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Relationship of the s^1-elements halogenides melts specific electric conductivity with alkali metals specific electric conductivity

© **Ivan K. Garkushin**,*+ **Olga V. Lavrenteva** and **Yana A. Andreeva**
Department of General and Inorganic Chemistry. Samara State Technical University.
Molodogvardeyskaya St., 244. Samara, 443100. Samara Region. Russia.
Phone: +7 (846) 278-44-77. E-mail: gik49@yandex.ru

*Supervising author; +Corresponding author
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Abstract

The paper presents an analytical description of the relationship of the specific electrical conductivity æ of individual alkali metals haloganides melts (MHal) (M – Li, Na, K, Rb, Cs, Fr; Hal – F, Cl, Br, I) and the specific electrical conductivity æ(M) of alkali metal melts for temperatures ($T_{пл}$ + n) ($T_{пл}$ – melting temperature K; n = 5, 10, 50, 75, 100, 150, 200° higher melting temperatures of MHal and metals) and the specific electrical conductivity of alkali metals at standard temperature using M.Kh. Karapetyans comparative methods. The relationship of properties æ(MHal при $T_{пл}$+n) = f(æ(MHal при $T_{пл}$+5)), æ($FrHal_{T_{пл}+n}$) = f(æ($FrHal_{T_{пл}+5°}$)) is described in the "property-property" coordinates. A comparative analysis of the specific electrical conductivity values of francium haloganides melts obtained by the proposed methods was carried out. The possibility of calculating the electrical conductivity of molten salts from the electrical conductivity of molten metals is shown. It is shown that the equation $æ(MHal)^{0.5} = a + bæ(M)^{1.5}$ can be used to calculate the specific electrical conductivity of francium haloganides melts. The calculation of the specific electrical conductivity using various equations shows the consistency of the numerical values obtained.

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