

Fatigue and residual strength of fiber tuglines

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Abstract

High performance synthetic ropes have been successfully used in the towing industry since the mid 1990's. Although many laboratory studies were conducted on the mechanical and physical attributes of the ropes, not too much was known on the long-term behavior of the ropes in field application. Samson Rope Technologies and DSM High Performance Fibers have undertaken a 2-year long joint program to collaborate field performance and in laboratory studies to establish a better understanding of retirement criteria of a rope in service. This report summarizes the study conducted on approximately 40 AmSteel Blue field-tested ropes made from Dyneema SK75 HMPE fiber. Detailed residual strength determination and laboratory analysis are discussed.

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