

**Opinion**

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Inorganic Polymers as Return to Stone Age

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Nonmetallic materials, which have found such wide application, have an absolute majority of polymer nature. These include hydrocarbon and inorganic polymers. Despite the wide range of useful properties there is a huge human and material damage from the burning of organic polymers, which is accompanied during the fires by the release of harmful products of thermal destruction. Another significant drawback of products from organic polymers is the large assimilation times of their waste in nature, which requires considerable effort in their disposal. And, finally, the use of harmful organic solvents. Inorganic polymers, constituting up to 80% of the earth's crust include up to 10 classes of high-molecular compounds, among which polyoxides are of the greatest interest from the point of view of wide application (silicates, phosphates, aluminates, borates, germinates, titanites, complex polyoxides – clays, etc.).

Polyoxides with temperatures of synthesis and processing of 20 – 300o C is a new class of thermoplastic oligomeric thermoset and thermoplastics of different compositions based on the basic elements B, P, Si, which can be used using traditional methods of modification and processing of plastics in order to obtain non-combustible materials and not emitting thermal degradation products. The high physical and chemical activity of the hydroxyl groups of polyoxides allows their modification with organic

compounds and the synthesis of hybrid copolymers with organic and organo-metallic compounds. A flow temperature close to this parameter of organic thermoplastics - extrusion mixing of new type polymer blends through their melts. This makes it possible not only to develop new non-combustible and slow-burning materials, but also significantly increase the degree of dispersed filling. The possibilities of obtaining polymer mixtures with molecular and Nano-mixing levels as well as fiber formation in the casting process are shown. Developed methods for regulating the hydrolytic stability of the materials obtained, the technology of their synthesis and processing are based solely on the use of water. High temperature and heat resistant polymers, coatings, glues, and reinforced composites were obtained on the basis of oligomers during heat treatment. Polyoxides can be widely used in construction (armed sheet materials, siding, reinforced prepregs, reinforcement), in the furniture industry (non-combustible light panels), inorganic foams, etc.

Acknowledgement

None.

Conflict of Interest

No Conflict of Interest.