montmorillonite (EVA). The materials used was Ethyl Vinyl Acetate (EVA), which is a thermoplastic copolymer and solid at room temperature. The EVA was purhased from UBE-Maruzen Polyethylene Co. Ltd., Tokyo, Japan and commercially known as UBE EVA V215. The samples were prepared by melt compounding the EVA copolymer with different ratios of organo-MMT nanofiller (0, 1, 3, and 5 wt%) using internal mixer (brabender plasticoder). Another set of samples were prepared by melt mixing EVA copolymer with different ratios of organo-MMT filler (0, 1, 3 and 5 wt. %) using twin screw extruder. Their research shows that The melt compounding process of EVA copolymer using internal mixer (Brabender plasticoder) resulted in more enhanced mechanical performance at low filler loading (1wt%). In contrast, the melt compounding process of EVA copolymer using twin screw extruder resulted in best mechanical performance at high filler loading (5wt%). (Fazlina, Wei, & Alakrach, 2015)

7. Ethylene vinyl acetate copolymers (EVA) are randomly structured polymers, which offer excellent ozone resistance, weather resistance, and excellent mechanical properties. (Mohamad, Ismail, & Thevy, 2006)

8. According to Hemmati et al (2014), blending polymeric materials is a well establish method to enhanced ultimate properties of material. Incorporating EVA within PE has several advantages. For example the semi-crystalline binary blends of polyethylene (PE)/ethylene-vinyl. The main reason for preparing PE/EVA binary blends is that the total product price is reasonably low, whereas the performance and processability are appropriately kept high. Other industrial appli- cations of these blends include wire and cable-insulation coatings and foams. It has been reported that EVA addition to different PE grades can improve the PE properties such as toughness, transparency, environmental stress cracking resistance, and filler-carrying capacity. (Hemmati, Garmabi, & Modarress, 2014)

9. Dynamic mechanical analysis (DMA) measures the response of a given material to a cyclic deformation (usually tension or three-point flexion type deformation) as a function of temperatureacetate copolymer (EVA). According to Camargo et al, a different behaviour on DMA properties is observed when blending copolymers, such as the symmetric styrene-butadiene- styrene [SBS] block copolymers, are previously used to modify the matrix. For example, when SBS is melt-blended with a montmorillonite modified by dimethyldioctadecylammonium, a nanocomposite in which only the PS blocks can intercalate within the layered silicates is produced. In this material, a large improvement of the storage modulus at 25 °C was observed. (Camargo, Satyanarayana, & Wypych, 2009)

10. Müller et al (2017) observed behavior of phase separated block copolymers and polymer blends. The degree of crystallinity and crystallization rate can be affected by crystallization in narrow spaces. If the space is so narrow, that the spherulitic growth is restricted, primary nuclei are not available for heterogeneous crystallization. Consequently, homogeneous nucleation appears. This can lead to a low crystallization rate, degree of crystallinity and melting point. For the compatibilization of polymer blends, two factors should be addressed firstly. This is the
11. interfacial tension between the phases which should be reduced and the avoidance of coalescence of the nanoparticles. One solution to address this, is the additivation by