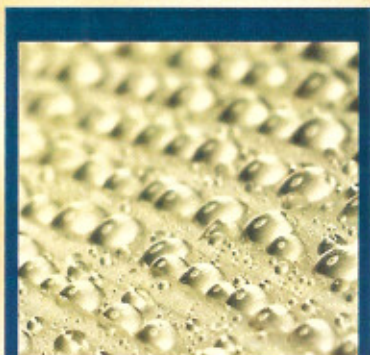


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# MATERIALS ENGINEERING 2011

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electrodes), ambient temperature, humidity and from the type of electrospinning apparatus.

The aim of this study is to estimate the influence of concentration of polymer solution and the main technological parameters – applied voltage, distance between electrodes on structure mat which was electrospun using electrode (spinning head) with tines.

The mat from poly(vinyl alcohol) (PVA) was formed using "Nanospider™" electrospinning equipment. In this equipment is used a rotating electrode with tines which is partially immersed in polymer solution. The structure of electrospun mat was determined using SEM (Quanta -2000), the diameter of nanofibres was measured by Lucia 5.0. Mats of PVA nanofibres were electrospun at different applied voltage and distance between electrodes from solutions of 6, 8, 10 and 12 wt% of concentrations.

During this study was determined that the structure of electrospun nanofibre depends from concentration of polymer solution, distance between electrodes and applied voltage.

## **STUDY OF THE SHIELDING GAS INFLUENCE ON COSTS OF THE WELDING JOINT**

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The aim of our research was to find out the influence of the composition of shielding gas on costs of the welding joint.

We were looking for different mixtures of shielding gas that is used in MAG welding for non-alloyed steel. The mixtures that were chosen for research are mostly used in manufacturing of steel constructions in Baltic States and North Europe.

For economical estimation of welding joint following researches were executed: amount of spatter on the welded parts after welding, metallographic research of welding joint, chemical composition analysis, penetration, and calculation of the welding joint. Each composition of the shielding gas provided different results for each parameter during the investigation. This brought us to the conclusion which gas mixture provides the best quality of the welding joint.

During research we found out that the choice of separate shielding gas influences the speed of welding. This parameter makes the difference in calculation of the welding joint. There is also lay-out of the components that influence the costs of the welding joint in our research work.