

# GUIDANCE FOR SEA TRANSPORT OF AMMONIUM NITRATE BASED FERTILIZERS



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# GUIDANCE FOR SEA TRANSPORT OF AMMONIUM NITRATE BASED FERTILIZERS

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## 1. SCOPE

This guidance describes safety practices recommended by Fertilizers Europe for sea transport (ship loading, transportation and discharging) of ammonium nitrate (AN) based fertilizers.

Reference is made to the following official publications:

- Recommendations on the Transport of Dangerous Goods: model regulations (UN Orange Book), 13th edition, United Nations, Geneva/New York, 2003
- Recommendations on the Transport of Dangerous Goods: Manual of Tests and Criteria, 3rd revised edition, United Nations, Geneva/New York, 1999
- IMO International Maritime Dangerous Goods Code (IMDG Code), 2002
- BC Code, Code of Safe Practice for Solid Bulk Cargoes, International Maritime Organisation (IMO), 2001.

## 2. DESCRIPTION OF PRODUCTS

### 2.1 Types of products

AN-based fertilizers are two main types:

- Straight nitrogen fertilizers

These products contain only nitrogen (N) as the principal plant nutrient. Typical products are Ammonium Nitrate (AN), Calcium Ammonium Nitrate (CAN) which are mixtures of AN and dolomite/limestone/calcium carbonate, and Ammonium Sulphate /Ammonium Nitrate (ASN) mixtures.

- Compound fertilizers: NPK/NP/NK

These products contain, in addition to nitrogen, at least one other nutrient such as phosphate (a source of P<sub>2</sub>O<sub>5</sub>) and/or potash (a source of K<sub>2</sub>O).

### 2.2 Methods of handling

Two main methods of handling are used (variations exist depending on national or port regulations):

- Packaged in IBCs of 500-1500 kg capacity, or in 25 or 50 kg bags on pallets with up to 1,5 ton load;
- Loose bulk.

### 2.3 Classification and legal requirements

All fertilizers fall into one of three categories:

- Oxidisers belonging to Class 5.1, UN Number 2067 (Type A)
- (This includes the former UN Numbers 2068, 2069 and 2070; these numbers are

allowed to be used during the transition period as specified by IMO.

- NPK/NP/NK fertilizers capable of self-sustaining decomposition belonging to Class 9, UN Number 2071 (Type B)
- Non-hazardous (Type C)

Compositions of fertilizers classified as dangerous goods are described below:

**UN Number 2067 (Type A fertilizers):**

- Straight nitrogen fertilizers containing AN > 80% and dolomite, limestone and/or calcium carbonate;
- Straight nitrogen fertilizers containing AN > 70% and other inorganic substances not covered above;
- Compound fertilizers (NPK, NP and NK) containing AN > 70%;
- Straight nitrogen fertilizers containing ammonium nitrate and ammonium sulphate (AS) in which  $45\% < AN < 70\%$  and  $AN + AS > 70\%$ .

See special provisions 186, 306, 307 in Chapter 3 of the UN Orange Book 13th edition 2003, or the IMO IMDG Code 2002 for details. In the latter see also the additional special provision 900 (ammonium nitrate liable to self-heating sufficient to initiate a decomposition is prohibited for transport).

UN Number 2067 includes the former UN Numbers 2068, 2069 and 2070, but it is permitted to use these numbers during the transition period as specified by IMO.

Fertilizers belonging to UN Number 2067, when transported in bulk by sea, need to pass the official UN Resistance to Detonation Test (see IMO BC Code 2001), and the test certificate must be kept. Several European countries demand the test certificate not to be older than 3 months.

**UN Number 2071 (Type B fertilizers)**

This entry is for sea transport of fertilizers, which are within the compositions given below and are found to be capable of self-sustaining decomposition in the UN Trough test (see IMO BC Code 2001 or UN Manual of Tests and Criteria, 3rd revised edition):

- NPK fertilizers with  $45\% < AN < 70\%$ , with not more than 0,4% combustible/organic materials;
- NPK fertilizers with AN < 45% with unrestricted combustible/organic materials.

See special provisions 186, 193 in Chapter 3 of the UN Orange Book 13th edition or the IMO IMDG Code 2002 for details.

Fertilizers belonging to UN Number 2071 must be tested in the Trough test to determine the speed of self-sustaining decomposition. Products with a speed of propagation of decomposition in excess of 25 cm/h as measured in this test, are not allowed to be transported by sea in bulk (see BC Code 2001).

### 3. POTENTIAL HAZARDS OF AN-BASED FERTILIZERS

The three main potential hazards of relevance for AN-based fertilizers are:

- Fire

Ammonium nitrate itself does not burn, but is an oxidising substance and as such can support combustion. The presence of combustible material is, therefore, necessary to have a fire involving ammonium nitrate. In case an AN-based fertilizer is involved in a fire, or if heated to a certain extent, the AN will decompose and provide oxygen, thus increasing the fire hazard. The decomposition hazard can increase if the product, particularly spillages, is contaminated with combustible materials such as coal, grain, sawdust or oil spills.

In a fire incident the fertilizer will decompose with the release of toxic gases such as NO<sub>x</sub>, ammonia, hydrogen chloride and nitric acid vapours.

- Decomposition

Under the influence of heat, AN-based fertilizer can chemically break down; - this is known as decomposition. The presence of a combustible substance is not necessary for the decomposition to take place. The decomposition hazard is dependent on the type of product, the temperature of the heat source, the duration of exposure to the heat source, and the containment of the fertilizer. There are certain compositions of compound fertilizers (NPK/NP/NK) which are capable of undergoing self-sustaining decomposition, i.e. once a hot source (e.g. a hot electric light bulb or hot welding material) has initiated the decomposition, the reaction in the fertilizer is thermally sufficiently energetic to continue on its own without further heat input from any outside source. Such fertilizers are described as Self-Sustaining Decomposition (SSD) type or 'cigar-burners'. Because of their relatively higher potential hazard they are classified as dangerous goods for sea transport. They are placed in UN Class 9 and are generally described as Type B fertilizers. The official UN Trough Test has been developed to determine this behaviour.

The decomposition hazard in straight- N fertilizers such as AN, CAN, ASN and in non-SSD type compound fertilizers (NPK, NP, NK) is dependent on contamination with sensitising materials such as chromates, chlorinated chemicals and various metals such as zinc and copper and their salts.

Decomposition is generally accompanied by the evolution of toxic gases such as NO<sub>x</sub>, ammonia, hydrogen chloride and nitric acid vapours.

- Explosion/detonation

AN and AN-based fertilizers are capable of detonating under certain conditions, requiring strong source of initiation. Standard good-quality fertilizer products have high resistance to denotation as shown by the official UN Resistance to Detonation test. This resistance, however, can be adversely affected by a number of factors, such as:

1. Substantially smaller particle size,
2. Higher porosity (hence a lower bulk density), and
3. High levels (above safe limits) of combustible, organic and other sensitising materials.

The addition of AS within certain limits generally increases the sensitivity to detonation.

Heating under severe confinement can also give rise to a potential explosion hazard.

## 4. RECOMMENDED SAFETY PRACTICES

### 4.1 Safety principles

With regard to the potential hazards described above the main safety principles applicable are:

- Avoidance of storage of combustible substances near fertilizers
- Avoidance of storage of incompatible substances near fertilizers
- Avoidance of cross contamination with remains of previous cargoes
- Avoidance of cross contamination of next cargo with fertilizer
- Avoidance of sources of heat likely to affect the fertilizer
- Avoidance of application of heat (e.g. welding) to any section which may have trapped/confined fertilizer

### 4.2 Chartering

Vessels to be chartered for carrying fertilizers should be assessed and approved based on company criteria for safety, in addition to official statutory requirements.

The Charter Party and/or the voyage instructions should include reference to requirements for safety inspections prior to loading, for precautions relating to the risk of decomposition of fertilizers, and for immediately informing the port authorities, coastguards and charterers/suppliers in case of an emergency involving the fertilizer cargo, arising at sea or in port.

### 4.3 Checklists for loading and unloading operations

Exporters and importers are advised to use checklists to ensure that all necessary safety precautions are taken for loading/transportation/unloading of AN-based fertilizers. Comprehensive checklists are given in Annexes 1 to 4 covering the main activities:

- Inspection of cargo holds prior to loading, see example in Annex 1;
- Ship/shore safety checklist, as per IMO's checklist for loading or unloading dry bulk cargo carriers, see Annex 2.
- For loading of fertilizers classified as dangerous goods (Types A and B), an additional checklist should be completed, see Annex 3 for Type A fertilizers and Annex 4 for Type B fertilizers.

### 4.4 Information to the Ship Master

Prior to loading of a ship, the following information should be communicated to the Ship Master by a terminal representative:

- Safety data sheet for the product(s) to be loaded, including reference to emergency contact on shore;

- Instruction on avoidance of heat sources, see Annex 5;
- Instruction on handling emergencies in case of decomposition onboard, see Annex 6.

The Master will, by completing and signing the checklist in Annex 2, confirm the receipt of this information.

## 4.5 Use of compact shovels, loaders or similar equipment in the ship's hold

Where a compact shovel or similar equipment is used for removing the bulk fertilizer and emptying the vessel's hold, the following precautions should be taken :

- A fire extinguisher should be provided on the loader;
- A collecting device for spill oil and grease should be fitted underneath;
- Flexible oil tubes should be inspected and checked for leaks;
- Spark arrestors should be fitted on the exhaust;
- No refuelling of the shovel/loader should be permitted in the ship's hold.

## 4.6 Emergency preparedness

For the best possible preparedness, it is recommended that the terminal operator, the port authority and the local fire services collaborate in the development of an emergency plan and in the training of handling incidents with AN-based fertilizers.

Terminals and ships storing/handling/carrying AN-based fertilizers should be equipped with high-pressure water lances (commonly known as Victor lance) to penetrate into a heap of fertilizer in case of a decomposition incident.

## 4.7 Action in case of decomposition and fire

Decomposition is indicated by the release of white/brownish fumes from the fertilizer mass. If a zone of slow decomposition or smouldering of the AN-based fertilizer should occur, the following steps should be taken immediately, whether this occurs at the terminal or onboard the ship:

- Look for the source of heat and, if found, turn it off or remove it.
- If the area (zone) of decomposing material is still small and easily accessible, an attempt may be made to remove it from the main heap of the fertilizer by the use of picks, shovels or ship grab, and to cool it down by localized quenching with water.
- If it is impossible to remove the decomposing mass, the fertilizer involved must be soaked as rapidly as possible with a large quantity of water preferably directed through high pressure jets against the centre of the decomposition. To fight the

decomposition by other means such as foam, carbon dioxide, steam, covering with sand or fertilizer, is useless and may even promote the decomposition.

- If fumes are present, self-containing breathing apparatus must be used . Special care must be taken when entering the ship's hold.

If the decomposition takes place on the ship, the following additional actions should be considered:

- The course of the ship should be chosen so that any harmful fumes evolved will drift as little as possible over the ship, especially towards the crew's quarters and the bridge. If the ship lies in a port it may be necessary to move it away from the inhabited area.
- The hatches should be opened to provide ventilation. A gas-tight closure of the affected hold must be avoided.
- If large quantities of water to control the decomposition are necessary, flooding of the hold should be considered, with due regard to induced forces and ship stability.
- If suppression of the slow decomposition should prove impractical, there will not necessarily be an immediate danger to the ship if the decomposition has to be left to come to an end in the affected hold. Suitable precautions should, however, be taken to prevent the spread of decomposition or fire to cargoes in adjacent holds.

In case a fire occurs onboard or in the storage, and the fertilizer is not involved, suitable means to extinguish the fire should be used depending on the combustible material involved. If, however, fertilizers are involved and decomposing, only water must be applied as per the guidance given above.

Instructions for dealing with fires taking place in other parts of the ship such as the engine room, living quarters are outside the scope this guidance; other appropriate guidance must be used.



## **APPENDICES**

- 1. Example of a checklist for the inspection of cargo holds prior to loading (for all fertilizers).**
- 2. Ship/Shore Safety Checklist (for all fertilizers)**
- 3. Ship/Shore Safety Checklist for Type A fertilizer  
(UN Number 2067 and former UN Numbers 2068, 2069 and 2070)**
- 4. Ship/Shore Safety Checklist for Type B fertilizer (UN Number 2071)**
- 5. Special warning concerning heat sources – for Master’s attention**
- 6. What to do in emergencies – for Master’s attention**

## APPENDIX 1

### Example of a checklist for the inspection of cargo holds prior to loading (for all fertilizers).

This inspection checklist has been issued solely for the purpose of charterer's internal use, and may not be relied upon by owners or any other party as evidence with respect to the condition of the vessel, and it may not be construed as a waiver of any of the charterer's rights under the Charter Party, applicable laws and or conventions.

Tick off cell if compliant with Charter Party ☐

Mark cell with X when not in compliance with Charter Party

Name of vessel:		Type of cargo:	
Year built:		UN No./IMDG class:	
Tonnes:		Loading port:	
Previous cargo:		Destination	

Type of holds:

Type of hatch covers:

Type of tank top:

	<b>The following holds have been inspected:</b>	HOLD	HOLD	HOLD	HOLD	HOLD
A	Condition of rubber gaskets					
B	Condition of compression bars					
C	Condition of draining canals/holes/pipes					
D	Condition of wedges/cleats					
E	Condition of hatch covers					
F	Condition of trimming holes on hatch covers					
G	Condition of hatch coaming					
H	Condition of hold					
I	Condition/Tightness of moveable bulkhead					
J	Hold ventilation closed					
K	Condition of entrance hatches/ladders					
L	Bilges empty					

M	Heat sources (lights, engines/pipelines etc)					
N	Availability of stevedores platform					
O	Electric circuits/lights in the holds turned off					
P	Ultrasound leak detector (ULD) test					

The following deficiencies must be rectified in order to comply with the terms agreed in the Charter Party:

	Name	Signature	Date	Time
Inspector				
Master				
Holds accepted for loading				

## Ship/Shore Safety Checklist (for all fertilizers)

Name of vessel:			
Berth:	Port:	Arrival draught:	Calculated departure draught:
Date of arrival:	Time of arrival:	Arrival air draught:	Departure air draught:
Type of cargo for loading/unloading (delete as appropriate):		Quantity for loading/unloading (delete as appropriate):	
<p><b>Disclaimer:</b> This checklist has been issued solely for the purpose of charterer's internal use, and may not be relied upon by owners or any other party as evidence with respect to the condition of the vessel, and it may not be construed as a waiver of any of the charterer's rights under the Charter Party, applicable laws and or conventions.</p> <p><b>Instructions for completion:</b> The safety of operations requires that all questions be answered affirmatively by ticking the box, by both the vessel representative and the terminal representative. If an affirmative answer is not possible, the reason should be given and an agreement should be reached upon appropriate precautions to be taken between the ship and the terminal. Where a question is not considered applicable, a note to the effect shall be inserted in the remarks column.</p>			

No.	Check point	Vessel	Terminal	Remarks
1	Is the depth of water at the berth, and the air draught, adequate for the cargo operations to be completed? (Air draught refers to max mast height for passing under bridges, and height required under loaders/unloaders at the berth)			
2	Are mooring arrangements adequate for all local effects of tide, current, weather, traffic and craft alongside?			
3	In emergency, is the ship able to leave the berth at any time?			
4	Is there safe access between the ship and wharf? Tended by Ship / Terminal (delete as appropriate)			
5	Is the agreed ship/terminal communication system operative? <i>Communication method:</i> <i>Language:</i> <i>Radio channels/phone numbers:</i>			
6	Are the liaison contact persons during operations positively identified? <i>Ship contact person(s):</i> <i>Shore contact person(s):</i> <i>Location:</i>			
7	Are adequate crew onboard, and adequate staff in the terminal, for emergency?			
8	Have any bunkering operations been advised and agreed, with restrictions if loading ammonium nitrate based fertilizers?			
9	Have any intended repairs to wharf or ship whilst alongside been advised and agreed, with restrictions on hot work when fertilizer containing ammonium nitrate is being loaded or onboard?			
10	Has the procedure for reporting and recording damage from cargo operations been agreed?			

11	Has the ship been provided with copies of port and terminal regulations, including safety and pollution requirements and details of emergency services?			
12	Has the shipper provided the Master with the properties of the cargo in accordance with the requirements of Chapter VI of SOLAS?			
13	Is the atmosphere safe in holds and enclosed spaces to which access may be required, have fumigated cargoes been identified, and has the need for monitoring of atmosphere been agreed by ship and terminal?			
14	Have the cargo handling capacity and any limits of travel for each loader/unloader been passed by the ship/terminal? <i>Loader no.           Rate           tonnes/hour</i> <i>Loader no.           Rate           tonnes/hour</i> <i>Loader no.           Rate           tonnes/hour</i>			
15	Has the cargo loading/unloading plan been calculated for all stages of loading/ballasting or unloading/ballasting? <i>Copy lodged with:</i>			
16	Have the holds to be worked been clearly identified in the loading and unloading plan, showing the sequence of work, and the grade and tonnage of cargo to be transferred each time the hold is worked?			
17	Has the need for trimming of cargo in the holds been discussed, and the method and extent been agreed?			
18	Do both ship and terminal understand and accept that if the ballast program becomes out of step with the cargo operation, it will be necessary to suspend cargo operation until the ballast operation has caught up?			
19	Have the intended procedures for removing cargo residues lodged in the holds while unloading, been explained to the ship and accepted?			
20	Have the procedures to adjust the final trim of the loading ship been decided and agreed? <i>Tonnage held by the terminal conveyor system:</i>			
21	Has the terminal been advised of the time required for the ship to prepare for sea, on completion of cargo work?			
22	Has the ship been advised on how to protect the fertilizer cargo from product quality damage during voyage?			
23	Has the ship received and accepted the following information prior to loading: (1) Safety Data Sheet? (2) Instruction to ship crew to concerning avoidance of heat sources when loading/unloading and carrying ammonium nitrate based fertilizers? (3) Instruction to ship crew for handling of emergencies involving the decomposition of ammonium nitrate based fertilizers?			

**Declaration:**

We have checked, where appropriate jointly, the items on this checklist, and have satisfied ourselves that the entries we have made are correct to the best of our knowledge, and arrangement have been made to carry out repetitive checks if necessary

**For Vessel:**

Name and rank:  
Signature:  
Date and time:

**For Terminal:**

Name and position:  
Signature:  
Date and time:

## APPENDIX 3

### Ship/Shore Safety Checklist for Type A fertilizer (UN Number 2067 and former UN Numbers 2068, 2069 and 2070)

(in addition to Annex 2: General Ship/Shore Checklist for all fertilizers)

<b>Name of vessel:</b>	
<b>Berth:</b>	<b>Port:</b>
<b>Date of arrival:</b>	<b>Time of arrival:</b>
<b>Type of cargo for loading/unloading (delete as appropriate):</b> <b>UN NUMBER:</b>	<b>Quantity for loading/unloading (delete as appropriate):</b>
<p><b>Disclaimer:</b> This checklist has been issued solely for the purpose of charterer's internal use, and may not be relied upon by owners or any other party as evidence with respect to the condition of the vessel, and it may not be construed as a waiver of any of the charterer's rights under the Charter Party, applicable laws and or conventions.</p> <p><b>Instructions for completion:</b> The safety of operations requires that all questions be answered affirmatively by ticking the box, by both the vessel representative and the terminal representative. If an affirmative answer is not possible, the reason should be given and an agreement should be reached upon appropriate precautions to be taken between the ship and the terminal. Where a question is not considered applicable, a note to the effect shall be inserted in the remarks column.</p>	

No.	Check point	Vessel	Terminal	Remarks
1	If carrying organic and/or combustible materials, is the fertilizer cargo separated from the organic/combustible cargo by a complete compartment or hold?			
2	If other cargo is present or will be loaded in the same cargo hold as the fertilizer, is the other cargo compatible with the fertilizer material?			
3	Is the crew on the vessel aware that no welding, burning, cutting, or other operation involving the use of fire, open flame, spark or arc producing equipment should be carried out on deck, in the hold entrance or in the neighbouring hold as long as the fertilizer is onboard?			
4	Is it ensured that no bunkering or pumping of fuel will occur whilst loading or if the cargo hold is not closed sea tight?			
5	Has the firepump sufficient water capacity, preferably 1 m3 per minute or more?			
6	Are fire hoses lead out and ready for immediate use?			
7	Is the crew informed that smoking is not allowed on deck and in the cargo holds as long as fertilizer is onboard?			
8	Are "No smoking" signs displayed onboard and ashore? (The sign onboard should stay in position as long as the fertilizer is onboard.)			
9	Is there a fire watch at the loading spot?			

10	Is the bulkhead between the cargo space and the engine room insulated according to class "A-60" standard or an equivalent arrangement approved by the competent authority?			
11	Is the official certificate stating that the vessel is approved for loading of the fertilizers, available onboard or made available by the agent?			
12	Is the cargo space free of wood and other combustible material?			
13	Have the fuel tanks next to and/or under the cargo hold been pressure tested and found free of any leakage?  Is the test certificate available onboard?			
14	Are electric lamps, cables and other electric equipment in the fertilizer cargo holds disconnected and fuses removed? (This situation must be maintained as long as fertilizer is onboard.)			
15	Are cargo holds for fertilizers clear of steam pipes and similar heat sources?			
16	Is the temperature of the product before loading below 40oC?			
17	Is the ship during daytime flying the red B flag and during nighttime showing a red light (360o)?			

**Declaration:**

We have checked, where appropriate jointly, the items on this checklist, and have satisfied ourselves that the entries we have made are correct to the best of our knowledge, and arrangement have been made to carry out repetitive checks if necessary.

**For Vessel:**

Name and rank:  
Signature:  
Date and time:

**For Terminal:**

Name and position:  
Signature:  
Date and time:

## APPENDIX 4

### Ship/Shore Safety Checklist for Type B fertilizer (UN Number 2071)

(in addition to Annex 2: General Ship/Shore Checklist for all fertilizers)

Name of vessel:			
Berth:	Port:	Arrival draught:	Calculated departure draught:
Date of arrival:	Time of arrival:	Arrival air draught:	Departure air draught:
Type of cargo for loading/unloading (delete as appropriate):		Quantity for loading/unloading (delete as appropriate):	
<p><b>Disclaimer:</b> This checklist has been issued solely for the purpose of charterer's internal use, and may not be relied upon by owners or any other party as evidence with respect to the condition of the vessel, and it may not be construed as a waiver of any of the charterer's rights under the Charter Party, applicable laws and or conventions.</p> <p><b>Instructions for completion:</b> The safety of operations requires that all questions be answered affirmatively by ticking the box, by both the vessel representative and the terminal representative. If an affirmative answer is not possible, the reason should be given and an agreement should be reached upon appropriate precautions to be taken between the ship and the terminal. Where a question is not considered applicable, a note to the effect shall be inserted in the remarks column.</p>			

No.	Check Point	Vessel	Terminal	Remarks
1	If carrying organic and/or combustible materials, is the fertilizer cargo separated from the organic/combustible cargo by a complete compartment or hold?			
2	If other cargo is present or will be loaded in the same cargo hold as the fertilizer, is the other cargo compatible with the fertilizer material?			
3	Is the crew on the vessel aware that no welding, burning, cutting, or other operation involving the use of fire, open flame, spark or arc producing equipment should be carried out on deck, in the hold entrance or in the neighbouring hold as long as the fertilizer is onboard?			
4	Is it ensured that no bunkering or pumping of fuel will occur whilst loading or if the cargo hold is not closed sea tight?			
5	Has the firepump sufficient water capacity, preferably 1 m3 per minute or more?			
6	Are fire hoses lead out and ready for immediate use?			
7	Is the crew informed that smoking is not allowed on deck and in the cargo holds as long as fertilizer is onboard?			
8	Are "No smoking" signs displayed onboard and ashore? (The sign onboard should stay in position as long as the fertilizer is onboard.)			
9	Is there a fire watch at the loading spot, where such local regulations applicable?			
10	If the vessel is not fitted with smoke detectors or other suitable detecting devices, will the fertilizer cargo holds be inspected at least every 4 hours as long as the fertilizer is onboard? (e.g. sniffing at ventilation ducts)			

11	If the fertilizer is separated from the engine room by means of metal plating, is the separation protected by means of fire retardant bags containing inert material or by any equivalent protection, approved by the competent authority?			
12	Is the official certificate stating that the vessel is approved for loading of the fertilizers, available onboard or made available by the agent?			
13	Is the cargo space free of wood and other combustible material?			
14	Is fuel oil contained in tanks adjacent to the fertilizer cargo hold prevented from being heated to more than 50oC?			
15	Are electric lamps, cables and other electric equipment in the fertilizer cargo holds disconnected and fuses removed? (This situation must be maintained as long as fertilizer is onboard.)			
16	Are cargo holds for fertilizers clear of steam pipes and similar heat sources?			
17	Are cargo holds with bagged fertilizers equipped with fans with ventilating capacity of 6 air changes per hour?			

**Declaration:**

We have checked, where appropriate jointly, the items on this checklist, and have satisfied ourselves that the entries we have made are correct to the best of our knowledge, and arrangement have been made to carry out repetitive checks if necessary.

**For Vessel:**

Name and rank:

Signature:

Date and time:

**For Terminal:**

Name and position:

Signature:

Date and time:

## APPENDIX 5

### Special warning concerning heat sources – for Master’s attention

**Disclaimer:**

This instruction has been issued solely for the purpose of charterers’ internal use, and may not be relied upon by owners or any other party as evidence with respect to the condition of the vessel, and it may not be construed as a waiver of any of the charterer’s rights under the Charter Party, applicable laws and or conventions.

**INSTRUCTION TO SHIP CREW  
CONCERNING AVOIDANCE OF HEAT SOURCES  
WHEN LOADING/UNLOADING AND CARRYING  
AMMONIUM NITRATE BASED FERTILIZERS**

All sources of heat must be kept away from ammonium nitrate based fertilizers, regardless of their classification. Potential heat sources are light bulbs, heating systems, steam pipes, electrical motors, live electrical cabling, naked flames, etc.

**Therefore:**

- **Switch off all light and heat sources in cargo holds prior to loading and during the whole voyage as long as the fertilizer is onboard.**
- **Remove electric fuses to cargo holds and keep them removed until cargo is unloaded.**
- **Do not allow welding or other hot work that can affect the fertilizer.**
- **Display ‘No Smoking’ signs.**



## APPENDIX 6

### What to do in emergencies – for Master's attention

**Disclaimer:**

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#### INSTRUCTION TO SHIP CREW FOR THE HANDLING OF EMERGENCIES INVOLVING THE DECOMPOSITION OF AMMONIUM NITRATE BASED FERTILIZERS

- If in port, contact the local emergency services.
- If at sea, contact the ship agent, shipping company or the supplier (as given on the safety data sheet).
- Avoid breathing fumes, as they may be toxic.
- Open hatches immediately to maximise ventilation.
- If possible, remove the heat source and extinguish the fire or decomposition.
- If possible, remove or separate the decomposing fertilizer material from the rest of the cargo, and drench it with water (salt or fresh).
- If not possible to remove or separate, drench the fertilizer in the cargo hold with water (salt or fresh). It is recommended to use water lances to penetrate the crust of decomposed fertilizers.
- DO NOT fight the decomposition by using foam, carbon dioxide, steam, sand or fertilizer.



**USE WATER ! NOT foam, CO<sub>2</sub>, steam, sand, fertilizer**



Product Stewardship is defined as “the management of the safety, health and environmental aspects of a product throughout its lifecycle in an ethically responsible way”. It is Responsible Care as applied to products. In our application of Product Stewardship we cover the total value chain, but also address additional issues such as Best Practices that are not necessarily just dealing with the product characteristics.

For the fertilizer industry, Product Stewardship is ensuring that fertilizers and their raw materials, additives and intermediate products are processed and manufactured, handled, stored, distributed and used in a safe way with regard to health, occupational and public safety, environment, and security. This includes supplying plant nutrients which satisfy society’s requirements for the safe production of food and animal feed.

The Product Stewardship Program of Fertilizers Europe provides:

- a guidance on how to establish a Product Stewardship Program on a Company level
- agreeing with Fertilizers Europe standards on the production, distribution, storage and use of fertilizers
- reference to EU legislation, industry practices and best available techniques

The scope is limited to EU legislation and does not cover any specific National Requirements.

The Product Stewardship Program covers mineral fertilizers, their raw materials and intermediate products.

[www.productstewardship.eu](http://www.productstewardship.eu)



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Group Fertilizers Europe

