

## Spontaneous explosion of a plastic ruler

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There was a spontaneous brittle failure of a 30cm clear plastic ruler stored in an office drawer on a DSV.

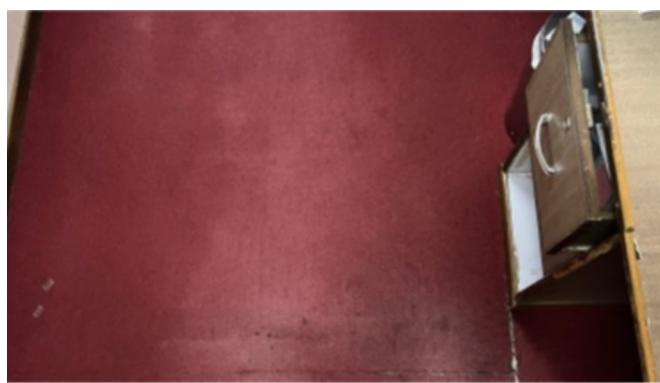
### What happened?

While working in an office onboard the vessel, the reporter observed that a clear 30 cm plastic ruler—stored flat inside a desk drawer—suddenly fractured into three main pieces and several smaller fragments. The event forced the drawer ajar and scattered fragments several metres across the office floor. No injury occurred, though potential hazards included eye injury from flying shards and minor lacerations from sharp edges.

Just when you thought office work was the safest gig in the world... the stationery decided to go BOOM!



*Detached end fragments*



*Carpet showing how far fragments travelled*

### What went wrong?

The ruler material (likely PMMA acrylic) is known to be brittle and susceptible to environmental stress cracking (ESC). Stored tension from compression in a confined drawer or long-term creep likely triggered a sudden brittle fracture. When the crack propagated through the ruler, elastic energy was released, forcing the drawer open and ejecting fragments. Acrylic's low elongation at break (~5%) explains the violent, "explosive" shatter pattern observed.

Although rare, similar spontaneous explosions of plastic have resulted in injuries. Anecdotal evidence indicates that this phenomenon can also occasionally occur in the tempered glass used in tables and elsewhere.

## Can there be any actions? Yes!

- Replace rigid acrylic rulers with polycarbonate “shatter-resistant” or metal types.
- Inspect and discard cracked or discoloured rulers.
- Avoid tightly packed drawers or solvent exposure.
- Be aware of the potential risks of brittle materials.

This event, though minor, highlights that even in the controlled environment of the office on board a DSV, unexpected failures can occur. The spontaneous fracture of a simple ruler demonstrated a genuine potential for eye injury and lacerations, reminding all personnel that safety vigilance applies everywhere — from the dive bell to the back office drawer.

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