

STATEMENT OF COMPLIANCE FOR CARRIAGE OF CARGO IN BULK
No LDR0/MMO/20160129095851

Issued within the scope of the Bureau Veritas Marine & Offshore Division General Conditions.

Name of Ship BV No : 07978Y	Distinctive Number or Letters	Port of Registry	Gross Tonnage	IMO Number
ARKLOW RAINBOW	EICL	ARKLOW	2999	9344497

THIS IS TO CERTIFY :

That the ship is classed with the Society and can carry in solid bulk cargo as specified in Appendix 1 in compliance with the International Maritime Solid Bulk Cargoes (IMSBC) Code as amended by resolution MSC.354(92) and SOLAS 74, Regulations as applicable, provided that the ship is loaded in accordance with the said Regulations to the Master's satisfaction.

This Statement of Compliance is valid until **18 January 2021**
subject to the conditions allowing its issuance remain unchanged.

Completion date of the survey on which this Statement of Compliance is based : 29/01/2016

Issued at M.MORGAN, on the 29 January 2016



M.MORGAN

BUREAU VERITAS

[Signature]
By Order of the Secretary



The latest published Rules of the Bureau Veritas Marine & Offshore Division, and the General Conditions therein, are applicable.
La dernière édition des Règlements de la Direction Marine & Offshore du Bureau Veritas, ainsi que les Conditions Générales qui y figurent, sont applicables.

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NME 7432K

APPENDIX 1 TO STATEMENT OF COMPLIANCE

No LDR0/MMO/20160129095851

LIST OF CARGOES

All cargoes categorized into Group A of the IMSBC

All cargoes categorized into Group C of the IMSBC

The following cargoes categorized into Group B of the IMSBC

CARGO SHIPPING NAME	UN No	CLASS	Cargo Hold No
ALUMINA HYDRATE		MHB	
ALUMINIUM FERROSILICON POWDER	1395	4.3	
ALUMINIUM NITRATE	1438	5.1	
ALUMINIUM SILICON POWDER, UNCOATED	1398	4.3	
AMMONIUM NITRATE	1942	5.1	
AMMONIUM NITRATE BASED FERTILIZER	2067	5.1	
AMMONIUM NITRATE BASED FERTILIZER	2071	9	
BARIUM NITRATE	1446	5.1	
BROWN COAL BRIQUETTES		MHB	
CALCIUM NITRATE	1454	5.1	
CASTOR BEANS or CASTOR FLAKE or CASTOR MEAL or CASTOR POMACE	2969	9	
CHARCOAL		MHB	
COAL		MHB	
COPRA (dry)	1363	4.2	
DIRECT REDUCED IRON (A) Briquettes, hot-moulded		MHB	
DIRECT REDUCED IRON (B) Lumps, pellets, cold-moulded briquettes		MHB	
DIRECT REDUCED IRON (C) By-product fines		MHB	
FERROPHOSPHORUS		MHB	
FERROSILICON	1408	4.3	
FERROSILICON		MHB	
FERROUS METAL BORINGS, CUTTINGS, TURNINGS or SHAVINGS	2793	4.2	
FISHMEAL, STABILIZED or FISHSCRAP, STABILIZED	2216	9	
FLUORSPAR		MHB	
IRON OXIDE, SPENT or IRON SPONGE, SPENT	1376	4.2	
LEAD NITRATE	1469	5.1	
LIME (UNSLAKED)		MHB	
LINTED COTTON SEED		MHB	
MAGNESIA (UNSLAKED)		MHB	
MAGNESIUM NITRATE	1474	5.1	
METAL SULPHIDE CONCENTRATES		MHB	
PEAT MOSS		MHB	
PETROLEUM COKE (calcined or uncalcined)		MHB	
PITCH PRILL		MHB	
POTASSIUM NITRATE	1486	5.1	
PYRITES, CALCINED		MHB	
SAWDUST		MHB	
SEED CAKE, containing vegetable oil (a) mechanically expelled seeds, containing	1386	4.2	

more than 10% of oil or more than 20% of oil and moisture combined			
SEED CAKE, containing vegetable oil (b) solvent extraction and expelled seeds, containing not more than 10% of oil and when the amount of moisture is higher than 10%, not more than 20% of oil and moisture combined	1386	4.2	
SEED CAKE	2217	4.2	
SILICOMANGANESE		MHB	
SODIUM NITRATE	1498	5.1	
SODIUM NITRATE AND POTASSIUM NITRATE MIXTURE	1499	5.1	
SULPHUR (crushed lump and coarse grained)	1350	4.1	
TANKAGE		MHB	
VANADIUM ORE		MHB	
WOODCHIPS		MHB	
WOOD PELLETS		MHB	
WOOD PRODUCTS - GENERAL		MHB	
WOOD TORREFIED		MHB	

Additional remarks (if any):

C. AMMONIUM NITRATE-BASED FERTILIZER UN 2071 / AMMONIUM NITRATE-BASED FERTILIZER UN 2067

Amendment to the provisions for monitoring and control of the temperature when stowed immediately adjacent to any tank, double bottom or pipe containing heated fuel oil.

As an example, the following means to monitor and control the temperature in the heated fuel oil tank is acceptable when it:

- provide a continuous reading
 - provide an alarm in case of temperature goes off limits (50°C)
- (Preferably from a manned control station)

An alternative option is to isolate/disconnect the fuel oil heating coils when carrying the product.

In case of other alternative means to monitor and control the temperature of the FO tanks, these have to be submitted to concerned LPO, in coordination with CM.

D. AMMONIUM NITRATE UN 1942

Amendment to the provisions regarding to stowage and segregation.

This cargo shall not be loaded in cargo spaces adjacent to fuel oil tank(s), unless heating arrangements for the tank(s) are disconnected and remain disconnected during the entire voyage."

Mean to disconnect the fuel oil heating coils when carrying the product shall be provided

CARGO SHIPPING NAME	UN No	Class	1 Loading Stowage construction	2 Elec. Equipment	3, 4, 5 Precaution Carriage	6 Temperature	7 Fire fighting	8 Bligs	9 Crew protection	10 Ventilation	11 Other
DIRECT REDUCED IRON (B) Lumps, pellets, cold-moulded briquettes		MHB	1.2.2		3.3 / 4.0.1	6.2 / 6.0.6	7 / 7.1.0 / 7.2		9.0.1	10.13	
DIRECT REDUCED IRON (C) (By-product fines)		MHB	1.2.2		3.3 / 4.0.1	6.2 / 6.0.6	7 / 7.1.1 / 7.2		9.0.1	10.13	
FERROPHOSPHORUS (including briquettes)		MHB			3.11 / 4.1					10.1.1 / 10.7.1	
FERROSILICON with 30% or more but less than 90% silicon (including briquettes)	1408	4.3 6.1	1.3.1	2.2.0	3.0.1 / 4.1			8.0 / 8.1	9.0.3 / 9.2	10.0 / 10.4 / 10.10 / 10.11 / 10.12	11.0
FERROSILICON 25% to 30% silicon, or 90% or more with silicon (including briquettes)		MHB	1.3.1	2.2.0	3.0.1 / 4.1			8.0 / 8.1	9.0.3 / 9.3	10.0 / 10.4 / 10.10 / 10.11 / 10.12	11.0
FERROUS METAL BORINGS, SHAVINGS, TURNINGS or CUTTINGS in a form liable to self-heating	2793	4.2				6.0.1 / 6.3					
FISHMEAL (FISHSCRAP), STABILIZED Anti-oxidant treated	2216	9			3.4	6.0.4				10.2.2	
FLUORSPAR		MHB									
GRANULATED NICKEL MATTE (LESS THAN 2% MOISTURE CONTENT)		MHB									
IRON OXIDE, SPENT or IRON SPONGE, SPENT obtained from coal gas purification	1376	4.2			3.5 / 4.0.0					10.2.0	
LEAD NITRATE	1469	5.1								10.3	
LIME (UNSLAKED)		MHB									
LINTED COTTON SEED with not more than 9% moisture and not more than 20.5% oil		MHB			3.10.1						
MAGNESIA (UNSLAKED)		MHB									
MAGNESIUM NITRATE	1474	5.1									

IMSB Code as amended by Res.MSC.354(92) - LIST OF APPLICABLE PROVISIONS

(This list is not exhaustive and not limitative. Shipmaster shall always refer to the provision set forth in the Code)

Dated 16/12/2014

CARGO SHIPPING NAME	UN No	Class	1 Loading Stowage construction	2 Elec. Equipment	3, 4, 5 Precaution Carriage	6 Temperature	7 Fire fighting	8 Blige	9 Crew protection	10 Ventilation	11 Other
ALUMINA HYDRATE		MHB	1.13					8.2 / 8.3			
ALUMINIUM FERROSILICON POWDER	1395	4.3	1.3.0		3.0.0 / 4.1				9.0.1/9.1	10.0	
ALUMINIUM NITRATE	1438	5.1									
ALUMINIUM SILICON POWDER, UNCOATED	1398	4.3	1.3.0		3.0.1 / 4.1				9.0.1/9.1	10.0 / 10.14 / 10.4 / 10.5	
ALUMINIUM REMELTING BY-PRODUCTS, ALUMINIUM SMELTING BY-PRODUCTS	3170	4.3	1.4		3.1 / 4.1			8.0	9.0.1/9.1	10.0 / 10.5	
ALUMINIUM SMELTING / REMELTING BY- PRODUCTS, PROCESSED		MHB	1.11 / 1.4		3.1 / 4.1			8.2	9.0.1	10.0 / 10.5	
AMMONIUM NITRATE	1942	5.1	1.0 / 1.5 / 1.6 / 1.9 / 1.11 / 1.12	2.0		6.0.7			9.0.2		
AMMONIUM NITRATE BASED FERTILIZER	2067	5.1	1.0 / 1.1 / 1.6 / 1.11	2.0		6.0.7			9.0.2		
AMMONIUM NITRATE BASED FERTILIZER	2071	9	1.1 / 1.6 / 1.11	2.0		6.0.7			9.0.2		
BARIUM NITRATE	1446	6.1								10.2.0	
BROWN COAL BRIQUETTES		MHB	1.2.0 / 1.10.1	2.1	5.0.0 / 5.1	6.1.0			9.0.0		
CALCIUM NITRATE		5.1									
CASTOR BEANS or CASTOR MEAL or CASTOR POMACE or CASTOR FLAKE	2969	9								10.2.0	
CHARCOAL		MHB									
CLINKER ASH, WET		MHB									
COAL		MHB	1.2.1 / 1.10.2	2.1	5.0.1	6.1.1			9.0.0	10.2.1	
COAL TAR PITCH		MHB									
COPRA(dry)	1363	4.2	1.10.0		3.10.1	6.0.2				10.2.0	
DIRECT REDUCED IRON (A) Briquettes, hot-moulded		MHB	1.2.2		3.2 / 4.0.1	6.0.3			9.0.1	10.2.0 / 10.6 / 10.7.0 / 10.9	

CARGO SHIPPING NAME	UN No	Class	1 Loading Stowage construction	2 Elec. Equipment	3, 4, 5 Precaution Carriage	6 Temperature	7 Fire fighting	8 Blige	9 Crew protection	10 Ventilation	11 Other
SODIUM NITRATE	1498	5.1			3.10.2						
SODIUM NITRATE AND POTASSIUM NITRATE MIXTURE	1499	5.1									
SOLIDIFIED FUELS RECYCLED FROM PAPER AND PLASTICS		MHB							9.0.3		
SULPHUR (crushed lump and coarse grained) TANKAGE	1350	4.1	1.8.0	2.2.1						10.2.0 / 10.8.0	
VANADIUM ORE		MHB				6.0.0					
WOODCHIPS		MHB			3.8 / 3.10.3						
WOOD PELLETS		MHB	1.11		3.9 / 3.10.4						
WOOD PRODUCTS -- GENERAL		MHB			3.10.5						
WOOD TORREFIED			1.11		3.9 / 3.10.4						
ZINC ASHES	1435	4.3			3.2 / 4.1					10.0	

CARGO SHIPPING NAME	UN No	Class	1 Loading Storage construction	2 Elec. Equipment	3, 4, 5 Precaution Carriage	6 Temperature	7 Fire fighting	8 Blige	9 Crew protection	10 Ventilation	11 Other
METAL SULPHIDE CONCENTRATES		MHB			3.6 / 3.10.1 4.0.2						11.1
PEAT MOSS		MHB			3.10.0					10.2.0	
PETROLEUM COKE (calcined or uncalcined)		MHB									
PITCH PRILL		MHB								10.2.0	
POTASSIUM NITRATE	1486	5.1									
PYRITES, CALCINED (Calcined Pyrites)		MHB	1.8.1								
RADIOACTIVE MATERIAL, LOW SPECIFIC ACTIVITY (LSA-1) non-fissile or fissile- excepted	2912	7									
RADIOACTIVE MATERIAL SURFACE CONTAMINATED OBJECTS (SCO-1), non-fissile or fissile-excepted	2913	7									
SAWDUST		MHB								10.2.0	
SEED CAKE, containing vegetable oil (a) mechanically expelled seeds, containing more than 10% of oil or more than 20% of oil and moisture combined.	1386	4.2	1.11		3.10.0	6.0.5					
SEED CAKE, containing vegetable oil (b) solvent extractions and expelled seeds, containing not more than 10% of oil and when the amount of moisture is higher than 10%, not more than 20% of oil and moisture combined.	1386	4.2	1.6 / 1.11	2.2.0	3.10.0	6.0.5	7.3			10.8.1 / 10.2.3	
SEED CAKE with not more than 1.5% oil and not more than 11% moisture.	2217	4.2	1.6 / 1.11	2.2.0	3.10.0	6.0.5	7.3			10.8.1 / 10.2.3	
SILICOMANGANESE (low carbon)		MHB	1.7	2.3	3.7 / 4.0.0 /				9.0.2	10.1.0	

IMSBC Code as amended by Res.MSC.318(89) - LIST OF APPLICABLE PROVISIONS

(This list is not exhaustive and not limitative. Shipmaster shall always refer to the provision set forth in the Code)

Dated 05/02/2013

LOADING / STOWAGE / CONSTRUCTION

- 1.0 The fuel tanks situated under the cargo spaces to be used for the transport of this cargo shall be pressure tested to ensure that there is no leakage of manholes and piping systems leading to the tanks.
- 1.1 Not to be stowed immediately adjacent to any tank, double bottom or pipe containing heated fuel oil unless there are means to monitor and control the temperature so that it does not exceed 50°C.
- 1.2.0 Boundaries of cargo spaces where these cargoes are carried shall be resistant to fire and liquids.
- 1.2.1 Unless expressly provided otherwise, boundaries of cargo spaces where this cargo is carried shall be resistant to fire and liquids.
- 1.2.2 Boundaries of compartments where this cargo is carried shall be resistant to fire and passage of liquid.
- 1.3.0 The bulkheads between the cargo spaces and the engine-room shall be gastight and shall be inspected and approved by the competent authority.
- 1.3.1 Prior to loading, the bulkheads to the engine-room shall be inspected and approved by the competent authority as gastight
- 1.4 Bulkheads between the cargo spaces and the engine-room shall be gastight.
- 1.5 When the bulkhead between the cargo space and the engine-room is not insulated to class A-60 standard, this cargo shall not be accepted for loading unless the competent authority approves that the arrangement is equivalent.
- 1.6 If the bulkhead between the cargo space and the engine-room is not insulated to class A-60 standard, this cargo shall be stowed "away from" the bulkhead.
- 1.7 Where a bulkhead is required to be suitable for segregation purposes, cable and conduit penetrations of the decks and bulkheads shall be sealed against the passage of gas and vapour.
- 1.8.0 The hold trimming plates and tanktops of the cargo spaces for this cargo shall be lime-washed or coated with paint to prevent corrosion. Upper sections shall have a sound coating of paint.
- 1.8.1 The tanktop on which this cargo is to be loaded shall be covered with protective coating such as lime-wash before loading to avoid any potential corrosive reaction between the cargo, water and steel
- 1.9 "Separated from" sources of heat or ignition (see also Loading)
- 1.10.0 This cargo shall not be stowed on or adjacent to heated surfaces including fuel oil tanks.
- 1.10.1 This cargo shall not be stowed adjacent to hot areas.
- 1.10.2 The master shall ensure that this cargo is not stowed adjacent to hot areas
- 1.11 Hatches of the cargo spaces carrying this cargo shall be weathertight to prevent the ingress of water.
- 1.12 This cargo shall not be loaded in cargo spaces adjacent to fuel oil tank(s), unless heating arrangements for the tank(s) are disconnected and remain disconnected during the entire voyage
- 1.13 Separated from oxidizing materials

ELECTRICAL EQUIPMENT

- 2.0 All electrical equipment, other than those of approved intrinsically 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.
- 2.1 all electrical cables and components situated in cargo spaces and adjacent enclosed spaces are free from defects. Such cables and electrical components are safe to be used in a flammable and/or dusty atmosphere or positively isolated. The provisions of this clause need not apply to engine-rooms where the engine-room is separated from the cargo space by a gastight bulkhead with no direct access.
- 2.2.0 Electrical circuits for equipment in cargo spaces which is unsuitable for use in an explosive atmosphere shall be isolated by removal of links in the system other than fuses.

IMSBC Code as amended by Res.MSC.318(89) - LIST OF APPLICABLE PROVISIONS

(This list is not exhaustive and not limitative. Shipmaster shall always refer to the provision set forth in the Code)

Dated 05/02/2013

- 2.2.1 Due consideration shall be paid on the isolation of electrical circuits for the equipment in the adjacent spaces of the cargo spaces which is unsuitable for use in an explosive atmosphere
- 2.3 Electrical fittings and cables shall be in good condition and properly safeguarded against short circuits and sparking.

PRECAUTION

- 3.0.0 For quantitative measurements of hydrogen, phosphine and arsine and silane, suitable detectors for each gas or combination of gases shall be on board while this cargo is carried.
- 3.0.1 For quantitative measurements of hydrogen, phosphine, arsine, suitable detectors for each gas or combination of gases shall be on board while this cargo is carried.
- 3.1 For quantitative measurements of hydrogen, ammonia and acetylene, suitable detectors for each gas or combination of gases shall be on board while this cargo is carried.
- 3.2 For quantitative measurements of hydrogen, a suitable detector shall be on board while this cargo is carried.
- 3.3 For quantitative measurements of hydrogen and oxygen, suitable detectors shall be on board while this cargo is carried.
- 3.4 A suitable equipment for quantitative measurement of the concentration of oxygen in the cargo space shall be provided on board the ship
- 3.5 For quantitative measurements of oxygen and hydrogen cyanide, suitable detectors for each gas or combination of gases shall be on board while this cargo is carried
- 3.6 For quantitative measurements of oxygen and toxic fumes liable to be evolved by the cargo, suitable detectors for each gas and fume or combination of these shall be on board while this cargo is carried.
- 3.7 For quantitative measurements of oxygen and flammable gases liable to be evolved by the cargo, a suitable detector for each gas or combination of gases shall be on board while this cargo is carried.
- 3.8 An oxygen meter shall be worn and activated by all crew when entering cargo and adjacent enclosed spaces.
- 3.9 An oxygen and carbon monoxide meter shall be worn and activated by all crew when entering cargo and adjacent enclosed spaces.
- 3.10.0 Entry of personnel into cargo spaces shall not be permitted until tests have been carried out and it has been established that the oxygen content has been restored to a normal level.
- 3.10.1 Entry into the cargo space for this cargo shall not be permitted until the cargo space has been ventilated and the atmosphere tested for concentration of oxygen.
- 3.10.2 Entry of personnel into enclosed spaces should not be permitted until tests have been carried out and it has been established that the oxygen content has been restored to a normal level throughout the space and that no toxic gas is present, unless adequate ventilation and air circulation throughout the free space above the material has been effected.
- 3.10.3 Entry of personnel into cargo and adjacent confined spaces should not be permitted until tests have been carried out and it has been established that the oxygen level is 20.7%.
- 3.10.4 Entry of personnel into cargo and adjacent confined spaces shall not be permitted until tests have been carried out and it has been established that the oxygen content and carbon monoxide levels have been restored to the following levels: oxygen 20.7% and carbon monoxide < 100 ppm.
- 3.10.5 Entry of personnel into cargo and adjacent confined spaces shall not be permitted until tests have been carried out and it has been established that the oxygen level is 21%.
- 3.11 For quantitative measurement of flammable and toxic gases such as Phosphine, which may be evolved from this cargo in accordance with the cargo information, suitable detectors for each gas or combination of gases shall be on board while this cargo is carried
- 4.0.0 The detector shall be suitable for use in an atmosphere without oxygen and of certified safe type for use in explosive atmosphere.

IMSBC Code as amended by Res.MSC.318(89) - LIST OF APPLICABLE PROVISIONS

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Dated 05/02/2013

- 4.0.1 The detector shall be suitable for use in an oxygen depleted atmosphere and of a type certified safe for use in an explosive atmosphere
- 4.0.2 The detectors shall be suitable for use in an atmosphere without oxygen
- 4.1 The detectors shall be of certified safe type for use in explosive atmosphere.

- 5.0.0 The ship shall be suitably fitted and carry on board appropriate instruments for measuring the following without requiring entry into the cargo space:
 - .1 concentration of methane in the atmosphere above the cargo;
 - .2 concentration of oxygen in the atmosphere above the cargo;
 - .3 concentration of carbon monoxide in the atmosphere above the cargo;
 - .4 pH value of cargo hold bilge samples.These instruments shall be regularly serviced and calibrated.
- 5.0.1 The ship shall be suitably fitted and carry on board appropriate instruments for measuring the following without requiring entry into the cargo space:
 - .1 concentration of methane in the atmosphere;
 - .2 concentration of oxygen in the atmosphere;
 - .3 concentration of carbon monoxide in the atmosphere; and
 - .4 pH value of cargo hold bilge samples.These instruments shall be regularly serviced and calibrated.
- 5.1 As far as practicable, any gases which may be emitted from the cargo shall not be allowed to accumulate in adjacent enclosed spaces, such as store-rooms, carpenter's shop, passageways, tunnels, etc. Such spaces shall be adequately ventilated and regularly monitored for methane, oxygen and carbon monoxide.

TEMPERATURE

- 6.0.0 The temperature of this cargo shall be measured daily during voyage. The results of measurements shall be recorded to check possible self-heating
- 6.0.1 The temperature of this cargo shall be measured prior to and during loading
- 6.0.2 The temperature of this cargo shall be measured and recorded regularly during voyage to monitor for possible self-heating
- 6.0.3 Temperature of the cargo shall be taken regularly during the voyage and a record kept on board for a minimum of two years.
- 6.0.4 The temperature of this cargo shall be measured at eight-hour intervals during the voyage. The results of measurements shall be recorded and kept on board.
- 6.0.5 The temperature of this cargo shall be measured regularly at a number of depths in the cargo spaces and recorded during the voyage.
- 6.0.6 Cargo temperatures shall be taken at regular intervals during voyage and the results of the measurements shall be recorded and kept on board for a minimum of two years.
- 6.0.7 The temperature of this cargo shall be monitored and recorded daily during the voyage to detect decomposition, which may result in heating and oxygen depletion
- 6.1.0 It is recommended that means be provided for monitoring the temperature of the cargo in the range of 0°C to 100°C to enable the measurement of temperature of the cargo during the voyage without requiring entry into the cargo space.
- 6.1.1 It is recommended that means be provided for measuring the temperature of the cargo in the range 0°C to 100°C to enable the measurement of temperature of the cargo while being loaded and during voyage without requiring entry into the cargo space
- 6.2 The ship shall be provided with the means for reliably measuring the temperatures at several points within the stow
- 6.3 Temperature readings shall be taken in such a way as not to require entry into the cargo space or, alternatively if entry is required for this purpose, at least two sets of self-contained breathing

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Dated 05/02/2013

apparatus, additional to those required by SOLAS regulation II-2/10.10 should be provided.

FIRE FIGHTING

- 7.0 Prior to loading, provision shall be made to introduce a dry, inert gas at tanktop level so that the inert gas purges the air from the cargo and fills the free volume above. Nitrogen is preferred for this purpose.
- 7.1.0 The ship shall be provided with the means to ensure that the requirement of this Code to maintain the oxygen concentration below 5% can be achieved throughout the voyage. The ship's fixed CO₂ fire-fighting system shall not be used for this purpose. Consideration shall be given to providing the vessel with the means to top up the cargo spaces with additional supplies of inert gas taking into account the duration of the voyage.
- 7.1.1 The ship shall be provided with the means to ensure that a requirement of this Code to maintain the oxygen concentration below 5% can be achieved and maintained throughout the voyage. The ship's fixed CO₂ fire-fighting system shall not be used for this purpose. Consideration shall be given to providing the vessel with the means to top up the cargo spaces with additional supplies of inert gas taking into account the duration of the voyage
- 7.2 Sufficient inert gas shall then be introduced to achieve an oxygen concentration less than 5% throughout the cargo space.
- 7.3 When the planned interval between the commencement of loading and the completion of discharge of this cargo exceeds 5 days, the cargo shall not be accepted for loading unless the cargo is to be carried in a cargo space equipped with facilities for introducing carbon dioxide or inert gas into the space.

BILGE

- 8.0 Inadvertent pumping through machinery spaces shall be avoided.
- 8.1 the safety of the bilge pumping arrangements shall be approved by the competent authority.
- 8.2 Bilge wells shall be clean, dry and covered as appropriate, to prevent ingress of the cargo
- 8.3 Bilge system of a cargo space to which this cargo is to be loaded shall be tested to ensure it is working.

CREW PROTECTION

- 9.0.0 Smoking and the use of naked flames shall not be permitted in the cargo areas and adjacent spaces and appropriate warning notices shall be posted in conspicuous places.
- 9.0.1 During handling of this cargo, "NO SMOKING" signs shall be posted on decks and in areas adjacent to cargo spaces and no naked lights shall be permitted in these areas.
- 9.0.2 Smoking shall not be allowed on deck and in the cargo spaces and "NO SMOKING" signs shall be displayed on deck whenever this cargo is on board.
- 9.0.3 Smoking and naked flame shall be prohibited on deck in the vicinity of the cargo space or in the cargo space itself during loading or discharging
- 9.1 At least two sets of self-contained breathing apparatus, in addition to those required by SOLAS regulation II-2/10.10, shall be provided on board.
- 9.2 Chapter II-2 of SOLAS requires fire-fighter's outfits, full chemical protective suits and self-contained breathing apparatus to be readily available on board.
- 9.3 Two sets of self-contained breathing apparatus shall be carried in the ship in addition to normal fire-fighter's outfit.

VENTILATION

- 10.0 Continuous mechanical ventilation shall be conducted during the voyage for the cargo spaces carrying this cargo.
- 10.1.0 Mechanical surface ventilation shall be conducted during the voyage, as necessary, for the cargo

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Dated 05/02/2013

spaces carrying this cargo.

- 10.1.1 Mechanical ventilation shall be conducted during the voyage for the cargo spaces carrying this cargo
- 10.2.0 Surface ventilation only, either natural or mechanical shall be conducted, as necessary, during the voyage for this cargo
- 10.2.1 Unless expressly provided otherwise, surface ventilation shall be conducted in all cargo spaces carrying this cargo for the first 24 hours after departure from the loading port.
- 10.2.2 Surface ventilation either natural or mechanical shall be conducted during the voyage, as necessary, for the cargo spaces carrying this cargo.
- 10.2.3 Surface ventilation either natural or mechanical should be conducted, as necessary, for removing any residual solvent vapour. To prevent self-heating of the cargo, caution is required when using mechanical ventilation
- 10.3 Natural surface ventilation shall be conducted during the voyage, as necessary, for the cargo spaces carrying this cargo.
- 10.4 The total ventilation shall be at least six air changes per hour, based on the empty space.
- 10.5 Ventilation shall be arranged such that any escaping gases are minimized from reaching living quarters on or under the deck.
- 10.6 Ventilation shall be such that escaping gases cannot enter living quarters in hazardous concentrations.
- 10.7.0 When mechanical ventilation is used, the fans shall be certified as explosion-proof and shall prevent any spark generation thereby avoiding the possibility of ignition of hydrogen air mixture.
- 10.7.1 Ventilation fans shall be of certified safe type for use in a flammable atmosphere.
- 10.8.0 Any ventilators of the cargo spaces for this cargo shall be fitted with spark-arresting screens.
- 10.8.1 Spark-arresting screens shall be fitted to ventilators to the cargo spaces containing of this cargo.
- 10.9 Suitable wire mesh guards shall be fitted over inlet and outlet ventilation openings.
- 10.10 The cargo spaces shall be ventilated by at least two separate fans which shall be explosion-proof and arranged so that the escaping gas flow is separated from electrical cables and components
- 10.11 Facilities shall be provided to make accurate determinations of the gas concentrations at each outlet ventilator without danger to the operator.
- 10.12 Ventilator trunkings shall be in sound condition and so arranged to preclude interconnection of the atmosphere in the cargo space with other cargo spaces, accommodation or work areas.
- 10.13 The cargo spaces carrying this cargo shall remain tightly sealed
- 10.14 This cargo shall be loaded in cargo spaces fitted with mechanical ventilation having at least two separate fans.

OTHER

- 11.0 Sets of self-contained breathing apparatus shall be located and stored for immediate use together with lifeline and a gas detector.
- 11.1 When a Metal Sulphide Concentrate is considered as presenting a low fire-risk, the carriage of such cargo on a ship not fitted with a fixed gas fire extinguishing system should be subject to the Administration's authorization as provided by SOLAS regulation II-2/10.7.1.4.