

FURTHER DEVELOPMENTS OF SYNTHETIC ROPES FOR LOGGING APPLICATIONS IN THE FORESTRY

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1. Abstract

On the strength of past experience from the beginning of the industrial use of synthetic ropes for several applications, which influenced the industry standards together with the sophisticated steel wire ropes, Teufelberger started in 2005 research and development for synthetic ropes for the forestry. Practical tests therefore are done in tight cooperation with the “Federal Research and Training Centre for Forests, Natural Hazards and Landscape (BFW)”.

This paper presents research results based on experiences in logging practice with the raw material Dyneema[®] in combination with other synthetic fibers as a substitute to steel wire ropes. The well known technical properties of Dyneema[®] are kept longer in full due to the new developed technical solutions for the rough practical forestry use. The most important exploratory focus has been directed at a solution to determine the life time of the rope and/or fiber, to increase significantly the load capacity of high stretched fibers in lateral direction, to improve the abrasion resistance and develop end terminations which less traverse force.

Since some years the benefit of application of synthetic ropes is known by the pronounced improvement of work conditions of the manual harvesting in the forestry and the following increased productivity, due to the reduction of the weight of the rope about 80 % compared to steel (see also report John J. Garland, 2004, Oregon State University). Another important aspect is the reduction of accidents. Teufelberger made these arguments for use practicable and due to proofed cost savings ready to market.

Picture of solution for synthetic rope please see next page. Patent pending.

