CONCLUSIONS

1. For example $Al_{94}Fe_3Cr_3$ alloy experimentally proved the effectiveness of the use of consolidation under high pressure to maintain dispersed particles of metastable quasi-crystalline phase. It is shown that the high pressure whose magnitude is 2,5; 4 and 6 GPa does not affect the phase composition of the alloy after compaction, which indicates complete safety quasicrystalline phase in the $Al_{94}Fe_3Cr_3$ alloy.

2. It is shown that in contrast to the consolidation process of the alloy powder by uniaxial deformation extrusion, which is carried out at elevated temperatures (653 K) in terms of consolidation deformation at high pressure, which occurs at low temperature (473 K) contributes to the complete safety of metastable quasicrystalline phase content in aluminum matrix.

3. Established that the strain hardening $Al_{94}Fe_3Cr_3$ alloy during consolidation at high pressure leads to a significant increase in its strength characteristics. Exceeding the initial microhardness HV powder by 100-120%, microhardness $Al_{94}Fe_3Cr_3$ alloy powder, consolidated at high pressure, up 2 GPa. In addition, the notional boundary $\sigma_{0,2}$ stress is within 0,565-0,585 GPa.

4. Despite the higher level of hardness, ductility characteristics δ_H coverage of $Al_{94}Fe_3Cr_3$ alloy, consolidated under high pressure, is 8% lower than this parameter for the source powder., Remaining close to the critical value (δ_H = 0,90), indicating that the plastic behavior of the material in terms of stretching and bending.

5. Developed measures to ensure healthy working conditions, and the principles of safety in an emergency.