Updated Amendments (06-21) of IMSBC Code

In April 2022, the International Maritime Organization (IMO) updated its International Maritime Solid Bulk Cargoes (IMSBC) Code with Resolution MSC.500 (105), providing amendments to the code which will enter into force on December 1, 2023. From January 1, 2023, ship operators may opt for voluntary compliance.

AMENDMENTS TO THE IMSBC CODE

The IMO Maritime Safety Committee adopted Resolution MSC.500 (105) containing a new set of amendments (Amendment 06-21) to the IMSBC Code. Ship owners, operators, managers and ship masters should be aware of these updates which will enter into force on **1 December 2023**, but may be applied by Administrations on a voluntary basis beginning 1 January 2023.

General Provisions Updates

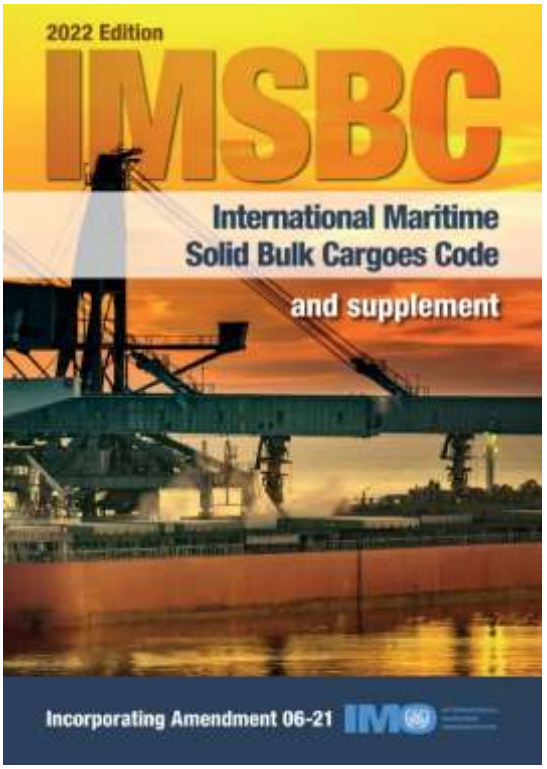
One of the main changes included in the amendments relates to the definition and information concerning Group A Cargoes, or cargoes that may liquefy or undergo dynamic separation. The updated definition of provisions are as follows.

Modified definitions

"***Group A*** consists of cargoes which possess a hazard due to moisture that may result in liquefaction or dynamic separation if shipped at a moisture content in excess of their transportable moisture limit."

"***Group C*** consists of cargoes which are classified as neither group A nor group B."

"***Transportable moisture limit (TML)*** of a group A cargo means the maximum moisture content of the cargo which is considered safe for carriage in ships not complying with the special provisions of 7.3.2. It is determined by the test procedures, approved by a competent authority, such as those specified in paragraph 1 of appendix 2."



New definitions:

"Cargoes which may ***undergo dynamic separation*** means cargoes which contain a certain proportion of fine particles and a certain amount of moisture, and may undergo dynamic separation if shipped at a moisture content in excess of their transportable moisture limit."

"***Dynamic separation*** means the phenomenon of forming a liquid slurry (water and fine solids) above the solid material, resulting in a free surface effect which may significantly affect the ship's stability."

Table 1

Newly Added solid bulk cargo list				
No.	**Bulk Cargo Shipping Name**	**Group**	**Hazard**	**Status**
1	AMMONIUM NITRATE BASED FERTILIZER[1]	C	-	New
2	AMMONIUM NITRATE BASED FERTILIZER MHB[2]	B	MHB	New
3	CLAM SHELL	C	-	New
4	LEACH RESIDUE CONTAINING LEAD	A and B	MHB	New
5	SUPERPHOSPHATE (triple, granular)	B	MHB	New
Deleted cargoes from solid bulk cargo list				
1	AMMONIUM NITRATE BASED FERTILIZER (non-hazardous)	C	-	Deleted
2	SUPERPHOSPHATE (triple, granular)	C	-	Deleted

1. It might be called briefly ANBF
2. Materials hazardous only in bulk

New cargo entries have been added to the IMSBC Appendix 1, "Individual schedule of solid bulk cargoes" and some solid bulk cargoes have been deleted from the list. Newly added solid bulk cargoes include ammonium nitrate-based fertilizer, clam shell and leach residue containing lead, among others. On the other hand, ammonium nitrate-based fertilizer (non-hazardous) and triple, granular superphosphate have been deleted from the list. **Table 1** demonstrates these “Newly added solid bulk cargo list”, and “Deleted cargoes from solid bulk cargo list”.

New Individual Schedules

Beside all the amendments on the existing individual schedules there are 5 new ones including:

1. **AMMONIUM NITRATE BASED FERTILIZER**
2. **AMMONIUM NITRATE BASED FERTILIZER MHB**
3. **CLAM SHELL**
4. **LEACH RESIDUE CONTAINING LEAD**
5. **SUPERPHOSPHATE (triple, granular)**

Appendix 1 of this technical information contains the details of these new individual schedules.

COMPLIANCE WITH RESOLUTION

Ship-owners and operators seeking early compliance with Resolution MSC.500 (105) may contact *Class* to review the addition or removal of cargoes from a vessel’s approved cargoes list. Compliance with the updated IMSBC Code will be mandatory beginning December 1, 2023. Deleted cargoes may be eliminated during a periodical survey after December 1, 2023, or may be removed from existing certificates at the early request of ship-owners or operators from January 1, 2023.

It is important to note that the "deleted" SUPERPHOSPHATE (triple, granular), as group C, will not be automatically accepted as the “new” SUPERPHOSPHATE (triple, granular), as group B and ship-owners/operators should request *Class* for review to add this new cargo in IMSBC certificates.

Moreover, there are additional changes to the requirements of twenty cargoes that are deemed to be of a minor in nature that may not affect the carriage of solid bulk cargoes already permitted on ships in service.

Impact to the vessel's certificates other than the IMSBC certificates

The changes to the IMSBC Code also have consequences to SOLAS Exemption Certificates based on MSC.1/Circ.1395/Rev.5, with new solid bulk cargoes categorized as group B in Table 1 of Annex to MSC.1/Circ.1395/Rev.5, for which gas fire-extinguishing system may be exempted.

Ship-owners and operators who intend to include newly added cargoes in their IMSBC certificates should re-issue or confirm their SOLAS Exemption Certificates for Fixed Fire-Extinguishing arrangement accordingly.

COMFORMITY PROCEDURE

1. Ship-owners and operators may request *Class* to re-issue their IMSBC certificates for the addition and/or deletion of the cargoes listed from January 1, 2023.
2. *Class* will confirm the removal of deleted cargoes from the shipboard IMSBC certificates and, where relevant, re-issuing them in consultation with ship-owners/operators on or after December 1, 2023, but not later than the first periodical Safety Equipment Survey.

APPENDIX 1

1. "AMMONIUM NITRATE BASED FERTILIZER"

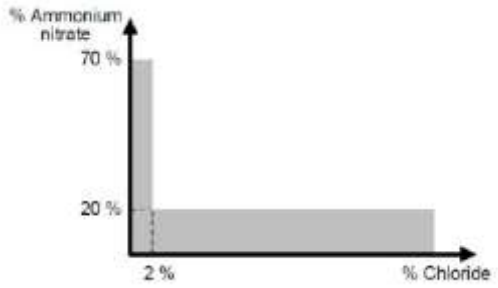
This schedule shall only apply to ammonium nitrate based fertilizers which do not meet any of the criteria on dangerous goods or materials hazardous only in bulk specified in 9.2.2 or 9.2.3 of this Code, respectively.
Ammonium nitrate based fertilizers transported in conditions mentioned in this schedule are straight nitrogen fertilizers or compound fertilizers within the following composition limits:

Straight nitrogen fertilizers containing less than 2% chloride, and

1. Not more than 70% ammonium nitrate with other inorganic materials; or
2. Not more than 80% ammonium nitrate mixed with calcium carbonate and/or dolomite and/or mineral calcium sulphate and not more than 0.4% total combustible organic material calculated as carbon; or
3. Mixtures of ammonium nitrate and ammonium sulphate with not more than 45% ammonium nitrate and not more than 0.4% total combustible organic material calculated as carbon.

Compound NPK/NK/NP fertilizers

1. mixtures of nitrogen with phosphate and/or potash containing not more than 70% ammonium nitrate and not more than 0.4% total combustible organic material calculated as carbon or not more than 45% ammonium-nitrate and unrestricted combustible material; and
2. either less than 20% of ammonium nitrate content or less than 2% of chloride (as indicated in the grey area of the figure for NPK/NP/NK fertilizers below).



The shipper shall declare the ammonium nitrate content and the chloride content in accordance with 4.2 of this Code.

Notwithstanding the above, fertilizers within these composition limits are not subject to the provisions of this schedule, if they are assigned class 9 due to the hazard of self-sustaining decomposition based on the results of the trough test (referred to in the UN Manual of Tests and Criteria, part III, section 39).

Description

Crystals, granules or prills. Non-cohesive when dry. Wholly or partly soluble in water. Common products, listed (non-exhaustive) under this schedule are:

1. Calcium ammonium nitrate;
2. Ammonium sulphate nitrate;
3. Ammonium nitrate with other sulphates (e.g. calcium or magnesium sulphate); and
4. Compound NPK/NP/NK fertilizer.

Characteristics

Physical properties			
Size	**Angle of response**	**Bulk density (kg/m3)**	**Stowage factor (m3/t)**
1 to 5 mm	27° to 42°	1.000 to 1.200	0.83 to 1.00
Hazard classification			
Class	**Subsidiary hazard(s)**	**MHB**	**Group**
Not applicable	Not applicable	Not applicable	C

Hazard

When this cargo is heated strongly, it will decompose and give off toxic gases with the risk of toxic fumes in the cargo hold, adjacent spaces and on deck. If decomposition is initiated in a localized area, it is highly unlikely to spread throughout the mass of the fertilizer.*

* For the hazards associated with the spread of decomposition, see the individual schedule for AMMONIUM NITRATE BASED FERTILIZER MHB.

Fertilizer dust might be irritating to skin and mucous membranes. It is a hygroscopic cargo and will cake if wet.

Stowage and segregation

"Separated from" sources of heat.

Hold cleanliness

Clean and dry as relevant to the hazards of the cargo.

Weather precautions

This cargo shall be kept as dry as practicable. This cargo shall not be handled during precipitation. During handling of this cargo, all non-working hatches of the cargo spaces into which this cargo is loaded, or to be loaded, shall be closed.

Loading

Trim in accordance with the relevant provisions required under sections 4 and 5 of this Code.

Precautions

"NO SMOKING" signs shall be displayed on deck whenever this cargo is on board. Smoking shall not be allowed on deck and in the cargo spaces.

No welding, burning, cutting or other operations involving the use of fire, open flame, spark or arc-producing equipment shall be carried out on equipment or structures in direct contact with the fertilizer.

In order to avoid heating the cargo, all electrical equipment or other equipment capable of developing heat, other than that of approved safe type, in the cargo spaces to be used for this cargo shall be electrically disconnected from the power source, by appropriate means other than a fuse, at a point external to the space. This situation shall be maintained while the cargo is on board.

Appropriate precautions shall be taken to protect machinery and accommodation spaces from the dust of the cargo. Bilge wells of the cargo spaces shall be protected from ingress of the cargo. Due consideration shall be given to protect equipment from the dust of the cargo. Persons who may be exposed to the dust of the cargo shall wear goggles or other equivalent dust eye-protection and dust filter masks. Those persons shall wear protective clothing, as necessary.

Ventilation
The cargo spaces carrying this cargo shall not be ventilated during voyage, except in an emergency.

Carriage
No special requirements.

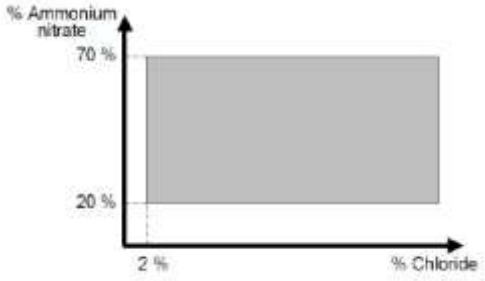
Discharge
This cargo is hygroscopic and may cake in overhangs, impairing safety during discharge.
If this cargo has hardened, it shall be trimmed to avoid the formation of overhangs, as necessary.

Clean-up
After discharge of this cargo, the bilge wells and the scuppers of the cargo spaces shall be checked and any blockage in the bilge wells and the scuppers shall be removed."

2. "AMMONIUM NITRATE BASED FERTILIZER MHB"

Ammonium nitrate based fertilizers transported under conditions mentioned in this schedule are uniform mixtures of nitrogen with or without potash and/or phosphate within the following composition limits:

1. not more than 70% ammonium nitrate and not more than 0.4% total combustible organic material calculated as carbon or not more than 45% ammonium nitrate and unrestricted combustible material; and
2. Both the ammonium nitrate content is equal to or greater than 20% and the chloride content is equal to or greater than 2% (as indicated in the grey area of the figure below).



The shipper shall declare the ammonium nitrate content and the chloride content in accordance with 4.2 of this Code. Notwithstanding the above, fertilizers within these composition limits are not subject to the provisions of this schedule, if they are assigned class 9 due to the hazard of self-sustaining decomposition based on the results of the trough test (referred to in the UN Manual of Tests and Criteria, part III, section 39).

Description

Crystals, granules or prills. Non-cohesive when dry. Wholly or partly soluble in water. Common products listed under this schedule are compound NPK/NK fertilizers.

Characteristics

Physical properties			
Size	**Angle of response**	**Bulk density (kg/m3)**	**Stowage factor (m3/t)**
1 to 5 mm	27° to 42°	1.000 to 1.200	0.83 to 1.00
Hazard classification			
Class	**Subsidiary hazard(s)**	**MHB**	**Group**
Not applicable	Not applicable	OH	B

Hazard

Although this cargo passes the trough test (referred to in the UN Manual of Tests and Criteria, part III, section 39), and hence does not fall in class 9, when carried in bulk in large quantities, it may still be subject to decomposition if strongly heated from external sources. Once initiated, decomposition might gradually spread through the remainder of the cargo, producing large volumes of toxic gases.

This cargo is not subject to an explosion hazard.

Fertilizer dust might be irritating to skin and mucous membranes. It is hygroscopic cargo and will cake if wet.

Stowage and segregation

Ạ Separated from Ạ sources of heat (see also Loading). Not to be stowed immediately adjacent to any tank, double bottom or pipe containing heated fuel oil, unless there are permanent means and procedures to monitor and control the temperature so that it does not exceed 50°C. Fertilizers of this type shall be stowed out of direct contact with a metal engine-room boundary. This may be done, for example, by using flame-retardant bags containing inert materials or by any equivalent arrangement approved by the competent authority of the country of origin. This requirement does not apply if the bulkhead is class A-60 or to short international voyages.

The hatches of the cargo spaces, including those of 'tween decks, shall be kept free at all times. In case of an emergency, whenever this material is on board, opening the hatches must be enabled (see 9.3.1.13 of this Code).

Hold cleanliness

Clean and dry as relevant to the hazards of the cargo.

Weather precautions

This cargo shall be kept as dry as practicable. This cargo shall not be handled during precipitation. During handling of this cargo, all non-working hatches of the cargo spaces into which this cargo is loaded, or is to be loaded, shall be closed.

Loading

Trim in accordance with the relevant provisions required under sections 4 and 5 of this Code.

Prior to loading, the following provisions shall be complied with

Prior to loading, the following provisions shall be complied with In order to avoid heating up of the cargo, all electrical equipment or other equipment capable of developing heat, other than that of approved safe type, in the cargo spaces to be used for this cargo, shall be electrically disconnected from the power source, by appropriate means other than a fuse, at a point external to the space. This situation shall be maintained while the cargo is on board.

Due consideration shall be given to the necessity to open hatches in case of decomposition to provide maximum ventilation, release pressure and heat, and slow down the reaction.

During loading, the following provisions shall be complied with

Organic contamination aggravates decomposition behavior in the presence of sources of heat, and therefore bunkering of fuel oil shall not be allowed during loading.

Pumping of fuel oil in spaces adjacent to the cargo spaces for this cargo, other than the engine-room, shall not be allowed.

Precautions

Ạ NO SMOKINGẠ signs shall be displayed on deck whenever this cargo is on board. Smoking shall not be allowed on deck and in the cargo spaces.

No welding, burning, cutting or other operations involving the use of fire, open flame, spark or arc-producing equipment shall be carried out on equipment or structures in direct contact with the fertilizer.

The master and officers are to note that the ship's fixed gas fire-fighting installation will be ineffective on decompositions involving this cargo and must not be used. If decomposition is identified, water must be applied without delay. Injection to the seat of decomposition is the first control measure because it uses less water and can be more effective in early decomposition stages. Total flooding is the final control measure but can introduce stability and stress issues. The consequential risk to the stability of the ship through fluidization of the cargo must be taken into account in both cases. Application of water to the surface of the cargo is much less effective and can give a false sense of safety.

Appropriate precautions shall be taken to protect machinery and accommodation spaces from the dust of the cargo.

Bilge wells of the cargo spaces shall be protected from ingress of the cargo. Due consideration shall be given to protect equipment from the dust of the cargo. Persons who may be exposed to the dust of the cargo shall wear goggles or other equivalent dust eye-protection and dust filter masks. Those persons shall wear protective clothing, as necessary.

Ventilation

The cargo spaces carrying this cargo shall not be ventilated during the voyage, except in an emergency.

Carriage

There shall be a daily monitoring, recording and assessment of the trends of the cargo temperature and oxygen concentration in the cargo space(s) throughout the voyage.
Increase of temperature and decrease of oxygen concentration give an early indication of a decomposition. In addition, should decomposition occur, the residue left after decomposition may have only half the mass of the original cargo. Due consideration shall be given to the effect of the loss of mass on the stability of the ship.

Discharge

Organic contamination aggravates decomposition behavior in the presence of sources of heat, and therefore bunkering of fuel oil shall not be allowed during discharge.
Pumping of fuel oil in spaces adjacent to the cargo spaces for this cargo, other than the engine-room, shall not be allowed during discharge.
This cargo is hygroscopic and may cake in overhangs, impairing safety during discharge.
If this cargo has hardened, it shall be trimmed to avoid the formation of overhangs, as necessary.

Clean-up

After discharge of this cargo, the bilge wells and the scuppers of the cargo spaces shall be checked, and any blockage in the bilge wells and the scuppers shall be removed.

Emergency procedures

Special emergency equipment to be carried Protective clothing (boots, gloves, coveralls and headgear) Self-contained breathing apparatus
Emergency procedures Wear protective clothing and self-contained breathing apparatus **Emergency action in the event of fire or decomposition** ***Decomposition in a cargo space containing this material***: The master and officers are to note that the ship's fixed gas firefighting installation will be ineffective on decompositions involving this cargo and must not be used. If decomposition is identified, water must be applied without delay. Injection to the seat of decomposition is the first control measure (e.g. using Victor lance) because it uses less water and can be more effective in early decomposition stages. Total flooding is the final control measure but can introduce stability and stress issues. The consequential risk to the stability of the ship through fluidization of the cargo must be taken into account in both cases. Application of water to the surface of the cargo is much less effective and can give a false sense of safety. ***Fire in an adjacent cargo space***: Heat transferred from fire in an adjacent space can cause the material to decompose with consequent evolution of toxic fumes. Open hatches to provide maximum ventilation. Dividing bulkheads should be cooled. **Medical first aid** Refer to the *Medical First Aid Guide* (MFAG), as amended

3. "CLAM SHELL"

This schedule shall only apply to whole clam shells.

Description

This cargo is a by-product generated in the process of clam farming. Dark grey to beige, granular in form, not soluble, solid and natural material.

Characteristics

Physical properties			
Size	**Angle of response**	**Bulk density (kg/m3)**	**Stowage factor (m3/t)**
1 to 5 mm	34°	1.058	0.945
Hazard classification			
Class	**Subsidiary hazard(s)**	**MHB**	**Group**
Not applicable	Not applicable	Not applicable	C

Hazard

No special hazards.

This cargo is non-combustible or has a low fire risk.

Stowage and segregation

No special requirements.

Hold cleanliness

No special requirements.

Weather precautions

No special requirements.

Loading

Trim in accordance with the relevant provisions required under sections 4 and 5 of this Code.

Precautions

No special requirements.

Ventilation

No special requirements.

Carriage

No special requirements

Discharge

No special requirements.

Clean-up

After discharge of this cargo, the cargo spaces and the bilge wells shall be swept clean and then thoroughly washed out."

4. "LEACH RESIDUE CONTAINING LEAD"

Description

Intermediate by-product formed as a result of the hydrometallurgical production of zinc and/or zinc compounds. Insoluble grey to brown granular substance obtained during dissolution of zinc ores or concentrate in sulphuric acid to produce zinc sulphate solutions after physical separation such as flotation and filtration.

Characteristics

Physical properties			
Size	**Angle of response**	**Bulk density (kg/m3)**	**Stowage factor (m3/t)**
1 to 5 mm	45° to 52°	800 to 1.600	0.63 to 1.25
Hazard classification			
Class*	**Subsidiary hazard(s)**	**MHB**	**Group**
	Not applicable	TX and CR	A and B

* Pursuant to 4.1.1.3 of this Code for UN 3077, class 9 cargoes, the "Class" box is left blank.

Hazard

This cargo may liquefy if shipped at a moisture content in excess of its transportable moisture limit (TML). See sections 7 and 8 of this Code.
Harmful if swallowed or inhaled.
This cargo is corrosive to eyes and may cause long-term health effects.
On heating (>1000°C), this cargo may release toxic and corrosive gases or vapors.
This cargo is non-combustible or has a low fire risk.

Stowage and segregation

"Separated from" foodstuffs and all class 8 acids.

Hold cleanliness

Clean and dry as relevant to the hazards of the cargo.

Weather precautions

When this cargo is carried in a ship other than a ship complying with the requirements in 7.3.2 of this Code, the following provisions shall be complied with:

1. The moisture content of the cargo shall be kept less than its TML during loading operations and the voyage;
2. Unless expressly provided otherwise in this individual schedule, the cargo shall not be handled during precipitation;
3. Unless expressly provided otherwise in this individual schedule, during handling of the cargo, all non-working hatches of the cargo spaces into which the cargo is loaded, or to be loaded, shall be closed;
4. The cargo may be handled during precipitation under the conditions stated in the procedures required in 4.3.3 of this Code; and
5. The cargo in a cargo space may be discharged during precipitation provided that the total amount of the cargo in the cargo space is to be discharged in the port.

Loading

Trim in accordance with the relevant provisions required under sections 4 and 5 of this Code.

Precautions

Bilge wells shall be clean, dry and covered as appropriate, to prevent ingress of the cargo.
Bilge covers shall not significantly degrade the capacity or operation of the bilge system.
Bilges shall be sounded and pumped out, as necessary, throughout the voyage. Appropriate precautions shall be taken to protect machinery and accommodation spaces from the dust of the cargo.
Due consideration shall be given to protect equipment from dust of the cargo.
Persons who may be exposed to the dust of the cargo shall wear goggles or other equivalent dust eye-protection and dust filter masks.
Those persons shall wear protective clothing, as necessary.
During loading, carriage and discharging, welding or other hot work shall not be carried out in the vicinity of the cargo spaces containing this cargo.

Ventilation

No special requirements.

Carriage

Unless this material is carried in a ship complying with the requirements in 7.3.2 of this Code, the appearance of the surface of the cargo shall be checked regularly during the voyage.
If free water above the cargo or fluid state of the cargo is observed during the voyage, the master shall take appropriate actions to prevent cargo shifting and potential capsize of the ship, and give consideration to seeking emergency entry into a place of refuge.

Discharge

Mechanisms are to be put in place to catch any material spilling from the cargo handling equipment into the water. Spillage onto the ship shall be cleaned up regularly.

Clean-up

After discharge of this cargo, the cargo spaces and the bilge wells shall be swept clean and then thoroughly washed out. All cargo residues are to be removed from the ship before sailing.

Emergency procedures

Special emergency equipment to be carried Protective clothing (boots, gloves, coveralls and headgear) Self-contained breathing apparatus
Emergency procedures Wear protective clothing and self-contained breathing apparatus **Emergency action in the event of fire or decomposition *in a cargo space containing this material***: The master and officers are to note that the ship's fixed gas firefighting installation will be ineffective on decompositions involving this cargo and must not be used. If decomposition is identified, water must be applied without delay. Injection to the seat of decomposition is the first control measure (e.g. using Victor lance) because it uses less water and can be more effective in early decomposition stages. Total flooding is the final control measure but can introduce stability and stress issues. The consequential risk to the stability of the ship through fluidization of the cargo must be taken into account in both cases. Application of water to the surface of the cargo is much less effective and can give a false sense of safety. ***Fire in an adjacent cargo space***: Heat transferred from fire in an adjacent space can cause the material to decompose with consequent evolution of toxic fumes. Open hatches to provide maximum ventilation. Dividing bulkheads should be cooled. **Medical first aid** Refer to the *Medical First Aid Guide* (MFAG), as amended

5. “SUPERPHOSPHATE (triple, granular)”

Description

Particles made from phosphate rock and phosphoric acid. Main component is calcium superphosphate with content of about 70%. Always used as superphosphate fertilizer.

Characteristics

Physical properties			
Size	**Angle of response**	**Bulk density (kg/m3)**	**Stowage factor (m3/t)**
Not less than 90% particles: 2 to 4.75 mm	35° to 38°	900 to 1.150	0.87 to 1.1
Hazard classification			
Class	**Subsidiary hazard(s)**	**MHB**	**Group**
Not applicable	Not applicable	CR	B

Hazard

Corrosive to eyes from dust during handling, placement and transportation.
This cargo is hygroscopic and will cake if wet.
This cargo is non-combustible or has a low fire risk.

Stowage and segregation

Separated from alkali and urea.

Hold cleanliness

Clean and dry as relevant to the hazards of the cargo.

Weather precautions

This cargo shall be kept as dry as practicable. This cargo shall not be handled during precipitation. During handling of this cargo, all non-working hatches of the cargo spaces into which this cargo is loaded, or to be loaded, shall be closed.

Precautions

Appropriate precautions shall be taken to protect machinery and accommodation spaces from the dust of the cargo.
Bilge wells of the cargo spaces shall be protected from ingress of the cargo.
Due consideration shall be given to protect equipment from the dust of the cargo.
Persons who may be exposed to the dust of the cargo shall wear protective clothing, gloves, goggles or other equivalent dust eye-protection and dust filter masks, as necessary.

Loading
Trim in accordance with the relevant provisions required under sections 4 and 5 of this Code.

Ventilation
The cargo spaces carrying this cargo shall not be ventilated during the voyage.

Carriage
Condensation in the cargo spaces carrying this cargo, sweating of this cargo and entering of water from hatch covers to the cargo spaces shall be checked regularly during the voyage.
Due attention shall be given to the sealing of hatches of the cargo spaces.

Discharge
Granular triple superphosphate is hygroscopic and may cake in overhangs, impairing safety during discharge. If this cargo has hardened, it shall be trimmed to avoid the formation of overhangs, as necessary.

Clean-up
After discharge of this cargo, particular attention shall be given to bilge wells of the cargo spaces

Emergency procedures

Special emergency equipment to be carried Protective clothing (safety goggles, gloves, dustproof clothing). Self-contained breathing apparatus.
Emergency procedures Wear protective clothing and self-contained breathing apparatus **Emergency action in the event of fire** Batten down and use ship's fixed firefighting installation, if fitted. Exclusion of air may be sufficient to control the fire. **Do not use water.** **Medical first aid** Refer to the *Medical First Aid Guide* (MFAG), as amended.