

**DSC INVESTIGATION OF THE HEAT CAPACITY
OF $K_2SO_4 - ZnSO_4$ SULPHATE GLASSES**

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Sulphate glasses belong to a special group of glasses obtained from molten salts and, as a result, do not contain classical glass formers. For a long time, the study of sulphate glasses was primarily of scientific interest and was associated with attempts to explain the nature and mechanism of vitrification in salt systems. Therefore, the main focus of the study was on the structure. Significantly less attention was paid to the properties of the glasses.

The aim of this work is to investigate the specific heat capacity of $(100-x)K_2SO_4-xZnSO_4$ glasses ($x = 40, 50, 60, 70, 80$ mol%). The glasses were synthesized from anhydrous K_2SO_4 and $ZnSO_4$ at 750–900 K under an Ar flow in glassy carbon crucibles. Samples were obtained by "pressing" the melt between massive cold copper plates. Measurement of the specific heat capacity by the comparison method was carried out using a DSC214 Polyma differential scanning calorimeter with a CC200F3 cooling system (Netzsch, Germany). Glass samples weighing 30–40 mg with plane-parallel polished surfaces were heated in closed aluminum crucibles at a rate of 10 K/min under a nitrogen atmosphere. A 37.7 mg sapphire disk was used as a comparison sample. Measurements were performed in the temperature range from 193 to 723 K. For each of the studied glasses, the temperature dependence of the specific heat capacity C_p was obtained in the temperature range from 223 to 473 K. The C_p values for six temperature points are presented in the table.

Values of C_p for $(100-x)K_2SO_4-xZnSO_4$ glasses

x (mol.%)	$C_p, J/(g \cdot K)$					
	223 K	273 K	323 K	373 K	423 K	473 K
80	0.58	0.64	0.69	0.75	0.77	0.63
70	0.57	0.64	0.70	0.75	0.79	0.80
60	0.56	0.62	0.67	0.73	0.78	0.80
50	0.63	0.71	0.78	0.83	0.87	0.89
40	0.65	0.71	0.77	0.82	0.85	0.88