This work reports on the characterization of natural amorphous silica fibers (NASF) reinforced particulate amorphous silica/borosilicate glass (particle size < 5 µm) matrix composites. Well mixed NASF (0 - 50 vol%), borosilicate glass and bentonite (3 wt%) powders (humidified with 5 wt% water) were uniaxially pressed (100 MPa). Subsequently, the obtained compacts were dried (110 °C/2 h) and fired (900 - 1200 °C/30-120 min) at 10 °C/min in an oxidant atmosphere. The raw materials and the obtained composites were characterized on the point of view of their typical physical/mechanical and chemical properties. Results showed that, according to SEM observations, the NASF fibers are characterized by an acicular shape with a mean diameter of 10 µm and lengths ranging from 200 to 600 µm. Moreover, the silica fibers are hollow with inner diameters below 1 µm. Furthermore, the obtained composites have shown relatively strong interfacial bonds between matrix and fibers, which leads to a brittle fracture without significant fiber pullout.