交通部　公告　　中華民國 112 年 11 月 1 日
交航（一）字第 11298300141 號

主　　旨：預告採用國際海事組織（IMO）所屬海事安全委員會（MSC）第 105 次會議所採納 MSC.500（105）決議案。

依　　據：行政程序法第一百五十一條第二項準用第一百五十四條第一項。

公告事項：

一、修正機關：交通部。

二、修正依據：船舶法第一百零一條。

三、本案係為維護船舶航行安全、保護海洋環境、因應航運需求及符合國際公約規範，採用國際海事組織（IMO）所屬海事安全委員會（MSC）第 105 次會議所採納 MSC.500（105）決議之國際海事固體散裝貨物（IMSBC）章程修正案。為配合該決議案於 2023 年 12 月 1 日生效，且航行國際航線適用該章程之船舶均須遵循，爰縮短預告期間為 14 日。

四、旨揭決議案如附件，本案另載於本部網站（網址：http://www.motc.gov.tw）「公務瀏覽／公告發布令」網頁。

五、對於本公告內容有任何意見或修正建議者，請於本公告刊登公報隔日起 14 日內陳述意見或洽詢：

（一）承辦單位：交通部航港局船舶組

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ANNEX 7

RESOLUTION MSC.500(105)
(adopted on 28 April 2022)

AMENDMENTS TO THE INTERNATIONAL MARITIME SOLID BULK CARGOES (IMSBC) CODE

THE MARITIME SAFETY COMMITTEE,

RECALLING Article 28(b) of the Convention on the International Maritime Organization concerning the functions of the Committee,

RECALLING ALSO resolution MSC.268(85) by which it adopted the International Maritime Solid Bulk Cargoes Code (hereinafter referred to as "the IMSBC Code"), which has become mandatory under chapter VI of the International Convention for the Safety of Life at Sea, 1974, as amended ("the Convention"),

RECALLING FURTHER article VIII(b) and regulation VII/1.1 of the Convention concerning the procedure for amending the IMSBC Code,

HAVING CONSIDERED, at its 105th session, amendments to the IMSBC Code, proposed and circulated in accordance with article VIII(b)(i) of the Convention,

1 ADOPTS, in accordance with article VIII(b)(iv) of the Convention, amendments to the IMSBC Code, the text of which is set out in the annex to the present resolution;

2 DETERMINES, in accordance with article VIII(b)(vi)(2)(bb) of the Convention, that the said amendments shall be deemed to have been accepted on 1 June 2023, unless prior to that date more than one third of the Contracting Governments to the Convention or Contracting Governments the combined merchant fleets of which constitute not less than 50% of the gross tonnage of the world's merchant fleet have notified their objections to the amendments;

3 INVITES Contracting Governments to the Convention to note that, in accordance with article VIII(b)(vii)(2) of the Convention, the amendments shall enter into force on 1 December 2023 upon their acceptance in accordance with paragraph 2 above;

4 AGREES that Contracting Governments to the Convention may apply the aforementioned amendments in whole or in part on a voluntary basis as from 1 January 2023;

5 REQUESTS the Secretary-General, for the purpose of article VIII(b)(v) of the Convention, to transmit certified copies of the present resolution and the text of the amendments contained in the annex to all Contracting Governments to the Convention;

6 ALSO REQUESTS the Secretary-General to transmit copies of this resolution and its annex to Members of the Organization which are not Contracting Governments to the Convention.

ANNEX

AMENDMENTS TO THE INTERNATIONAL MARITIME SOLID BULK CARGOES (IMSBC) CODE

Table of contents

For "Section 7", replace the text to read "Cargoes which may liquefy or undergo dynamic separation".

For "Section 8", replace the text to read "Test procedures for group A cargoes".

Section 1
General provisions

1.7 Definitions

In the definition for "*GHS*", replace the word "seventh" with the word "ninth" and replace "ST/SG/AC.10/30/Rev.7" with "ST/SG/AC.10/30/Rev.9".

In the definition for "*Group A*", replace the text to read "*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."

In the definition for "*Group C*", replace the text to read "*Group C* consists of cargoes which are classified as neither group A nor group B."

In the definition for "*Manual of Tests and Criteria*", replace the definition to read "*Manual of Tests and Criteria* means the seventh revised edition of the United Nations publication entitled Manual of Tests and Criteria (ST/SG/AC.10/11/Rev.7 and Amend.1)."

In the definition for "*Transportable moisture limit (TML)*", replace the text to read "*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."

Add the following new definitions in alphabetical order:

"*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."

Section 4
Assessment of acceptability of consignments for safe shipment

4.1 Identification and classification

In 4.1.4, replace the words "Manual of Tests and Criteria" with the words "*Manual of Tests and Criteria*".

4.2 Provision of information

In 4.2.2.9, replace the existing text to read as follows:

> "additional information in the form of a certificate on the moisture content of the cargo and its transportable moisture limit in the case of a group A cargo;".

In 4.2.3, in the table for "Form for cargo information for solid bulk cargoes", in the "Group of the cargo" box, delete the asterisks and the corresponding footnote text "For cargoes which may liquefy (group A and group A and B cargoes)". Under "Transportable moisture limit", add the words "For group A and B and group A cargoes". Under "Moisture content at shipment", add the words "For group A and B and group A cargoes".

4.3 Certificates of test

In 4.3.2, replace the first sentence to read as follows:

> "When a group A cargo is carried, the shipper shall provide the ship's master or his representative with a signed certificate of the TML, and a signed certificate or declaration of the moisture content, each issued by an entity recognized by the competent authority of the port of loading."

In 4.3.3, replace the first sentence to read as follows:

> "When a group A cargo is carried, procedures for sampling, testing and controlling moisture content to ensure the moisture content is less than the TML when it is on board the ship shall be established by the shipper, taking account of the provisions of this Code."

In 4.3.5, replace the first sentence to read as follows:

> "When a group A cargo is to be loaded into more than one cargo space of a ship, the certificate or the declaration of moisture content shall certify the moisture content of each type of finely grained material loaded into each cargo space."

4.4 Sampling procedures

In 4.4.3, replace the existing text with the following:

> "For a group A cargo, the shipper shall facilitate access to stockpiles for the purpose of inspection, sampling and subsequent testing by the ship's nominated representative."

4.8 Documentation required on board the ship carrying dangerous goods

In 4.8.3, after the words "SOLAS regulation II-2/19.4", add the words "(or II-2/54.3)*", and add a corresponding footnote, as follows:

"* Refer to 1.1.1.2 of the IMDG Code."

Section 7
Cargoes which may liquefy

In the heading for "Section 7", replace the words "Cargoes which may liquefy" with the words "Cargoes which may liquefy or undergo dynamic separation".

7.1 Introduction

In 7.1.1, replace the existing text with the following:

"The purpose of this section is to bring to the attention of masters and others with responsibilities for the loading and carriage of bulk cargoes, the risks associated with liquefaction or dynamic separation and the precautions to minimize the risk. Such cargoes may appear to be in a relatively dry granular state when loaded, and yet may contain sufficient moisture to become fluid or unstable under the stimulus of compaction and the vibration which occurs during a voyage."

In 7.1.3, replace the existing text with the following:

"Some group A cargoes may also heat spontaneously."

7.3 Provisions for cargoes that may liquefy

In the heading for 7.3, replace the words "Provisions for cargoes that may liquefy" with the words "Provisions for cargoes which may liquefy or undergo dynamic separation".

7.3.1 General

In 7.3.1.1, replace the existing text with the following:

"Group A cargoes shall only be accepted for loading when the actual moisture content of the cargo is less than its TML. Notwithstanding this provision, cargoes having moisture content in excess of the TML may be carried on a specially constructed or fitted cargo ship for confining cargo shift specified in 7.3.2."

In 7.3.1.2, replace the existing text with the following:

"Notwithstanding the provisions in 1.4 of this Code, the requirements in 4.2.2.9, 4.2.2.10, 4.3.2 to 4.3.5, 4.5, 4.6 and 8 of this Code need not apply to a group A cargo provided that the cargo is carried on a specially constructed or fitted cargo ship for confining cargo shift specified in 7.3.2 or on a specially constructed ship for dry powdery cargoes specified in 7.3.3."

Section 8
Test procedures for cargoes which may liquefy

In the heading for "Section 8", replace the words "Test procedures for cargoes which may liquefy" with the words "Test procedures for group A cargoes".

Section 9
Materials possessing chemical hazards

9.2 Hazard classification

9.2.3 Materials hazardous only in bulk (MHB)

9.2.3.2 Combustible solids: MHB (CB)

In 9.2.3.2.2, replace the word "33.2.1.4.3.1" with the word "33.2.4.3.1".

9.2.3.3 Self-heating solids: MHB (SH)

In 9.2.3.3.2, replace the word "33.3.1.6" with the word "33.4.6".

In 9.2.3.3.3, replace the word "33.4.1.4.3.5" with the word "33.5.4.3.5".

9.2.3.4 Solids that evolve flammable gas when wet: MHB (WF)

In 9.2.3.4.2, replace the word "33.4.1" with the word "33.5".

9.2.3.5 Solids that evolve toxic gas when wet: MHB (WT)

In 9.2.3.5.2, replace the word "33.4.1" with the word "33.5".

9.2.3.7 Corrosive solids: MHB (CR)

In 9.2.3.7.3, replace the existing text with the following:

> "A material shall be classified as MHB when the corrosion rate on a steel surface is between 4 mm and 6.25 mm a year at a test temperature of 55°C. For the purposes of testing steel, type S235JR+CR (1.0037 resp. St 37-2), S275J2G3+CR (1.0144 resp. St 44-3), ISO 3574:1999, Unified Numbering Systems (UNS) G10200 or SAE 1020 shall be used. An acceptable test is prescribed in the United Nations Manual of Tests and Criteria, part III, section 37. A representative sample of the cargo shall be tested at typical as-shipped cargo conditions, including moisture content by mass, bulk density, particle size distribution and atmospheric conditions. The assessment of localized corrosion occurring upon the steel surface shall be performed using national or international standards. The test shall be conducted taking into account the guidance developed by the Organization.*",

and add a corresponding footnote, as follows:

"* Refer to the *Guidance for conducting the refined MHB (CR) test* (MSC.1/Circ.1600/Rev.1)."

APPENDIX 1

INDIVIDUAL SCHEDULES OF SOLID BULK CARGOES

Amendments to existing individual schedules

Amend the following individual schedules as indicated below:

ALFALFA

In the individual schedule for "ALFALFA", in the section for "Characteristics", in the table, replace the words "Fine Powder" with the words "Fine powder".

ALUMINIUM NITRATE UN 1438

In the individual schedule for "ALUMINIUM NITRATE UN 1438", in the section for "Emergency procedures", in the table, replace the word "overalls" with the word "coveralls".

AMMONIUM NITRATE UN 1942

In the individual schedule for "AMMONIUM NITRATE UN 1942", in the section for "Description", in the "Note", replace the word "*UN*" by the word "UN". In the section for "Loading", delete the word "intrinsically".

AMMONIUM NITRATE BASED FERTILIZER UN 2067

In the individual schedule for "AMMONIUM NITRATE BASED FERTILIZER UN 2067", in the section for "Loading", delete the word "intrinsically".

AMMONIUM NITRATE BASED FERTILIZER UN 2071

In the individual schedule for "AMMONIUM NITRATE BASED FERTILIZER UN 2071", under the BCSN, replace the word "*UN*" by the word "UN". In the section for "Loading", delete the word "intrinsically".

AMMONIUM NITRATE BASED FERTILIZER (non-hazardous)

Delete the individual schedule for "AMMONIUM NITRATE BASED FERTILIZER (non-hazardous)".

BARIUM NITRATE UN 1446

In the individual schedule for "BARIUM NITRATE UN 1446", in the section for "Emergency procedures", in the table, replace the word "overalls" with the word "coveralls".

BROWN COAL BRIQUETTES

In the individual schedule for "BROWN COAL BRIQUETTES", in the appendix, under the section for "Stowage and segregation", in paragraph 5, with regard to the footnote text, replace "MSC.1/Circ.1351/Rev.1" with "MSC.1/Circ.1351".

CASTOR BEANS or CASTOR MEAL or CASTOR POMACE or CASTOR FLAKE UN 2969

In the individual schedule for "CASTOR BEANS or CASTOR MEAL or CASTOR POMACE or CASTOR FLAKE UN 2969", move the sentence "Castor meal, castor pomace and castor flakes shall not be carried in bulk." from the section for "Precautions" to underneath the BCSN.

COAL

In the individual schedule for "COAL", in the appendix, under the section for "Segregation and stowage requirements", in paragraph 4, with regard to the footnote text, replace "MSC.1/Circ.1351/Rev.1" with "MSC.1/Circ.1351".

COAL TAR PITCH

In the individual schedule for "COAL TAR PITCH", under the section for "Description", replace the words "Coal Tar" with the words "coal tar" and replace the word "Cokes" with the word "cokes".

CRUSHED CARBON ANODES

In the individual schedule for "CRUSHED CARBON ANODES", under the section for "Description", replace the words "Crushed Carbon Anodes" with the words "Crushed carbon anodes".

FISH MEAL (FISH SCRAP), STABILIZED UN 2216 Anti-oxidant treated

In the individual schedule for "FISH MEAL (FISH SCRAP), STABILIZED UN 2216 Anti-oxidant treated", under the BCSN, replace the word "fishmeal" with the words "fish meal".

FLUE DUST, CONTAINING LEAD AND ZINC

In the individual schedule for "FLUE DUST, CONTAINING LEAD AND ZINC", in the table for "Characteristics", in "Class", insert a footnote and the corresponding footnote text "Pursuant to 4.1.1.3 of this Code for UN 3077, class 9 cargoes, the "Class" box is left blank."

IRON ORE FINES

In the individual schedule for "IRON ORE FINES", in the table for "Characteristics", regarding bulk density, replace the words "1,500 to 3,000" with the words "1,500 to 3,500".

MATTE CONTAINING COPPER AND LEAD

In the individual schedule for "MATTE CONTAINING COPPER AND LEAD", in the table for "Characteristics", in "Class", insert a footnote and the corresponding footnote text "Pursuant to 4.1.1.3 of this Code for UN 3077, class 9 cargoes, the "Class" box is left blank."

METAL SULPHIDE CONCENTRATES, CORROSIVE UN 1759

In the individual schedule for "METAL SULPHIDE CONCENTRATES, CORROSIVE UN 1759", under the BCSN, replace the words "Packing Group" with the words "packing group".

METAL SULPHIDE CONCENTRATES, SELF-HEATING UN 3190

In the individual schedule for "METAL SULPHIDE CONCENTRATES, SELF-HEATING UN 3190", under the BCSN, replace the words "Packing Group" with the words "packing group".

Mineral concentrates

In the individual schedule for "Mineral concentrates", replace the words "NEFELENE SYENITE (mineral)" with the words "NEPHELINE SYENITE (mineral)".

PITCH PRILL

In the individual schedule for "PITCH PRILL", in the section for "Emergency procedures", in the table, replace the word "overalls" with the word "coveralls".

SUPERPHOSPHATE (triple, granular)

Delete the individual schedule for "SUPERPHOSPHATE (triple, granular)".

SYNTHETIC CALCIUM FLUORIDE

In the individual schedule for "SYNTHETIC CALCIUM FLUORIDE", under the section for "Description", replace "70%-80%" with the words "70% to 80%", replace "5%-10%" with the words "5% to 10%" and replace "10%-20%" with the words "10% to 20%".

New individual schedules

Insert the following new individual schedules in alphabetical order:

"**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

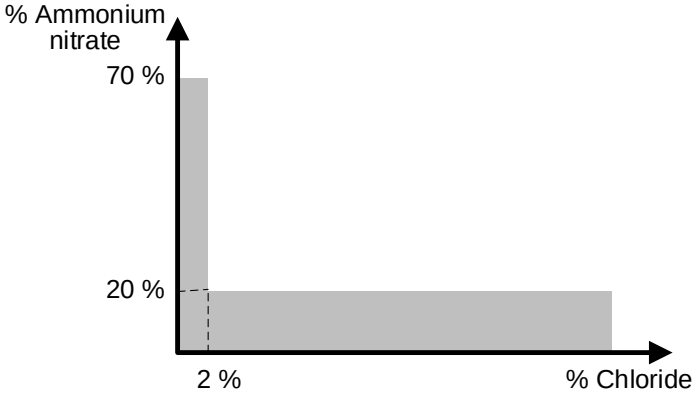
.2 not more than 80% ammonium nitrate mixed with calcium carbonate and/or dolomite and/or mineral calcium sulphate and not more than 0.4% total combustible organic material calculated as carbon; or

.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 repose**	**Bulk density (kg/m^3)**	**Stowage factor (m^3/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.*

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.

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

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.

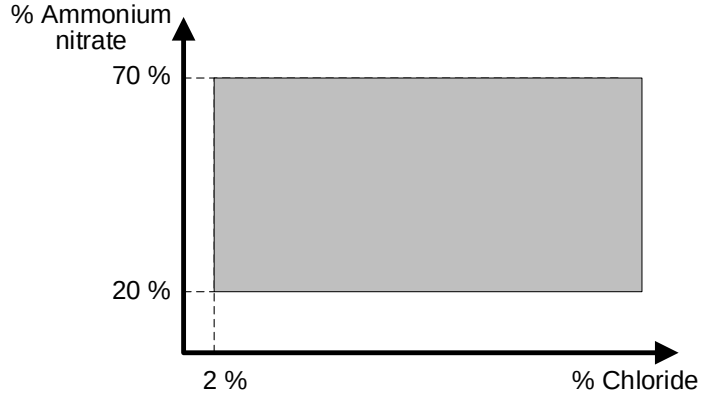
Clean-up
After discharge of this cargo, the bilge wells and the scuppers of the cargo spaces shall be checked and any blockage in the bilge wells and the scuppers shall be removed."

"**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 repose**	**Bulk density (kg/m^3)**	**Stowage factor (m^3/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
"Separated from" 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
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 behaviour 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
"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.

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 behaviour 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 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 (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

"

"**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 repose**	**Bulk density (kg/m^3)**	**Stowage factor (m^3/t)**
5 mm to 30 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."

"**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 repose**	**Bulk density (kg/m^3)**	**Stowage factor (m^3/t)**
Fines up to 100 µm	45° to 52°	800 to 1,600	0.63 to 1.25
Hazard classification			
Class*	**Subsidiary hazards**	**MHB**	**Group**
	Not applicable	TX and CR	A and B

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 vapours.
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.

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

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 (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 fire-fighting 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.

"

"**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 repose**	**Bulk density (kg/m^3)**	**Stowage factor (m^3/t)**
Not less than 90% particles: 2 to 4.75 mm	35° to 38°	900 to 1,150	0.87 to 1.11
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.

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

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.

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 (gloves, boots, coveralls and headgear). 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 fire-fighting installation, if fitted. Exclusion of air may be sufficient to control the fire. **Medical first aid** Refer to the *Medical First Aid Guide* (MFAG), as amended.

"

APPENDIX 2

LABORATORY TEST PROCEDURES, ASSOCIATED APPARATUS AND STANDARDS

1 Test procedures for materials which may liquefy and associated apparatus

In the heading, replace the words "Test procedures for materials which may liquefy and associated apparatus" with the words "Test procedures for materials which may liquefy or undergo dynamic separation and associated apparatus".

1.2 Penetration test procedure

1.2.2 *Apparatus (see figure 1.2.2)*

In figure 1.2.2.2, replace the words "*Vibration table*" with the words "*Vibrating table*".

1.6 Modified Proctor/Fagerberg test procedure for bauxite

1.6.1 Scope

In 1.6.1.4, replace the last sentence to read "Therefore, the cargo is not classified as group A".

4 Trough test for determination of the self-sustaining exothermic decomposition of fertilizers containing nitrates

In the footnote text for the heading, delete the words "*Recommendation on the Transport of Dangerous Goods,*".

APPENDIX 3

PROPERTIES OF SOLID BULK CARGOES

1 Non-cohesive cargoes

1.1 The following cargoes are non-cohesive when dry:

In the list, delete the entry for "AMMONIUM NITRATE BASED FERTILIZERS (TYPE A, TYPE B and NON HAZARDOUS)".

In the list, replace the entry for "SUPERPHOSPHATE" by "SUPERPHOSPHATE (triple, granular)".

In the list, add the following new entries in alphabetical order:

"AMMONIUM NITRATE BASED FERTILIZER"
"AMMONIUM NITRATE BASED FERTILIZER MHB"
"AMMONIUM NITRATE BASED FERTILIZER UN 2067"
"AMMONIUM NITRATE BASED FERTILIZER UN 2071"
"CLAM SHELL"
"LEACH RESIDUE CONTAINING LEAD"

2 Cargoes which may liquefy

In the heading, replace the words "Cargoes which may liquefy" with the words "Cargoes which may liquefy or undergo dynamic separation".

APPENDIX 4

INDEX

In the table:

Delete the entry for "AMMONIUM NITRATE BASED FERTILIZER (non-hazardous)".
Delete the entry for "SUPERPHOSPHATE (triple, granular)" (group C).

In the entries for "CASTOR FLAKE UN 2969", "CASTOR MEAL UN 2969" and "CASTOR POMACE UN 2969", in the column for "References", add the text "(Carriage in bulk is prohibited)".

Replace the word "FISHMEAL" with the words "FISH MEAL" and replace the word "FISHSCRAP" with the words "FISH SCRAP".

With regard to the entries for "Blende (zinc sulphide)", "Zinc ore, burnt", "Zinc ore, calamine", "Zinc ore, concentrates", "Zinc ore, crude", "Zinc sulphide" and "Zinc sulphide (blende)", in column for "References", replace the words "*see* ZINC CONCENTRATE" with the words "*see* Mineral Concentrates schedule".

With regard to the entry for "Sand, ilmenite", in column for "Group", replace the word "C" with the word "A".

Insert the following new entries in alphabetical order:

"

Material	Group	References
AMMONIUM NITRATE BASED FERTILIZER	C	
AMMONIUM NITRATE BASED FERTILIZER MHB	B	
CLAM SHELL	C	
Granular triple superphosphate	B	*see* SUPERPHOSPHATE (triple, granular)
LEACH RESIDUE CONTAINING LEAD	A and B	
SUPERPHOSPHATE (triple, granular)	B	

"

APPENDIX 5

BULK CARGO SHIPPING NAMES IN THREE LANGUAGES (ENGLISH, SPANISH AND FRENCH)

In the table:

Delete the entry for "AMMONIUM NITRATE BASED FERTILIZER (non-hazardous)".

Replace the word "FISHMEAL" with the words "FISH MEAL" and replace the word "FISHSCRAP" with the words "FISH SCRAP".

Replace the words "DIOXYDE DE SILICONE DE SYNTHÈSE" with the words "DIOXYDE DE SILICE DE SYNTHÈSE".

Insert the following new entries in the corresponding alphabetical order:
"

ENGLISH	FRENCH	SPANISH
AMMONIUM NITRATE BASED FERTILIZER	ENGRAIS AU NITRATE D'AMMONIUM	ABONOS A BASE DE NITRATO AMÓNICO
AMMONIUM NITRATE BASED FERTILIZER MHB	ENGRAIS AU NITRATE D'AMMONIUM MDV	ABONOS A BASE DE NITRATO AMÓNICO PPG
CLAM SHELL	COQUILLES DE PALOURDES	CONCHA DE ALMEJA
LEACH RESIDUE CONTAINING LEAD	RÉSIDU DE LIXIVIATION CONTENANT DU PLOMB	RESIDUOS DE LIXIVIACIÓN QUE CONTIENEN PLOMO

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