Verband für Schiffbau und Meerestechnik e. V.





MARILIGHT.NET

Update from the German Maritime Lightweighting Network

Las Palmas, 03.05.2023







- 1. Introduction to Center of Maritime Technologies gGmbH
- 2. Introduction to MariLight
- 3. IMO SDC 9 Submission and Review of Interim Guidelines for Use of FRP Elements Within Ship Structures
- 4. Upcoming activities and invitation to collaboration





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Introduction CMT gGmbH (Center of Maritime Technologies)

CMT is a 100% subsidiary of German Shipbuilding and

Ocean Industries Association e.V. (VSM)

- Research institute
- Services: R&D projects + consulting
- Focus on Project initiation / participation in European and national projects
- Non-profit company with limited liability









Focus of our RDI work

Production and shipyard organization

Ship Concepts and Life Cycle Performance

Lightweight structures and new materials

Energy efficiency and alternative energy sources





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MARILIGHT.Net – The network for maritime lightweight construction

- Only maritime lightweight network in Germany
- Focus on maritime lightweight construction and technology transfer from other industries



- Currently 35 members Shipyards, suppliers, engineering companies and research institutions
- Start of the network in July 2018
- Since 2020, MariLight.Net is a network within the German Shipbuilding and Ocean Industries Association e.V. (VSM)





MARILIGHT.Cluster – The management of the network

- Technology transfer and innovation cluster
- In support of the MariLight network within the VSM
- Managed by Center of Maritime Technologies gGmbH
- MariLight Cluster recieves funding by the technology transfer program lightweighting (TTP–LB) of the German Federal Ministry of Economic Affairs and Climate Action (BMWK)
- Funding started in July 2021 for a duration of 3 years.



Gefördert durch:

Bundesministerium für Wirtschaft und Klimaschutz

aufgrund eines Beschlusses des Deutschen Bundestages







Current members of the MariLight Network

- 35 members:
 - 5 shipyards
 - 15 suppliers
 - 9 engineering offices
 - 6 research institutions
- Represent the entire value chain
- Several cross-sector companies







MARILIGHT.Net – Network activities



Annual network meeting:

- Personal exchange between all network members
- Interesting presentations on Innovations and Best Practice Examples
- Technology Transfer Block



Technology-Transfer-Workshop:

- Annually
- Exchange with lightweighting experts from other industries

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Working groups:

- Held every two months
- Current Topics:
 - Fire protection
 - Engineering in Lightweight Design



Information sharing:

- Monthly Newsletter
- Monthly member portraits
- Semiannual Best-Practice-Examples
- Reports from fairs, events and on other relevant lightweighting topics

MariLight @ E-LASS: Update from the national networks





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Submission to IMO SDC9

- Submitted by CESA; prepared by RAMSSES partners; supported by MariLight
- Proposals:
 - Review of circ. MSC.1/Circ.1574 Interim guidelines for use of Fibre Reinforced Plastic (FRP) elements within ship structures: Fire safety issues
 - Consideration of RAMSSES results
 - Expanding the guidelines to load carrying structures
- References (available on the <u>RAMSSES website</u>):
 - <u>Lunch presentation</u> IMO SDC7 (2020)
 - Public RAMSSES <u>Report</u> Final Recommendations to Rule and Policy makers
 - RAMSSES <u>Brochure</u>
 - <u>Presentation</u> of the final public RAMSSES conference:
 - Demo Case Custom Made Hull for Offshore Vessel
 - Concept Smart Track to Approval

	INTERNATIONAL MARITIME ORGANIZATION
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SUB COMMITTEE ON SHIP DESIGN AND	
CONSTRUCTION	
9th session	
Agenda item 15	

SDC 9/15/2 18 November 2022 Original: ENGLISH Pre-session public release: ⊠

ANY OTHER BUSINESS

Experience gained with larger FRP structures in ship construction

Submitted by CESA

SUMMARY

Executive summary: This submission provides access to application experience with larger FRP structures provided by the EU research project RAMSSES. The project deliverables also contain recommendations regarding review of and potential amendments to MSC.1/Circ.1574 with a view to overcoming the current limitation to smaller FRP elements. CESA recommends starting the review process now in order to expand the regulatory basis for the utilization of lightweight structures as soon as possible, significantly increasing the energy efficiency and climate friendliness of shipping Strategic direction, if applicable. Output. 152 Paragraph 17 Action to be taken:

Related documents: SDC 8/18; MSC 105/20 and MSC 100/19/3

Introduction and background

1 In 2017, the Maritime Safety Committee adopted the Interim guidelines for use of Fibre Reinforced Plastic (FRP) elements within ship structures: Fire safety issues (MSC.1/Circ.1574) (Interim guidelines), which now have been in use for five years. MSC.1/Circ.1574, paragraph 5 states that the Interim guidelines should be reviewed four years after their approval in order to make any necessary amendments based on experience gained.

2 For that purpose, the output Guidelines for use of fibre-reinforced plastics (FRP) within ship structures has been kept on the post-biennial agenda and interested Member States and international organizations are invited to consider the need to review MSC.1/Circ.1574 and to submit any proposals to the SDC Sub-Committee.

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Discussion at IMO SDC 9

- **CESA Observer** stated that the introduction of FRP would:
 - reduce structural weight and propulsion powering needs
 - Iower fuel consumption and thus emissions from ships,
 - increase cargo capacity
 - be a key enabler for emission-reduction technologies, for example by lowering the centre of gravity for ships using wind-assisted propulsion on their superstructure (such as Flettner rotors).
- While supported in general by many delegations, concerns were raised regarding the potential challenges in using FRP, in particular concerning its recycling or its combustibility with respect to fire safety
- After consideration, the Sub-Committee agreed to invite the Committee to lift the output "Guidelines for use of Fibre Reinforced Plastics (FRP) within ship structures" from its post-biennial agenda to the 2024-2025 biennial agenda, as well as to place it on the provisional agenda of SDC 10 (January 2024).





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Next steps & call for collaboration

- **1.** Continue the ongoing dialogue with IMO:
 - Support flag states via E-LASS & ongoing EU projects
- 2. R&D&I
 - Solutions for sustainable use of materials/circular economy
 - Digitalisation
 - Systematically **review the existing regulation**, particularly fire tests codes
 - **Develop and apply alternative test procedures** which are applicable to new materials' and structures' specific properties
 - Upscaling: Projects to demonstrate in full scale
 - Production process in large scale/quantities
 - Large lightweight products
- **3.** Suitable funding schemes:
 - Horizon Europe Dedicated calls for R&D projects; Innovation Fund
 - German national funding programme for maritime technologies
 - German/transnational funding programme for Lightweight structures





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Thank you!

11.05.2023