Methodology for the residual sodium treatment process by making Bead-form-sodium

감다영†, 정민환, 김준기, 김종만, 조영일, 정지영
한국원자력연구원
(gdy@kaeri.re.kr†)

In general, the experimental equipment using sodium should be treated so that there is no residual sodium because sodium in class 3 by the Safety Control of Dangerous Substances Act has the high reactivity especially with water and oxygen. There are physical and chemical methods for residual sodium treatment, usually by physically heating and extracting sodium from the instrument and then treating it by chemical methods such as steam or water cleaning. Depending on the structure of experimental apparatus, some sections may have amount of remained sodium even after treatment by conventional heating method (heating and flushing using Argon gas). The proposed methodology is characterized by making liquid sodium to solid beads from the extraction of remained sodium from devices after using. The treated sodium is less than 5mm in diameter and can be treated more safely by reacting with excess water.
The volume of stirrer is 150L and the type of using oil is paraffin oil that is nonreactive with sodium. The magnetic impeller installed on lower side of the stirrer enhances the efficiency of stirring and enables an outlet installed at the bottom, which is suitable for the next process.