



GOOD CATCH from **The American Club**

Keep the fire **INSIDE** the incinerator!

THERMAL SHOCK

Description

The Third Assistant Engineer on a general cargo vessel was operating the vessel's incinerator. He had received prior on-the-job training for the incinerator and had operated it several times with no problems. He also made sure the operation was properly logged.

On that day, the incinerator was burning sludge oil in a continuous feed. After approximately 30 minutes of operation, he noticed smoke beginning to fill the incinerator room. The fire detection system alarmed immediately thereafter. The Third Assistant Engineer pressed the emergency stop on the incinerator and evacuated the space. The crew mustered and the Chief Engineer and Master approved use of the water mist extinguishing system in the space. It worked perfectly and the fire was quickly extinguished.

An investigation was conducted and the incinerator manufacturer's representative found that the refractory brick was severely cracked. He noted that this type of cracking was due to temperature shock usually associated with cold water contacting the refractory brick while it is hot. The crew admitted that they had on occasion added water to the sludge tank while the incinerator was being operated but were unaware that could result in such damage to the refractory bricks. The added water was intended to make the sludge flow more easily and prevent clogs that will cause the incinerator to shut down. However, when added while the incinerator is running, a slug of cold water can create a temperature shock to the refractory brick and cause it to crack.

The cracks in the refractory brick allowed excessive heat to escape from the incinerator which caused oil-soaked insulation on the nearby waste oil tank to smolder and eventually ignite.



Actual Damage

Repairs to the incinerator and to the incinerator room cost over \$17K. The damage was minimized by the quick action of the Third Assistant Engineer and the quick decision to use the water mist system.

Potential Damage

Had the third assistant engineer not been so attentive, the fire would have burned longer and the incinerator would possibly have been damaged beyond repair. Additionally, the fire could have spread to adjacent compartments. Repair costs could easily have exceeded \$200K.



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Prevention

- ★ Does your training emphasize safe operation of the incinerator and include awareness and precautions to prevent thermal shock to the refractory brick?
- ★ Is your crew reminded not to add water to the sludge tank when burning sludge to avoid thermal shock to the refractory brick?
- ★ Is the refractory brick regularly inspected and repaired as needed to ensure it is in good condition?
- ★ Are regular inspections and tests of the incinerator automation and safety devices conducted?

When you identify a hazard before something goes wrong...

it's a Good Catch.

When you stop an operation before something bad happens...

it's a Good Catch.

When you ensure the incinerator is in proper operating condition...

that's a Good Catch, too!



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