Hazardous container leaks: swift action is key

Gard continues to see concerning cases of leakage from hazardous containerized cargoes – incidents which can quickly escalate into serious safety and environmental threats. Ensuring that crew and company personnel ashore understand the importance of swift action is essential to prevent these situations from spiraling out of control.

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It is estimated that more than 5 million containers are packed with Dangerous Goods (DG) each year – and as global container shipping continues to grow , the number is likely rising.

Even if cargo is properly declared it may not be properly packaged and stowed to avoid damage during transport. In fact, a recent inspection conducted by the National Cargo Bureau (NCB) found that 57% of DG inspections failed to comply, and of these, around one third failed due to poor securing. Data collected by members of the Cargo Incident Notification System (CINS) also indicates that leakages continue to be amongst the most reported incidents.

Significant consequences

Leaks involving hazardous goods can have severe consequences. As an example: Almost two weeks after a vessel had a leak of nitric acid from one of its deck containers, a fire broke out resulting in significant environmental damage as well as the total loss of both ship and cargo.

Fortunately, the crew were unharmed when they abandoned the vessel. The official investigation identified missed opportunities to offload the leaking container and to contain the consequences of the spill. The investigation also identified other incidents of concern with nitric acid leaks and not long after, a port authority published news of a successful intervention.

Nitric acid has a main IMDG Code hazard class 8 (corrosive substance) and a sub-risk Class 5.1 (oxidising substance). Contact with metals releases hydrogen gas. It can also react, in an exothermic (heat producing) manner, meaning there is a risk of it corroding through a hatch cover into the hold.

Recent cases

Vital time can be lost if potential consequences are under-appreciated. If the situation escalates, the ship and crew may not be fully equipped to handle it. Time may also be lost trying to persuade charterers or shippers to deal with the problem. Most significantly, in Gard's experience, it can take time to obtain the cooperation of shore authorities.

In one recent Gard case the vessel was initially prohibited from washing nitric acid overboard into port area waters (though it is not considered a marine pollutant) and later from landing the leaking container ashore. In another case the charterers indicated difficulty landing a container leaking nitric acid at the closest port and suggested owners aim for the next one, where the leaking container was eventually discharged. However, by that time the situation had escalated and the ship was sent to the anchorage with visible fumes emitting from the hold. It took almost a week before the vessel was allowed to proceed from the anchorage into port to discharge containers affected by the leak, which had reached into the hold. A subsequent inspection confirmed several holes in the hatch cover below the leaking container.

In both cases Gard mustered its own emergency response resources and was able to use its regional offices together with external experts to provide around the clock assistance. Beyond impressing on charterers the need to get containers swiftly discharged, Gard also worked on contingencies with salvors.

Key recommendations

The ship should have onboard immediate access to all IMDG cargo information, including stow location, DG manifest, packing list, Material Safety Data sheets and emergency contact numbers. The container should also be placarded in accordance with the Code. This information will be needed when the ship seeks expert advice on what immediate measures can be taken by crew with the protective equipment they have onboard, such as breathing apparatuses and chemical suits.

The IMDG Code generally recommends washing spills on deck overboard with plenty of water. If the substance reacts dangerously with water, this should be done from as far away as possible. It may be safer to rig a fire hose from upwind so that the crew do not have to hold it directly. Care should also be taken to avoid washing the substance into the hold through the hatch covers.

The crew's safety must be assessed before investigating a cargo leak, especially if entering an enclosed space is required. In some cases, inert absorbent can be used to contain seepage under deck. If the leak spreads to other cargo – especially other dangerous goods - the situation can quickly become more serious and may require expert assistance. In the case of Nitric acid, watch for pale yellow to reddish-brown fumes, which are a sign it is reacting with other materials.

If the vessel is at sea when the leak is discovered, the crew may need to quickly decide whether to divert to a place where the situation can be contained and the container removed. Charterers may be able to help coordinate with the terminal, and even if the terminal has no dedicated hazmat facilities, portable containment equipment can usually be brought in.

Clear communication between owners, charters and authorities is essential to build trust. Authorities may also require a recognized expert contractor with a clear and comprehensive plan to handle the situation. If a port is reluctant to help, flag state assistance may be needed, along with reference to IMO Place of Refuge guidelines .

Gard's philosophy of prudent over-reaction is very apt for scenarios involving the leakage of hazardous container leaks. Please don't hesitate and delay contacting your Company and Gard.

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