

## ABSTRAK

### ANALISIS SIFAT MEKANIK BATA RINGAN CLC AKIBAT VARIASI KADAR ADITIF SIKAMENT LN

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Kemajuan terhadap material bangunan yang ringan, kuat, dan ramah lingkungan semakin meningkat seiring berkembangnya teknologi konstruksi modern. Bata ringan jenis *Cellular Lightweight Concrete* (CLC) menjadi salah satu solusi inovatif karena memiliki karakteristik bobot yang rendah namun tetap memenuhi syarat kekuatan struktural. Dalam penelitian ini, dilakukan eksplorasi terhadap pengaruh penambahan zat aditif Sikament LN sejenis *superplasticizer* terhadap peningkatan sifat fisik dan mekanik bata ringan CLC. Penambahan aditif ini diharapkan mampu memperbaiki workability adukan segar, distribusi pori udara, serta kekuatan hasil akhir, sehingga meningkatkan efisiensi pencampuran sekaligus kualitas produk akhir.

Hasil pengujian menunjukkan bahwa penambahan Sikament LN meningkatkan kelecakan adukan segar (*slump flow*), dengan nilai tertinggi sebesar 76 cm pada rasio 3:2. Penambahan aditif juga berdampak pada peningkatan kuat tekan, di mana nilai tertinggi tercatat sebesar 3,04 MPa pada rasio 3:2 dibandingkan 1,87 MPa pada sampel tanpa aditif. Kuat lentur juga meningkat secara signifikan, dari 2,78 MPa menjadi 5,55 MPa pada variasi aditif tertinggi. Dari aspek absorpsi, terjadi penurunan daya serap air dari 24,85% menjadi 16,23% yang menunjukkan pori yang lebih halus dan tidak saling terhubung. Penambahan Sikament LN terbukti memperbaiki mutu bata ringan CLC baik dari segi visual, kekuatan struktural, maupun ketahanan terhadap air, serta memungkinkan pembuatan bata ringan yang lebih efisien dan ramah lingkungan.

**Kata kunci:** Absorpsi, bata ringan CLC, kuat tekan, kuat lentur, Sikament LN, *slump flow*.

## **ABSTRACT**

### **ANALYSIS OF THE MECHANICAL PROPERTIES OF CLC LIGHTWEIGHT BRICKS AS A RESULT OF VARIATIONS IN THE CONTENT OF SIKAMENT LN ADDITIVES**

By

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Advances in lightweight, strong, and environmentally friendly building materials are increasing in line with the development of modern construction technology. Cellular Lightweight Concrete (CLC) lightweight bricks are one innovative solution because they are lightweight but still meet structural strength requirements. In this study, an exploration was conducted on the influence of adding the Sikament LN additive—a type of superplasticizer—on improving the physical and mechanical properties of CLC lightweight bricks. The addition of this additive is expected to enhance the workability of fresh mortar, air pore distribution, and final strength, thereby improving mixing efficiency and the quality of the final product.

Test results showed that the addition of Sikament LN increased the slump flow of the fresh mortar, with the highest value of 76 cm at a 3:2 ratio. The additive also improved compressive strength, with the highest value recorded at 3.04 MPa at a 3:2 ratio compared to 1.87 MPa in the additive-free sample. Flexural strength also increased significantly, from 2.78 MPa to 5.55 MPa at the highest additive variation. In terms of absorption, there was a decrease in water absorption from 24.85% to 16.23%, indicating finer and non-interconnected pores. The addition of Sikament LN has proven to improve the quality of CLC lightweight bricks in terms of visual appearance, structural strength, and water resistance, while also enabling the production of more efficient and environmentally friendly lightweight bricks.

**Keywords:** CLC lightweight bricks, compressive strength, flexural strength, Sikament LN, slump flow, water absorption.