



safe seas, safe shores

PYROTECHNICS

Essential equipment to ensure your safety at sea.



WHAT ARE PYROTECHNICS?

- The science of using self-contained exothermic chemical reactions.
- It is also the craft used to generate visual/audible signs at sea.
- Functionable last resort mechanisms used to draw attention at sea through light, sound or smoke emission.
- Pyrotechnics like hand flares, rocket parachute flares, and smoke signals are used at sea.



WHY ARE THEY IMPORTANT?

- When one's own ship is beyond saving, pyrotechnics is the last resort for the survival and rescue.
- The flares help raise an alarm quickly and safely to aid immediate help for passengers.
- Despite advanced tracking and location systems, they play an important role.



TYPES OF PYROTECHNICS

The type and number of pyrotechnics differs as per the vessel and the application.

RED HAND FLARES

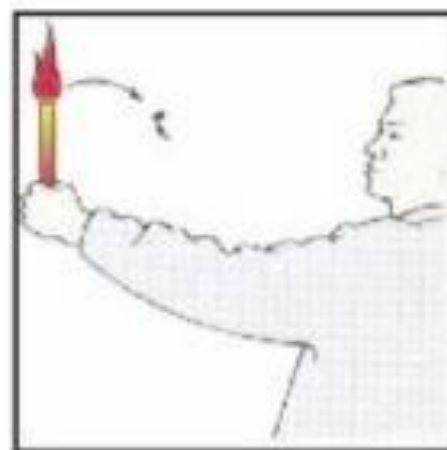
- Self-ignitable handheld distress signals
- Burn uniformly a red light for one minute.
- Water-resistant upto 10 seconds in shallow depths of up to 100 mm.
- Help pinpoint the exact location of the craft
- Should be held downwind when lighting



Open the lid.

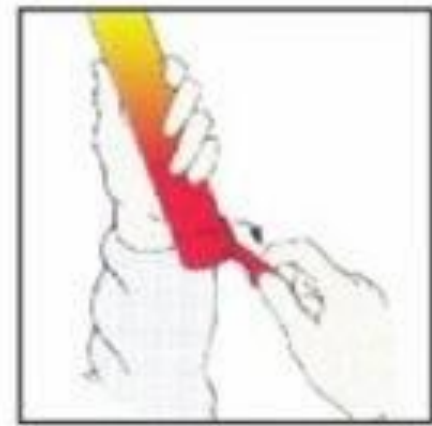


Pull the loop. The flare ignites after 2s delay.

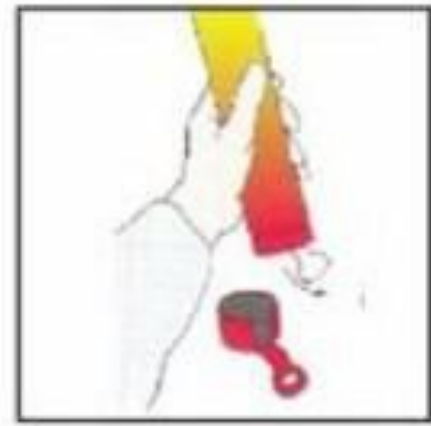


Hold the flare in your hand.

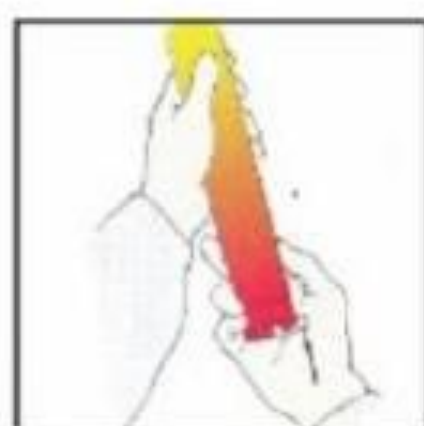
[Red-hand flare](#) and its directions for use



Remove bottom lid.



Trigger falls down.

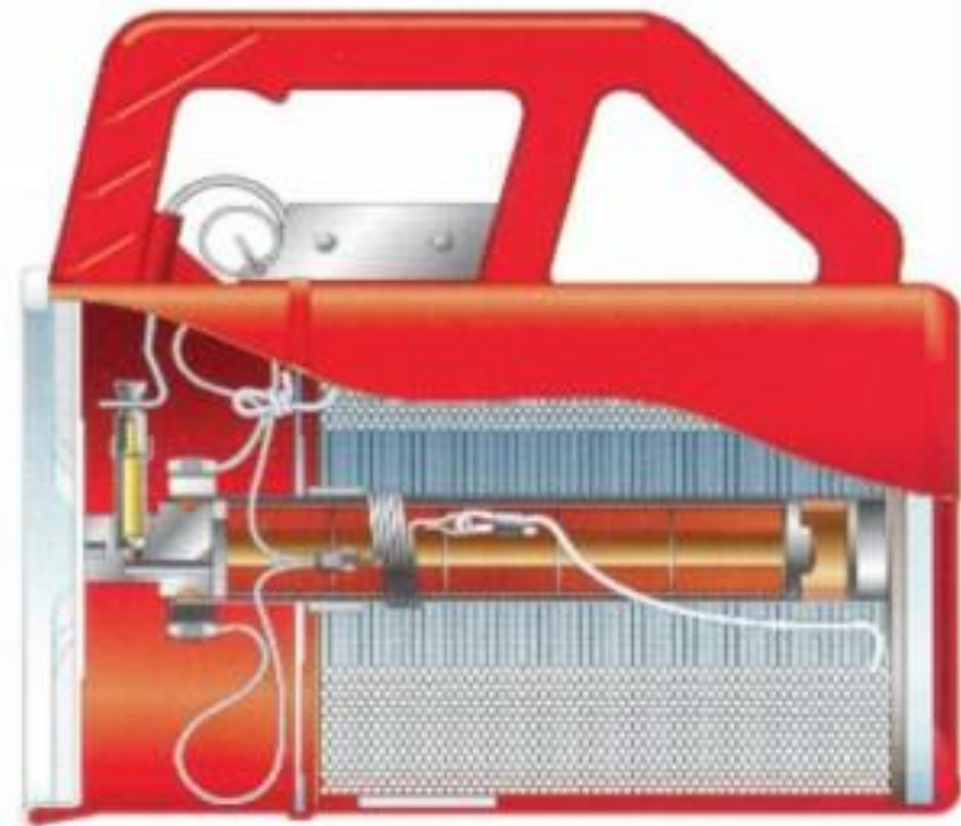


Squeeze trigger against
outer casing.

[Parachute Rocket](#) and its directions for use

ROCKET PARACHUTE FLARES

- Designed to reach a height of 300-350m when fired vertically
- The parachute with the flare opens and keep the flare visible for longer
- Self-ignitable design does not let it catch fire and has a maximum descent rate of 5mtr/sec.
- The flare lasts upto 40secs.



Remove safety pin.



Keep arrows on the line-thrower parallel to the deck/ground. Press the line-thrower against your thigh.

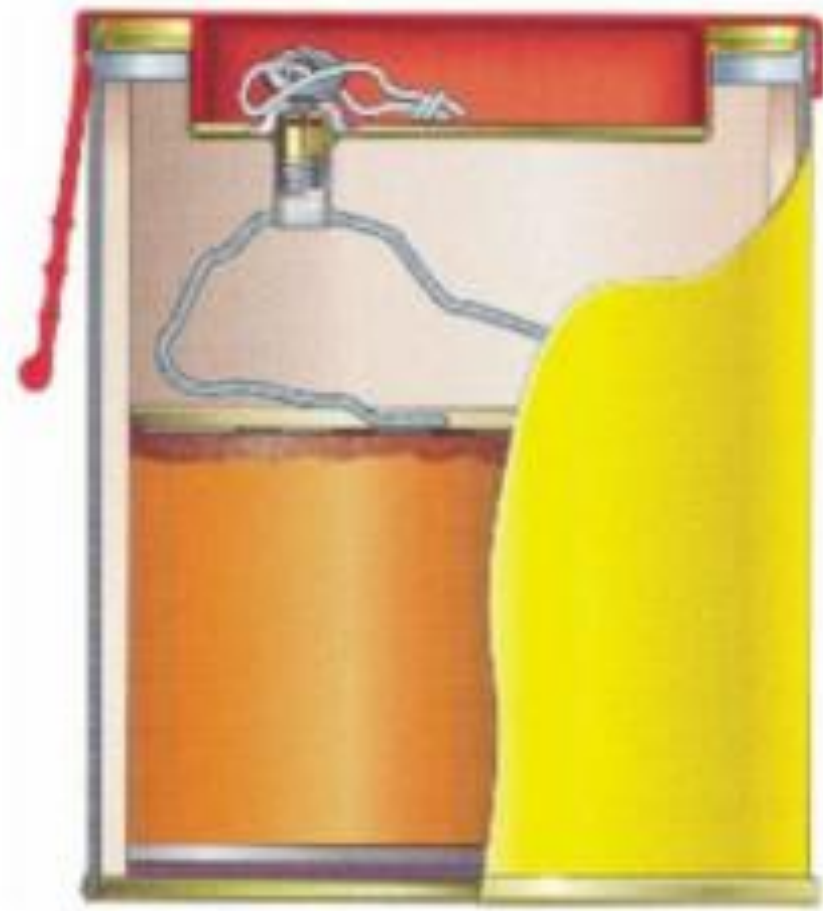


Pull trigger.

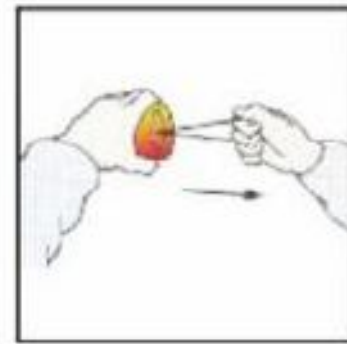
LINE-THROWING APPLIANCES

- Used to create a safety link between the ship in distress and the rescue ship.
- These are used to pass towing lines or safety equipment.
- Able to carry the line for at least 230 mts in calm weather
- Have at least four projectiles.

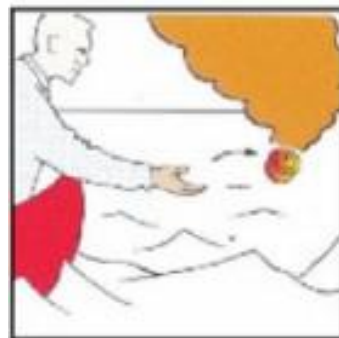
[Line-thrower](#) and its directions for use



Remove the lid.



Pull the loop.



Throw the signal into the water.

BUOYANT SMOKE SIGNALS

- Red/Orange smoke signals that can last upto 15 mins.
- Don't emit flames or sparks in the hands of the holder.
Used to pinpoint the location of the vessel
- Not suitable in adverse weather

[Buoyant Smoke](#) and its directions for use

MAN OVERBOARD SIGNAL SMOKE MARKERS (MOBS)

- Mark the position of a man overboard by day or night.
- Ships shall carry 2 markers.
- Laser flares, navigation and distress lights are used to locate vessel.
- Exhibit a light burning time of upto 2 hours.



Method 1

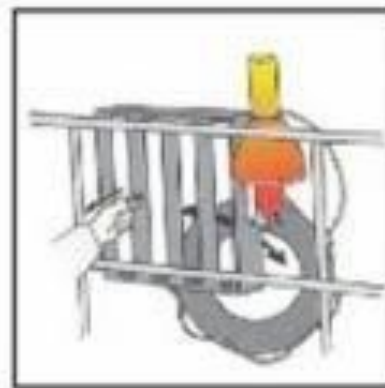


Remove lifebouy.

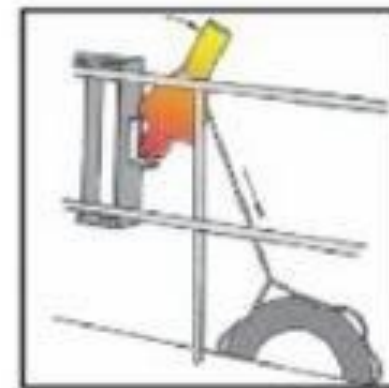


Throw lifebouy overboard.

Method 2



Pull out lock pin.



Lifebouy pulls the signal with it.

[Man-overboard Light](#) & Smoke and its directions for use

HOW to use pyrotechnics in AN EMERGENCY?



When using pyrotechnics in emergencies, one needs to use them efficiently and safely (Refer the slides above for steps to use pyrotechnics).

It is advised to face the back to the wind and extend the hand at 45° above water surface. Also, once ignited make sure the flare is held away from your face.



The logo for SHM, consisting of the letters 'SHM' in white on a red, stylized banner.

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PYROTECHNICS MAINTENANCE

WHAT TO KEEP IN MIND TO STORE AND MAINTAIN PYROTECHNICS ON BOARD:

- Safety brief to the personnel on board with regard to pyrotechnics usage is a must.
- As per LSA maintenance schedule, maintenance should be done every 2-3 weeks.
- Must be kept in safe storage with the cases properly shut.
- Store in an accessible dry place.
- Keep flares away from fuel or combustibles.



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POST USE, EFFICIENT DISPOSAL IS KEY



WHY IS DISPOSAL IMPORTANT?

- Along with presence, the disposal of pyrotechnics is equally crucial.
- Replacement after the expiration period of 3 years helps avoid fraudulent tampering.
- Incautiously disposed expired marine distress signals are environmental hazards.
- Regular checks for validity help keep safety in check.



For More Details Visit : [Pyrotechnics Disposal](#)

Here are simple steps to dispose Pyrotechnics efficiently :

● Identify expired Pyrotechnics on board - be it liferafts, boats or ships.

● Contact SHM Shipcare centre for handover or pick-up.

● Disposal is carried out at the licensed facility.

● Certificate of Disposal is given to owner.

SOLAS REQUIREMENTS

The IMO issues regulations for commercial ships, which includes SOLAS regulations and COLREGS (the International Regulations for Preventing Collisions at Sea).

These standards for shipping specify the requirements for a range of SOLAS approved pyrotechnics to be carried on board, with the range and quantity varying depending on the vessel's size.

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SOLAS REQUIREMENTS FOR VESSELS CARRYING PYROTECHNICS

At least **12 parachute rockets**, in accordance with the requirements of **Section 3.1 SOLAS**

In addition, each lifeboat should contain: **2 floating smoke bombs, 4 parachute rockets and 6 false guns.**

SOLAS-LSA codes require the expiry date, manufacturing date and batch number marked when device is sold.



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