In this study, zinc aluminum alloy (Zamak) (ZA-27) composites reinforced by different weight fractions of fly ash, alumina (Al₂O₃), or both particles were produced using compo-casting technique. The composites were subjected to hardness and wear tests. The hardness of the composites increases with increase of the weight fractions of reinforcements. In wear test, the composites were examined under dry sliding conditions using pin on disc apparatus. The wear results revealed that the wear resistance increases with increase of the weight fractions of reinforcements. However, the effect of fly ash particles on the wear resistance of the produced composites is more statistically significant than the effect of Al₂O₃ particles. The morphology of the composites was examined using scanning electron microscopy (SEM) after the test. The SEM images revealed the existence of adhesion and delamination wear mechanism.