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Can 'smart containers' prevent ship fires?

Greg Knowler, Senior Europe Editor | Aug 13, 2019 5:00PM EDT

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Amid a rash of container ship fires and stiffer penalties for misdeclared cargo, smart container technology is being proposed as a better way to detect hazardous cargo that hasn't been properly declared by shippers and forwarders.

Can new smart technology be leveraged to enable a container to detect the presence of hazardous cargo packed inside and issue an alert to the carrier on which it is loaded? Perhaps, but it will take far more sensor adoption and even "smarter" sensors to make that a reality.

Peregrine Storrs-Fox, risk management director for insurer TT Club and a leading voice in the fight to prevent ship fires and reduce the misdeclaration of cargo, said it's inevitable that Internet of Things (IoT) devices would emerge as a way to support ship operations.

"Loggers have long been used within cargo, but are passive," he told JOC.com. "What has been developed over the last decade for container-sited devices has the potential to be far more powerful, monitoring various aspects of condition, such as heat, humidity, movement, etc., and then having the capability to communicate to any control center, whether ship bridge or remotely on land."

SeaIntelligence CEO Alan Murphy asked in his most recent weekly Sunday Spotlight newsletter if there was a way to combine smart-tracking technology in containers with new technology to detect the presence of dangerous chemicals.

Track-and-trace providers argue that their services can help carriers flag suspicious containers by matching the readings of equipment characteristics with declarations on the manifest. However, not only will there need to be far wider adoption of sensors, as they account for no more than 1 percent of the global container fleet, but not all sensors are sophisticated enough to be anything more than a GPS tracker. And generally, shippers that pony up for track-and-trace services aren't the type to cut corners and not declare hazardous cargo.

Carriers' patience growing thin

The issue is front and center again after a blaze on container carrier APL Le Havre in India last weekend came just days after carriers announced stiffer fees for misdeclaration and stronger inspection processes. The vessel was sailing from Karachi to Mumbai when a fire broke out and quickly consumed six containers. No crew members were injured in the blaze and the vessel was towed to an anchorage off Mundra.

Insurer TT Club has warned that fires on board large container ships are being reported every two months, and according to the Cargo Incident Notification System (CINS), a quarter of all serious incidents onboard container vessels were due to misdeclared hazardous cargo.

APL Le Havre was the fifth major ship fire this year — four container ships and one roll-on, roll-off (ro-ro) vessel — and carriers are running out of patience. To prevent the intentional or irresponsible misdeclaration of dangerous goods cargo, carriers have announced heavy new fines for shippers not following established hazardous cargo guidelines.

Steeper fines and closer inspections

Evergreen has warned shippers and their service providers that if it finds concealed or misdeclared dangerous cargo it will levy fines of \$35,000 per container. Hapag-Lloyd has announced it will implement a penalty of \$15,000 per container from Sept. 15 onwards, and HMM has imposed a similar fine largely aimed at Chinese exporters.

Murphy expressed skepticism that an unscrupulous shipper, who was already deliberately shipping dangerous goods declared as something benign, would be more honest in declaring their cargo out of the fear of a fine. Instead, he proposed the combined smart tech-hazardous cargo detection technology approach. While Murphy acknowledged the technology might not yet fully exist, he asked whether container trackers could be made "dangerously smart" by incorporating a sensor to detect the most common hazardous compounds that are misdeclared.

"This way, the container would automatically alert the carrier of the presence of dangerous cargo, and the problem could be significantly reduced," he said.

"Technical advances have been made, including overcoming the Faraday Cage effect on board [a screen that blocks electromagnetic fields that hamper the data transmission] and extending battery life," Storrs-Fox said. "Adoption remains in early stages but has been ramping up in recent months — still, installation on a significant proportion of the global container fleet is some way off."

He said the spate of fires has served as the catalyst for several actions in the industry, including the new fines announced by carriers, and they should all be viewed in the scope of a wider cargo integrity initiative.

Storrs-Fox said some carriers have said they would step up actions to identify poor practices, specifically inspections, with more energy going toward implementing checks and screening at the point of cargo booking.

"It is worth pointing out these initiatives can be as much identifying opportunities to support shippers in developing better practices as simply penalizing non-compliance," he said.

Storrs-Fox pointed out that the mechanisms to levy and collect the penalties were normally well-established in bill of lading conditions, and the amounts collected could be used to fund more extensive inspection programs.

But he said the increased collaboration across the industry was "fundamental to re-writing the current narrative," and appeared to be gaining traction.

"CINS, recently joined by Cosco Shipping, now represents an overwhelming majority of slot capacity," he said. "Further, there is more deliberate interaction between different modes and with indirect stakeholders in order to identify and tackle common problems."

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Time to name and shame rogue shippers, says Drewry

Moves by carriers to fine cargo owners that misdeclare hazardous goods are unlikely to change the behaviour of the criminally minded, with other measures needed, argues Drewry. But regulations currently prevent naming them, so they could still slip under the radar

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A limited amount of information sharing could greatly enhance safety and reduce fraud, argues Drewry, with most shippers likely to welcome any measure that will help reduce the risk of delay or damage to their cargoes



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