

Title	IMDG Code 2016 / SUPPLEMENT / The EmS Guide / Emergency Schedules for FIRE
Effective Date	1-1-2012
Invalid from	1-1-2014
Note	Incorporating Amendment 35-10

F -AA		
GENERAL FIRE SCHEDULE		
General comments		In a fire, exposed cargoes may explode or their containment may rupture. Fight fire from a protected position from as far away as possible.
Cargo on fire on deck	Packages	Create water spray from as many hoses as possible.
	Cargo Transport Units	
Cargo on fire under deck		Stop ventilation and close hatches. Use cargo space fixed fire-extinguishing system. If this is not available, create water spray using copious quantities of water.
Cargo exposed to fire		If practicable, remove or jettison packages which are likely to be involved in fire. Otherwise, keep cool using water.
Special cases:		
UN 1381, UN 2447		After extinguishing the fire, treat immediately as for spillage (see relevant EmS SPILLAGE SCHEDULE).
F -AB		
EXPLOSIVE SUBSTANCES AND ARTICLES		
General comments		In a fire, exposed cargoes may explode or their containment may rupture. Fight fire from a protected position from as far away as possible. All crew members should be made aware of the explosion hazard and instructed to take appropriate action. SUDDEN OR SHORT-TERM EVENTS (E.G. EXPLOSIONS) MAY ENDANGER THE SAFETY OF THE SHIP.
Cargo on fire on deck	Packages	Use copious quantities of water from as many hoses as possible. Cargo will explode or burn fiercely. Extinguishing may not be possible.
	Cargo Transport Units	
Cargo on fire under deck		Cargo will explode or burn fiercely. Extinguishing will not be possible. Stop ventilation and close hatches. Use cargo space fixed fire-extinguishing system. If this is not available, create water spray using copious quantities of water.
Cargo exposed to fire		Do not move packages that have been exposed to heat. If practicable, remove or jettison packages which are likely to be involved in the fire. If the packages are not directly involved in the fire, efforts should be concentrated on preventing the fire from reaching the cargo. This is done by keeping the packages wet by using water jets from as far away as practicable to drive the fire away. If the fire reaches the cargo, the fire-fighters should withdraw to a safe area and continue to fight the fire. Where practicable, articles having been exposed to the fire should be kept separated from unexposed articles. They should be kept wet and monitored from a safe distance.
Special cases:		
UN 0018, UN 0019,		Ammunition producing tear or toxic gas. The crew should be aware of the hazard.
UN 0020, UN 0021, UN 0301		After explosion, only self-contained breathing apparatus will protect efficiently. Consult SPILLAGE SCHEDULE S-Z.
UN 0248, UN 0249		These water-activated devices will become more liable to explosion on contact with water.
UN 3268		AIR BAG INFLATORS / MODULES PYROTECHNIC could be subject to selfsustaining decomposition if heated. The temperature could reach 500°C, producing gas. This process may lead to an explosion of the cargo even after the exposure to heat has ended.
F -AC		
NON-FLAMMABLE GASES		
General comments		Gases in closed tanks exposed to heat may explode suddenly in or after a fire situation by a Boiling Liquid-Expanding Vapour Explosion (BLEVE). Heated or ruptured cylinders may rocket. Gases listed under this schedule are non-flammable. However, some gases will support combustion though not flammable itself. Fire may produce leakages. Most gases allocated to this schedule are hazardous to health. Some are corrosive. Create water spray. Identify the source of the fire and take appropriate action.
Cargo on fire on deck	Packages	Use copious quantities of water from as many hoses as possible.
	Cargo Transport Units	
Cargo on fire under deck		Use fixed fire-extinguishing system.
Cargo exposed to fire		If practicable, remove or jettison packages which are likely to be involved in the fire. Otherwise, cool for several hours using water. Heated or ruptured cylinders may rocket.
Special cases:		

UN 1003, UN 1070, UN 1072, UN 1073, UN 2201, UN 3156, UN 3157,		Although these cargoes are non-flammable, they will intensify the fire.
F -AD		
FLAMMABLE GASES		
General comments		Gases in closed tanks exposed to heat may explode suddenly in or after a fire situation by a Boiling Liquid-Expanding Vapour Explosion (BLEVE). Crew members should be aware of the explosion hazard and take appropriate action. Keep tanks cool with copious quantities of water. Fight fire from a protected position from as far away as possible. Extinguishing a burning gas leak may lead to the formation of an explosive atmosphere. Flames may be invisible.
Cargo on fire on deck	Packages	Create water spray from as many hoses as possible. Do not try to extinguish a gas flame.
	Cargo Transport Units	Cool burning transport units and nearby cargo exposed to the fire with copious quantities of water. Do not try to extinguish a gas flame.
Cargo on fire under deck		Stop ventilation and close hatches. Use cargo space fixed fire-extinguishing system. If this is not available, create water spray using copious quantities of water.
Cargo exposed to fire		If practicable, remove or jettison packages which are likely to be involved in the fire. Otherwise, keep cool for several hours using water.
Special cases:		
UN 1038, UN 1075, UN 1965, UN 1966, UN 1972, UN 3138, UN 3160, UN 3309, UN 3312		SUDDEN OR SHORT-TERM EVENTS (E.G. EXPLOSIONS) MAY ENDANGER THE SAFETY OF THE SHIP.
UN 1001, UN 3374		Acetylene is a gas which is particularly dangerous due to its potential to explode. Rough handling or local heating may lead to delayed explosion. Keep cool for several hours using water. Do not move receptacles. All cylinders that have been subjected to rough handling or to local heating should be jettisoned.
F -AE		
NON-WATER REACTIVE FLAMMABLE LIQUIDS		
General comments		Cargoes in tanks exposed to heat may explode suddenly in or after a fire situation by a Boiling Liquid-Expanding Vapour Explosion (BLEVE). Keep tanks cool with copious quantities of water. Fight fire from a protected position from as far away as possible. Stop leakage or close open valve if practicable. Flames may be invisible.
Cargo on fire on deck	Packages	Create water spray from as many hoses as possible.
	Cargo Transport Units	Cool burning transport units and nearby cargo exposed to the fire with copious quantities of water.
Cargo on fire under deck		Stop ventilation and close hatches. Use cargo space fixed fire-extinguishing system. If this is not available, create water spray using copious quantities of water.
Cargo exposed to fire		If practicable, remove or jettison packages which are likely to be involved in the fire. Otherwise, keep cool for several hours using water.
Special cases:		
UN 1162, UN 1250, UN 1298, UN 1717, UN 2985		Cargoes will create hydrochloric acid in contact with water: stay away from effluent.
F -AF		
NON-WATER REACTIVE FLAMMABLE LIQUIDS		
General comments		Exposed cargoes may decompose violently. Crew members should be aware of the explosion hazard and take appropriate action. Fight fire from a protected position from as far away as possible. Switch off electrical power supplies only during fire fighting. Check temperature readings if possible. Measures have to be taken to alert the crew when the temperature of the cargo increases. In case of a temperature increase or smoke evolution, follow the relevant instructions. Contact the manufacturer (consignor) of the cargo as soon as possible.
Cargo on fire on deck	Packages	Not applicable.
	Cargo Transport Units	Cool burning transport units and nearby cargo exposed to the fire with copious quantities of water. After the fire has been extinguished, do not open the unit until well after smoke evolution has ceased. If possible, restore cooling. Keep under surveillance.
Cargo on fire under deck		Not applicable. According to the IMDG Code under deck stowage is not allowed. Radio for expert ADVICE.
Cargo exposed to fire	Cargo Transport Units with IBCs, Packages	Cool units exposed to fire with water. After the fire has been extinguished, check and restore cooling. Keep under surveillance. Check temperature frequently. In case of temperature increase or smoke evolution, follow the relevant instructions.
	Tanks	Keep personnel away from tanks as liquid maybe ejected from relief arrangements. Cool units exposed to fire with copious quantities of water. After the fire has been extinguished, check and restore cooling. Keep under surveillance. After the fire has been extinguished, water spray should be continued to cool down the outer parts of the tanks. Check refrigeration unit, keep tanks under surveillance. Check temperature frequently.
		If the control temperature is exceeded, the refrigeration unit has to be inspected (consult manual) and repaired. If not possible and/or temperature control cannot be

Temperature increase	Cargo Transport Units with IBCs, Packages	restored, contact the manufacturer of the cargo. If the emergency temperature is reached but the refrigeration unit is operating correctly contact the manufacturer of the cargo and consider disposal of packagings. Keep fire fighting team on stand-by. If the emergency temperature is reached due to cooling unit failure, contact the manufacturer of the cargo. When emergency temperature is reached 12 hours are left for repairing the cooling unit and/or disposal of packaging. After that time, keep a safe distance and prepare for fire-fighting.
	Tanks	If the control temperature is exceeded, the refrigeration unit has to be inspected (consult manual) and repaired. If not possible and/or temperature control cannot be restored, contact manufacturer of the cargo. If the emergency temperature is reached but the refrigeration unit is operating correctly contact the manufacturer of the cargo. Keep at a safe distance and consider emptying of tank overboard via bottom outlet using a flexible hose. If the emergency temperature is reached due to failure of the cooling unit, repairs may be undertaken as long as the temperature has exceeded the emergency temperature by 5oC. After that consider emptying the tank using a flexible hose attached to the bottom opening of the tank if provided.
Smoke evolution	Cargo Transport Units with IBCs, Packages	Keep fire -fighting team on stand-by. The freight container should not be approached. When smoke evolution increases, keep safe distance and prepare for fire fighting. After smoke has ceased, check refrigeration system. Follow guidelines for temperature increase. Keep under surveillance as new smoke evolution might take place.
	Tanks	Keep personnel away from the tank as liquid may be ejected from relief arrangements. Cool unit exposed to fire with water. Use water-spray from a protected position. In case smoke or pressure relief venting is moderate and temperature is below the emergency temperature, consider emptying the tank overboard via bottom outlet, using a flexible hose. Even when smoke evolution or pressure relief venting has ceased, water spray should be continued for some hours and the tank should be kept under surveillance, as new smoke evolution might take place.
Special cases:		None.
F - ÂG		
WATER REACTIVE SUBSTANCES		
General comments		In a fire, exposed cargoes may explode or their containment may rupture. Fight fire from a protected position from as far away as possible. Use of copious quantities of water at once is recommended to cool down the heat radiation of the fire and to cool down heated cargo nearby. Only as a secondary effect, water will start or intensify burning of that material. Do not use small quantities of water. This will react strongly.
Cargo on fire on deck	Packages	Do not use water or foam, smother with dry inert powdered material or let fire burn. If not practicable, cool nearby cargo with copious quantities of water, although burning of cargo could intensify for a short period of time. Do not spray small quantities of water onto the fire. Use copious quantities of water only.
	Cargo Transport Units	If the fire is not igniting nearby cargoes, let the fire burn. Otherwise, cool the burning transport unit with copious quantities of water. Try to avoid getting water into the container.
Cargo on fire under deck		Stop ventilation and close hatches. The fixed gas fire-extinguishing system should be used. If this is not available: Do not use water onto the material in enclosed spaces under deck. With open hatches, cool nearby cargo with copious quantities of water, although the fire could intensify for a short period of time. Do not spray small quantities of water onto the fire, use copious quantities of water.
Cargo exposed to fire		If practicable, remove or jettison packages which are likely to be involved in the fire. Otherwise, cool using water.
Special cases:		
UN 1415, UN 1418		LITHIUM, non-pyrophoric and MAGNESIUM POWDER require the use of dry Lithium chloride or dry sodium chloride or graphite powder to extinguish the fire. Do NOT use water or foam.
F - ÂH		
OXIDIZING SUBSTANCES WITH EXPLOSIVE POTENTIAL		
General comments		In a fire, exposed cargoes may explode or their containment may rupture. Crew members should be aware of the explosion hazard and take appropriate action. Fight fire from a protected position from as far away as possible. SUDDEN OR SHORT-TERM EVENTS (E.G. EXPLOSIONS) MAY ENDANGER THE SAFETY OF THE SHIP.
Cargo on fire on deck	Packages	Create water spray from as many hoses as possible.
	Cargo Transport Units	
Cargo on fire under deck		OPEN HATCHES to provide maximum ventilation. Fixed gas fire-extinguishing systems may not be effective on these fires. Create water-spray from as many hoses as possible.
Cargo exposed to fire		Do not move packages that have been exposed to heat. If practicable, remove or jettison packages which are likely to be involved in the fire. If the packages are not directly involved in the fire, efforts should be concentrated on preventing the fire from reaching the cargo. This is done by keeping the packages wet by using water jets from as far away as practicable to drive the fire away. If the fire reaches the cargo, the fire-fighters should withdraw to a safe area and continue to fight the fire from a safe position. Where practicable, articles having been exposed to the fire should be kept separated from unexposed articles. They should be kept wet and monitored from a safe distance.
Special cases:		None.
F - ÂI		
RADIOACTIVE MATERIAL		
		Evacuate compartment or downwind area of non-essential personnel. Do not touch damaged packages. In cases of suspected radioactive contamination, limit entry of fire fighters for the

General comments		shortest time possible. For ships carrying radiation monitoring equipment, measure radiation levels. Radio for expert ADVICE. After the fire has been extinguished clean ship's surfaces with copious quantities of water. Decontaminate fire fighters before protective clothing is removed. Isolate potentially contaminated clothing and equipment. If exposure of personnel is suspected, clean body and hair with warm water and soap; discharge resultant washings directly overboard. Record the names of potentially exposed persons. Ensure medical examination of these persons after reaching any medical staff. For ships carrying radiation monitoring equipment, continue monitoring of radiation levels after fire is extinguished.
Cargo on fire on deck	Packages	Create water spray from as many hoses as possible.
	Cargo Transport Units	Create water spray from as many hoses as possible. Cool burning transport units and nearby cargo exposed to the fire with copious quantities of water.
Cargo on fire under deck		Stop ventilation and close hatches. Use cargo space fixed fire-extinguishing system. If this is not available, create water-spray using copious quantities of water.
Cargo exposed to fire		If practicable, remove or jettison packages which are likely to be involved in the fire. Otherwise, cool for several hours using copious quantities of water.
Special cases:		
UN 2977, UN 2978		Chemical hazard greatly exceeds radiation hazard. Material reacts with moisture to form toxic and corrosive gas. The run-off may be corrosive. Keep clear. Exposed cargoes may explode in a fire. Create water-spray. Leak may be evident by visible and irritating vapours. Released vapours may also react violently with hydrocarbons (fuel).
UN 3332, UN 3333		If the source capsule is identified as being out of its packaging, do not touch. Stay away, minimize exposure to radiation by limiting time near material and by maximizing distance. Radio for expert ADVICE.
Subsidiary label class 4.2 or class 4.3		All radioactive material with subsidiary risk label 4.2 or 4.3 affixed (e.g. pyrophoric uranium or thorium metal): Radio for expert ADVICE. On deck: Do not use water onto the material. Cool nearby cargo with copious quantities of water, although the fire could intensify for a short period. Do not spray small quantities of water onto the fire, use copious quantities of water. Under deck: Stop ventilation and close hatches. The fixed gas fire-extinguishing system should be used. If this is not available, do not use water onto the material in enclosed spaces under deck. With open hatches, cool nearby cargo with copious quantities, although the fire could intensify for a short period. Do not spray small quantities of water onto the fire, use copious quantities of water only.
F - ٢٣		
NON-TEMPERATURE CONTROLLED SELF-REACTIVES AND ORGANIC PEROXIDES		
General comments		Exposed cargoes may decompose violently. Crew members should be aware of the explosion hazard and take appropriate action. Fight fire from a protected position from as far away as possible. Exposed cargoes may decompose violently in a fire.
Cargo on fire on deck	Packages	Not applicable.
	Cargo Transport Units	Cool burning transport units and nearby cargo exposed to the fire with copious quantities of water. After the fire has been extinguished, carry on water-spraying of the container for several hours. Do not open container until well after smoke evolution has ceased. After this, cool down packages or IBCs if practicable for at least one hour with water. Otherwise, check contents on regular intervals. In case smoke is evolved again, apply further water cooling. Dispose of residues overboard. Clean the area thoroughly. After the fire has been extinguished, keep cargo transport unit under surveillance.
Cargo on fire under deck		Not applicable - According to the IMDG Code under deck stowage is not allowed. Radio for expert ADVICE.
Cargo exposed to fire	Cargo Transport Units with IBCs, Packages	Cool unit exposed to the fire with water. After the fire has been extinguished, keep transport unit under surveillance. In case of smoke evolution, follow the relevant instructions.
	Tanks	Keep personnel away from tank as fluid ejection from relief arrangements might take place. Cool unit exposed to the fire with water. Contact the manufacturer (consignor) of the cargo. Cooling the tank should be continued until the temperature is below 50°C. Check temperature frequently. If temperature increases again, cool unit with water. Consider emptying the tank overboard via bottom outlet, using a flexible hose.
Smoke evolution	Cargo Transport Units with IBCs, Packages	Cool unit with water. Use water-spray from a protected position. Do not open the unit until well after smoke evolution has ceased. After this, cool down packages or IBCs if practicable for at least one hour with water. Otherwise, check contents on regular intervals. In case smoke is evolved again, apply further water cooling. Dispose of residues overboard. Clean the area thoroughly.
	Tanks	Keep personnel away from the tank as fluid ejection from relief arrangements might take place. Cool unit exposed to fire with water. Use water-spray from a protected position. Even when smoke evolution or pressure relief venting has ceased, cooling the tank should be continued until the temperature is below 50°C. Check temperature frequently. If temperature increases again, cool unit with water. Consider emptying tank overboard via bottom outlet, using a flexible hose.
Special cases:		None.