Technical Innovation Award Shortlisting:
Portasteele® Calculator

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The Problem

The Ungoverned Space of Gaseous Extinguishing Systems

- Industry tendency to see fire systems as a cost, not a means to safeguard valuable crew, cargo and vessel
- Dynamic systems are regularly treated as completely passive
- One would not install an alarm without a monitoring system to support it
- However, most fixed fire extinguishing systems are not monitored at all

Regulations - are not being enforced or conducted

- IMO SOLAS & FSS Code Chapter 2.1.1.3
  “Means shall be provided for the crew to safely check the quantity of the fire extinguishing medium in the containers.”
- CO2 UK Marine Equipment Directive (MED) UK/EU legislation with US Coast Guard Mutual Recognition 7.3.2.6
- United States Coast Guard Marine Safety Alert – May 27, 2015
- NFPA Code 2001 7.11 & 7.13 and 12
- ISO 14520 Regulation Chapter 6 6.2.4.2 & Annex F 5

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Fire Safety Risks

What Happens when the System Goes Wrong?

• Anecdotes:
  • Marine CO2 systems with 20% of the CO2 cylinders installed on commercial shipping being empty or partially filled
  • Cheap pressure gauges sticking in position under humidity or mechanical fatigue
  • Over-filled and under-filled cylinders
  • Bathroom weighing scales chained to the CO2 cylinders in an effort to comply with IMO SOLAS FSS Code regulations but no crew qualified to conduct such inspections

• Fire-related accidents (that have been reported):
  • November 2016 - Engine room fire onboard Maersk Patras
  • August 2011 - Accidental discharge of carbon dioxide on board SD Nimble resulting in serious injury to a shore-based service engineer at Her Majesty’s Naval Base Faslane (MAIB, 2011).
  • May 2010 - Marsol Pride, uncontrolled release of fire-extinguishing gas into engine room, Tui oil and gas field (TAIC, 2011).
How Portasteele® Works

Step 1
• Use Portalevel® handheld ultrasonic liquid level indicator
• To find the liquid level in a cylinder of CO2, FM-200® or Novec™ 1230

Step 2
• Use Portasteele® Calculator tablet based app to convert the level height into the weight/mass of extinguishing agent
• Popular cylinder types saved to easy-to-find settings list
• Record and download results for added value servicing

Innovation & Technology of the Future

• Ease of use, portability, rugged casing, accuracy and reporting capabilities provides an unparalleled solution

• Future monitoring aspirations: Contents-Weight-Pressure

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Safeship® Solutions: Core Capabilities

A. Watertight & Room Integrity
- Hatch Covers, MCTs, WT Doors
- Portascanner™ Water tight
- Continuous 10-Day Monitoring Add-On
  Permascanne™ Hi-Life Generator

B. Fire Suppression Systems
- Room Integrity Leak Detection
  Portascanner™ ISO 16520
- Continuous Monitoring Solution
  Permascanne™ Dynamic
- Semi-Fixed Monitoring Solutions
  Portascanner™ MCT
  Portascanner™ WT Door
  Portascanner™ CO2 Room
- Liquid Level Indicators
  Portalevel™ MAX Marine
- Continuous Monitoring Solution
  Permalevel™ Multiplex
- Convert Liquid Level to Weight
  Portasteel™
- Portameric™

C. Pipework Integrity
- Pipework Integrity Inspection
  Portapipe™
- Pipework and Hull Plate Corrosion Testing with Thickness Gauges
  Porta gage™ 3
  Porta gage™ 4

D. Flow rate and Bearing Monitoring
- Flow Rate Testing
  Portasonic™
- Monitoring Rotating Machinery
  Portamonitor™

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