

PO1032

**Influences of surface-active substances on specific power inputs and on surface roughnesses of the metal product under plasma vacuum arc treatment**

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The use of the vacuum arc for cleaning of the material surfaces and for removal of various contaminations is an actual problem in view of essential advantages of this cleaning method in comparison with chemical, mechanical and other ones and, first of all, in view of absolute environmental safety of vacuum arc method. However, in case of vacuum arc cleaning of some kinds of the hot rolled metals covered with relative thick (6-12 microns) layers of oxide, the roughness of the surfaces after cleaning sometimes exceeds the necessary limit of 10-14 microns. Cleaning of such steels of thick layers and removal of the scale is accompanied by the large power inputs. It is a reason of necessity of improvement of plasma vacuum arc technology and of the study of the interaction mechanisms of cathode plasma of the vacuum arc with the material surfaces. In present work the influence of surface-active substances on specific power inputs under plasma vacuum arc cleaning of the steel samples and on the roughnesses of the treated surfaces is considered. It is shown, that the covering of the treated steel surfaces by 20% solution of KOH and NaOH reduces the power inputs under the cleaning of the surfaces and removal of the scale in 1.5-2.4 times and decreases the roughnesses of the treated surfaces in 1.5-3.2 times.

**Keywords**

vacuum arc  
cleaning