strength had been achieved after 16 hours of curing time for both polymer concrete.

Additionally, it was clear that Iso-PC had superior compressive strength to Ortho-PC due to its molecular structure being denser [17, 18]. Strong relationship has been exhibited between compressive strength and curing period of all polymer concrete since both regression values, $R^2$, were more than 0.80.

![Figure 4](image1.png)

**Figure 4** Compressive strength of Ortho-PC and Iso-PC at different curing period with curing temperature of 30°C

Similar results between Orthophthalic and Isophthalic-based polymer concrete cured at 50°C and 70°C are shown in Figure 5 and 6, respectively. Both figures showed that the relationship between compressive strength and curing period was also non-linear regardless of the curing temperature. Nevertheless, it followed the earlier notion of compressive strength increasing with prolonged curing period. At both curing temperatures, the polymer concrete achieved constant compressive strength when exposed to post-curing approximately about 50 MPa for Ortho-PC and 60 MPa for Iso-PC. This shows that complete crosslinking had occurred within the first six and three hours when the polymer concrete was exposed to a curing temperature of 50°C and 70°C, respectively. The strong relationship between compressive strength and curing temperature at both temperatures was demonstrated through the high $R^2$ values, which was more than 0.80 for overall types of PC.

![Figure 5](image2.png)

**Figure 5** Compressive strength of Ortho-PC and Iso-PC at different curing period at curing temperature of 50°C

![Figure 6](image3.png)

**Figure 6** Compressive strength of Ortho-PC and Iso-PC at different curing period at curing temperature of 70°C

Overall Isophthalic-based polymer concrete continued to demonstrate higher compressive strength than Orthophthalic-based polymer concrete at all curing temperature. It is because of the former's denser molecular structure. At this curing temperature, the compressive strength progressively increased to about 50 MPa for Ortho-PC and 60 MPa for Iso-PC.

### 3.3 Morphology

The maturity of polymer concrete is shown through the completeness of the crosslinking of polyester resin. This was captured in SEM images with 250 times magnifications. Figure 7 shows the SEM image of Isophthalic-based polymer concrete within 6 hours of curing period and being cured at 70°C. The form of crosslinking is pointed in red. Additionally, strength development in this study related with the rate of attainment of kinetic energy of the particle. Condensation stage progress was achieved simultaneously with the progress of crosslinking of polyester resin and this resulted in the formation of polymer concrete.

![Figure 7](image4.png)

**Figure 7** SEM image of Isophthalic based polymer concrete with 6 hours of curing period at 70°C of curing temperature