

CONSIDERATIONS FOR THE MARINE USE OF FILAMENT-WOUND CARBON FIBRE COMPOSITE CRYOGENIC FUEL TANKS

Quinton, B^{1*}, Kendrick, A.², Liu, J.², and Williams, S.³

¹ Ocean & Naval Architectural Engineering, Memorial University of Newfoundland, St. John's, Canada

² Vard Marine Inc., Ottawa, Canada

³ Kingshurst Consultants, Moncton, Canada

* Corresponding author (bruce.quinton@mun.ca)

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Carbon fibre composite cryogenic fuel storage tanks have been used in the space industry for several decades. The marine industry is presently undergoing a regulated shift towards cleaner burning fuels, like liquid natural gas (LNG); which is a cryogenic fuel. The design, construction, testing and approval/certification for such LNG fuel storage tanks need to comply with the IMO International Code of Safety for Ships using Gases or other Low-Flashpoint Fuels (IGF Code). Typically, the materials used for the construction of a tank for storing LNG either as cargo or as fuel are metallic. However, according to Section 6.4.13.2.2 of the IGF Code, the use of non-metallic materials for the primary and/or the secondary barrier of an LNG fuel tank is also allowed, provided that their properties are suitable for the intended use. The paper presents considerations for the use of such tanks to store LNG as a fuel for high-speed marine passenger vessels.