

ABSTRAK

Veronika Enjelina Siburian. NIM. 5192550003 : Pengaruh Serbuk Besi Terhadap Kuat Tarik Pada *Hot Rolled Sheet* Dengan Karakteristik Uji *Indirect Tensile Strenght*.

Jalan yang aman, nyaman, kuat, dan efisien sangat mendukung kemudahan mobilitas. Menciptakan jalan berkualitas, diperlukan lapisan tambahan di antara tanah dasar dan roda kendaraan, atau pada lapisan teratas jalan. Lapisan terbuat dengan menggunakan material tertentu biasa dikenal sebagai lapisan perkerasan. Salah satu jenis perkerasan tersebut adalah konstruksi perkerasan lentur *Hot Rolled Sheet* (HRS), atau sering disebut Lapis Tipis Beton Aspal (Lataston). Dari kualitas jalan tersebut, maka dapat dilakukan penelitian dengan bahan tambahan serbuk besi yang akan dicampurkan dengan agregat halus dengan komposisi campuran 9%, 12%, dan 15% dengan kadar aspal yang mengikat adalah 7%. Untuk membuat perkerasan jalan, material harus memiliki kekuatan tarik yang baik

Berdasarkan pengujian Marshall yang telah dilakukan untuk mencari nilai Kadar Aspal Optimum (KAO) maka didapatkan nilai 7,383% dari variasi serbuk besi 9%. Nilai ITS yang memenuhi standar sesuai dengan Spesifikasi Lapis Tipis Aspal Beton 2016, variasi serbuk besi yang memenuhi standar yaitu variasi serbuk besi 9%, dengan nilai VIM rendaman 7,187% dan nilai VIM Non-rendaman 7,066%, dengan nilai *Indirect Tensile Strenght* Rendaman yaitu 622,19 kPa dan nilai *Indirect Tensile Strenght* non-rendaman yaitu 625,72 kPa. Pada variasi serbuk besi 12% juga memenuhi standar, namun pada parameter nilai VIM (*Void In The Mix*) masih berada dinilai 4,235% pada rendaman, dan 4,033% pada non-rendaman dan masih belum memenuhi spesifikasi yang seharusnya. Pada variasi serbuk besi 15%, nilai VIM pada rendaman 7,049%, dan pada non-rendaman 7,054%. Nilai *Indirect Tensile Strenght* rendaman yaitu 550,31 kPa dan nilai *Indirect Tensile Strenght* non-rendaman yaitu 461,29 kPa, sementara pada variasi serbuk besi 0%, yang memiliki nilai VIM rendaman 7,1%, sementara VIM non-rendaman 7,183%, dengan nilai ITS Rendaman 553,72 kPa lebih tinggi dari pada ITS non-rendaman 507,48%. Nilai ITS yang memenuhi standar sesuai dengan Spesifikasi Lapis Tipis Aspal Beton 2016, variasi serbuk besi yang memenuhi standar yaitu 9% dan 12%.

Kata Kunci : Lataston, Deformasi, *Hot Rolled Sheet*, Kuat Tarik, *Indirect Tensile Strenght*.

ABSTRACT

Veronika Enjelina Siburian. NIM. 5192550003 : Effect of Iron Powder on Tensile Strength of Hot Rolled Sheet with Indirect Tensile Strength Test Characteristics.

Safe, comfortable, strong and efficient roads are essential for easy mobility. To create quality roads, an additional layer is required between the subgrade and the vehicle wheels, or on the top layer of the road. Layers made using certain materials are commonly known as pavement layers. One type of pavement is Hot Rolled Sheet (HRS) flexible pavement construction, or often called Thin Layer Asphalt Concrete (Lataston). From the quality of the road, research can be carried out with iron powder additives that will be mixed with fine aggregates with a mixture composition of 9%, 12%, and 15% with a binding asphalt content of 7%. To make pavement, the material must have good tensile strength.

Based on Marshall testing that has been carried out to find the Optimum Asphalt Content (KAO) value, a value of 7.383% is obtained from the 9% iron powder variation. The ITS value that meets the standard in accordance with the 2016 Asphalt Concrete Thin Layer Specification, the iron powder variation that meets the standard is the 9% iron powder variation, with a soaking VIM value of 7.187% and a non-soaking VIM value of 7.066%, with a soaking Indirect Tensile Strength value of 622.19 kPa and a non-soaking Indirect Tensile Strength value of 625.72 kPa. At 12% iron powder variation also meets the standard, but the VIM (Void In The Mix) value parameter is still rated at 4.235% on soaking, and 4.033% on non-soaking and still does not meet the specifications that should be. In the 15% iron powder variation, the VIM value on soaking was 7.049%, and on non-soaking was 7.054%. The immersion Indirect Tensile Strength value is 550.31 kPa and the non-immersion Indirect Tensile Strength value is 461.29 kPa, while in the 0% iron powder variation, which has a VIM immersion value of 7.1%, while the non-immersion VIM is 7.183%, with an ITS Immersion value of 553.72 kPa higher than the non-immersion ITS of 507.48%. ITS values that meet the standard are in accordance with the 2016 Asphalt Concrete Thin Layer Specification, iron powder variations that meet the standard are 9% and 12%.

Keywords: Lataston, Deformation, Hot Rolled Sheet, Tensile Strength, Indirect Tensile Strength