

**Hai Phong City, Date: 19 August 2022**

**CERTIFICATE OF QUALITY**

**REF. NO.: 274832.Q2**

COMMODITY AS B/L: PORTLAND CEMENT CLINKER IN BULK  
QUANTITY AS B/L: 27,150 MT  
VESSEL: M.V. NING JING HAI  
PORT OF LOADING: CAM PHA, VIETNAM  
PORT OF DISCHARGE: CHATTOGRAM, BANGLADESH  
B/L NO.: NJH-02 DATED: 15TH AUG 2022

THIS IS TO REPORT THAT, in compliance with the instructions received from our principal, NAM PHUONG INVESTMENT AND TRADING COMPANY LIMITED, we attended at CAM PHA, VIETNAM with the purpose of carrying out survey of sampling and analysis of the above mentioned commodity. At time of our intervention, the cargo in bulk was being loaded onto the vessel at CAM PHA, VIETNAM. We hereby report our findings as follows:

**SAMPLING AND ANALYSIS:** As the client's instruction, increments were taken randomly from barges for 11 lots of total quantity 57,400 tons during loading onto the vessel at CAM PHA, VIETNAM. Representative sample of each lot was reduced, sealed and sent to SGS's lab for checking size and being grinded under 05mm, prepared, divided into parts with 01 part was kept for whole shipment sample preparation. Representative sample for whole shipment was then prepared into 04 full composite (F.C) samples and distributed as follows:

- 01 F.C sample with SGS seal no. Q4725750 was used for testing.
- 01 F.C sample with SGS seal no. Q4725749 was retained at SGS office and will be disposed after 60 days.
- 01 F.C sample with SGS's seal no. Q4725769 was handed over to the client's representative.
- 01 F.C sample with SGS's seal no. Q4725774 was handed over to the vessel's representative.

The testing results of total quantity 57,400 tons as lab reports no. HPM22-19994 R0 & QML22-19061 R0 were applied for this partial shipment as the client's instruction as follows:

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ITEMS	UNIT	TESTING METHOD	RANGE	RESULTS
<b>CHEMICAL PROPERTIES</b>				
CaO	PCT	ASTM C114-18	MIN 65	66.92
SiO <sub>2</sub>	PCT	ASTM C114-18	20.0 - 23.0	21.33
Al <sub>2</sub> O <sub>3</sub>	PCT	ASTM C114-18	4.5 - 6.0	5.44
Fe <sub>2</sub> O <sub>3</sub>	PCT	ASTM C114-18	3.0 - 5.0	3.52
MgO	PCT	ASTM C114-18	MAX 3.0	1.22
F-CaO	PCT	ASTM C114-18	MAX 1.5	0.98
SO <sub>3</sub>	PCT	ASTM C114-18	MAX 1.0	0.25
Insoluble residue (IR)	PCT	ASTM C114-18	MAX 0.75	0.19
LOI	PCT	ASTM C114-18	MAX 1.0	0.19
Total Alkali (Na <sub>2</sub> O + 0.658K <sub>2</sub> O)	PCT	ASTM C114-18	MAX 0.8	0.66
C <sub>3</sub> S	PCT	LMIN-HAPG-TST-WI-8008 (*)	MIN 55.0	64.71
C <sub>2</sub> S	PCT		10.0 - 24.0	12.35
C <sub>3</sub> A	PCT		7.0 - 10.0	8.46
C <sub>4</sub> AF	PCT		8.0 - 12.0	10.71
Lime saturation factor	PCT		MIN 92.0	97.38
Particular Size: (5mm – 25mm)	PCT		Refer ASTM D2216-2019	≥ 40
Moisture	PCT	LMIN-HAPG-TST-SOP-8119	MAX 1.0	0.08

Remark: (\*) The formulas were applied to calculate for LSF, C<sub>3</sub>S, C<sub>2</sub>S, C<sub>3</sub>A & C<sub>4</sub>AF as follows:  
 LSF (%) = 100 x (%CaO-0.7x%SO<sub>3</sub>)/(2.8 x %SiO<sub>2</sub> + 1.20 x %Al<sub>2</sub>O<sub>3</sub> + 0.65 x %Fe<sub>2</sub>O<sub>3</sub>)  
 C<sub>3</sub>S = 4.07109x(%CaOTT - %CaOFree) – (7.6024x%SiO<sub>2</sub>) – (6.7187x%Al<sub>2</sub>O<sub>3</sub>) – (1.4297x%Fe<sub>2</sub>O<sub>3</sub>)  
 C<sub>2</sub>S = (8.6024x% SiO<sub>2</sub>) + (5.06858x%Al<sub>2</sub>O<sub>3</sub>) + (1.0785x%Fe<sub>2</sub>O<sub>3</sub>) – (3.0711x (%CaOTT - %CaOFree))  
 C<sub>3</sub>A = (2.650x% Al<sub>2</sub>O<sub>3</sub>) – (1.692x%Fe<sub>2</sub>O<sub>3</sub>)  
 C<sub>4</sub>AF = 3.0432x% Fe<sub>2</sub>O<sub>3</sub>

Survey was carried out at CAM PHA, VIETNAM and SGS's lab from 08 to 18 August 2022.

The manual sampling method was agreed with the SGS Principal, as sampling by more reliable methods that provide probability samples was not possible or was not selected by the SGS Principal. The Holder of this document is cautioned that collected MANUAL samples of this type do not satisfy the minimum requirements for probability sampling, and as such cannot be used to draw statistical inferences such as precision, standard error, or bias. The suitability of this sampling method is defined by the sampling standard.

Issued by **SGS VIETNAM LTD,**

Thủy Hòa Công ty  
**Nguyen Xuan Bach**  
 SGS Vietnam Ltd



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