Defining the term geopolymer really is not at all as easy as it may seem at first. From an expert point of view, we can describe this material as a synthetic inorganic substance with a semi-crystallized or even amorphous structure formed by suitable alkaline activation of silicate strings. It is a nanocomposite material that is isotropic from a rheological point of view.

**GEOPOLYMER PREPARING**

Now let's describe the geopolymer mixture production process in detail. First we will allow the weighed amount of sodium hydroxide to dissolve in the soluble glass. That process will create a very strong alkaline environment. After perfect dissociation of hydroxide, we add metakaolin (MK Kadaň, MK Sedlec I.A.), and then we thoroughly mix the material.

After reaching the correct consistency, we carefully add water. We try to achieve the best possible homogeneity between the particles of metakaolin and soluble glass. We can achieve this more easily by mixing during vibrations on a vibrating table. We then place the ready material in forms and leave it until the next day to harden. After a week of maturing, functional stability is guaranteed.
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RESULTS

RESULT OF X-RAY ANALYSIS

The best ever representative of geopolymers, created from MK Sedlec I.A, was subjected to an x-ray analysis on a diffractometer. X-ray radiation penetrates through the surface of the material and is reflected from the microstructure below the detected angle. The reflections and diffractions can be assigned to individual compounds or minerals. The most intensive diffraction lines correspond to silicon and/or silicate oxide. The resulting trend of the curve itself is clearly obvious. The convexity involves an "amorphous halo" that causes the semi-crystallized and seemingly amorphous character of the created material.

CHARACTERISTICS OF GEOPOLYMER

The created samples from the hardened geopolymer mixture were subjected to tests in pressure on the hydraulic press. From the measured values it was possible to put together dependencies between individual variables and levels of stability.

CONCLUSION

The best geopolymer is made of metakaolin Sedlec I.A 550°C/4 HOURS. Optimal volume of water glass is about 35%. Compressive strength is over 60%, higher then compressive strength of cement. Geopolymer is more ecologic then cement because no carbon dioxide releases up to the atmosphere when we are preparing that material.