

Republic of the Marshall Islands

MARITIME ADMINISTRATOR

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MARINE SAFETY ADVISORY No. 13-22

To: Owners/Operators, Masters, Nautical Inspectors, Recognized Organizations

Subject: FUMIGATION OF DRY BULK CARGO

Date: 17 June 2022

The Republic of the Marshall Islands Maritime Administrator (the “Administrator”) is currently conducting marine safety investigations into two different incidents involving in transit cargo fumigation. One of these incidents resulted in the death of a crewmember soon after removing fumigant from the cargo holds prior to arrival at the discharge port. The other resulted in the hospitalization of a stevedore after being exposed to fumigant that had been applied by the crew prior to departure from the loading port.

The Administrator’s investigations of these two incidents have identified that crewmembers on board both ships were required to handle fumigant because of COVID-19 related restrictions imposed by the port State’s public health authorities. These restrictions prohibited qualified shore personnel from going aboard the ship to either remove the fumigant residues from the cargo holds following the vessel’s arrival or to apply the fumigant after the cargo had been loaded.

Fumigation of dry bulk cargo requires introducing a toxic gas, or a material that reacts with moisture in the air to produce a toxic gas, into a ship’s cargo holds. Exposure to fumigant gases can lead to severe injury or death. Therefore, it is essential that all appropriate precautions be taken to ensure the safety of the ship’s crew and any other persons (e.g., cargo surveyors, customs agents, stevedores, etc.) who might be on board during all stages of cargo fumigation.

IMO Circular [MSC.1/Circ.1264](#), *Recommendations on the Safe Use of Pesticides in Ships Applicable to the Fumigation of Cargo Holds*, as amended, provides detailed guidance for ensuring the safety of the ship’s crew and any other persons who might be on board when the fumigant is applied, during a voyage when in-transit fumigation is being conducted, and during cargo discharge. Some key provisions of this guidance are:

- .1 crew should not handle fumigants, they should be handled only by qualified personnel;
- .2 the fumigation company, a government agency, or appropriate authority should designate an appropriately qualified “fumigator-in-charge” to be responsible for ensuring the fumigation is conducted safely and that all required documents and safety equipment are provided to the Master;

This MSA is evaluated annually by the Administrator and expires one year after its issuance or renewal unless otherwise noted, superseded, or revoked.

- .3 when fumigation is carried out in port or at anchor, with limited exceptions, all crew should be landed ashore until the fumigator-in-charge or other authorized person certifies in writing that the ship is gas free;
- .4 in transit fumigation should only be carried out at the discretion of the Master and that this should be clearly understood by the ship's owners, operators, charterers, and all other involved parties;
- .5 if in transit fumigation is conducted,
 - a. at least two crewmembers (who have received the training specified in the guidance and are designated as the Master's representatives) be assigned the responsibility of:
 - i. briefing the vessel's crewmembers before fumigation is conducted and satisfying the fumigator-in-charge that this was completed; and
 - ii. verifying the actions taken to prevent fumigant from entering, and then monitoring the atmosphere in the accommodations, bridge, engine room, and other working spaces throughout the voyage; and
 - b. the vessel should have on board:
 - i. gas-detection equipment with sufficient supplies (e.g., gas-detection tubes) for monitoring¹ the atmosphere in the accommodations, bridge, engine room and other working spaces along with occupational exposure limits for the fumigant that was applied;
 - ii. instructions for disposing of residual fumigant;
 - iii. at least four sets of appropriate respiratory protective equipment; and
 - iv. a copy of the current version of the *Medical First Aid Guide for Use in Accidents Involving Dangerous Goods*, along with appropriate medicines and medical equipment;
- .6 that cargo holds sealed for in transit fumigation should not be opened at sea or entered, except in an extreme emergency; and
- .7 the Master inform the appropriate authorities prior to arrival at the discharge port and any intermediate ports of call that in transit fumigation is being conducted.

¹ The minimum monitoring requirement stipulates conducting gas-detection every eight hours. However, it is noted that continuous monitoring has proven to be the most effective means of ensuring there is a safe atmosphere in spaces intended to be occupied.

IMO Circular [MSC.1/Circ.1264](#) is amended by IMO Circular [MSC.1/Circ.1396](#), *Amendment to the Recommendations on the Safe Use of Pesticides in Ships Applicable to the Fumigation of Cargo Holds (MSC.1/Circ.1264)*. This amendment addresses the potential for the collected residue of phosphine generating fumigants to ignite.

Additionally, the International Maritime Solid Bulk Cargoes (IMSBC) Code, regulation 3.6 mandates compliance with the recommendations in IMO Circular MSC.1/Circ.1264 when fumigating cargoes to which the IMSBC Code applies. This regulation also requires atmospheric monitoring of designated spaces throughout the ship during the voyage.

Owners, operators, and Masters of vessels transporting cargoes requiring fumigation:

- .1 should be familiar with and follow the guidance in IMO Circular MSC.1/Circ.1264, as amended;
- .2 comply with the IMSBC Code requirements on the fumigation of cargoes where applicable; and
- .3 determine if alternative arrangements can be made where port access restrictions prevent qualified shore personnel from going on board to apply or remove fumigant residues.