# Analisis Kinerja Beton Menggunakan Material Green Contruction Dengan Memanfaatkan Fly Ash Pltu Indramayu Sebagai Substitusi Semen

*Desi Putri[1]; Rr. Mekar Ageng Kinasti[3]; Sriyono D Siswoyo[4]*

[1,2,3]Program Studi Teknik Sipil, Institut Teknologi PLN Jalan Lingkar Luar Barat Duri Kosambi, Cengkareng, Energi Barat, 11750
desi.putri@itpln.ac.id

***ABSTRACT***

*Recently, the use of cement for construction has shifted from Ordinary Portland Cement (OPC) to Portland Composite Cement (PCC). PCC cement is cement in the Indonesian Green Listing from the Green Building Council Indonesia, this is based on the industry's commitment to environmental issues. PCC-type cement is easier to obtain on the market and has been widely used in construction in various environments, although its advantages have not been studied much. The use of PCC Cement is often feared for its strength as structural concrete when compared to OPC cement by service users. Therefore it is necessary to do research on the use of PCC cement. Flay ash is a waste of coal combustion which continues to increase rapidly every year. It is necessary to study the characteristics and utilization of fly ash waste to determine the potential of the fly ash. This study analyzes the performance of concrete using PCC cement by utilizing PLTU Indramayu's fly ash as a cement substitution. The research method was carried out experimentally in the laboratory. In the early stages, material testing was carried out and then continued with the manufacture of test objects with variations in the use of fly ash as a cement substitution of 0%, 10%, 20%, 30% and 40% which were tested under pressure at the age of 7 days, 14 days and 28 days. The results of compressive strength at 28 days were 25.19 Mpa; 25.36 Mpa; 25.62 Mpa; 26.92 Mpa and 22.92 Mpa. The optimum compressive strength is found in variations of 30% fly ash as a cement substitution. PCC cement can be used in the manufacture of both structural and non-structural concrete, on the other hand the development of this type of PCC cement will help reduce emissions or environmental problems from industrial activities.*

.

***Keywords:*** *Ordinary Portland Cement, Portland Composite Cement, fly ash, compressive strength*

***ABSTRAK***

*Belakangan ini penggunaan semen untuk kontruksi telah beralih dari tipe Ordinary Portland Cement (OPC) menjadi Portland Composite Cement (PCC). Semen PCC merupakan semen dalam Green Listing Energi dari Green Building Council Energi, hal ini berdasarkan komitmen industri terhadap permasalahan lingkungan. Semen tipe PCC lebih mudah didapatkan di pasaran dan telah banyak digunakan pada konstruksi di berbagai lingkungan meski belum banyak diteliti keunggulannya. Penggunaan Semen PCC sering dikhawatirkan kekuatannya sebagai beton struktural bila dibanding dengan semen OPC oleh pihak pengguna jasa. Oleh sebab itu perlu dilakukan penelitian tentang penggunaan semen PCC. Flay ash merupakah limbah pembakaran batu bara yang terus meningkat pesat setiap tahunnya. Diperlukan studi karakteristik dan pemanfaatan limbah fly ash untuk mengetahui potensi fly ash tersebut. Penelitian ini menganalisis kinerja beton menggunakan semen PCC dengan memanfaatkan flay ash PLTU Indramayu sebagai substitusi semen. Metode penelitian*