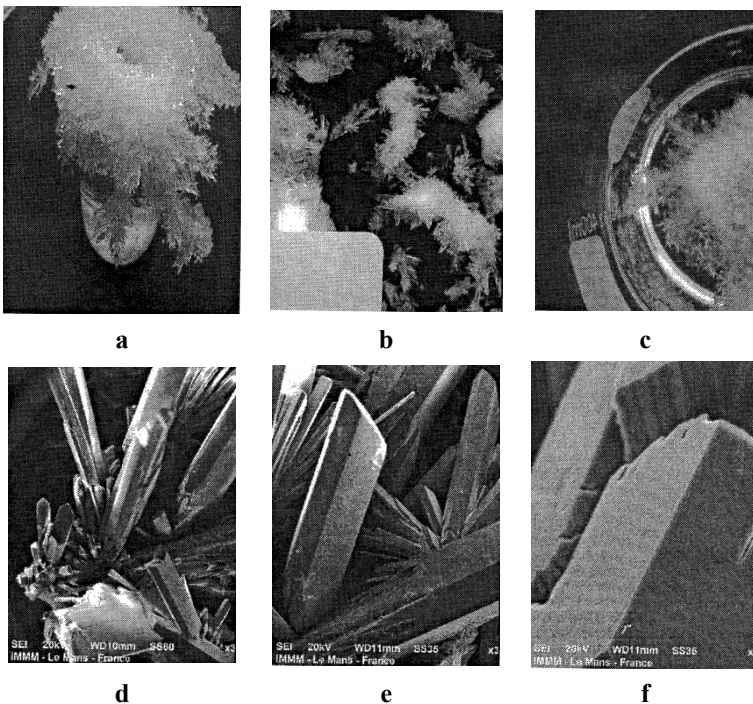


Figure 1. Photos (Figure 1 a, b, c) and micrographs (Figure 1 d, e, f) of crystals grown in the medium containing ACE 430 plasticizer

The main factors are the nucleation rate of facial surface energy and solution concentration. The best results have been achieved with Sika and ACE 430 plasticizers.

Modifying the initial cement binder with a superplasticizer additive results in a reduced normal density of cement paste, reduced W/C ratio, increased ultimate compressive and bending strength values both at an early and mature ages.

References:

1. Pashchenko, A. A., Serbin, V. P., & Starchevskaya, Ye. A. (1985). *Vjzhushhie materialy* [Binding Materials]. Kyiv: Vysshaya Shkola, 440 p. (in Ukrainian)
2. Murat, M., & Karmazsin, E. (1977). Cinétique d'hydratation des sulfates de calcium sémihydratés. Essai d'interprétation des courbes «Vitesse – degré d'avancement». In: Comptendu du Colloque International de la R.I.L.E.M. 25–27 mai 1977 (France, Saint-Remy-Les-Chevreuse, 1977), pp. 217–236.
3. Heijnen, W. M. M., & Hartman, P. (1991). Structural Morphology of Gypsum. *Brushite and Pharmacolite: Journal of Crystal Growth*, no. 108, pp. 290–300.
4. Gordashevskiy, P. F., & Dolgoryov, F. V. (1987). *Proizvodstvo gipsovyh vjzhushhih materialov iz gipsosoderzhashhih othodov* [Production of gypsum binding materials from gypsum-containing wastes]. Moskva: Stroyizdat, p. 104. (in Russian)
5. Potapova, E., & Manushina, A. (2015). Influence of the modifying additives on properties of the gypsum cement-puzzolanic binder. Ibausil 19. Internationale Baustofftagung (Weimar, Bundesrepublik Deutschland, 16-18 September 2015). Weimar: F.A. Finger-Institut für Baustoffkunde, Bauhaus-Universität Weimar, no. 2, pp. 675–683.
6. Derevianko, V., Kondratieva, N., & Hryshko, H. (2018). Study of the impact and mechanism of gypsum binder hydration process in the presence of nanomodifiers. *French-Ukrainian Journal of Chemistry (electronic journal)*, vol. 6, no. 1, pp. 92–100. Retrieved from: <https://doi.org/10.17721/fujcV6I1P92-100> (accessed 11 May 2020). (in Ukrainian)

participants – scientists, engineers, designers, employees – are interested in the rapid and cost-effective implementation of research and development results into production. Many countries engage in «poaching» of highly qualified scientific personnel, which allows them to develop innovative entrepreneurship at a lower cost and faster pace. The survival of any business structure depends most directly on the intellectual activity of its staff. According to domestic scientists, personal benefit is a powerful stimulus for accelerating the new product models development and increasing production efficiency.

Economic conditions for creative work are provided through appropriate material incentives in various forms: through payment and bonuses system; providing social benefits; profit sharing system; property ownership, etc. Among the nonfinancial incentives of particular importance is employees' creative activity stimulation. Creativity is usually manifested through the spontaneous demonstration of creativity at the right time and is an original perception of the problem and finding a non-trivial answer through action or communication in a relaxed atmosphere. A harmonious environment involves ensuring not only an individual acceptance, but also team members stimulation as a whole.

Thus, nowadays stimulating innovative activities is an essential element of state economic policy, since a country's competitiveness depends largely on the efficient functioning of industrial enterprises and their susceptibility to innovations.

References:

1. Khrapkina, V. V. (2018). Kontsepty innovatsiinoho rozvytku pidpriemnytstva: monohrafiia [Concepts of innovative development of entrepreneurship: Monohrafiia]. Natsionalnyi universytet «Kyievo-Mohylianska akademiiia». Kyiv: Interservis, 263 p.
2. Yastremska, O. M., & Demchenko, H. V. (2018). Aktyvizatsiia innovatsiinoi diialnosti pidpriemstv: monohrafiia [Activation of innovative activity of enterprises: Monohrafiia]. Kharkiv: FOP Liburkina L. M., 232 p.
3. Chaika, T. Yu. (2018). Klasychni kontseptsii innovatsii i suchasnist: empirychni pidtverdzhennia ta koryhuvannia. Bazovi indykatory innovatsiinoi aktyvnosti [Classic Concepts of Innovation and Modernity: Empirical Confirmations and Adjustments. Basic indicators of innovation activity]. *Naukovyi visnyk Uzhhorodskoho natsionalnoho universytetu. Serii: Mizhnarodni ekonomichni vidnosyny ta svitove hospodarstvo*, vol. 18(3), pp. 123–128.

Izdevniecība “Baltija Publishing”
Valdeķu iela 62 – 156, Rīga, LV-1058
E-mail: office@baltijapublishing.lv

Iespiests tipogrāfijā SIA “Izdevniecība “Baltija Publishing”
Parakstīts iespiešanai: 2020. gada 29 maijs
Tirāža 100 eks.