Examination of Deposited Layers Composition on the Tokamak T11-M Discharge Chamber Constructional Elements After Two-Year Operation With Lithium Limiter

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The results of the surface analysis of internal structural elements of the T11-M tokamak discharge chamber after two-year operation with lithium limiter are presented [1,2]. The surface condition of the discharge chamber molybdenic wall and an internal steel surface of the diagnostic ports have been investigated.

X-ray microanalysis of the deposited layers on the first wall surface has shown, that deposited layer includes M\textsuperscript{+} in the main and a small amount of Cu. In a composition of deposited layer on the diagnostic ports surface, except the above-named elements, there is Fe in a small amount. Because of the instrumental restrictions of this method of analysis, an opportunity of detection of the lithium traces has missed.

X-ray diffractometer analysis of the deposited layers on the first wall surface has detected a mixture of several phases. The main phase is Li\textsubscript{2}CO\textsubscript{3}, one third from all deposited substance is Li\textsubscript{2}MoO\textsubscript{4}, there is also LiOH-H\textsubscript{2}O phase. The deposited layer on the diagnostic ports surface consists of LiOH-H\textsubscript{2}O phase in the main, there is also Li\textsubscript{2}CO\textsubscript{3} phase. The results of X-ray analysis of a dust probe from the B\textsubscript{4}C coated graphite limiter surface have not detected whatever extra phases, except a crystalline boron carbide phase.


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