

IUMI Policy Agenda





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IUMI's Policy Agenda includes topics and issues which require advocacy efforts by relevant IUMI Technical Committees and/or the Policy Forum. ESG matters which do not require specific advocacy but are important to raise awareness about are under the remit of IUMI's ESG Working Group and can be found in the sustainability section of the [IUMI website](#).

¹ Items are listed in alphabetical order.
Recommended core documents are highlighted in red

UNDER REVIEW

1. Autonomous / unmanned transport

Brief description

Unmanned transports are gaining acceptance from industry and public entities as research and innovation bring the possibility of driverless trucks and vessels closer to realization. This raises some legal and liability issues that need to be resolved.

Insurers also need to address the risks related to innovative technologies and the internet of things. New types of failure modes may be introduced due to the lack of knowledge and unforeseen interdependencies in the system design, operation complexity, and environmental challenges. Cyber-attacks, connectivity, interactions between components and between technical systems and humans, and autonomy assisted accidents are among the challenges.

To become insurable, the use of autonomous systems must rely on proper industry standards, certification and classification regimes. Verification of safe performance is crucial.

Vessels

An unmanned vessel can be both remote controlled or fully automated, and it has been suggested that the first crewless vessel will be in service by the end of the decade. Most likely, there will be a number of variations and a stepwise progress, including the use of automated technologies with a reduced number of crew on board and for certain manoeuvres.

The IMO Maritime Safety Committee (MSC) has thus far agreed to focus on the following two levels of autonomy: (1) Remotely controlled ship with seafarers on board and (2) Remotely controlled ship without seafarers on board.

Interim guidelines for trials of Maritime Autonomous Surface Ships (MASS) were finalized by MSC in June 2019. As a basic principle, these trials shall meet at least the same level of safety, security and environmental protection as required for conventional vessels.

In May 2021, MSC 103 approved the outcome of a regulatory scoping exercise (RSE) undertaken to determine the extent of the need to amend the regulatory framework to enable the safe, secure and environmental operation of maritime autonomous surface ships (MASS) within the existing IMO instruments. In April 2022, MSC 105 agreed to develop a non-mandatory, goal-based Code for MASS, potentially entering into force on 1 January 2028 as a mandatory Code through SOLAS and other IMO instruments. In June 2023, MSC 107 progressed the development of the Code and agreed in principle that the Code would apply to SOLAS cargo vessels and high-speed craft. It was further agreed in principle that the Code should contain a risk-analysis based approach, that a human master shall be responsible regardless of the vessel's mode of operation and that there was no need to amend COLREGS to accommodate MASS at this stage. The non-mandatory MASS

Code is planned to be ready by 2025. The work will continue in an Intersessional Working Group until MSC 108 in May 2024. The second meeting of this Working Group was held from 30 October to 3 November 2023. The group discussed the mechanisms needed to assure that MASS provide an equivalent level of safety as currently provided for conventional ships.

The outcome of a similar regulatory scoping exercise and gap analysis of conventions was approved by the IMO Legal Committee (LEG) in July 2021, while the Facilitation Committee (FAL) approved results of their scoping exercise in May 2022.

In January 2022, the Chairs of the three IMO committees proposed to establish a joint MSC-LEG-FAL Working Group on MASS to meet intersessionally. The first meeting of the WG was held in September 2022, the second in April 2023 and the third is planned for May 2024.

There are also several other initiatives relating to legislation and insurance of autonomous vessels. These include; Comité Maritime International (CMI) has formed an International Working Group on Unmanned Vessels, Association Mondiale de Dispatcheurs (AMD) are considering how the adoption of unmanned vessels may impact marine insurance claims and the application of general average, and the International Group of P&I Clubs (IG) has formed a working group to consider liability matters. BIMCO is drafting a standard contract for autonomous vessels, adapted from the SHIPMAN 2009 agreement, and titled AUTOSHIPMAN. The contract will include provisions for autonomous vessel-related services and the operation of a remote control centre.

Trucks

Autonomous trucks have the potential to make freight transport more efficient, cost-effective, reliable, sustainable and, above all, safer. Autonomous trucks also hold the potential to solve one of the biggest problems plaguing the trucking industry – a massive labour shortage. These factors are driving the demand for self-driving trucks.

In 2019, experts from the World Forum for Harmonization of Vehicle Regulations (WP.29) – a subsidiary body of the Inland Transport Committee (ITC), the UNECE's highest political body in the field of transport, developed a Framework Document to guide the future normative work of the United Nations on this strategic area for the future of mobility. WP.29 adopted in 2021 an amendment to a United Nations Regulation on Automated Lane Keeping Systems (ALKS) that lays down the technical requirements for their use in heavy vehicles including trucks, which makes it the first binding international regulation for the introduction of so-called SAE Level 3 vehicle automation in heavy vehicles on the roads. However, there is no harmonized, globally applicable legal framework existing. A good overview of regulations as well as strategies at national and international level can be found at [Connected and Automated Driving \(CAD\)](#).

Along with safety also liability issues become more complex as the responsibility for accidents may shift from the driver to the technology provider or other parties involved in the design, production, or maintenance of the truck. In this regard the European Commission published in 2022 its proposal for a directive revising the existing Product Liability Directive (PLD). The PLD introduced a common set of rules enabling harmonization and an equal level of protection of consumers throughout the

single market using the concept of strict liability of producers for damage caused by defective products which means that the liability does not depend on fault or negligence of the manufacturer. This may raise questions regarding insurance coverage and liability. European countries typically require compulsory motor vehicle insurance to cover accidents caused by trucks. Insurance policies may also need to adapt to accommodate autonomous vehicles' related risks, such as cybersecurity incidents or liability shifts between drivers and manufacturers.

Relevant authority / organisations and documents

- **IMO – Maritime Safety Committee (MSC), Legal Committee (LEG), Facilitation Committee (FAL):**
 - **MSC98/20/13:** Comments on MSC98/20/2, submitted by the International Transport Workers' Federation (ITF), 13 April 2017.
 - **MSC99/INF.3:** Final report – analysis of Regulatory Barriers to the use of Autonomous Ships, submitted by Denmark, 18 January 2018.
 - **MSC99/INF.5:** Report of a survey on what maritime professionals think about autonomous shipping, submitted by IFSMA and ITF, 9 February 2018.
 - **MSC.1/Circ.1604:** Interim guidelines for MASS trials, 14 June 2019.
 - **LEG107/8:** Summary of results of analysis of IMO instruments under the purview of the Legal Committee, submitted by CMI, 13 December 2019.
 - **MSC102/5/16:** Summary of result analyses of IMO instruments under the purview of the Maritime Safety Committee, submitted by CMI, 11 February 2020.
 - **MSC103/5/3:** Updates to proposed terminology for MASS, submitted by ISO, 15 March 2021.
 - **MSC.1/Circ.1638:** Outcome of the regulatory scoping exercise for the use of maritime autonomous surface ships (MASS), 3 June 2021.
 - **LEG.1/Circ.11:** Outcome of the regulatory scoping exercise and gap analysis of conventions emanating from LEG with respect to MASS, 15 December 2021.
 - **MSC105/7:** Proposal by the Chair for a draft road map for maritime autonomous surface ships, 10 January 2022.
 - **LEG109/13/3 / MSC105/7/4 / FAL46/14/1:** Proposal for the establishment of a joint MSC-LEG-FAL Working Group on MASS to consider common gaps and themes identified during the regulatory scoping exercises conducted by the three committees, submitted by the Chairs of MSC, LEG and FAL, 14 January 2022 / 18 January 2022.
 - **MASS-JWG.1/WP.1:** Report of MSC-LEG-FAL joint working group on MASS on its first session, 9 September 2022.
 - **MSC107/5:** Development of a goal-based instrument for MASS, Report of the Correspondence Group, 27 February 2023.
 - **MASS-JWG2/WP.1:** Report of the MSC-LEG-FAL joint WG on MASS on its second session, 21 April 2023.
 - **MSC108/WP.9:** Development of a goal-based instrument for MASS, Report of the Working Group, 7 June 2023.

- **MSC/ISWG/MASS 2/WP.1:** Report of the Intersessional MASS Working Group, 3 November 2023
- **Maritime UK & LR:** MASS UK Industry Conduct Principles and Code of Practice (V5), November 2021
- **Maritime Unmanned Navigation through Intelligence in Networks (MUNIN)**
- **Norwegian Forum for Autonomous Vessels**
- **ONE SEA Autonomous Maritime Ecosystem (Finland):** Finnish Maritime Industries, ecosystem for autonomous marine transport in the Baltic Sea in 2025.
- **European Union:**
 - Resolution on Civil law rules on robotics, 16 February 2017.
 - EU Regulation 2019/2144 on vehicle general safety (including autonomous vehicles), 27 November 2019.
- **UN:**
 - ECE/TRANS/WP.29/2019/34/Rev.1, revised Framework document on automated/autonomous vehicles.
 - ECE/TRANS/WP.29/2020/81, uniform provisions concerning the approval of vehicles with regard to Automated Lane Keeping Systems.
- **CMI:** International Working Group on “Maritime Law for unmanned craft”; MSC 99/INF.8: Work conducted by the CMI WG, 13 February 2018.
- **Classification societies:**
 - **Lloyd’s Register:** Cyber-enabled ships – ShipRight procedure assignment for cyber descriptive notes for autonomous & remote access ships, Version 2.0, December 2017.
 - **Bureau Veritas:** Guidelines for Autonomous Shipping, December 2017.
 - **DNV GL:** Autonomous and remotely operated ships (DNVGL-CG-0264), September 2018.
 - **ABS:** Autonomous vessels white paper, February 2022.
- **CORE Advokatfirma & Cefor:** Maritime autonomous surface ships – zooming in on civil liability and insurance, 10 December 2018.
- **European Maritime Safety Agency (EMSA):** Study of the risks and regulatory issues of specific cases of MASS (SAFEMASS), DNV GL report, 25 March 2020.
- **MarLab Marine Autonomous Surface Ships Data Project**
- **UK Department of Transport:** Future of transport regulatory review consultation: Maritime autonomy and remote operations, September 2021.
- **Nippon Foundation:** MEGURI 2040 Fully Autonomous Ship Program.
- **Central Commission for the Navigation of the Rhine (CCNR):** Automated navigation work at the CCNR.
- **Society of Automotive Engineers (SAE):** J3016 202104 - Definitions for six levels of driving automation, revised 30 April 2021.
- **International Organization for Standardization (ISO):** ISO/TS 23860:2022 – Vocabulary related to autonomous ship systems, May 2022.

Timeline / important dates

- MSC scoping exercise June 2017 - June 2020.

- LEG scoping exercise April 2018 – July 2021.
- Target completion year within MSC for a non-mandatory code: 2025.
- Joint MSC-LEG-FAL WG meeting: 8-10 May 2024.
- MSC 108: 13-24 May 2024.

IUMI will:

- Monitor ongoing industry and government-run projects and provide input as appropriate.
- Monitor development of a MASS Code by the IMO and take part in discussions on regulatory amendments.
- Encourage classification societies to take an active role in both technical and operational risk aspects of increasingly autonomous vessels.
- Encourage the development of industry standards, certification schemes and class requirements for autonomous systems and remote control centres.

2. Casualty Investigations

If very serious marine casualties occur, SOLAS requires the flag administrations involved to conduct a safety investigation. Relevant information arising from the investigations should be made available to the IMO in a timely manner so that lessons can be learnt. The “Code of the international standards and recommended practices for a safety investigation into a marine casualty or marine incident” (Casualty Investigation Code) provides assistance and defines a very serious marine casualty as “a marine casualty involving the total loss of the ship or a death or a severe damage to the environment.” There is no mandatory defined time frame for the investigation to be carried out and the findings made available. It is merely stated that the reports should be “completed as quickly as practicable”.

INTERCARGO, the International Association of Dry Cargo Shipowners, published the “Bulk Carrier Casualty Report”, providing information on bulk carrier losses over a rolling 10-year period, every year. The association has found that from January 2013 to December 2022, only 19 investigation reports are available, which equates to a reporting rate of 73%. The average reporting time for 2013 to 2022 is approximately 28 months.

In comparison to previous 10-year spans, the reporting times and reporting rates have actually improved. However, accident reports are still missing from as far back as 2014 and 2015.

Due to the critical nature of improving the safety and of protecting the environment, the importance of lessons learned cannot be overstated. Without accurate investigation reports being made available in a timely manner, key improvements to safety-related requirements may come too late or not at all. For this reason IUMI supports work in the IMO’s Sub-Committee on the Implementation of IMO Instruments (III) which aims to establish a new investigation status facility in the IMO’s virtual platform. This will provide clarity for interested stakeholders on the progress of marine investigations. In addition, the work aims to facilitate timely completion of casualty investigations. This includes a requirement to provide an investigation status and defined time periods for updates on the investigations.

Timeline:

- IUMI co-sponsored document III 9/4/5 which suggests to amend the Casualty Investigation Code. The paper was discussed at III 9 in August 2023.
- A new agenda item (“new output”) will be proposed to the 108th session of the Maritime Safety Committee (MSC 108) proposing a new output for a comprehensive and holistic review of the Casualty Investigation Code.
- IUMI will review the paper and consider co-sponsorship.

IUMI will:

- IUMI advocates for the timely publication of casualty investigation reports.
- IUMI further urges that such reports are made available for all very serious marine casualties to ensure lessons can be learned and safety improved.

3. Containers lost at sea

Brief description

According to the World Shipping Council, an average of 1,566 containers were lost overboard on an annual basis between 2008 and 2022. In late 2020 and early 2021, several incidents occurred where vessels lost large numbers of containers overboard at sea. High profile accidents include the One Apus which lost a total of 1,816 containers (November 2020) and the Maersk Essen which lost 750 containers (January 2021) during their respective voyages. These events show the necessity to review the root causes of the incidents. A complex set of technical and operational aspects play a role requiring a careful assessment.

Container ships have grown at an incredible pace over the past 40 years. While the maximization of economies of scale and the overall impact of transportation costs is impressive, this does come with increased risk.

The growing size of container vessels has led to large beams and container stack heights which result in relatively large metacentric heights (GM). This makes the vessels very stable/stiff which in rough weather conditions can cause high rolling accelerations. The effect of strong winds on the on-deck container stacks, also known as ‘sail area’ or ‘air draft’, further increases the windage area causing extreme momentum. Specific wave patterns may also lead to violent movements such as parametric or synchronous rolling, exerting severe loads on the container lashing and securing gear.

The stowing, lashing and securing of containers is another factor potentially contributing to the loss of containers at sea. The distribution of weight within a container stack has an impact on the stability of a vessel. If the weight of a container is not properly declared it may be stowed in an unsuitable

location within the stack, causing its collapse. When considering the impact of improper container weight and number of containers transported by these ships, the multiplied effect is an important consideration. Enforcement of the IMO's verified gross mass (VGM) regulation is therefore critical to the safe operation of containerships.

Improper or damaged lashing and securing equipment, twist locks and containers can also cause the collapse of a container stack. A chain is only as strong as its weakest link, hence one element in the container stowage and securing process may lead to the collapse of a container stack which in turn may clash with its neighbouring container stack causing the breakdown of several stacks.

On the operational side, calculation methods are used to determine the maximum capacity of containers to be loaded for a vessel. These models are based on "in-design conditions" which preclude, for instance, unfavourable sea conditions. "Off-design" conditions must be averted by the crew at an operational level, e.g. through weather routing and passage planning. The accuracy of these calculation models is an essential safety component. The models also underlie economic considerations to maximize a vessel's capacity. The rules for the calculations must therefore be based on a level playing field which ensures that they keep within safe boundaries.

Other contributing factors may involve human error, including, but not limited to, errors in cargo stowage plans, improper adherence to container stack plans, correctly following lashing plans, re-securing of lashings during voyages, poor cargo stowage within containers, adherence to weather routing, and prudent vessel navigation while in heavy weather.

Climate change and the increasing frequency of severe weather both at sea and ashore is a factor. Improvements in marine weather forecasting and weather routing services are beneficial in planning for severe weather.

Cargo underwriters have been and will continue to be impacted by the loss of containers overboard. The high number of casualties within a short period of time is unprecedented. IUMI takes the view that although it is premature to define this as a systemic threat, every container lost is one container too many. Losses are not just limited to the containers lost overboard. There is also cargo damaged as a result of container stack collapses, damages to the vessels, and environmental impact. Resulting Cargo, Hull & Machinery, Protection & Indemnity and Marine Liability losses as well as uninsured losses have a significant economic impact. There is also concern that salvage capabilities have not kept pace with the increase in vessel size. Therefore, the various aspects relevant to the safe carriage of containers must be reviewed and action taken to correct the shortcomings.

Work to this effect is ongoing in the TopTier Project hosted by the Dutch MARIN Institute. IUMI is involved in several of the work streams which aim to address the problems in its full complexity. An initial outcome of the project is a Notice to Mariners which provides guidance to crew and operational staff of container vessels on how to plan, recognize and act to prevent parametric rolling in following seas. Several education videos have also been published. IUMI further co-sponsored two updates to the IMO on the progress of the MARIN Top Tier Joint Industry Project (JIP) on securing container safety which includes detailed information about the work streams.

In May 2021, the IMO Maritime Safety Committee (MSC) agreed to develop measures to facilitate detection, reporting, positioning, tracking and recovery of containers lost at sea as a new work item. In June 2023, MSC 107 approved draft amendments to SOLAS which will require the Master to report without delay any lost containers to the nearest coastal State and the flag State. The amendments are expected to enter into force on 1 January 2026.

In February 2023, IUMI co-sponsored a paper to the Maritime Safety Committee, proposing new output on prevention of loss of containers at sea. The proposal was agreed by MSC 107 in June 2023, and subsequently allocated to the Sub-Committee on Carriage of Cargoes & Containers (CCC). Further, MSC 107 also agreed to include an output on 'Revision of the Revised guidelines for the preparation of the Cargo Securing Manual (MSC.1/Circ.1353/Rev.2) to include a harmonized performance standard for lashing software to permit lashing software as a supplement to the Cargo Securing Manual'.

Relevant authority / organisations and documents

- IMO:
 - **MSC102/21/13:** Proposal for a new output on containers lost at sea, submitted by Vanuatu, 14 February 2020.
 - **MSC102/21/19:** Comments and proposal for a new output on containers lost at sea, submitted by EU Member States & EC, 20 March 2020.
 - **MSC103/20/10:** Draft SOLAS amendments for the mandatory carriage of electronic inclinometers on container ships and bulk carriers, submitted by France, Germany, the Netherlands and ICS, 1 March 2021.
 - **MSC104/17/4:** Preventing loss of containers at sea, submitted by Australia, France, Germany and Netherlands, 28 July 2021.
 - **CCC8/12:** Lashing software as a supplement to container stowage and securing plan, submitted by IACS, 29 March 2022.
 - **CCC8/11** Estimate of containers lost at sea, submitted by WSC, 13 June 2022.
 - **CCC8/11/1:** Development of measures re the detection and mandatory reporting of containers lost at sea that may enhance the positioning, tracking and recovery of such containers, submitted by EU Member States, EC, BIMCO, IUMI, World Sailing and WSC, 17 June 2022.
 - **MSC106/INF.16:** Update on the progress of the MARIN Top Tier Joint Industry Project (JIP) on securing container safety, submitted by Australia, Denmark, Germany, Netherlands, Singapore, IUMI and WSC, 30 August 2022.
 - **CCC8/WP.5:** Report of the Working Group (measures re. the detection and mandatory reporting of containers lost at sea), 22 September 2022.
 - **MSC107/17/6:** Proposal to revise MSC.1/Circ.1353/Rev.2 to permit lashing software as a supplement to container stowage and securing plan, submitted by France, Germany, IACS and ICS, 27 February 2023.

- **MSC107/17/12:** Proposal for a new output on prevention of loss of containers at sea, submitted by Australia, Belgium, Chile, Denmark, France, Germany, Kingdom of Netherlands, Morocco, Republic of Korea, Spain and IUMI, 28 February 2023.
- **CCC9/INF.25:** Update on the progress of the Top Tier Joint Industry Project (JIP) on container losses, submitted by Australia, Germany, Kingdom of the Netherlands, IUMI and WSC, 19 July 2023.
- MSC target completion year output to develop measures to prevent loss of containers at sea: 2025
- Other organisations:
 - **World Shipping Council (WSC):** Containers lost at sea, update June 2022.
 - **Britannia P&I, Waves Group & Lloyd's Register:** Reducing container losses – operational guidance, September 2022.
 - **TopTier Joint Industry Project:** Securing container safety.
- **IUMI:**
 - **IUMI Discussion Paper on Containers lost at Sea, December 2021.**

IUMI will:

- Support the implementation of the findings of the TopTier JIP into the IMO to affect the regulatory improvements with regard to containers lost at sea.

4. Containership fire safety

Brief description

The increasing size of container vessels and recent incidents contribute to the high awareness and importance placed by insurers on several issues related to the safety of these vessels. Fires count among the worst hazards of the global shipping industry, and every ineffective attempt to extinguish a fire puts the crew at risk. Damage to the environment, cargo and the vessel also increases. Misdeclaration of cargo and insufficient firefighting capabilities are currently two of the main challenges related to this peril.

Container contents

The contents of a container must be known if it is to be transported safely, but misdeclaration is a recurring safety problem. This applies equally to road, rail, brown and blue water transport.

Containers often contain a wide range of hazardous and toxic substances. It is reported that approximately 20% of containers in transportation are misdeclared. An analysis from the Cargo Incident Notification System (CINS) shows that in just over a quarter of the incidents where

causation was detected were attributable to cargo being misdeclared. This may lead to insufficient handling of the container, and worst case an incorrect firefighting strategy that may increase the danger of combustion of the goods in the container.

In July 2019, IUMI co-sponsored a submission to the IMO Sub-Committee on Carriage of Cargoes and Containers (CCC) containing a proposal to undertake a comprehensive review of maritime special provisions that are often used to exempt goods from the safety provisions of the International Maritime Dangerous Goods (IMDG) Code. This was agreed by CCC in September 2019, and a Correspondence Group subsequently submitted a report in June 2020. The Correspondence Group was permitted to continue their considerations under the approved terms of reference and submitted an addendum to the original report in May 2021 and another report in June 2022. The CCC Sub-committee agreed in September 2022 to implement many of the recommendations from these reports. Outstanding issues were referred to an Editorial & Technical Group for further consideration.

Firefighting system on container vessels

Insufficient firefighting capacity on board large container vessels poses a challenge that is only increasing with the size of these vessels.

Based on a 2008 impact assessment, the IMO's Maritime Safety Committee (MSC) approved in June 2013 new requirements for fire protection of on-deck cargo areas. The amended SOLAS regulation II-2/10 requirements only apply to new vessels constructed on or after 1 January 2016. In addition to all other fire protection arrangements as per existing regulations, vessels designed to carry five or more tiers of containers on or above the weather deck shall from then on also be provided with mobile water monitors and at least one water mist lance.

Although these changes were a step in the right direction, a concern remains with the firefighting equipment on existing vessels. With the growing size of container vessels, the challenge of insufficient firefighting arrangements is becoming even greater.

Consequently, IUMI recommended in a position paper from September 2017 that responsible authorities, class and relevant industry stakeholders engage in discussions on how to further improve the fire detection, protection and firefighting capabilities on board container vessels. Together with Germany, Bahamas, BIMCO and CESA, IUMI co-sponsored a submission to the IMO Maritime Safety Committee's 102nd session with a view to amending SOLAS.

MSC 103 agreed, based on paper MSC102/21/3 and 102/21/7, to include in the biannual agenda of the Sub-Committee on Ship Systems and Equipment (SSE) for 2022-23 and the provisional agenda for SSE 8 in February/March 2022 an output on "Development of amendments to SOLAS chapter II-2 and the FSS Code concerning detection and control of fires in cargo holds and on the cargo deck of containerships", with a target completion year of 2025, in association with the Sub-Committee on the Carriage of Cargoes and Containers (CCC), as and when requested by SSE. The amendments shall apply to new ships and they shall enhance provisions for early fire detection and effective control of fires in containerized cargoes stowed on and under deck of containerships.

The amendments shall enter into force on 1 January 2028, provided they are adopted before 1 July 2026.

A group of experts had been formed by IUMI to outline a road map for amending SOLAS. Based on input from this group, six flag states, IUMI, BIMCO and IACS submitted in November 2021 a paper with a proposed outline and initial assessment of gaps and regulations to SSE.

In December 2021, EMSA launched a 'Study Investigating Cost Efficient Measures for Reducing the Risk from Cargo Fires on Container Vessels (CARGOSAFE)', which follows the structure of a Formal Safety Assessment (FSA) and includes the tasks of hazard identification, risk analysis, risk control options, cost effectiveness assessment, and making recommendations for decision making. In November 2022, MSC 106 agreed to establish a FSA expert group to review the outcome of any relevant studies (including CARGOSAFE) relating to detection and control of fires on container vessels. The CARGOSAFE report was finalized in March 2023 and subsequently submitted to MSC 107 for consideration by the FSA expert group which met in October 2023. The FSA EG confirmed that the CARGOSAFE study was conducted in line with the IMO's FSA guidelines. Further consideration of possible risk control options and regulatory amendments will be on the agenda of the IMO Sub-Committee of Ship System and Equipment (SSE) in March 2024.

Relevant authority / organisations and documents

- **IMO - Maritime Safety Committee (MSC) and Sub-Committees on Ship Systems and Equipment (SSE) and Carriage of Cargoes and Containers (CCC)**
 - **CCC1/INF.2:** Investigation on the fire and explosion on board the MSC Flaminia, submitted by Germany, 3 June 2014.
 - **CCC6/10/1:** Revision of the inspection programmes for cargo transport units carrying dangerous goods, submitted by New Zealand and ICHCA, 5 July 2019.
 - **CCC6/6/17: Non-declaration and misdeclaration of dangerous goods – special provisions in the IMDG Code, submitted by Liberia, ICS, IUMI, BIMCO, ICHCA, IGP&I, IVODGA and WSC, 5 July 2019.**
 - **MSC102/21/3:** Proposal for a new output to evaluate the adequacy of fire protection, detection and extinction arrangements on board containerships to fight container fires, submitted by Marshall Islands, Singapore, IACS and WSC, 7 February 2020.
 - **MSC102/INF.2: Information on insurance related economic aspects associated with containership fires, submitted by IUMI, 7 February 2020.**
 - **MSC102/INF.3: Analysis of current safety regulations concerning fire-fighting on board containerships, submitted by IUMI, 7 February 2020.**
 - **MSC102/21/7: Proposal for a new output for the fire protection on containerships regarding the review of relevant parts of SOLAS chapter II-2 with regard to fire protection in the cargo area on and under deck, submitted by the Bahamas, Germany, IUMI, BIMCO and CESA, 11 February 2020.**
 - **MSC102/21/24: Comments on documents MSC 102/21/3 and MSC 102/21/7, submitted by Liberia, ICS, ICHA, IG, IVODGA, ITF and WSC, 24 March 2020.**

- **CCC7/6/2:** Report of the Correspondence Group on a review of Maritime Special Provisions, 5 June 2020.
- **CCC7/6/12:** Documentation requirements for exempted dangerous goods, submitted by Liberia, BIMCO, ICHCA, ICS, IG, IVODGA and WSC, 24 July 2020.
- **CCC7/6/2/Add.1:** Report of the Correspondence Group on a review of Maritime Special Provisions, 30 April 2021.
- **MSC103/WP.1/Rev.1:** Draft report of MSC 103, 17 May 2021.
- **SSE8/10:** Proposal for a road map amending SOLAS chapter II-2 to address firefighting capabilities on board container vessels, submitted by Bahamas, France, Germany, Marshall Islands, Norway, Singapore, IUMI, BIMCO and IACS, 26 November 2021.
- **SSE8/10/1:** Proposals for enhancing the capabilities of containerships for early fire detection in cargo holds and on cargo decks, submitted by China, 24 December 2021.
- **SSE8/10/2:** Comments on document SSE 8/10 – proposing draft guidelines for water mist lance, submitted by Denmark, 26 November 2021.
- **SSE8/10/3:** Comments on document SSE 8/10, submitted by Germany, Liberia, Panama, Philippines, ICS, IACS, IG, ITF and WSC, 7 January 2022.
- **MSC.1/Circ.1649:** Guidelines for the implementation of the inspection programmes for cargo transport units, 20 May 2022.
- **CCC8/6/1:** Report of the CG on a review of maritime special provisions, 17 June 2022.
- **CCC8/INF.13:** Safety concerns from fire incidents on board container ships carrying dangerous goods, submitted by Singapore, 14 July 2022.
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- **SSE9/10:** Proposal for fixed water monitor for control of fire on the cargo deck of containerships, submitted by Qatar, Republic of Korea and United Arab Emirates, 25 November 2022.
- **MSC107/10:** CARGOSAFE FSA study, submitted by Sweden, 28 March 2023.
- **SSE 10/10:** Report of the intersessional meeting of the Experts Group on Formal Safety Assessment (FSA), 3 November 2023
- **IUMI:**
 - Press release 20 September 2016; call for further industry cooperation to tackle containership fires.
 - **Memo & press release 19 September 2017: Fire-fighting on container vessels** (<https://iumi.com/opinions/position-papers>).
- **Cargo Incident Notification System (CINS):**
 - Guidance - Safety considerations for ship operators to risk-based stowage of dangerous goods on containerships, 25 November 2019.
 - Guidelines for the carriage of seed cake in containers, January 2020.
- **ABS:**
 - Fighting Fire on Container Ships, 2016.
 - Guide for fire-fighting systems for cargo areas of container carriers, October 2019.

- **German Federal Bureau of Maritime Casualty Investigation:** Investigation Report 15/19 – Fire in the area of the deck cargo on board the container ship Yantian Express in the Atlantic Ocean on 3 January 2019, 30 January 2020.
- **Tokyo MoU:** Safety Bulletin 03/20 – Safety risks of casualties caused by cargoes, May 2020.
- **CINS / IGP&I:** Guidelines for the carriage of seed cake (including seed meal) in containers, June 2020.
- **National Cargo Bureau:** White paper – A comprehensive holistic approach to enhance safety and address the carriage of undeclared, misdeclared and other non-compliant dangerous goods, 6 July 2020.
- **Cargo Integrity Group:** Quick guide to the UN-sponsored Code of Practice for Packing of Cargo Transport Units (the CTU Code), September 2020.
- **European Maritime Safety Agency:**
 - Analysis of marine casualties and incidents involving container vessels, September 2020.
 - Invitation to tender no EMSA/OP/2021 for study investigation cost efficient measures for reducing the risk from cargo fires on container vessels (CARGOSAFE), 15 June 2021.
 - CARGOSAFE report, 16 March 2023.
- **Transport Safety Investigation Bureau – Singapore:** Final report – Fire on board Maersk Honam at Arabian Sea on 6 March 2018, 5 October 2020.
- **CONTAIN:** Pilot project report – Exploring the challenges of containership fires, Danish Institute of Fire and Security Technology, 25 January 2021.
- **IACS:** Container ship safety position paper, 16 January 2023.
- **Cargo Fire and Loss Innovation Initiative (CFLII)**
- **ClassNK:** Guidelines for additional fire-fighting measures for container carriers, April 2023.

Timeline / important dates & decisions

- Entry into force of amended FSS Code & SOLAS regulation II-2/10: 1 January 2016.
- MSC 101 – IUMI lunch presentation, 5 June 2019.
- Gard conference, Arendal, 17-18 October 2019.
- SSE 7: 2-6 March 2020. IUMI lunchtime presentation by Are Solum (Gard), 4 March 2020.
- FSA Expert Group meeting, IMO - London: 26-36 October 2023.
- SSE 10: 4-8 March 2024.
- SSE target completion year output on container fires: 2025.
- OLAS amendment container fires: 1 January 2028, provided amendments are adopted within 1 July 2026.

IUMI will:

- Support a holistic approach to preventing and mitigating fires starting in the cargo on board container vessels.
- Support measures that improve the monitoring of containers and their contents.

- Support internationally harmonized legislation and national regulations based on the CTU Code.
- Monitor and support measures to ensure the structural safety of large container vessels.
- Support an amendment of SOLAS to improve fire safety.
- Support the NCB recommendations from July 2020 to address the carriage of undeclared, misdeclared and other non-compliant dangerous goods.

5. Conventional fuel safety

Brief description

The Maritime Safety Committee (MSC) agreed in December 2018 to include in its biennial agenda an output on 'Development of further measures to enhance the safety of ships relating to the use of fuel oil', with a focus on safety issues related to flashpoint requirements. MSC 103 re-established the Correspondence Group on oil fuel safety in May 2021 to further consider draft requirements and guidelines until MSC 105.

In November 2022, MSC 106 adopted amendments to SOLAS chapter II-2 requiring vessels carrying oil fuel to be provided with a bunker delivery note, prior to bunkering, stating that the flashpoint of the actual fuel batch is in conformity with SOLAS regulation II-2/4.2.1. Contracting governments are requested to inform the IMO of cases where oil fuel suppliers have delivered fuels that do not meet the requirements and take appropriate action against those suppliers. The amendments will enter into force on 1 January 2026. In June 2023, MSC 107 approved draft guidelines for sampling procedures to harmonize with the new requirements. The Committee also approved draft amendments to SOLAS related to oil fuel parameters other than flashpoint, requiring that oil fuel shall not jeopardize the safety of vessels, adversely affect the performance of the machinery or be harmful to crew. The draft amendments were subsequently submitted to MEPC for concurrent approval.

Fuel contamination

In March 2022, the Maritime and Port Authority of Singapore (MPA) was notified that a number of vessels had been supplied in the Port of Singapore with HSFO containing high concentration levels of chlorinated organic compounds (COC). The contaminated fuel oil was traced back to fuel purchased by Glencore Singapore in January and February 2022. The contaminated HSFO was loaded at the Port of Khor Fakkan, UAE onto a tanker and shipped to floating storage facilities to be further blended. The blended HSFO was subsequently delivered to storage facilities in Singapore. Fuel onboard the tanker was found to contain high concentrations of COC, of up to 21,000 ppm. The MPA-licensed bunker suppliers who supplied the contaminated fuel had carried out tests on the fuel supplied based on the international standards of petroleum products of fuel (ISO 8217). However, as the current international standards do not require tests for COC, the contamination was not detected promptly. Some 200 vessels were affected by the off-spec HSFO sold in Singapore in February and March 2022.

A similar case occurred in 2018 in the U.S. Contaminated supplies of biodiesel fuel that were first reported in the US Gulf region in February 2018 led to a range of technical problems, including blocked fuel filters, fuel pump seizures and even loss of main engine power. The cost of an engine damage could be up to USD 800,000 for an individual vessel. The loss of engine power from such contamination may lead to serious incidents such as collisions and groundings.

Testing to ISO 8217 levels will not necessarily show if the fuel is contaminated or not, as the suitability of biofuels requires gas chromatography and specialised equipment in a laboratory to determine any contamination. This test will generally take 7 to 10 days, and there are currently not enough laboratories to perform the necessary testing. Consequently, vessels are forced to sail with fuel in separate tanks and rely on the ability of the crew and equipment to make the fuel fit for use.

IUMI believes that the current system with the end-user taking all the risk is unacceptable. Rather than the end user, refineries should be compelled to do the testing and confirm the delivery of non-contaminated fuels. IUMI advocated for this approach in the work on fuel oil safety in the IMO's Maritime Safety Committee. The ISO review of low-sulphur fuels should also include an amendment of the ISO 8217 to deal with biofuels.

A joint MEPC-MSC circular addressing the delivery of compliant fuel oil by suppliers was approved by MEPC 74 and MSC 101 in May and June 2019, respectively. The circular recommends that Member States take appropriate action to ensure that fuel oil suppliers under their jurisdiction deliver compliant fuel.

Relevant authority / organisations and documents

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- **IACS Machinery Panel:** No. 151 Recommendation for petroleum fuel treatment systems for marine diesel engines, July 2017.
- **IUMI:** Position Paper on Catalytic Fines and Engine Damage, 8 March 2016 (<https://iumi.com/opinions/position-papers>).
- **Joint Industry Guidance:** The supply and use of 0.50%-sulphur marine fuel, 20 August 2019.
- **Cefor:**
 - Technical Forum Memo 9: Post-IMO 2020 experiences, 7 April 2021.

Timeline / important dates

- **Sulphur limits:**
 - Californian waters: 0.1% sulphur limit as of 1 August 2012.
 - European and North American ECAs: 0.1% sulphur limit as of 1 January 2015.
 - MARPOL – outside ECAs: 0.5% sulphur limit as of 1 January 2020.
 - China:

- Coastal territorial waters, except coastline Hong Kong, Macao and Taiwan: 0.5% sulphur limit as of 1 January 2019.
- Inland water ECAs: 0.1% sulphur limit as of 1 January 2020.
- Regulated waters of Hainan Island: 0.1% sulphur limit as of 1 January 2022.
- South Korean ECA:
 - Certain ports introduced 0.1% sulphur limit from 1 September 2020.
 - 0.1% sulphur limit when navigation in the ECA area from 1 January 2022.
- MEPC 75: 16-20 November 2020; adoption of guidelines and treatment of MARPOL samples.
- New ISO 8217 standard expected to be published in Q2 2024.

IUMI will:

- Encourage an amendment of the 60mg/kg limit for cat fines and the inclusion of biofuels in the ISO standard.
- Suggest that refineries are compelled to test and confirm the delivery of non-contaminated fuels.

6. Illegal, unreported and unregulated (IUU) fishing

Brief Description:

Illegal, unregulated, unreported (IUU) fishing

Seafood is a nutritious meal for millions of people across the world and an essential food protein in many developing countries. A major problem for sustainable fisheries management is illegal, unregulated and unreported fishing (IUU fishing). Vessels engaged in IUU fishing activities do not comply with safety measures on board, do not use legal fishing gear, do not follow fisheries management regulations and/or do not comply with regulations on quotas, fishing areas, closed seasons or prohibited species. The IUU catch is not recorded in catch registers. This is an important aspect because fishing stocks are estimated based on these registers.

There has been criticism of marine insurers but in fact, they are in a relatively clear legal position. Under most national law systems, they cannot insure an illegal venture but there can be a grey area over whether something is deemed illegal and intentional in some jurisdictions. Marine insurers can support the suppression of IUU fishing activities by applying due diligence and being aware of vessels which have been blacklisted for involvement in illicit actions. It is in their own interest to do so as legal penalties are considerable.

The ocean conservation group Oceana in cooperation with UNEP FI's PSI engaged with marine insurers and associations including IUMI to develop guidelines to control or mitigate the risk of insuring vessels and companies associated with IUU fishing. Oceana in cooperation with a group of maritime professionals, including marine insurers, developed an online tool to facilitate the exchange of information on IUU fishing vessels between companies that provide services to the

global fishing sector. Through this tool, registered users can notify each other when a vessel on the official IUU vessel list of any regional fisheries management organisation (RFMO) has sought and been denied services or had services cancelled. Users will also be sent an alert when new vessels get added to the IUU vessel lists.

A separate initiative is “Vessel Viewer” being developed by the Ocean Risk Alliance (ORRAA). This IUU fishing risk assessment tool is intended to help insurers quickly evaluate the risk that a vessel or a group of vessels may engage in or support IUU fishing. Through the tool, insurers are able to access key information on vessel identity, behaviour and risk indicators. It is a vessel history tool that uses satellite data to produce current and historical information on vessel identity and activity. Vessel Viewer consolidates data from a range of public sources to provide access to key information.

IUMI supports the adoption of the Cape Town Agreement (CTA) of 2012 on the Implementation of the Provisions of the 1993 Protocol relating to the Torremolinos International Convention for the Safety of Fishing Vessels. This IMO treaty to address fishing vessel safety is not in force yet. The absence of an international mandatory regime makes effective control and monitoring of fishing vessels difficult. The CTA sets minimum requirements on the design, construction, equipment, and inspection of fishing vessels of 24 meters in length and over. The agreement further facilitates better control of fishing vessel safety by flag, port and coastal States. Swift ratification of the CTA is therefore desirable and supported by IUMI.

In March 2023 the Joint Hull Committee (JHC) published a ‘Fishing Vessel Due Diligence Clause’ demonstrating readiness by marine underwriters to tackle the issue of IUU fishing.

Relevant authority / organizations and documents:

- **Cape Town Agreement** of 2012 on the Implementation of the Provisions of the 1993 Protocol relating to the Torremolinos International Convention for the Safety of Fishing Vessels, 1977, 11 October 2012.
- **International Maritime Organization (IMO), MEPC and PPR:**
(www.imo.org/en/OurWork/Environment/Pages/Default.aspx#have)
 - **JWG 4/9:** Cooperation and dialogue on environmental issues relating to fisheries, note by Secretariat, 24 September 2019.
- **Oceana:** Tool to pull the plug on pirate fishing, 2022.
- **Vessel Viewer tool** to combat IUU fishing, November 2023

IUMI will:

- Support the ratification of the Cape Town Agreement on the implementation of the Torremolinos Convention for the safety of fishing vessels.

- Raise awareness for tools available to marine insurers to identify vessels involved IUU fishing activities.

7. Liability

Brief description

The insurance of marine liabilities helps to protect third party rights. Since the liability (e.g. for environmental damages caused by an oil-spill) can be extraordinarily high, sufficient insurance coverage for these liabilities is crucial. Many international liability conventions rule compulsory insurance requirements, and direct action against insurers is partly ruled as well.

Marine liability insurance is mainly provided by Protection and Indemnity Clubs (P&I Clubs) organized as mutual insurers with shipowners as members. The 12 largest P&I Clubs are organized under the umbrella of the International Group of P&I Clubs (IG).

While the member companies of IUMI's member associations predominantly provide insurance coverage for property damages to the hull and machinery of vessels or offshore energy units, and cargoes in transit, some of the companies also offer marine liability insurance through reinsurance arrangements or directly through covers such as 'fixed premium P&I'.

Potential gaps in liability insurance for 'non-IG insurers'

In April/May 2014, the IMO Legal Committee (LEG 101) adopted Guidelines for accepting insurance companies, financial security providers and IG P & I Clubs to verify the compulsory insurance requirements. With a reference to these guidelines, six Member States suggested in a submission to LEG 107 in March 2020 that further consideration may be desired of problems encountered in some oil pollution incidents involving insurers that are not members of the IG. The belief is that this is an issue that affects not only the 1992 CLC, but also other IMO liability conventions.

The issue is also being examined by the governing bodies of the IOPC Funds, and during the 108th session of the IMO Legal Committee in July 2021, the IOPC Funds provided an update on the problems encountered in some oil pollution incidents involving 'non-IG insurers'. 147 incidents were identified of which 44 incidents either had no insurer or the insurer was unidentified. Of the remaining 103 incidents, 20 incidents were found to be insured by non-IG insurers and 6 of these resulted in the IOPC Funds providing compensation before the shipowner's limit of liability had been reached. Even though the majority of the incidents only pertain to the Civil Liability and Fund Conventions, it is in the IOPC Funds' view a more general problem that needs to be addressed to ensure that victims can be properly compensated in the event of a marine incident. In the case of incidents covered by the Civil Liability and Fund Conventions, victims can be compensated by the IOPC Funds if oil pollution damage occurs in a State that is a member of the Fund conventions.



However, this safety net does not exist for the other liability and compensation conventions where no fund exists and only the shipowner and their insurer can provide compensation. These problems can be grouped into three categories:

- Proper implementation of international conventions: State Parties to the Conventions have an obligation to ensure that they have properly implemented the Conventions, including any subsequent amendments.
- Proper understanding of international convention requirements: Not all parties involved in the international conventions may have a proper understanding of the requirements. For example, non-IG insurers may not be aware that the conventions provide a right to direct-action against an insurer.
- Proper application/enforcement of international conventions: For international conventions with compulsory insurance requirements, States are required to ensure that ships flying their flag do not operate without having the appropriate State issued certificate validating that insurance or other financial is in place. States are also required to ensure that ships entering or leaving ports in their States have a valid State issued certificate. When States are issuing Convention certificates, they need to ensure that the insurance in place, including the amount, complies with the Convention requirement. The amount of insurance is intended to cover all of their liabilities under the specific international conventions, but also requires dedicated amounts.

A proposal for a new output was submitted by five Member States in December 2021, and LEG 109 subsequently established a Correspondence Group, which included IUMI, with the following key workstreams:

- development of informational pamphlets for the Bunkers Convention, Civil Liability Convention, Athens Convention and the Wreck Removal Convention to assist Flag States, Port State control officers, shipowners, and insurers in their interpretation and application of the liability and compensation requirements of the Conventions
- review of existing IMO guidelines; primarily IMO Circ. No. 3464 for accepting insurance certificates,
- development of a new GISIS module for those involved in issuing convention certificates.

In March 2023, LEG 110 approved the text of three pamphlets (Bunkers Convention, Civil Liability Convention and Wreck Removal Convention). Further, an intersessional Correspondence Group was established to review the IMO guidelines and create a new GISIS module.

1910 Collision Convention

The Comité Maritime International (CMI), at the recent Executive Council meeting, established an international working group to consider the review of one of CMI's most successful conventions, the Collision Convention 1910. The Legal Committee of the IMO has shown interest in assisting the CMI in piloting this project. The CMI Intersessional Working Group aims to provide input of what the new convention should include prior to LEG 110.

The initiative for a new IWG flows from two sources. First, the IMO is reviewing a series of instruments, including the Collision Convention 1910, as may be required to accommodate the concept of autonomous ships. Secondly, the Italian Maritime Law Association set up its own working group in 2019 to canvass its membership on the expediency of reviewing the Collision Convention 1910 along with the 1952 conventions concerning civil and penal jurisdiction where a collision occurs.

The 1910 convention covers very important aspects of collision liability. It has been adopted by numerous countries. The review could include the scope of application of a revised convention, court jurisdiction over collisions and compulsory insurance for collision liability. All aspects of the 1910 convention could be considered, and the CMI prepared a questionnaire to maritime law associations in February 2023 to get some further guidance. IUMI is represented in the CMI WG by the Legal & Liability Committee Chair Charles Fernandez.

Relevant authority / organisations and documents

Non-IG insurers

- **IMO – Legal Committee**
 - **Circular Letter 3464:** Guidelines for accepting insurance companies, financial security providers and the IG P & I Clubs, July 2014.
 - **LEG 107/6:** Compulsory insurance requirements under IMO conventions and insurance problems, submitted by Canada, Denmark, Italy, Japan, Norway and Republic of Korea, 9 January 2021.
 - **LEG 108/5:** Review of insurance problems with non-IG insurers, submitted by IOPC Funds, 20 April 2021.
 - **LEG109/13:** Proposal to add a new output under the work programme on the Development of guidance for the proper implementation and application of IMO liability and compensation conventions, submitted by Canada, Denmark, Italy, Japan and United Arab Emirates, 24 December 2021.
 - **LEG110/7:** Report of the Correspondence Group on measures to transparently assess the need to amend liability limits, submitted by Australia, 20 December 2022.
 - **LEG110/10:** Proposed measures related to Guidance for the proper implementation and application of IMO liability and compensation conventions, submitted by Canada, Greece, Italy, Malaysia, Republic of Korea, United Arab Emirates, ICS, IG and IUMI, 22 December 2022.
 - **LEG110/WP.6:** Measures to assess the need to amend liability limits, report of the Working Group, 20 March 2023.
- **IOPC Funds**
 - **IOPC/OCT18/5/5/1:** The 20 incidents involving the IOPC Funds and non-IG insurers are available in this document.

- **IOPC/NOV20/5/5/1:** Conclusions of the sixth joint Audit Body and the recommended measures and future tasks to be undertaken in respect of the risk relating to ‘non-IG insurers’.
- **CMI:** Questionnaire to maritime law associations on the collision conventions, 20 February 2023.

Timeline / important dates

- LEG 107: 27-30 November, 1 December 2020.
- LEG 108: 26-30 July 2021.
- IMO Council, 34th extraordinary session, 8-12 November 2021.
- IMO Assembly, 6-15 December 2021.
- LEG 109: 21-25 March 2022.
- LEG 110: 20-24 March 2023.
- CMI questionnaire: deadline 31 May 2023.
- CMI colloquium: 14-16 June 2023, Montreal.

IUMI will:

- Monitor developments via the IUMI Legal & Liability Committee and Policy Forum.
- Liaise directly with the IMO LEG as required to represent members’ interests.
- Support a new output on addressing problems with so called ‘non-IG insurers’.
- If agreed, support the work of the IMO Legal Committee in developing further clarity and education to avoid problems with so called ‘non-IG insurers’.
- Explain to IMO Member States and other interested bodies such as the IOPC Funds the practical aspects of insurance related to marine liability insurance of insurance entities not belonging to the IG.

8. Low pressure fuel systems

Brief description

More than one third of all fires on board vessels start in the engine room. Leaking oil pipes or equipment placed very closely to a potential ignition source – a so called hot spot – has been identified as the cause of several of these engine room fires.

Measures to control such leaks are described in SOLAS Reg.II-2/4. The regulation includes, amongst others, requirements to

- use suitable materials in piping conveying flammable oils,
- minimise the number of joints in such piping,

- use screening and jacketed high pressure fuel oil pipes to prevent flammable oil sprays, and
- properly insulate hot surfaces.

While the risk of fires from high pressure systems has decreased with the implementation of new design rules for the fuel pipes in 2003, the low pressure pipes/systems remain a significant risk.

To further consider measures that would be effective to reduce the risk of fires from low pressure fuel systems and mitigate the consequences, IACS and IUMI formed a correspondence group comprised of technical experts from the membership of both associations.

Identification of hot spots, use of thermography, and proper installation of insulation were among the preventive measures identified for further discussion and review by the two associations.

Relevant authority / organisations and documents

- **IMO – MSC:**
 - **MSC/Circ.601:** Fire protection in machinery spaces, 29 January 1993.
 - **Resolution MSC.31:** SOLAS amendments, 23 May 1994.
 - **MSC/Circ.647:** Guidelines to minimize leakages from flammable liquid systems, 6 June 1994.
 - **MSC/Circ.851:** Guidelines on engine-room oil fuel systems, 1 June 1998.
 - **MSC.1/Circ..1321:** Guidelines for measures to prevent fires in engine-rooms and cargo pump-rooms, 11 June 2009.
- **IACS:**
 - **Rec.No.18/Rev. 2:** Fire prevention in machinery spaces of ships in service – Guidance to owners, February 2021.
 - **Rec.No.58/Rev. 2:** Fire protection of machinery spaces, February 2021.
 - **UR35/Rev.8:** Fire protection of machinery spaces, June 2005.
- **Cefor:** [Technical Forum Memo 6: Fire risks due to leakage from low pressure fuel pipes, 22 May 2017.](#)

Timeline / important dates

- Report from IACS-IUMI correspondence group, IUMI-IACS meeting 18 May 2021.
- Presentation by Sverre Andersen (NHC) in IACS-industry technical meeting 20 July 2021.

IUMI will:

- Take part in discussions on how to prevent and mitigate fire risks due to leakage from low pressure fuel systems.

9. Plastic litter

Over 300 million tons of plastic are produced every year for use in a wide variety of applications. At least 8 million tons of plastic end up in the oceans annually. Researchers estimate a plastic leakage into the ocean in 2040 of 29 million tons. Under the influence of UV radiation, wind, currents and other natural factors, plastic fragments into small particles, termed microplastics (particles smaller than 5 mm) or nanoplastics (particles smaller than 100 nm). Marine species ingest or are entangled by plastic debris which causes severe injuries and death. Plastic pollution threatens food safety and quality, human health, and coastal tourism.

The main sources of marine plastic are land-based. However, ocean-based plastic originates primarily from the fishing industry, nautical activities and aquaculture. In 2018, the IMO's Marine Environment Protection Committee (MEPC) adopted the IMO Action Plan to address marine plastic litter from ships. It aims to enhance existing regulations and introduce new supporting measures to reduce marine plastic litter from vessels. One aspect of the Action Plan is the consideration of a compulsory mechanism to declare the loss of containers at sea.

The contents of lost containers contribute to marine litter. The carriage of so-called "*nurdles*" (pre-production plastic pellets) is a particular concern. Nurdles are in widespread use and large quantities of containers of this commodity are being shipped. In May 2021, the MV X-Press Pearl spilt 11,000 tonnes of plastic pellets off the shore of Colombo, Sri Lanka. If nurdles are lost overboard, the consequences to the environment are significant as they float and can be widely distributed. Marine wildlife often mistake nurdles for food, causing injury and entering the food chain.

In April 2022, the IMO Sub-Committee on Pollution Prevention and Response (PPR) supported the need for measures reducing the environmental risk of marine transport of microplastic particles and synthetic resin pellets. Concrete proposals included amendments to MARPOL 73/78 Annex III and classification according to section 2.9.3 of the IMDG Code "Environmentally hazardous substances (aquatic environment)" to strengthen stowage requirements for containers containing plastic pellets, and to develop guidance for handling pellets.

The PPR Sub-Committee subsequently instructed a Correspondence Group on Marine Plastic Litter from Ships to further consider the options for reducing the environmental risk associated with the maritime transport of plastic pellets and to advise the Sub-Committee on the best way forward. The group comprised more than 150 participants from all interested sectors, including IUMI. A CG report with recommendation of a non-binding IMO circular and considerations of legal framework options was submitted to PPR for its 10th session in April 2023. On this basis the Sub-Committee agreed a draft MEPC circular on recommendations for the carriage of plastic pellets by sea in freight containers. The draft circular recommends that plastic pellets should be packed in good quality packaging which should be strong enough to withstand the shocks and loadings normally encountered during transport. Packaging should be constructed and closed to prevent any loss of contents which may be caused under normal conditions of transport. Transport information should clearly identify those freight containers containing plastic pellets. In addition, the shipper should supplement the cargo information with a special stowage request. The draft text was submitted to

the Sub-Committee on Carriage of Cargoes and Containers (CCC 9, which met in September 2023) for input. CCC 9 agreed to the draft circular without proposing amendments. The Sub-Committee however shared additional information with PPR pertaining to the option of a new UN number for plastic pellets in class 9, applicable to sea mode only; main types of packaging used for plastic pellets; and further consideration of options for reducing the environmental risk associated with the maritime transport of plastic pellets.

The PPR Correspondence Group was also instructed to further progress work on reporting mechanisms for lost **fishing gear**. PPR was further instructed by the Marine Environment Protection Committee (MEPC) in July 2023 to consider a proposal for requiring a ship-specific plan for the on-board management of fishing gear.

Relevant authority / organizations and documents:

- **International Maritime Organization (IMO), MEPC and PPR:**
(www.imo.org/en/OurWork/Environment/Pages/Default.aspx#ave)
 - **Resolution MEPC.310(73):** Action Plan to address marine plastic litter from ships (MEPC73/19 - Annex 10), adopted 26 October 2018.
 - **MEPC75/8/3:** Report of the Correspondence Group on development of a strategy to address marine plastic litter from ships, 27 December 2019.
 - **MEPC77/8/3:** Follow-up work emanating from the action plan to address marine plastic litter from ships, submitted by Sri Lanka, 1 October 2021.
 - **PPR9/15/1:** Proposed amendments to the criteria for the identification of harmful substances in package form – Classification of plastic pellets, 26 January 2022.
 - **PPR9/15/2:** IMO guidelines on best practice related to clean-up of plastic pellets, submitted by Norway, 28 January 2022.
 - **PPR10/13:** Report of the Correspondence Group on marine plastic litter from ships, 20 January 2023.
 - **PPR10/INF.13:** Guidelines on clean-up of plastic pellets from ship-source spills, submitted by Norway, South Africa, ITOPI and IG, 17 February 2023.
- **International Pollutants Elimination Network & Centre for Environmental Justice:** X-Press Pearl – a ‘new kind of oil spill’, February 2022.

Timeline / important dates:

- Action plan to address plastic litter from ships adopted by IMO, October 2018
- Ongoing work in MEPC and PPR (Sub-)Committees

IUMI will:

- Participate in IMO Working Groups and Correspondence Groups to communicate marine insurers’ positions regard safe packaging of plastic pellets.

10. Safe decarbonisation and alternative fuels

Climate change is considered one of the most pressing issues of our time. It has also been identified by IUMI as a major concern to marine insurers. The effects of global warming are already evident and are changing the nature of the insured assets. The frequency of weather-related catastrophes has increased significantly which drives up losses and leaves some assets uninsurable. The potential impact of climate change is therefore a fundamental issue for regulators.

The shipping sector accounts for approx. 3% of global CO₂ emissions. International agreements on the need to combat climate change require the reduction of greenhouse gas emissions from shipping. In addition to regulatory pressures from the IMO, other stakeholders such as banks, charterers and the broader public are setting requirements for the environmental performance of vessels, for instance in connection with the financing of new ships and new chartering agreements. Therefore, the industry must examine low and zero carbon ship propulsion systems taking into account the entire value chain, not just the combustion cycle.

There is currently no agreement on which fuel or fuels will be favoured and there can be very little progress without political support for the necessary infrastructure which is internationally absent. Notwithstanding the imperative of the green energy transition, it is crucial for carriers to assess potential safety concerns associated with measures to reduce the carbon footprint. Proper risk management is critical and safety must not be an afterthought.

In April 2018, the IMO adopted the Initial IMO Strategy on the reduction of GHG emissions from vessels. A revised Strategy was adopted by MEPC 80 in July 2023, setting a well-to-wake target of net-zero GHG emissions by 2050. Interim goals were agreed with a 20% reduction by 2030 (compared with 2008), including a 40% carbon intensity reduction target and 5% uptake of net-zero technologies, fuel and/or energy savings, and 70% reduction by 2040. There was also an agreement in principle on a new GHG intensity fuel standard and possible price on GHG emissions. These new GHG measures should be developed in view of adoption in 2025 and entry into force from 2027.

The [Fourth IMO GHG Study 2020](#) is the first IMO greenhouse gas study published since the adoption of the Initial IMO Strategy on reduction of GHG emissions from ships. It demonstrates that whilst further improvement of the carbon intensity of shipping can be achieved, it will be difficult to reach IMO's 2050 GHG reduction ambitions through energy-saving technologies and speed reduction of ships. Therefore, under all projected scenarios, in 2050, a large share of the total amount of CO₂ reduction will have to come from the use of low-carbon alternative fuels.

In February 2023, IUMI co-sponsored a proposal for a new output at the IMO to undertake a regulatory assessment of safety aspects associated with reducing GHG emissions from vessels in line with the Organization's strategy and to develop a road map to support the safe delivery of IMO's strategy. The proposal was agreed by the Maritime Safety Committee in June 2023, and

work will continue in a Correspondence Group coordinated by the United States in which IUMI participates.

The Marine Environment Protection Committee (MEPC) adopted in June 2021 a measure demanding energy efficiency requirements on existing vessels starting from 2023, and the introduction of carbon intensity targets for vessels with a first reporting deadline in March 2024.

IMO's Sub-Committee on Carriage of Cargoes and Containers (CCC) initiated in September 2021 the development of guidelines on the safety of vessels using hydrogen as fuel under the International Code for Ships using Gases or Other Low-flashpoint Fuels (IGF Code). The guidelines will address both liquefied and compressed fuel, and will be developed by a Correspondence Group. In April 2022, the Maritime Safety Committee agreed to develop guidelines for safety of ships using ammonia as fuel as an interim measure for newly built vessels. In September 2022, CCC 8 agreed on a holistic approach to the development of the guidelines for ammonia, tackling both safety and environmental considerations simultaneously. The work will continue in a Correspondence Group and is scheduled to be finalized in 2024.

The European Union is implementing its own legislation through their [Fit for 55 package](#). In January 2024, the EU's Emissions Trading System (EU ETS) will be extended to cover CO₂ emissions from all large ships (of 5 000 gross tonnage and above) entering EU ports, regardless of the flag they fly. In addition, the package includes a requirement for owners to buy cleaner fuels and ports to ramp up supply of shore power and liquefied natural gas (LNG) as fuel.

A significant push for decarbonisation in the maritime industry is not only underway within regulatory authorities but also in form of various industry initiatives comprised of a diverse range of maritime stakeholders, e.g. the [Poseidon Principles for Marine Insurance](#). These efforts are necessary as the existing fleet is going to be non-compliant with IMO requirements soon. Changes in vessel design, fuel and propulsion types, and infrastructure will affect the risk landscape for marine insurers going forward. Marine insurers must be prepared to assess new risks and potential safety concerns. Moreover, they are likely to play a role as facilitators for decarbonisation by providing guidance and advice to their insureds.

An important aspect of using alternative fuels safely is not only a comprehensive review of risks associated with the new fuels and propulsion methods, but also thorough consideration of how human performance may be influenced by new equipment, new ways of collaboration, and new procedures and processes for bunkering. At the same time, conventional fuel types will be in use for the foreseeable future and until the transition period is concluded.

Low/zero carbon fuels

Ammonia

Ammonia offers a potential long term solution for the maritime industry's transition towards a low carbon value chain. Green ammonia can be produced from renewable power by electrolysis of H₂O, making it a zero carbon fuel. However, due to the extreme toxicity of the fuel it is critical to assess the safety issues of ammonia in order to mitigate risks for people, assets and the

environment. Risks such as toxicity and flammability must be addressed for both key equipment, spaces dedicated to ammonia storage and alternative vessel designs. Unless satisfactory safety systems and operations are implemented, the properties of ammonia may lead to an increased overall risk level associated with its use as fuel on vessels.

Battery-powered propulsion

~~Battery-powered propulsion is suitable for stop-and-go operating cycles such as ferries.~~ Ferry operators in Europe, North America and Asia have been testing and deploying hybrid propulsion systems for the last decade, and the technology has been adopted for passenger vessels of various sizes.

Thermal runaway constitutes the largest risk for batteries used in maritime operations. Thermal runaway occurs if the lithium-ion cells used in marine batteries are subjected to mechanical abuse, suffer from internal manufacturing defects, or operate over or under the correct voltage or internal temperature. In these situations, heat may be generated within the lithium-ion cells which may increase to a point whereby it melts the separators inside the cells. This reaction can result in the temperature increasing until the cell emits toxic and flammable gasses. If ignition occurs, these gasses can create a fire which can be difficult to extinguish. In large concentrations, these gasses are also capable of causing explosions. Preventing thermal runaway is therefore key, for instance through the use of active cooling systems and internal thermal barriers as part of an effective safety management system.

Biofuels

Biomass is a renewable fuel source. Its use for marine fuels can be considered a carbon neutral way of generating energy because the organic matter used to produce biofuels roughly absorb as much CO₂ during their lifetime as they release when burned. Biofuels are produced from organic matter that is largely unsuitable for food or feed. However, their potential to reduce the amount of arable land earmarked for normal food production is contentious.

For biodiesel, fuel lubricity, conductivity and corrosion are areas of concern. Due to oxidation, it tends to lose lubricity over long periods of time, which may cause wear on essential components. Because electrical conductivity can cause static charges, it is likely to need anti-static additives. Corrosion from the degradation of biodiesel can weaken steel holding tanks and pipelines over time, compromising storage and transportation. Biofuels with high acidity can cause increased wear on engine components, so the engine manufacturer should be consulted when considering the use of fatty acid methyl esters (FAME) in a conventional engine. In the latest specification, ISO 8217:2017 recommended limiting the proportion of FAME in distillate fuel oil blends to 7%, creating the first industry standard for fuel oil with a provision for biofuel. There may also be contamination risks.

Fuel cells

Fuel cells produce energy from an electro-chemical process. Two reactants, typically hydrogen and oxygen, merge within the fuel cell to produce water, releasing electrical energy and thermal energy in the process. Although hydrogen is the most commonly used fuel in fuel cells, methanol and ammonia are viable alternatives. The reactants consumed by the fuel cell are stored externally and

are supplied to the fuel cell in a similar way as in conventional diesel engines. Hence, a fuel cell has the potential to produce power as long as it has a supply of reactants.

Hydrogen, methane and other gaseous fuels that are lighter than air need special ventilation arrangements to prevent the creation of hazardous areas. For many types of fuel cells, the non-hydrogen supply is externally reformed to hydrogen and other by-products prior to introduction into the fuel cell, so the hydrogen portion of the fuel system needs special consideration. Fuel management, identifying the risks to personnel and managing the hazardous areas associated with the ships' physical layouts, operations and maintenance are key safety challenges with fuel cell systems. Toxic exposure, asphyxiation and explosions are among the risks to crews and the vessel.

Hydrogen

Hydrogen is a potential alternative fuel for ship propulsion. It requires energy to produce hydrogen which could originate from conventional fuels or non-fossil sources such as wind, hydro-electric or nuclear to make it low/zero carbon. For hydrogen, challenges relate to extremely low temperatures (-253°C) if stored as a liquefied gas, and high pressure (250–700 bar) if stored as compressed gas. The hydrogen molecule is the smallest of all molecules, making it challenging to contain. It also has a wide flammability range and ignites easily. The properties of hydrogen may therefore lead to an increased overall risk level associated with its use as fuel on ships unless satisfactory safety systems and operations are implemented.

Asphyxiation and explosions are potential risks for the crew and the vessel. For the onshore and offshore personnel, an extensive assessment of the hazards associated with physical layout, operations, maintenance, transfer and carriage of the fuel are necessary to ensure safe operations. Onboard ventilation, alarm systems and fire-protection strategies and other measures to limit the likelihood and effects of leakage will need to be designed into hydrogen-dedicated assets.

Liquid natural gas (LNG)

Liquefied natural gas (LNG) is the cleanest-burning fossil fuel currently available at scale; its use as a marine fuel is supported by advanced engine technologies that have been proven in practice. As a fuel, it reduces nitrogen oxide (NO_x) emissions, eliminates most sulfur oxides (SO_x) and particulate matter, and contributes to carbon dioxide (CO₂) reduction. However, methane slip is a cause for concern because methane, when considered as a greenhouse gas, is much more potent than CO₂.

Familiarity with the properties and characteristics of methane is critical to understanding the safety hazards associated with the use of LNG as a marine fuel. It is not considered to be corrosive nor toxic. Instead, the hazards are related to its storage, transport and combustion, and they also include cryogenic temperatures, vapour flammability and asphyxiation. Due to heat leakage through the insulation into the LNG cryogenic tanks, some of their contents continuously evaporate and generate boil-off gas, which increases tank pressure, potentially raising the risk of LNG and methane vapour releases. Those vapours are flammable and have the potential to asphyxiate workers. If a vapour spill comes in contact with a ship's structure, it causes brittleness and fracturing.

In a liquid state, LNG is not considered flammable and cannot ignite. However, LNG vapours become flammable when the percentage of methane in air reaches 5-15% and it can ignite when introduced to an ignition source. The auto-ignition temperature of methane is relatively high (595°C). When released from LNG, methane vapours will at first be heavier than air and then rapidly become lighter than air as it warms beyond -100°C. It is therefore crucial that safeguards are in place to prevent a flammable mixture from occurring, and to ensure that any sources of ignition are nowhere near.

Nuclear

This source of power has been considered in the past and work was paused after Fukushima. Given the problems associated with other alternative fuels, research into the viability of nuclear propulsion for vessels is being actively undertaken with much hope focused on molten salt reactors.

Relevant authority / organisations and documents

- **IMO – MEPC & MSC**

- **MSC.1/Circ. 1622:** Guidelines for the acceptance of alternative metallic materials for cryogenic service in ships carrying liquefied gases in bulk and ships using gases for low-flashpoint fuels, 2 December 2020.
- **MSC.1/Circ. 1599/Rev.1:** Revised interim guidelines on the application of high manganese austenitic steel for cryogenic service, 4 December 2020.
- **MSC.1/Circ. 1621:** Interim guidelines for the safety of ships using methyl/ethyl alcohol as fuel, 7 December 2020.
- **CCC7/3/9:** Comments on CCC7/3/Rev.1 and proposal for developing guidelines for the use of ammonia and hydrogen as fuels, 14 June 2021.
- **MSC104/15/9:** Development of non-mandatory guidelines for safety of ships using ammonia as fuel, submitted by Japan, Singapore, ICS and INTERCARGO, 2 July 2021.
- **MSC104/15/30:** Necessity of deliberations on operational safety measures and fire safety measures, submitted by Japan, 30 July 2021.
- **A32/12/2:** The development of safety requirements at the needed pace and detail to support the achievement of a decarbonization goal, submitted by IACS, 23 November 2021.
- **MSC105/2/2:** The development of safety requirements at the needed pace and detail to support the achievement of a decarbonization goal, submitted by IACS, 15 February 2022.
- **CCC8/13:** Report of the Correspondence Group – safety information for the use of ammonia, 17 June 2022.
- **CCC8/2/1:** The development of safety requirements for alternate fuels and technologies at the needed pace and detail to support the achievement of the IMO's decarbonization goals, submitted by IACS, 14 July 2022.
- **CCC8/WP.3:** Report of the working group (low-flashpoint fuels, ammonia & hydrogen), 22 September 2022.

- **SSE9/INF.8:** Experimental study for basic considerations of characteristics of hydrogen dispersion and explosion in ships, submitted by the Republic of Korea, 23 December 2022.
- **MSC107/17/21:** Proposal for a new output to facilitate a regulatory framework to support the safe delivery of IMO's strategy on reduction of GHG emissions from ships, submitted by Belgium, Cook Islands, Germany, Greece, Kingdom of the Netherlands, Panama, Republic of Korea, United Arab Emirates, United Kingdom, ICS, IUMI, BIMCO, IACS, OCIMF, INTERTANKO, SIGTTO, IBIA and SGMF, submitted 28 February 2023.
- **EU**
 - **COM(2021)562:** Proposal for a regulation on the use of renewable and low-carbon fuels in maritime transport and amending Directive 2009/16/EC ('FuelEU'), 14 July 2021
 - **EMSA:** Guidance on the safety of battery energy storage systems on board ships, November 2023
- **U.S.**
 - **Environmental Protection Agency (EPA):** North American Emission Control Area: <http://www.epa.gov/otaq/oceanvessels.htm#north-american>
 - **Coast Guard:** Safety Alert 10-18: U.S. Gulf Coast bunker contamination, 8 June 2018.
- **ABS:** Advisory on decarbonization applications for power generation and propulsion systems, March 2022.
- **The Maritime Just Transition Task Force:** Position Paper - Mapping a maritime just transition for seafarers, 9 November 2022.
- **Mærsk Mc-Kinney Møller Center for Zero-carbon Shipping & Lloyd's Register:** Recommendations for design and operation of ammonia-fuelled vessel based on a multi-disciplinary risk analysis, 26 June 2023.
- **Poseidon Principles for Marine Insurance** launched in 2021

Timeline / important dates

- Adoption of initial IMO GHG Emission Reduction Strategy, 2018
- 2nd IMO symposium on low- and zero-carbon fuels for shipping: 21 October 2022.
- IMO Energy Efficiency Existing Ship Index (EEXI) enters into force 1 January 2023.
- Adoption of revised IMO GHG Emission Reduction Strategy, July 2023

IUMI will:

- Increase awareness for alternative low and zero carbon fuel types and propulsion methods, and contribute towards any necessary safety regulation amendments.

11. Safe transport of electric vehicles (EVs)

In light of the drive to decarbonize all modes of transport, the number of new energy vehicles has been on the rise. The European Automobile Manufacturers Association (ACEA) has collected passenger car registration data in the EU per fuel type which show a significant growth of alternative fuel vehicles (AFVs) registered. Electric vehicles (EVs) are projected to match the sales of internal combustion engine (ICE) vehicles by 2030, and to surpass them by 2040.

Battery electric vehicles are usually fitted with a lithium-ion traction battery which is encapsulated and shielded by the vehicle's body. The battery pack consists of various battery modules which in turn are comprised of several battery cells. The chemical process which produces electricity that can be used for propulsion of the EV takes place within the battery packs. The battery system is usually placed in the vehicle floor or undercarriage where it is protected from damage by an anti-crash frame.

Electric vehicles have extensive safety systems designed to automatically shut down the power and isolate the battery pack when a collision or a short circuit is detected. An important safety feature of EV battery packs are in-built battery management systems (BMS). The BMS monitors and controls the battery and is a crucial factor in ensuring EV safety. It safeguards both the user and the battery by ensuring that the cell operates within its safe operating parameters. It monitors the state of a cell as represented by parameters.

The state of charge (SoC) is an electrical cell or battery's charge level compared to the total capacity of the cell or battery. Batteries at high SOC's have been shown to experience more violent reactions during thermal runaway. Testing has indicated that high SoC cells produce higher heat release rates, maximum temperatures, and concentrations of flammable and toxic gases during thermal runaway events. However, while the SoC does affect the growth and peak heat release, it does not affect the total heat release.

Despite this inherently safe design thermal runaway may occur if a cell is abused, e.g. by heat, mechanical damage or overcharge. Thermal runaway can also occur as a consequence of a cell or battery manufacturing error. When thermal runaway occurs, the cell is undergoing an unstable chemical reaction that is difficult to bring under control. At some point, the separator structure collapses and the electrodes touch, causing an internal short circuit and masses of heat, bringing the cell to ever higher temperatures and generating toxic and flammable gases. Cell heating will continue until the rise in temperature exceeds the heat that can be dissipated to the cell's construction. This released heat will then increase and start to affect other nearby battery cells. When the generation of heat becomes self-sustaining - the heat releases energy and the energy in turn releases more heat - the overheating propagates from cell to cell and the battery is in thermal runaway.

The high safety standards integrated into EV traction batteries, including solid casings and the BMS, make the likelihood of damage to an EV battery pack and thermal runaway extremely low. However, in view of the low possibility for thermal runaway the significance of the BMS as incorporated into EVs is particularly relevant. These safety systems prevent the battery cells from over and under charging, and thus prevent thermal runaway. It is important to note that BMS are

not incorporated into smaller capacity and less sophisticated vehicles such as electric bikes or scooters.

As statistics continue to be gathered, it is currently estimated that, in general, there are fewer fires from EVs compared with fires from conventional vehicles when compared over the same distance.

A thermal runaway in a Lithium-Ion battery is difficult to extinguish unless the firefighting agents are injected directly into the battery to enable efficient cooling. If a fire breaks out in an EV or in an ICEV (internal combustion engine vehicle), activities in support of early detection and verification/confirmation, early fire suppression and boundary cooling are critical actions to stop the spread of the fire to the battery and to adjacent vehicles.

A particularity of EVs is the risk of re-ignition which tends to be higher for a longer period than for ICEVs. Precautionary measures to avoid re-ignition of the traction battery must therefore be taken for an extended period after a fire has been extinguished.

IUMI published a recommendations and best practice paper in September 2023 which includes technical information about EVs as well as best practice for the safe transport of EVs on board PCTCs and ro-ro vessels.

The IMO's Sub-Committee on Ship Systems and Equipment has an agenda item titled "Evaluation of adequacy of fire protection, detection and extinction arrangements in vehicle, special category and ro-ro spaces in order to reduce the fire risk of ships carrying new energy vehicles" on the agenda for its 10th session in March 2024.

Relevant authority / organisations and documents

- IUMI:
 - Best practice & recommendations for the safe carriage of electric vehicles (EVs), September 2023
 - Participation in the [EU LASHFIRE Project](#) with the aim to significantly reduce the risk of fires on board ro-ro ships, 2019-2023
 - Participation in the COFFEE Project to assess effectiveness of CO2 as extinguishing medium, launch of project planned for 2024

Timeline / important dates

- IMO:
 - SSE 10, March 2024: Agenda item 16 "Evaluation of adequacy of fire protection, detection and extinction arrangements in vehicle, special category and ro-ro spaces in order to reduce the fire risk of ships carrying new energy vehicles"

IUMI will:

- IUMI will be involved in the IMO's work to effect appropriate safety measures to address this new risk.

12. Safe transport of lithium-ion batteries (LIBs)

In light of the efforts to combat climate change and to reduce the dependence on fossil fuels, new sources of energy and energy storage systems are being developed and constantly evolve. This has led to the increased use of lithium-ion batteries (LIBs) in all kinds of electronic devices, appliances, battery energy storage systems (BESS) and small vehicles. Unlike the LIBs incorporated in BESS and in electric cars, smaller devices which include LIBs do not have a battery management system which ensures that the battery operates within its safety parameters.

This section will focus on LIBs carried as cargo and LIBs within electronic devices. The peculiarities to consider when transporting BESS are not addressed since currently only limited knowledge is available on risks and loss prevention measures associated with their carriage.

With the number of LIBs in use growing, they are being shipped as cargoes across all modes of transport. This includes new, used and damaged batteries as well as electronic devices. If such cargoes are not handled, packaged, classified and declared correctly, they can be hazardous to people, property and the environment.

As with cars, thermal runaway (TR) can occur: Under certain conditions, e.g. due to electrical abuse, heat, or mechanical abuse, an increase in the internal temperature of a lithium-ion cell can be triggered. This can initiate reactions which release heat, i.e. causing a heat-temperature loop. If the heat does not dissipate, the battery cell temperature will increase further, thereby accelerating the process of heat release. The battery enters an uncontrollable self-heating state. TR can affect adjacent cells and nearby materials, thus causing fire. In addition to the fire risk, TR reaction products also contain toxic substances. The toxicity characteristics applicable to potential gas clouds and the residue which remains after the fire.

To ensure the safe handling of LIBs in the global supply chain it is crucial to comply with international safety regulations. Stakeholders involved in shipping or storing of LIBs must be aware of relevant information and communicate it to all those involved in the handling of the cargo. Guidance is included in the International Maritime Dangerous Goods (IMDG) Code, the Code of Practice for Packing of Cargo Transport Units (CTU Code) and the Cargo Stowage and Securing (CSS) Code. Training for staff involved with the handling of these cargoes is crucial to ensure they are aware of the risks and know how to handle them in case of an incident.

Relevant authority / organisations and documents

- Cargo Incident Notification System (CINS): Lithium-ion Batteries in Containers Guidelines, March 2023



IUMI will:

- IUMI will be support the development of appropriate guidelines and safety measures to address the risks associated with the carriage of LIBs.

STANDING ITEMS

13. Maritime security / piracy

Brief description

Best Management Practice (BMP) 5, use of private armed security guards, UN and IMO guidelines, national regulations, legality of payment of ransoms, and ISO rules for the use of force are some of the issues still very much on the international maritime security agenda.

The International Maritime Bureau (IMB) Piracy Reporting Centre (PRC) reported 115 piracy and armed robbery incidents worldwide in 2022 - the lowest recorded figure in three decades. Half of the incidents occurred in Southeast Asian waters, particularly in the Singapore Straits where incidents increased to a seven-year high from 49 incidents in 2021 to 55 in 2022. Incidents in the Singapore Straits account for 65% of all incidents in Asia, according to the ReCAAP Information Sharing Centre. The trend continued into 2023 with a 25% significant increase in reported incidents in the Singapore Straits according to the mid-year report from IMB.

Following an increase in the reported incidents in the Gulf of Guinea in the first half of 2023 with 65 incidents against 58 in the same period in 2022, the IMB has raised concern on the resurgence of incidents. The IMB calls for continued, robust regional and international naval presence as a deterrent to address these crimes. Nigeria's Deep Blue Project and the Gulf of Guinea Maritime Collaboration Forum are complementary initiatives, created to support the fight against piracy in the region.

In January 2021, the EU Council approved the launching of the first pilot case of the Coordinated Maritime Presences (CMP) concept in the Gulf of Guinea (GoG), which has seen member states deploy warships to the region. The purpose is to support efforts by the coastal states and the organisation of the Yaoundé Architecture to address increasing security challenges such as armed piracy and kidnapping for ransom, which undermine maritime security and good governance of the oceans. Following a review of the pilot, the EU proposed a two-year extension of the CMP mandates, starting in January 2022.

South American ports in Brazil, Guyana, Peru, Mexico and Haiti continue to be affected by the crime of armed robbery, but overall there was a reduction in incidents partially attributed to a 33% decrease in Callao anchorage in Peru.

While no incidents were reported in the Gulf of Aden in 2022, the IMB Piracy Reporting Centre continues to encourage vigilance among shipmasters, particularly when transiting close to the Somali coast. In consequence, insurers will continue to ask owners about their security precautions in this region.

The EU Maritime Security Revised Action Plan was adopted in June 2018. The revised Plan underlines that international cooperation at sea is instrumental to achieve safe and secure seas

across regions and improve global maritime security. Although NATO reassigned its counter-piracy mission in the Indian Ocean in November 2016, the European Union has extended its counter-piracy operation until 31 December 2024. IUMI notes the continuing support from EU and the Combined Maritime Forces (CMF) and believes the extended security corridor to be prudent.

With drawdown and the passage of time in mind, the 5th edition of the piracy-specific Best Management Practice (BMP5) was published in June 2018. BMP5 compiles a useful and comprehensive guidance which introduces effective measures for the protection of crew, vessels and cargo while transiting the Red Sea, the Gulf of Aden, the Indian Ocean and the Arabian Sea. The shipping industry's Indian Ocean High Risk Area was removed 1 January 2023.

Best Management Practices to Enhance Maritime Security for Vessels & Mariners Operating Off the Coast of West Africa including the Gulf of Guinea (BMP WA) was published in March 2020. The BMP WA is the result of a collaborative work between industry organisations, supported by government and military organisations, to help mariners detect, deter and delay external threats to their safety in this region.

Gaza

The recent eruption of hostilities and atrocities directed at Israel unleashed not only an Israeli response but also a wave of concern about regional contagion. Behind that lay the practical concerns for the aspects that touched on the supply chain actors. A significant new twist was added when Houthis seized the Galaxy Leader on 19 November 2023 using an Mi-17 helicopter to insert an assault team of eight men carrying AK-type rifles. That was a game changer and will require a ship security rethink. It was not in any security procedures manual for commercial vessels. Even if the vessel had an armed team aboard, the dispositions they would have to make in a very short time would not guarantee a successful defence. Worse, having demonstrated their capability, the Houthis also deemed anyone they considered a supporter of Israel to be a legitimate target. Trading and underwriting in the area have entered another phase of risk and uncertainty where political motives clash with commercial operations.

Ukraine

The conflict continues with no end in sight. but initial Russian aims contracted following strong Ukrainian resistance. The European strategic picture has been recast with the continent recognizing the downside of oil and gas reliance on a country with contrasting strategic ambitions. The sanctions picture is complex and the effects of the measures are unclear. What is clear is that insurers have had to handle a range of extra due-diligence issues and several carriers have opted out altogether. Additionally, many reinsurers have utilized territorial exclusions leaving the primary market with a newly limited reality. Underwriters have sustained significant losses arising from the vessels trapped by the hostilities and there will likely be disputes over those cargoes stranded or stuck in warehouses.

Relevant authority / organisations and documents

- **International Maritime Organization (IMO)**

- **Global Integrated Shipping Information System (GISIS)**: Recent reported incidents of piracy & armed robbery.
- **MSC102/10/3**: Security in the Gulf of Guinea, submitted by ICS, BIMCO, OCIMF, INTERTANKO and INTERCARGO, 10 March 2020.
- **Circular Letter No. 4382**: Piracy in the Gulf of Guinea, 10 February 2021.
- **Resolution A.1069(28)**: Prevention and suppression of piracy, armed robbery against ships and illicit maritime activity in the Gulf of Guinea, 15 December 2021.
- **MSC106/INF.10**: Removal of the Indian Ocean High Risk Area, submitted by ICS, BIMCO, OCIMF, INTERTANKO, INTERCARGO and IMCA, 22 August 2022.
- **BMP5:**
 - **Best Management Practices to Deter Piracy and Enhance Maritime Security in the Red Sea, Gulf of Aden, Indian Ocean and Arabian Sea, June 2018.**
- **BIMCO's GUARDCON contract**
 - **IGP&I GUARDCON West Africa** – IG clubs' version including the recommended amendments in Circular 1, 9 April 2014.
- **European Union:**
 - **EU Maritime Security Factsheet: The Gulf of Guinea, 25 January 2021.**
- **EU Naval Force (EU NAVFOR)** – Operation Atalanta.
- **ICC International Maritime Bureau – Piracy Reporting Centre**
- **Maritime Security Centre Horn of Africa (MSCHOA)**
- **Joint War Committee (JWC)**: Listed areas.
- **IUMI: Position Paper - Piracy and its suppression, 29 January 2016.**
- **Maritime Domain Awareness for Trade – Gulf of Guinea (MDAT-GoG)**
- **ICS, BIMCO & INTERTANKO**: Interim Guidance on Maritime Security in the Southern Red Sea and Bab Al-Mandeb, 24 January 2018.
- **BMP WA:**
 - **Best Management Practices to Deter Piracy and Enhance Maritime Security off the Coast of West Africa including the Gulf of Guinea, 30 March 2020.**
- **U.S. Coast Guard**: Port Security Advisory (1-20), 10 June 2020.
- **Benin**: Interministerial decree concerning means of protection of ships in territorial waters, 13 July 2020.
- **BIMCO, ICS, INTERTANKO, INTERCARGO & OCIMF:**
 - Joint statement: Increased security threats for vessels operating in the Gulf of Guinea, 21 October 2020.
 - **Recommended risk mitigation measures, 5 January 2021.**
- **OCIMF**: Guidance for the employment of private maritime security companies, October 2021.
- **NATO Shipping Centre.**
- **US MARAD: Advisory 2022-003: Persian Gulf, Strait of Hormuz, Gulf of Oman, Arabian Sea, Gulf of Aden, Bab al Mandeb Strait, Red Sea and Eastern Indian Ocean – Threat to commercial vessels, effective date 30 August 2022 – 26 February 2023.**
- **IUMI: IUMI welcomes IMO initiative to free vessels trapped in Ukrainian ports, 13 February 2023.**

- **Industry associations:** Joint open letter to UN on seafarers trapped in Ukraine, 20 February 2023.

Timeline / important dates

- EU Naval Force Operation Atalanta extended until 31 December 2024.
- Indian Ocean High Risk Area no longer in place from 1 January 2023.

IUMI will:

- Monitor and inform IUMI membership of new developments.
- Strongly support implementation of BMP5 and consider amendments and/or more suitably adapted versions for new areas/threats as and when appropriate.
- Support implementation of ISO PSA 28007 as the sole standard when determining rules for the use of force.
- Endorse guidelines issued by BIMCO and ICS for vessels and crews.
- Encourage governments to support counter-piracy operations through naval task forces and other means of support off the Horn of Africa.
- Encourage owners and insurers to remain vigilant in the Indian Ocean.
- Support all efforts to find a lasting solution to ensure the safe passage of vessels and crew in the Strait of Hormuz and Persian Gulf.

14. Sanctions

Brief description

International sanctions are front and centre to the major economic powers' political strategies and objectives. Shipping as a key cog to the global economy is an obvious sector to be adversely impacted by rises in geopolitical tensions. While sanctions are nothing new, the targeting of financial services have demonstrated the need for marine insurers to keep up to date with new sanction regimes and how to comply with them.

In recent years the application of unilateral sanctions, i.e. without broad, international consensus, has escalated significantly, as has the potential over-reach by governments to try and control the actions of entities trading in their country or using their currency but not directly sanctioned by them – the 'secondary sanctions' phenomenon. The increasing use of 'tit-for-tat' sanctions between the major trading nations further raises the political temperature and difficulties for internationally focused industries such as shipping.

There has been an increasing focus by sanctions authorities on the maritime sector, with pressure on owners, operators and insurers to adopt ever more extensive due diligence and compliance

checks in order to manage evolving and complex risks. The May 2020 guidance Sanctions Advisory by OFAC, the Department of State and the U.S. Coast Guard is probably the most important sanctions development for marine insurers in recent years. Its intent is to reshape all aspects of maritime industry behaviour and touches upon fundamental issues for our community – for instance, AIS manipulation, know your customer, supply chain risk, information sharing with counterparties and the recommended use of insurance policy provisions. In July 2020, the UK sanctions regulator, OFSI, followed suit.

It is beyond the scope of this document to analyse specific sanctions measures or regimes except to make the wider point that sanctions measures are updated on an almost daily basis across multiple jurisdictions, which require continued due diligence by those in the shipping sector. Moreover, in some cases, sanctions requirements are either ambiguous or conflict across jurisdictions.

Insurers maintain exhaustive checks and systems to avoid insuring sanctioned entities in the first place, or paying claims where sanctions are introduced mid-policy term. Insurance policies will generally include as standard a sanctions exclusion clause, in addition to provisions, both implied and expressed, around illegal activity by the insured. But the speed of sanctions developments and differences in approaches and legislation across jurisdictions is a challenge. Furthermore, secondary sanctions can leave both insurers and their clients in the difficult situation of having competing sanctions measures in place, particularly so where there is the ‘threat’ of potential sanctions should the parties pursue what may be an otherwise valid commercial contract. Moreover, as the sanctions threat evolves so does the increasing technology employed by bad actors to circumvent measures – AIS manipulation being the best example but also including physical manipulation of the vessel, GNSS spoofing and falsification of documents.

The list below, while not exhaustive, indicates where information can be found from four key sanction regimes.

Key sanction regimes – information links

- **United Nations:**
 - [Security Council - General Information about Sanctions](#)

- **United States of America:**
 - [U.S. Office of Foreign Assets Control \(OFAC\) Sanctions List Search](#)
 - [U.S. Treasury OFAC Sanctions Programs](#)
 - [U.S. Treasury OFAC Recent Actions](#)
 - [OFAC Specially Designated Nationals \(SDN\) List](#)

- OFAC Guidance to address illicit shipping and sanctions evasion practices (14 May 2020)
- **European Union:**
 - EU Consolidated list of sanctions
 - EU Sanctions Map
 - 12th package of restrictive measures against Russia
- **United Kingdom:**
 - HM Treasury – Financial sanctions targets by regime
 - UK Office of Financial Sanctions Implementation
 - OFSI Financial sanctions guidance for entities and individuals operating within the maritime shipping sector (December 2020)
 - Lloyd’s Marine sanctions guidance – Enhanced Due Diligence measures
- **IUMI:**
 - OFAC webinar 10 June 2020
 - Sanctions update webinar (HFW and Windward), 8 December 2021.
- **BIMCO:** Sanctions clause for container vessel time charter parties 2021.
- **China:** Anti-foreign sanctions law necessary to fight hegemonism, power politics: official.

Glossary of abbreviations

ABS – American Bureau of Shipping
AFV – Alternative Fuel Vehicle
AIFTA – ASEAN-India Trade Area
AKFTA – ASEAN-Republic of Korea Free Trade Agreement
AMD – Association Mondiale de Dispatcheurs
ASEAN – Association of Southeast Asian nations
BBNJ – Biodiversity Beyond National Jurisdiction
BMP – Best Management Practice (BMP WA – Best Management Practice West Africa)
BRI – Belt and Road Initiative (People’s Republic of China)
C – Council (IMO)
CCC – Sub-Committee on Carriage in Cargoes and Containers (IMO)
CFLII – Cargo Fire and Loss Innovation Initiative
CG – Correspondence Group
CIMAC – International Council on Combustion Engines
CINS – Cargo Incident Notification System
CIRM – Comité International Radio-Maritime
CLC – Civil Liability Convention
CLIA – Cruise Lines International Association
CMF – Combined Maritime Forces
CMI – Comité Maritime International
COLREG – Convention on the International Regulations for Preventing Collisions at Sea
CPTPP – Comprehensive and Progressive Agreement for Trans-Pacific Partnership
CTU Code – Code of Practice for Packing of Cargo Transport Units
DBI – The Danish Institute of Fire and Security Technology
DG MOVE – Directorate-General Mobility and Transport (EC)
EC – European Commission
ECA – Emission Control Area
ECSA – European Community Shipowners’ Associations
EEA – European Economic Area
EEXI – Energy Efficiency Existing Ship Index (IMO)
EFTA – European Free Trade Association
EIOPA – European Insurance and Occupational Pensions Authority
EMASOH – European Maritime Surveillance Mission in the Strait of Hormuz
EMSA – European Maritime Safety Agency
ENISA – European Network and Information Security Agency
ESG – Environmental, Social and Governance
ETS – Emission Trading System (EU)
EU – European Union
EU NAVFOR – EU Naval Forces
FAL – Facilitation Committee (IMO)
FIATA – International Federation of Freight Forwarders Association
FONASBA – The Federation of National Associations of Ship Brokers and Agents

FTA – Free Trade Agreement
GDP – Gross Domestic Product
GHG – Greenhouse Gas
GNSS – Global Navigation Satellite Systems
GoG – Gulf of Guinea
HTW – Sub-Committee on Human element, Training and Watchkeeping (IMO)
IACS – International Association of Classification Societies
IAPH – International Association of Ports and Harbors
ICS – International Chamber of Shipping
IFSMA – International Federation of Shipmasters' Associations
IG – International Group of P&I Clubs
IMB – International Maritime Bureau
IMDG Code – International Maritime Dangerous Goods Code
IMO – International Maritime Organization; a United Nations specialized agency
INTERCARGO – International Association of Dry Cargo Shipowners
InterManager – international association of ship and crew managers
INTERTANKO – International Association of Independent Tanker Owners
IPTA – International Parcel Tankers Association
ISM Code – International Safety Management Code
ISPS Code – International Ship and Port Facility Security Code
ISO – International Organization for Standardization
ISU – International Salvage Union
ITF – International Transport Workers' Federation
IUU – Illegal, unreported and unregulated fishing
LEG – Legal Committee (IMO)
MARPOL – International Convention for the Prevention of Pollution from Ships
MASS – Maritime Autonomous Surface Ships
MEPC – Marine Environment Protection Committee (IMO)
MSC – Maritime Safety Committee (IMO)
MSCHOA – Maritime Security Centre Horn of Africa
MR – Mutual Recognition (ROs)
NATO – North Atlantic Treaty Organization
NCSR – Sub-Committee on Navigation, Communications and Search and Rescue (IMO)
OCIMF – Oil Companies International Maritime Forum
OFAC – Office of Foreign Assets Control (United States)
OFSI – Office of Financial Sanctions Implementation (United Kingdom)
ORRA – Ocean Risk Alliance
Polar Code – International Code for Ships Operating in Polar Waters
POLARIS – Polar Operational Limit Assessment Risk Index System
PoR – Places of Refuge
PPMI – Poseidon Principles for Marine Insurance
PPR – Sub-Committee on Pollution Prevention and Response (IMO)
PSA – Port Security Advisory
PSI – Principles for Sustainable Insurance (UNEP FI)
RCEP – Regional Comprehensive Economic Partnership (between 15 Indo-Pacific nations)



ReCAAP ISC – Regional Cooperation Agreement on Combating Piracy and Armed Robbery against Ships in Asia Information Sharing Centre
RO – Recognised Organisation
ROADSEC – European road freight transport sector security guidelines
SAE – Society of Automotive Engineers
SDC – Sub-Committee on Ship Design and Construction (IMO)
SDG – Sustainable Development Goals (UN)
SOLAS – International Convention for the Safety of Life at Sea
SSE – Sub-Committee on Ship Systems and Equipment (IMO)
STCW – International Convention on Standards of training, Certification and Watchkeeping for Seafarers
TAPA – Transport Asset Protection Association
TEN-T – Trans-European Transport Network (EC)
UI – Unified Interpretation (IACS)
UN – United Nations
UNCAC – Convention Against Corruption (UN)
UNCLOS – Convention on the law of the seas (UN)
UNEP FI – United Nations Environment Programme Finance Initiative
UR – Unified Requirement (IACS)
WSC – World Shipping Council