o.m13.p9 **Phase analysis of Na_xWO_3 and $Na_xMo_yW_{1-y}O_3$.** A.U. Monir , A. Hussain and T. M Khobaer. *Department of Chemistry, University of Dhaka, Dhaka-1000, Bangladesh.*
Keywords: Na_xWO_3, $Na_xMo_yW_{1-y}O_3$.

In recent years many research groups have studied tungsten bronzes, M_xWO_3 and mixed bronzes, $M_xM'_yW_{1-y}O_3$ [1-4], where M'= V, Nb, Mo or Ta because of their remarkable physical and chemical properties [5].

Sodium tungsten bronzes,$Na_{0.60}WO_3$ and molybdenum substituted sodium tungsten bronzes, $Na_{0.60}Mo_{1-y}WO_3$, where y=0.05-0.20, were prepared from the appropriate amount of different oxides at 600°C-800°C for a week in evacuated sealed silica tubes. The samples were characterized by X-ray powder technique using Guinier-Hägg focusing camera.

The prepared samples were indexed as perovskite tungsten bronze, PTB (cubic) type. It was observed that the tungsten atoms could be substituted up to 15% by molybdenum atoms in sodium PTB (cubic) phases at 600°C and 700°C.

A refinement of cell parameter in molybdenum substituted sodium PTB (cubic) phase showed an increase in cell parameter with increasing molybdenum content in $Na_{0.60}Mo_{1-y}WO_3$.

[1] Kihlborg, L . and Sharma, R., J. Microsc. Spectrosc. Elect. 7, 387-396,1982
[2] Dey, K .R. and Hussain, A ., Proc. Int. Conf. SPPM'97, Str.3, B16-B20,1997
[3] Hussain, A . and Monir, A . U., AsCA'98 abstracts, 15P29, 1998
[4] Hussain, A ., Monir, A .U. and Rahman, A .N. M. M., IUCr'99 abstract, P11.10.004,1999
[5] Labbe, Ph., Key Engineering Materials, 68,293,1992.

o.m13.p10 **Structure and low temperature yield stress of quenched Al-Li alloys.** V.V. Pustovalov, N.V. Isaev, V.S. Fomenko, S.E. Shumilin. *B.I.Verkin Institute for Low Temperature Physics and Engineering NAS of Ukraine, 47, Lenin Prosp., Kharkov, 310164, Ukraine.*
Keywords: low temperature, precipitation, lattice parameter.

The theory of thermally activated overcoming of local impurity barriers by dislocations predicts a monotonic increase in effective stress τ^* with decreasing temperature T and increasing impurity concentration C in an equilibrium solid solution. To test this hypothesis, temperature dependences of the yield stress, other parameters of plasticity and structure of the Al-Li quenched alloys were studied at temperatures ranged from 4.2 to 290 K. The experimental data show that at T<140 K the value of τ^* does increase with C for a Li content of C<7 at.% but decreases on further doping. The relation between the lattice parameter and initial Li concentration in the alloy studied by the X-ray diffraction technique with averaging the data by nine reflections demonstrates that the true Li concentration in the alloy matrix is lower than the initial one. Moreover, the total X-Ray diffraction patterns of the concentrated alloy display new diffraction peaks. The X-ray diffraction date suggest that the concentrated alloy is not a single-phase one: even with quenching, there occur dispersed precipitations of the second phase. Thus, the decrease in τ^* in the concentrated alloy which is contradictory to the theory can be accounted for the effect of second phase precipitations on kinetics of thermally activated motion of dislocations in the matrix.