Pumice is a porous rock, which is formed as a result of volcanic activity and does not include any crystal water. Its porous structure makes it lightweight and provides advantage for heat and sound isolation. Foam concrete is a type of lightweight concrete. Foam concrete is obtained by adding the foam obtained from the agent to the mixture of cement, water, and aggregate. Foam concrete is an environmentally friendly structure and insulation material which provides light, heat, and impact sound insulation that can be used in place of the building elements used in the interior-exterior walls and floors of all buildings. Because of the lack of coarse aggregate in the foam concrete mix, it has some structural problems and this limits its usage area. In this study, four different types of pumice aggregates and stone powder were used to overcome the structural problems of foam. The cement dosages (250 kg/m^3), aggregate amounts (250 kg/m^3), fresh concrete densities and w/c ratio (0.45) were kept constant in all foamed concrete mixtures. Then, physical, mechanical, and thermal conductivity properties of the resulting foam concretes were investigated. When the findings were evaluated, the most suitable type of lightweight aggregates for use in foam concrete have been determined in terms of compressive strength and thermal conductivity properties. In all aggregate groups, Nevsehir Pumice has the highest compressive strength while Karaman Pumice has the lowest thermal conductivity. However, when both properties were evaluated together, it was determined that the most favorable lightweight aggregate was Nevsehir Pumice.