



T.C.
REPUBLIC OF TURKEY
DUZCE UNIVERSITY
FACULTY OF FORESTRY
WOOD MECHANICS AND TECHNOLOGY



ALGT-Stone/Wood (620) Application Rapport

As consulted by CCM International (ALGT Stone/wood (620)) the technological results of the application of Nano Liquid Glass on beech wood has been analyzed.

ALGT-Stone/Wood (620); Dirt and similar pollution did not hold on to the surface, it has antistatic feature. It is resistant against staining. In only a few hours it shows non hygroscopic feature. It maintains dimensional stability. It does not have antibacterial feature, but because of its water repellency, fungi and bacteria infects occur later. After solvent and other volatile substances removed from the wooden surface, nano particulars are being permanent. The effect can last for a couple of years. Therefore Nano Liquid Glass can easily and conveniently be used on wooden surfaces as kitchen wood, tea tray, chopping board, coffee pad.

This Report is organized in accordance with Duzce University, Lifelong Learning, Application and Research Center the date 28.10.2015 and 33206 numbered.

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Prof. Dr. Cengiz GÜLER
Wood Mechanics and Technology



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As consulted by CCM International (ALGT Stone/wood (620)) the technological results of the application of Nano Liquid Glass on beech wood has been analyzed.

The wood samples has been examined with some chemicals by Düzce University scientific and technological research and application center. Furthermore aging applications, dimensional stability, higroscopicity and some resistance tests have been done in the lab of Duzce University Faculty of Forest Department of Forest Industrial Engineering Wood Mechanics and Technology Department.

Chemical Analyzes; No carcinogenic featured Poliaromatic Hydrocarbon (Naftalin, Asebatelan, Asenaftan, Floren, Fenantren, Antrasen, Floranten, piren, Benzopiren, Dipenzo, angrasen, indone) that is contained especially in petroleum derivative, has been found in liquid glass. As there is no antibacterial and/or anti-fungal effect, while working at the antibacterial activity analysis, it can be said that the application of nano liquid glass has a decreasing effect of features such as fungus and mold with its water repellent hygroscopic feature.

Accelerated Aging Process; Samples has been related to ASTM G 154-06 (2006) standard exposed to 0,67 light intensity 18 minutes water spray, 2 hours UV and 50 degrees environment heat and to UV aging effect with the QUV accelerated weathering tester device for 432 hours. It can be said, 432 hours period come up to 1-2 years. According to the results obtained, there were no important changes in color of the samples treated with liquid glass.

Hygroscopic Features; The beech samples has been analyzed for its hygroscopic features. Therefore samples that are treated with nano liquid glass for 2 hours show a water up-take value of 0,7%. Samples without treatment shows the value of about 13%. Therefore wooden materials exposed to water for short time, threaten with nano liquid glass have a very low water attraction value.

Resistance to Staining; According to stain-resistant tests, lemon juice, soap, acetone, milk, tea and coffee has been used. These substances have been left for 1 week, afterward cleaned with ordinary detergent in order to test whether the stain and marks are consistent on the surface or not. And the result is, that these substances can be cleaned and left no stain and mark at all.

As a results; Dirt and similar pollution did not hold on to the surface, it has antistatic feature. It is resistant against staining. In only a few hours it shows non hygroscopic feature. It maintains dimensional stability. It does not have antibacterial feature, but because of its water repellency, fungi and bacteria infects occur later. After solvent and other volatile substances removed from

the wooden surface, nano particulars are being permanent. The effect can last for a couple of years. Therefore Nano Liquid Glass can easily and conveniently be used on wooden surfaces.

ALGT-Stone/Wood (620); in the analyses of PCB for polyaromatic hydrocarbonate with furniture and covering, no phenyl group substance, also called carcinogenic, has been found. It also is antistatic against superficial dirt and dust and resistant against staining. It shows short-time high non-hygroscopic feature and because its stability it can easily and conveniently be used as kitchen wood, tea tray, chopping board, coffee pad.

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**DUZCE UNIVERSITY
FACULTY OF FORESTRY
DEPARTMENT OF FOREST INDUSTRIAL
ENGINEERING**



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