

The B(Pb)SCCO whiskers employed in this project were grown by melted-quench method. They were of the form of microsingle crystal and shape of ribbons having the dimensions of $10\text{-}60\text{ }\mu\text{m}$ \times $1\text{-}5\text{ }\mu\text{m}$ \times $1\text{-}5\text{ mm}$ in width, thickness and length, respectively. A pair of Josephson junctions could be fabricated by crossing a pair of whiskers and annealing them in O_2 flowing atmosphere of $600\text{-}800^\circ\text{C}$ for 1 hr. The whiskers then were separated to form independent sets of Josephson junctions. Electrical connections to the ends of each whisker was done with silver paste. I-V characteristic was carried out at 78 K employing liquid nitrogen as the coolant. Josephson effect of SNS or bridge junction and SIS junction was observed for junctions fabricated at 700°C and $750\text{-}800^\circ\text{C}$, respectively. For the SNS type the critical current and normal resistance were about $14\text{-}40\text{ }\mu\text{A}$ and $0.5\text{-}1\text{ }\Omega$, respectively. For the SIS type the I_c , resistance and energy gap were about $0.1\text{-}0.5\text{ }\mu\text{A}$, $100\text{-}300\text{ k}\Omega$ and $20\text{-}40\text{ meV}$, respectively. The I-V characteristic of a SNS junction was also studied in the temperature range of $20\text{-}90\text{ K}$ by means of a closed circuit cryogenic system. The critical current and the critical voltage were increased as the temperature of the junction decreased. At the temperature of 20 K the critical current and critical voltage were $66\text{ }\mu\text{A}$ and $6.5\text{ }\mu\text{V}$ respectively. In conclusion, Josephson junction of SNS and SIS types with I_c , normal resistance and energy gap in the range of $0.1\text{-}40\text{ }\mu\text{A}$, $0.5\text{-}250\text{ k}\Omega$ and $20\text{-}40\text{ meV}$ respectively, were successfully fabricated employing B(Pb)SCCO whiskers.