



**International
Standard**

ISO 21154

**Ships and marine technology —
Boil-off-rate measurement method
for cargo containment system of
LNG ships**

**First edition
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Foreword

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Introduction

With the growing international demand for green fuels, LNG has gained widespread use due to its lower CO₂ emissions, high calorific value and cost-effectiveness. LNG ships, as an important transport equipment, are increasingly in demand. Central to these vessels is the cargo containment system (CCS), the storage unit for liquefied gas, which is usually composed of thermal insulation materials and support structures. Due to the huge temperature difference between ultra-low temperature LNG (-163 °C) and the atmospheric environment, boil-off is inevitable in the system. The boil-off-rate (BOR) is an important metric for assessing CCS design quality: the lower the value of BOR, the more efficient and effective the CCS. For shipowners, BOR also plays a role in calculating transportation costs. Therefore, reliable BOR testing method is essential for verifying containment system performance at sea.

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