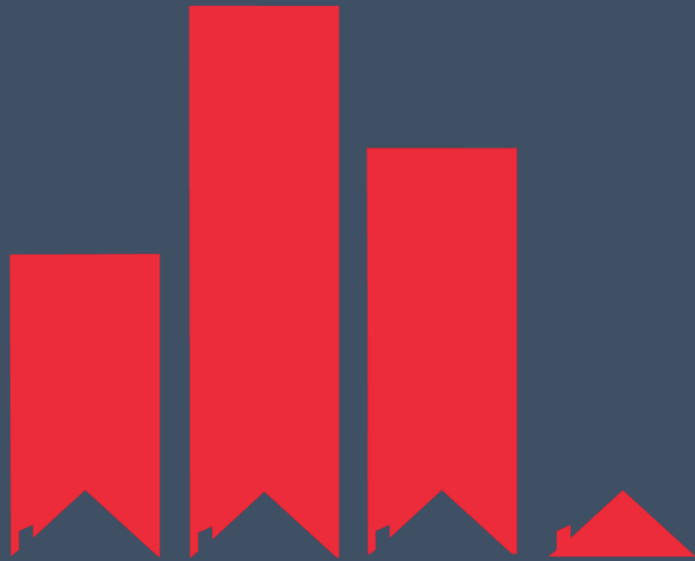




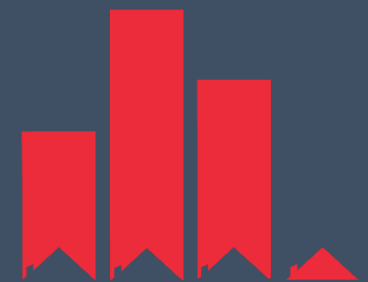
SLAG

ASTM C- 989





NUKSHI OVERVIEW



Contact Information

Mr, Farid Yousaf (Chairman)

NUKSHI STAR SLAG AND FLY ASH

Head Office. 70/A B-Block Small Industrial Estate G-T Road, Rathrian, Jhelum.

<tel:+92315522467> | <tel:+923005522467> 9nukshi@gmail.com

ABOUT US

NUKSHI SLAG

NUKSHI Slag was established in 2003.

NUKSHI Slag is certified company, and a name of trust in the production of high quality Pure Slag from two separate manufacturing units. Nukshi is the supplier of high quality pure Ground Granulated Blast Furnace Slag (GGBFS). The quality of pure Slag is according to the ASTM Standard C-989.

NUKSHI'S PARTNERSHIP WITH PAKISTAN SLAG CEMENT INDUSTRIES



PARTNERSHIP

The Management of Pakistan Slag Cement greatly appreciate Nukshi Group of Companies association and support. Their vast experience and knowledge has added value in marketing and selling of GGBFS since 2003 all over Pakistan.



NUKSHI'S PARTNERSHIP WITH DEWAN CEMENT



PARTNERSHIP

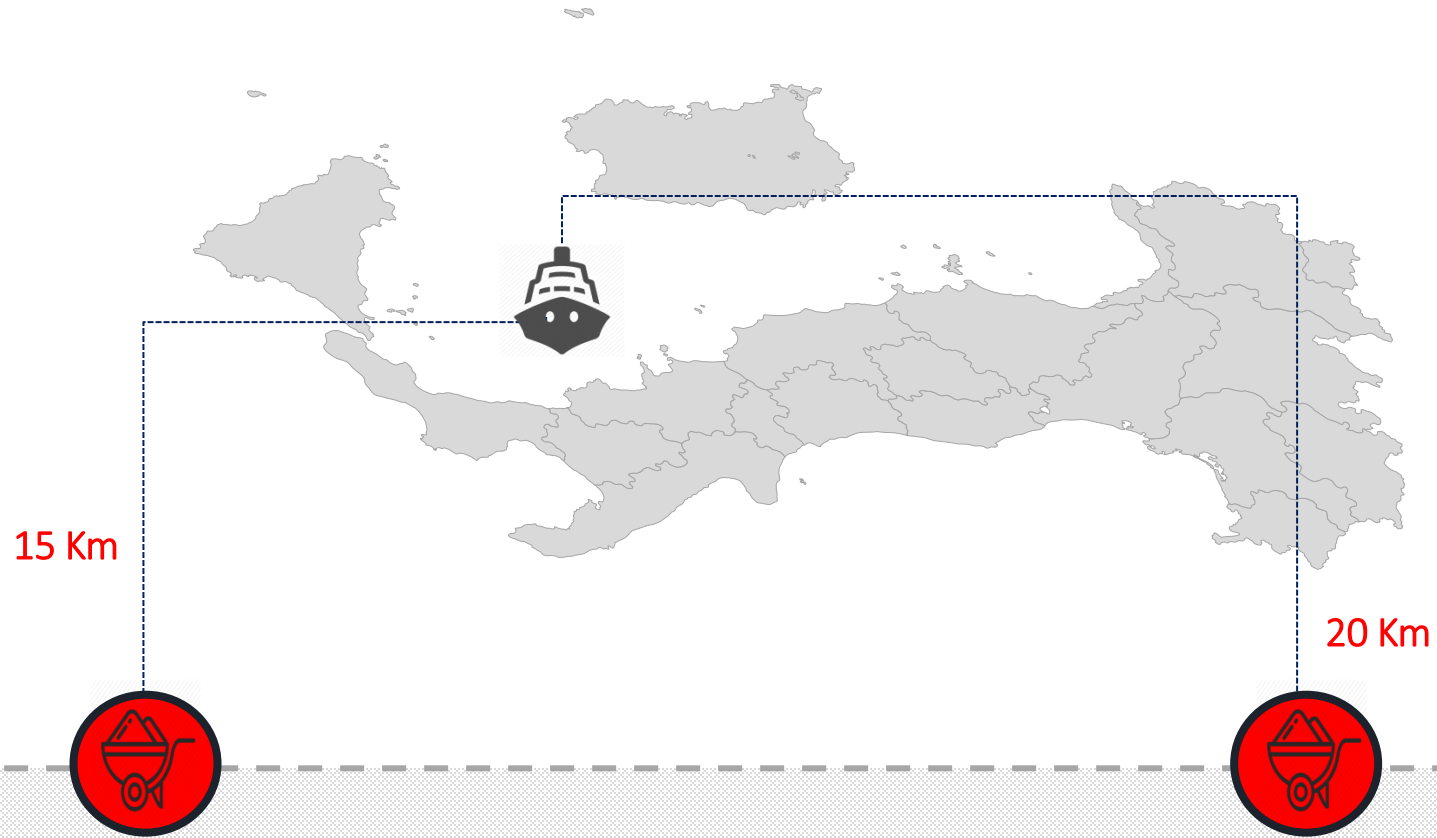
The Management of Dewan Cement
Is hereby to award partnership certificate to
Nukshi Group of Companies for the
outstanding business Cooperation
performance since 2014. Their vast
experience and knowledge has added
value in marketing and selling of GGBFS.



NUKSHI PRODUCTION

Our Manufacturing Plant Distances to PORT QASIM

Karachi -Pakistan



**Pakistan Slag Cement
Industries**
(400 Ton/ Per day)

DEWAN CEMENT
(800 Ton/ Per day)



Quality Management System

ISO 9001:2015



SZUTEST

CERTIFICATE



Quality Management System

CERTIFICATE NO: SZT.2020.SB.2.0.145

Nukshi Star Slag & Fly Ash

70/A, B-Block, Small Industrial Estate, G.T Road, Rathrian, Jhelum, Punjab - Pakistan

ISO 9001:2015

Distributor of Slag, Cement & Fly Ash

EA Code: 29

Szutest confirms with the certificate details given above, that the organization has an appropriate management system complying with the relevant standard principles. This certificate is valid until the date of certification period expiry date only provided that the management system is found successful as a result of surveillance audits.

First Issue Date	27.07.2020
Issue Date	27.07.2020
Expiry Date	26.07.2021
Period Finish Date	26.07.2023



Manager of System Certification

This certificate can be examined by scanning the square codes on the certificate with a mobile device or by verifying the numbers on the square code from the <http://public.szutest.com.tr>

FR.SB.74 R:5

SZUTEST UYGUNLUK DEĞERLENDİRME A.Ş.
Tatlısu Mahallesi, Akif İnan SK, No:1 Ümraniye 34774 İSTANBUL / TÜRKİYE

Szutest.com.tr

NUKSHI
STAR SLAG AND FLY ASH

Environment Management System ISO 14001:2015



SZUTEST

CERTIFICATE



Environment Management System

CERTIFICATE NO: SZT.2020.SB.2.1.034

Nukshi Star Slag & Fly Ash

70/A, B-Block, Small Industrial Estate, G.T Road, Rathrian, Jhelum, Punjab - Pakistan

ISO 14001:2015

Distributor of Slag, Cement & Fly Ash

EA Code: 29

Szutest confirms with the certificate details given above, that the organization has an appropriate management system complying with the relevant standard principles. This certificate is valid until the date of certification period expiry date only provided that the management system is found successful as a result of surveillance audits.

First Issue Date	27.07.2020
Issue Date	27.07.2020
Expiry Date	26.07.2021
Period Finish Date	26.07.2023



Manager of System Certification

This certificate can be examined by scanning the square codes on the certificate with a mobile device or by verifying the numbers on the square code from the <http://public.szutest.com.tr>.

FR.SB.74 R:6

SZUTEST UYGUNLUK DEĞERLENDİRME A.Ş.
Tatlısu Mahallesi, Akıfınan Sk. No:1 Umranıye 34774 İSTANBUL / TÜRKİYE

Szutest.com.tr

NUKSHI
STAR SLAG AND FLY ASH

Occupational Health and Safety Management System

OHSAS 18001:2007



SZUTEST

CERTIFICATE



Occupational Health and Safety Management System

CERTIFICATE NO: SZT.2020.SB.2.3.019

Nukshi Star Slag & Fly Ash

70/A, B-Block, Small Industrial Estate, G.T Road, Rathrian, Jhelum, Punjab - Pakistan

OHSAS 18001:2007

Distributor of Slag, Cement & Fly Ash

EA Code: 29

Szutest confirms with the certificate details given above, that the organization has an appropriate management system complying with the relevant standard principles. This certificate is valid until the date of certification period expiry date only provided that the management system is found successful as a result of surveillance audits.

First Issue Date	27.07.2020
Issue Date	27.07.2020
Expiry Date	26.07.2021
Period Finish Date	12.09.2021



[Signature]
Manager of System Certification

This certificate can be examined by scanning the square codes on the certificate with a mobile device or by verifying the numbers on the square code from the <http://public.szutest.com.tr>.

FR.SB.74 R:6

SZUTEST UYGUNLUK DEĞERLENDİRME A.Ş.
Tatlısu Mahallesi, Akifinan Sk. No:1 Umranıye 34774 İSTANBUL / TÜRKİYE

Szutest.com.tr

NUKSHI
STAR SLAG AND FLY ASH

Clients / Project



➤ CGGC-Cmec Consortium (China)

Neelum-Jhelum Hydro-Power Project, MUZZAFARABAD (AJK).

➤ China International Water & Electric Corporation.(China)

- Mangla Dam Raising Project
- Small Towns Islamgarh
- Chaksawari, Dudail & Sikah Works

➤ Sambu Co., LTD (Korea)

- 84-MW New Bong Escape Hydro Electric Project, Lehri Mirpur (AJK)
- Golen-Gol Hydro Power, Koghuzi, Chitral Lowari Tunnel Project Chitral
- Lowari Tunnel Project

➤ Sinohydro Corporation LTD (China)

Rehabilitation of Trimmu barrage Project, District Jhang.

➤ Daewoo Engineering & Construction Co., LTD (Korea)

- Patrind Hydropower Project Muzaffarabad KPK Pakistan

➤ GBC Impregilo (Italian)

- Ghazi-Barotha Hydro Power Project

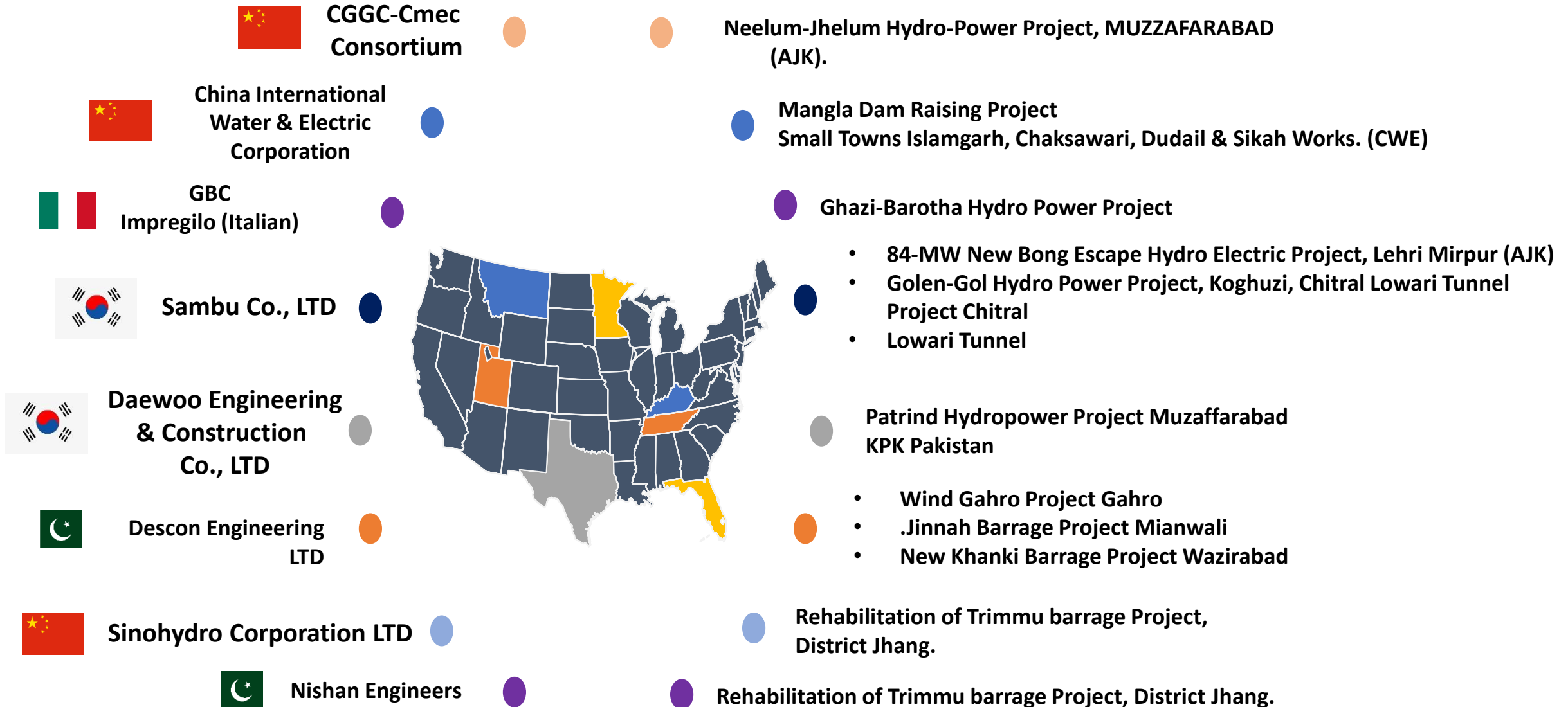
➤ Descon Engineering LTD (Pakistan)

- Wind Gahro Project Gahro, & Jinnah Barrage Project Mianwali
- New Khanki Barrage Project Wazirabad

➤ Nishan Engineers (Pakistan)

- Rehabilitation of Trimmu barrage Project, District Jhang

Map of Few our Clientele



NUKSHI GROUP OF COMPANIES

Feedback of our Clients



CGGC-CMEC CONSTRUCTION

Neelum Jhelum Project Management in Pakistan



葛洲坝中机联合体
CGGC-CMEC CONSORTIUM



巴基斯坦 N-J 项目部

NEELUM JHELUM PROJECT MANAGEMENT IN PAKISTAN

Date: March 27, 2017

To Whom It May Concern

It is certified and on behalf of the remarkable services of supply / CGGC complete construction team. I would like to congratulate you on successfully continue supplying of GGBFS Slag with Brand Name of Nukshi Slag at our NEELUM JHELUM HYDRO POWER PROJECT from the beginning of the project and providing a wonderful services/ struggles and I appreciate the way you handled this job and project it in such a professional way.

It's all because of the dedication and hard work of your company M/s Nukshi Star Slag and Fly Ash that our company will complete the project in time successfully. I have already got congratulatory from different departments for your achievement and sincerely acknowledge the hard work.

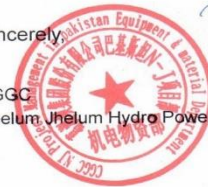
I feel proud that you have such a wonderful do Job Nukshi Slag have led the serve in the right direction.

We sincerely appreciate your role in the success and wish that you would keep up the good work in future too sure also we recommend for our future projects and wish for M/s Nukshi Star Slag and Fly Ash to continue their services as efficiently as ever. .

With best wishes,

Sincerely,

CGGC
Neelum Jhelum Hydro Power Project



Chinese Colony, Komekote Chowk, Chatter Kalas, Muzaffarabad (AJ&K)
Phone No. (+92) 5822461631 Fax No. (+92) 5822461627 Mail: njxmb@126.com

DAEWOO E&C
150-MW Patrind Hydro Power
Project Muzaffarabad AJ&K

Date: 2th March 2017

TO WHOM IT MAY CONCERN

It is privilege to acknowledge the efforts of M/s Nukshi who is involved for the supplying of Slag (GGBFS) for main works of 150-MW Patrind Hydro Power Project, Muzaffarabad (AJ&k).

M/S Nukshi during this turnaround deserve great appreciation by putting excellent and professional participation and prompt reaction to our requirements, and we never face any problem on quality of slag which enable us to execute concrete activities smoothly and on time.

We recommend M/s Nukshi to continue for truly professional presence in our future project.

Best Regards






SAMBU SARCO JV

106 MW Golen Gol Hydropower Project Chitral


SAMBU SARCO JV
GOLEN GOL HYDROPOWER PROJECT

Chitral Office:
WAPDA Colony Koghuzi, 21km from Chitral,
Kyber PukhtoonKhwa, Pakistan GPO Box #18
Tel: +92-0943477025 Fax: +92-943-477081
Islamabad Office
House # 116, Main Principle Road Sect. F-15/1
JKCHS Islamabad,
Tel # 051-2308465, Fax # 051, 2308466


Dated: March 06, 2017

TO WHOM IT MAY CONCERN

It is privilege to acknowledge the Efforts of **M/S NUKSHI** who is involved for the supplying of **Slag (GGBFS)** for main works of **106MW Golen Gol Hydropower Project Chitral**.

M/S NUKSHI during this turnaround deserved great appreciation by putting excellent and professional participation and prompt reaction to our requirements, and we never face any problem on quality of **Slag** which enabled us to execute concrete activates smoothly and on time.

We recommend **M/S NUKSHI** to continue for truly professional presence in our future projects.


General Manager
SAMBU Construction Co., Ltd
Golen Gol Hydropower Project Chitral



SAMBU
84 MW New Bong Escape Hydro Electric
Power Project Mirpur AJ&K



NEW BONG ESCAPE HYDRO-ELECTRIC POWER COMPLEX PROJECT

Pakistan Branch Offices:

LAHORE: 256-CCA, 2nd Floor, Block - FF, Phase - IV, D.H.A. Lahore. Ph: 042-35740180-81, Fax: 042-35892156
sambupak@yahoo.com
ISLAMABAD: 219 Street No. 73 F-11/1 Islamabad Ph: 051-2224961 Fax: 051-2224962 sambu.isb.pk@gmail.com
KARACHI: 81-Khayaban-e-Shujjat Phase 6 D.H.A. Karachi Ph: 021-35348750-51, Fax: 021-35847453

Dated: 19th June 2012

TO WHOM IT MAY CONCERN

It is privilege to acknowledge the efforts of **M/s Nukshi** who is involved for the supplying of **Slag (GGBFS)** for main works of 84-MW New Bong Escape Hydro Electric Power Project, Lehri, Mirpur (AJ&K).

M/s Nukshi during this turnaround deserve great appreciation by putting excellent and professional participation and prompt reaction to our requirements, and we never face any problem on quality of Slag which enabled us to execute concrete activities smoothly and on time.

We recommend M/s Nukshi to continue for truly professional presence in our future projects.


(JUN WOO PARK)
General Manager
Sambu Construction Co.





中国水电建设集团国际工程有限公司
SINOHYDRO CORPORATION LIMITED

Dated 08-03-2017

To Whom It May Concern

It is certified that M/S Nukshi is supplying us Ground Granulated Bruss Furnace Slag with the Brand Name "Nukshi Slag" at our project

- "Rehabilitation and Up gradation of Trimmu Barrage"

The test carried out of the GGBFS are totally as per specification and satisfactory. The deliveries of our orders are also in time. We recommend M/S Nukshi for our future projects and wish for M/S Nukshi to continue their services as efficiently as ever.


Best Regards
Usman Ashraf
Trimmu Barrage.

Address: House NO.3-BC, Tech Society, Lahore



SINOHYDRO CORPORATION LIMITED
Rehabilitation & UP Gradation
Of Trimmu Barrage

(CWE)
CHINA INTERNATIONAL
WATER & ELECTRIC
CORPORATION
Mangla Dam Raising Project
MDR-10, MDR-26A & MDR-27A



World Wide Service
One of the largest General
Contracting Companies
in China

中国水利电力对外公司
曼格拉大坝加高项目组
CHINA INTERNATIONAL WATER & ELECTRIC CORPORATION
MANGLA DAM RAISING PROJECT - MDR-10, MDR-26A & MDR-27A

Date February 11, 2011

TO WHOM IT MAY CONCERN

It is certified that M/s Nukshi having office at Allama Iqbal Road, Mirpur, Azad Kashmir duly represented by Mr. Farid Yousaf has been involved in supply of Slag for Mangla Dam Raising Project, under Contract MDR-10, Construction of Main Works of Mangla Dam Raising Project, Contract MDR-26A and Contract MDR-27A for the Construction of Infrastructure Development Works in Small Towns of Islamgarh, Chaksawari, Dudial and Siakh with China International Water & Electric Corporation.

Our requirement for slag was fully fulfilled by M/s Nukshi, we never had any problem on quality of slag or timely supplies. We recommend M/s Nukshi for our future mega projects.

CWE has no disputes with M/s Nukshi and have never been involved in litigation.

Truly

Bian Jingxi
Project Manager
CWE , Mangla Dam Raising Project.

CWE-TTP Joint Venture
Mangla Dam Raising Project



Head Office: CWE Mansion, No. 3 Liu Pu Kang ST, West Dist., Beijing, China. ZIP Code: 100011, P.O. Box: Beijing 777
FAX: (008610) 64014078, 64014075 TEL: (008610) 62050048, 62381188 E-mail: general1@cwe.com.cn

DESCON ENGINEERING LIMITED

Wind Power Project Karachi

Wind Power Wind Garo Project Karachi

Jinnah Barrage Project Mianwali

New Khanki Barrage Project Wazirabad



DEL/IP-PROC/L0046
1st March, 2016

Mr. Mian Farid
M/S Nukshi
Kashmir Continental Hotel,
Alama Iqbal Road
Mirpur Ak
Cel:0321-5522467
Ph# 05827-448348

To Whom It May Concern

This is certifying that we used the Ground Granulated Blast Furnace Slag supplied by M/ s Nukshi in Brand name "NUKSHI SLAG" at our following projects.

1. Wind Power Project Karachi
2. Wind Power Wind Garo Project Karachi
3. Jinnah Barrage Project Mianwali
4. New Khanki Barrage Project Wazirabad

As per site reports and tests carried out of their GGBFS, we have found the results as per specification and satisfactory.

This certificate is being issued of vendor behalf of remarkable services for Descon Engineering Limited.

Rashid Mehmood
Lead Procurement

Descon Engineering Limited

Descon Headquarters: 18-Km, Ferozepur Road, P.O. Box 1201 Lahore, 54760, Pakistan.
UAN: 42 111 DESCON (337 266) F +92 (42) 3540 1938-39 E: descon@descon.com W: www.descon.com



Company Description

Quality is our First priority

WELCOME TO COMPANY

NUKSHI Slag was established in 2003 and it was fully operational by producing/ providing superior Ordinary Pure Slag was introduced.

The group's entry into the slag sector came through acquisition of Pakistan

Nukshi Slag Exports to different parts of the world. It is listed on the Pakistan Stock Exchange.

Nukshi manufactures high quality Slag utilizing dry process suspension pre-heater with pre-calcinations technology. It produces superior quality slag which conforms to international quality standards through modern and innovative technology. Total quality management underlines the entire operation.

Brief description of GGBF Slag

1. Ground Granulated Blast Furnace Slag
2. Classification
3. Slag cement in Self Consolidating Concrete (SCC)
4. Shrinkage
5. Alkali-Silica Reactions (ASR)



Ground Granulated Blast Furnace Slag

Ground Granulated Blast Furnace Slag (**GGBFS**) is a by-product of the steel industry. Blast furnace slag is defined as “the non-metallic product consisting essentially of calcium silicates and other bases that is developed in a molten condition simultaneously with iron in a blast furnace.” [1] In the production of iron, blast furnaces are loaded with iron ore, fluxing agents, and coke. When the iron ore, which is made up of iron oxides, silica, and alumina, comes together with the fluxing agents, molten slag and iron are produced. The molten slag then goes through a particular process depending on what type of slag it will become. Air-cooled slag has a rough finish and larger surface area when compared to aggregates of that volume which allows it to bind well with Portland cements as well as asphalt mixtures. **GGBFS** is produced when molten slag is quenched rapidly using water jets, which produces a granular glassy aggregate.

In accordance with ASTM C989, GGBFS has three strength grades which are determined by their respective mortar strength when they are mixed with equal mass of portland cement. The three grades, 80, 100, and 120, are classified according to their slag activity index which is average compressive strength of the slag-reference cement cubes (SP), divided by the average compressive strength of the reference cement cubes (P), multiplied by 100 (see Table 1).

SP

Slag Activity Index, % = $\frac{SP}{P} \times 100$

P

The standard also describes the mixture proportions for each type of cube as well as noting a size requirement of residue left on a No. 325 sieve (45µm) to be 20% and that the air content in the slag mortar not be greater than 12%. The chemical limitations of the standard are that the sulfur and ion sulfate contents cannot exceed 2.5%, and 4.0%, respectively.

Classification

TABLE 1 Physical Requirements

Item	
Fineness:	
amount retained when wet screened on a 45- μ m (No. 325) sieve, max %	20
Specific surface by air permeability, Method C 204 shall be determined and reported although no limits are required.	...
Air Content of Slag Mortar, max %	12

	Average of Last Five Consecutive Samples	Any individual Sample
Slag Activity Index, min, %		
7-Day Index		
Grade 80
Grade 100	75	70
Grade 120	95	90
28-Day Index		
Grade 80	75	70
Grade 100	95	90
Grade 120	115	110

TABLE 2 Chemical Requirements

Sulfide sulfur (S), max, %	2.5
Sulfate ion reported as SO ₃ , max, %	4.0

ASTM: C-989

Standard Specification for Ground Granulated Blast-Furnace Slag for Use in Concrete and Mortars

Slag cement in Self Consolidating Concrete (SCC)

The use of slag as a replacement of cement in SCC mixtures was shown to be effective in a 2003 study the slag cement content was varied in different SCC mixtures. The SCC mixtures with the slag cement had slump flow and flow times similar to the control mixtures.

The compressive strengths for the mixtures with the slag cement met their target strengths by 28 days, reaching 31-46 MPa compressive strength. Cost was also a consideration for this study and the most cost effective mixture had a 60% slag replacement.

Shrinkage

One report states that the shrinkage of GGBFS is similar to the shrinkage of plain concrete and thus does not require any special engineering or construction requirements [2]. A study in 2003 showed that plain concrete and concrete with silica fume developed drying shrinkage faster than concrete with GGBFS, but that after one year the shrinkage was about the same for all the types of concrete that were tested. With respect to autogenously shrinkage, the study showed that the higher the percentage of slag used, the higher the autogenously shrinkage after 1 year.

The total shrinkage, drying plus autogenous, of concrete containing slag was lower than 100% portland cement concrete

Alkali-Silica Reactions (ASR)

GGBFS has been known to reduce the degree of which ASR occurs in concrete. The alkali in cement is used by the GGBFS during hydration which prevents the alkali from reacting with the potential deleterious aggregates. In addition, GGBFS typically reduces the permeability of the concrete which in turn prevents the alkalis from migrating through the pores

Quality Control System

Why our customers prefer our products?

Our excellent quality control system ensures good quality of products.



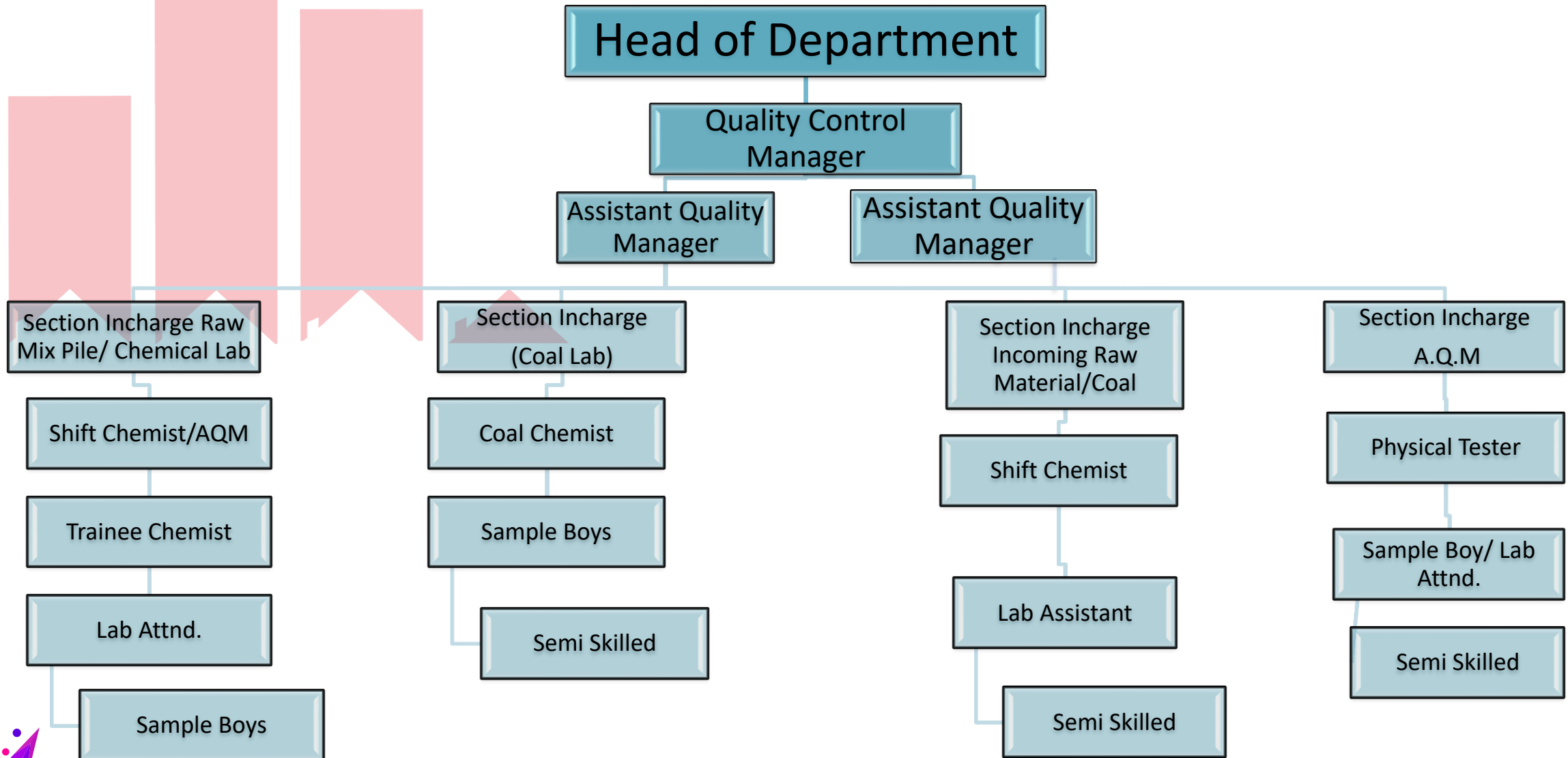
State of the art fully equipped quality control laboratory ensures round the clock supervision and control of all processes of slag manufacturing.



X-Ray analyzer assures quality control at every stage of slag production.



QUALITY CONTROL MANAGEMENT SYSTEM





NUKSHI

STAR SLAG AND FLY ASH

Dated: 02-09-2020

TEST REPORT
GRANULATED BLAST FURNACE SLAG
(For ASTM C-989-97B) GRADE 80

CHEMICAL COMPOSITION	LIMITS	RESULTS (%)
Loss on ignition (L.O.I)	-	0.53
Silica Oxide (SiO ₂)	-	38.10
Aluminum Oxide (Al ₂ O ₃)	-	18.70
Ferric Oxide (Fe ₂ O ₃)	-	1.39
Calcium Oxide (CaO)	-	37.50
Magnesium (MgO)	-	6.86
Sulphur Tri-Oxide (SO ₃)	Max 4.0 %	0.41
Specific Gravity	2.7 ~ 2.9	2.85

PHYSICAL TESTING	LIMITS	RESULTS
Residue on 325 on 45μ (%)	Max 20%	13.45
Specific Surface Blaine Value (cm ² /g)	Not specified	5380
STRENGTH ACTIVITY INDEX	LIMITS	RESULTS
07-Days (Percent of Control)	Not Specified	92
28-Days (Percent of Control)	MIN 70	101

Please note that the above Chemical Analysis depends on the basis of receipt of material from Pakistan Steel which may slightly vary.

MANAGER
Quality Control

Head Office: -70/A B-Block Small Industrial Estate G T Road, Rathrian, Jhelum E-mail: 9nukshi@gmail.com

TEST REPORTS
NUKSHI TEST





NUKSHI

STAR SLAG AND FLY ASH

Dated: 04-06-2020

TEST REPORT
GRANULATED BLAST FURNACE SLAG
(For ASTM C-989-97B) GRADE 80

CHEMICAL COMPOSITION	LIMITS	RESULTS (%)
Loss on ignition (L.O.I)	-	0.53
Silica Oxide (SiO ₂)	-	38.05
Aluminum Oxide (Al ₂ O ₃)	-	18.70
Ferric Oxide (Fe ₂ O ₃)	-	1.39
Calcium Oxide (CaO)	-	37.51
Magnesium (MgO)	-	6.85
Sulphur Tri-Oxide (SO ₃)	Max 4.0 %	0.41
Specific Gravity	2.7 ~ 2.9	2.83

PHYSICAL TESTING	LIMITS	RESULTS
Residue on 325 on 45 μ (%)	Max 20%	15.85
Specific Surface Blaine Value (cm ² /g)	Not specified	5650
STRENGTH ACTIVITY INDEX		RESULTS
07-Days (Percent of Control)	Not Specified	84
28-Days (Percent of Control)	MIN 70	99

Please note that the above Chemical Analysis depends on the basis of receipt of material from Pakistan Steel which may slightly vary.

MANAGER
Quality Control

Head Office: -70/A B-Block Small Industrial Estate G T Road, Rathrian, Jhelum E-mail: 9nukshi@gmail.com

TEST REPORTS
NUKSHI TEST





NUKSHI
STAR SLAG AND FLY ASH

Dated: 29-05-2020

TEST REPORT
GRANULATED BLAST FURNACE SLAG
(For ASTM C-989-97B) GRADE 80

CHEMICAL COMPOSITION	LIMITS	RESULTS (%)
Loss on ignition (L.O.I)	-	0.53
Silica Oxide (SiO ₂)	-	38.05
Aluminum Oxide (Al ₂ O ₃)	-	18.70
Ferric Oxide (Fe ₂ O ₃)	-	1.39
Calcium Oxide (CaO)	-	37.51
Magnesium (MgO)	-	6.85
Sulphur Tri-Oxide (SO ₃)	Max 4.0 %	0.41
Specific Gravity	2.7 ~ 2.9	2.83

PHYSICAL TESTING	LIMITS	RESULTS
Residue on 325 on 45μ (%)	Max 20%	15.95
Specific Surface Blaine Value (cm ² /g)	Not specified	5955
STRENGTH ACTIVITY INDEX	LIMITS	RESULTS
07-Days (Percent of Control)	Not Specified	91
28-Days (Percent of Control)	MIN 70	103

Please note that the above Chemical Analysis depends on the basis of receipt of material from Pakistan Steel which may slightly vary.

MANAGER
Quality Control

Head Office: -70/A B-Block Small Industrial Estate G T Road, Rathrian, Jhelum E-mail: gnukschi@gmail.com

TEST REPORTS
NUKSHI TEST





TESTING REPORT



WORK ORDER NO. 9192

Client Name: M/S NUKSHI Star Slag and Flyash AJK
 Client's Reference: NUKSHI-DC/01-12-13#007
 Client's Project: Testing of Slag
 Sample Name: Nukshi Slag
 Sample Type: Slag
 Sample Received Date: 15-Jun-20

Test Items	Unit	Results	ASTM C-989		
			GRADE 80	GRADE 100	GRADE 120
CHEMICAL REQUIREMENTS					
Moisture	%	0.37	Not Specified		
LOI (Loss on ignition)	%	4.18			
SiO ₂ (Silica)	%	28.73			
Al ₂ O ₃ (Alumina)	%	17.67			
Fe ₂ O ₃ (Iron Oxide)	%	2.52			
CaO (Lime)	%	38.9			
MgO (Magnesia)	%	5.8			
SO ₃ (Sulphuric Anhydride)	%	0.58	MAX 4.00	MAX 4.00	MAX 4.00
PHYSICAL REQUIREMENTS					
Fineness (Blain)	Cm ² /g	6280	Not Specified		
Residue (325#)	%	11.8	MAX 20	MAX 20	MAX 20
STRENGTH ACTIVITY INDEX					
07-Days (Percent of Control)	%	85	Not Specified	MIN 70	MIN 90
28-Days (Percent of Control)	%	96	MIN 70	MIN 90	MIN 110


 Muhammad Sarfaraz
 Lab Incharge



Technology Upgradation and Skill Development Company
 Ministry of Industries and Production
 Cement Research and Development Institute (CR&DI)
 State Cement Corporation Building, Kot Lakhpat, Lahore 54770, Pakistan
 Tel: (+92)-42-35145793-5, 35215890, 35215874, Fax: (+92)-42-35121658, tusdec.org.pk

TEST REPORTS

THIRD LABORATORY REPORTS





TESTING REPORT



WORK ORDER NO. 8445

Client Name: M/S NUKSHI Star Slag and Flyash AJK
 Client's Reference: NUKSHI-ST-10-DC/01-12-13 # 083
 Client's Project: Testing of Slag
 Sample Name: Slag
 Sample Type: Nukshi Slag
 Sample Received Date: 23-Jul-19

Test Items	Unit	Results	ASTM C-989		
			GRADE 80	GRADE 100	GRADE 120
CHEMICAL REQUIREMENTS					
LOI (Loss on ignition)	%	4.36	Not Specified		
SiO ₂ (Silica)	%	40.74			
AL ₂ O ₃ (Alumina)	%	15.62			
Fe ₂ O ₃ (Iron Oxide)	%	2.4			
CaO (Lime)	%	32.71			
MgO (Magnesia)	%	4			
SO ₃ (Sulphuric Anhydride)	%	0.14	MAX 4.00	MAX 4.00	MAX 4.00
PHYSICAL REQUIREMENTS					
Fineness (Blain)	Cm ² /g	7404	Not Specified		
Residue (325#)	%	16.6	MAX 20	MAX 20	MAX 20
STRENGTH ACTIVITY INDEX					
07-Days (Percent of Control)	%	96.01	Not Specified	MIN 70	MIN 90
28-Days (Percent of Control)	%	98.22	MIN 70	MIN 90	MIN 110

Muhammad Sarfaraz
 Lab Incharge

Technology Upgradation and Skill Development Company (TUSDEC)

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TEST REPORTS

THIRD LABORATORY REPORTS





TESTING REPORT



WORK ORDER NO. 8004

Client Name: M/S Nukshi Star Slag and Flyash AJK
 Client's Reference: NUKSHI-S-10-DC/D1-12-13 # 081
 Client's Project: Testing of Slag
 Sample Name: Nukshi Slag
 Sample Type: Slag
 Sample Received Date: 26-Feb-19

Test Items	Unit	Results	ASTM C-989		
			GRADE 80	GRADE 100	GRADE 120
PHYSICAL REQUIREMENTS					
Fineness (Blain)	Cm ² /g	6417	Not Specified		
Residue (325#)	%	13.18	MAX 20	MAX 20	MAX 20
STRENGTH ACTIVITY INDEX					
07-Days (Percent of Control)	%	100	Not Specified	MIN 70	MIN 90
28-Days (Percent of Control)	%	105	MIN 70	MIN 90	MIN 110

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TEST REPORTS

THIRD LABORATORY REPORTS





Manufacturing PROCESS



Raw Material



Grinding



Laboratory Testing



Packing





Raw Material







Grinding







Laboratory Testing







Packing







Loading



Weighing Bridge



Dispatch





NUKSHI
LOGISTICS COMPANY



NUKSHI
STAR SLAG AND FLY ASH



NUKSHI
LOGISTICS COMPANY



35 Ton



60 Ton



68 Ton





35 Ton



68 Ton





Loading







Weighing Bridge







Dispatch





GGBFS

GRINDING / PACKING FACILITY

Current GGBFS
Dispatches / Packing
facility is capable of
1200 TPD.

Future Plans

Separate Vertical Roller Mill (VRM)
dedicated to GGBFS coupled with
existing facilities the production
capacity would be enhanced to 2000
TPD.





 **Kawasaki**

THANK YOU

