PT SURVEYOR INDONESIA (Persero)

REPORT OF ANALYSIS ROA-1708213001A LIK-MINBA05-17 Rev.00

Our Reference	: SPOT-21/5-05-21-00496	
Your Reference	: 001/SI-PTN/MINBA/VI/2021	
Client	: PT. PJB UBJ O&M PLTU PAITON	
Address	: JI. RAYA SITUBONDO KM. 141 PAITON, PROBOLINGGO	
Code Sample	: FLY ASH	
Date of Received	: June 23 rd , 2021	
Analyzed Required	: Chemical Analysis	
Description of Sample	: Form : Powder	
	Commodity : Fly Ash	
	Weight/Volume : 3 kg	
	Packing : Unsealed Plastic Bag	
Date of Analyzed	: July 05 th up to August 30 th , 2021	
Date of Issued	: August 30 th , 2020	
Standard Method	: ASTM C 311:2016 & ISO 29581-2:2010	
Spesification Standard	: ASTM C 618:2015	

THIS IS TO REPORT that the sample have been delivered by client. The following details of activities noted as follows:

Parameter	Unit	Result	Requirements ASTM C 618:2015	Methods
Moisture in the Analysis Sample	%	0.04	max. 3	ASTM C 311 : 2016
Loss of Ignition (LOI)	%	5.81	max. 6	ASTM C 311 : 2016
SiO ₂	%	31.20	-	ISO 29581-2 : 2010
Al ₂ O ₃	%	12.66	-	ISO 29581-2 : 2010
Fe ₂ O ₃	%	29.94	-	ISO 29581-2 : 2010
SO ₃	%	1.05	max. 5	ISO 29581-2 : 2010

Note : ISO 29581-2 : 2010 method verified against SNI 2049 : 2015, ASTM C 311



This report reflects our finding at time and place of inspection and does not refer to any other matter. This report is issued without prejudice and on the understanding that it does not relieve parties from their contractual obligations. All inspection covered in this report have been carried out to the best of our knowledge and ability and in accordance with practice and standard generally in trade. Our responsibility is limited to the exercise of reasonable care and due diligence.

Unit Bisnis Mineral & Batubara Graha Surveyor Indonesia Lt. 11. Jl. Jend. Gatot Subroto Kav. 56, Jakarta - 12950, Indonesia Telp. : 62.21.526 5526, Fax. : 62.21.5793 0667 Website : www.ptsi.co.id

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PT. ANUGRAH ANALISIS SEMPURNA

One Line Laboratory Services

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LAPORAN HASIL PENGUJIAN No: AAS.LHP.II.2021.0261

No: AAS.LHP.II.2021.0261 PT KPJB (PLTU Tanjung Jati B Unit 384)

Nama Pelanggan: Costumer Name Parameter Analisa: Parameter

Komposisi

SARASWANTI

No	No. Sample	Kode Sample	Parameter Uji	HASIL	Satuan	Metode Pengukuran	Keterangan
			SiO ₂	53,12	%	12-13/SMM-AAS	
			AJ ₂ O ₃	30,29	%	12-13/SMM-AAS	
			Fe ₂ O ₃	0,05	%	12-13/SMM-AAS	
			CaO	4,32	%	12-13/SMM-AAS	
1	001.2871	Fly Ash (Mix Unit 3&4)	MgO	0.26	%	12-13/SMM-AAS	
			SO3	1,95	%	12-13/SMM-AAS	
			Na ₂ O	0,32	%	12-13/SMM-AAS	
			K₀O	0.08	9%	12-13/SMM-AAS	
			Loss of Ignition (LOI)	1,79	%	20-008/IK/SMM-AAS	



Sika[®] Fume Silica-Fume Densified Powder

Positioning	
Description	Sika [®] Fume is a dry powder silica fume additive for concrete and mortars. Sika [®] Fume meets the requirements of ASTM C-1240 and AS/NZ 3582.3/2002
Uses	 Sika[®] Fume is a pozzolanic material that consists primarily of fine silicon dioxide particles in a non-crystalline form. Silica fume particles have a diameter of less than 1µm; about 100 times smaller than the average cement particle. Pozzolanic action: A chemical reaction takes place between the free lime Ca (OH)₂ in the cement paste and the Sika[®] Fume particles which results in the formation of additional calcium silicate hydrate (CSH) gel, the glue that holds the concrete constituents together. The formation of this extra binding force within the gel increases the compressive and flexural strength of the concrete. Void Reduction: The fine particles of Sika[®] Fume fill the tiny voids and capillary pores within the cement matrix and significantly reduce porosity to produce an extremely dense and impermeable concrete. Sika[®] Fume is recommended for all high performance, high strength applications; concrete required to resist water and chemical ingress and concrete required to resist mechanical abrasion.
Advantages	 Sika[®] Fume produces concrete that has dramatically increased compressive and flexural strength, which allows greater design flexibility and structural design economies, combined with reduced permeability to increase the service life of the concrete. Compressive strengths are dramatically increased for high performance concrete. Excellent abrasion and erosion resistance increases concrete durability in high-traffic areas. Permeability is dramatically reduced, which makes Sika[®] Fume ideal for applications where concrete will be required to resist chemical attack. Resistance to corrosion is increased because concrete is more resistant to water ingress and therefore also to corrosion caused by sulfates and waterborne chlorides such as deicing salts. Decreased permeability gives Sika[®] Fume concrete excellent freeze-thaw resistance because less water is trapped inside the cement paste. Sika[®] Fume does not contain calcium chloride nor any other intentionally added chloride containing ingredients.
Product Data	
Form/Colour:	Grey Powder.
Packaging:	Sika [®] Fume is available in 10kg bags and 900kg bulk bags.
Storage & Shelf Life:	Eighteen (18) months shelf life when stored in dry conditions.



	Dosage rates are typica Sika strongly recommer	lly specified betwee nds that trial batches	n 5 and 15% k be performed	by weight I using pro	of cement. bject materia
Compatibility with other Sika admixtures:	IN Order to determine the	e optimum dosage f	or specified pr	oject requ	irements.
Standards					
Otanuarus	Table 1				
	SPECIFIED PROPERT	IES OF AMORPHO	US SILICA FO	OR USE II	N
	CONCRETE, MORTAR	AND GROUT			-
	Property	Specification	Sik	a Fume	Reference
					Method
	Moisture content	≤3.0%	0.6	%	AS 3585.
	Sulfuric anhydride	< 3.0%	0.3	<u>%</u>	AS 3583
	Total silica content SiC	$D_2 \ge 85.0\%$	94.	<u>7%</u>	AS 2350.
	Table 2 REPORTABLE PROPE	RTIES OF AMORP	HOUS SILIC	Ą	
	Property	Sika Fume		Referen	се
	Surface area	27.3246		AS 2879).4
	Available alkali	0.1%		AS 3583	3.12
	Chloride ion	0.055%		AS 3583	3.13
	Relative strength	116%		ASTM C	1240
	Bulk density	660kg/m [°]			
	Chloride Ion diffusion co Test Method	befficient of concrete	Average Dif	fusion Co	pefficient
				1360	
Application Condition	ONS Sika [®] Fume may be bate	ched in a central or	truck mixer.	rmation	and
	assistance.	a Sika representativ		ornationa	Inq
	The low water cement ra Fume make the use of a	atios typically specifi a high range water r	ed for concret educer, such a	e containi as a Sika [®]	ng Sika [®]
	product, essential in mo entraining admixtures w	st applications. Sika here air entrained c	recommends	the use cuired.	ViscoCrete of Sika air
Workability / Finishing	product, essential in mo entraining admixtures w Sika [®] Fume may affect t where warmer ambient o	st applications. Sika here air entrained c the finishing charact conditions are enco	recommends oncrete is requeristics of the untered. The a	the use cuired. concrete, mount of	particularly
Workability / Finishing	product, essential in mo entraining admixtures w Sika [®] Fume may affect t where warmer ambient o froghthe sougrete ason	st applications. Sika here air entrained c the finishing charact conditions are encou	eristics of the untered. The a	the use c uired. concrete, mount of	particularly bleed wate
Workability / Finishing Handling	product, essential in mo entraining admixtures w Sika [®] Fume may affect t where warmer ambient o finishing an and easy Avoid direct contact. We goggles/ gloves/clothing in well ventilated areas. contaminated clothing a	st applications. Sika there air entrained c the finishing charact conditions are encound the finishing charact conditions are encound to prevent direct c Wash thoroughly w and launder before re	i recommends oncrete is requ eristics of the untered. The a sign remma ive equipment ontact with sk ith soap and w euse.	the use of uired. concrete, mount of cale finst concrete, in out of concrete, in and eye vater after	particularly bleed wate second a l resistant es. Use only use. Remo
Workability / Finishing Handling Caution	product, essential in mo entraining admixtures w Sika [®] Fume may affect t where warmer ambient o firmshing an and easy Avoid direct contact. We goggles/ gloves/clothing in well ventilated areas. contaminated clothing a Contains amorphous sil ventilation. Eye, skin an respirator, safety goggle	st applications. Sika where air entrained c the finishing charact conditions are encound attometed and encound attometed and encound ear personal protect g) to prevent direct c Wash thoroughly w and launder before re- ica. Avoid breathing d respiratory irritant es and rubber gloves	eristics of the untered. The a sister of the asister of the untered. The a sister of the asister of the the equipment ontact with sk ith soap and w euse. dust. Use on the use of a s is recommer	the use of uired. concrete, mount of Part fifter (chemica in and eye vater after y with pro n approve nded. Rem	particularly bleed wate when a second bleed wate when a second bleed wate when a second bleed wate when a second bleed wate wate wate wate wate wate wate wate

Notes	All technical data stated in this Product Data Sheet are based on tests. Actual measured data may vary due to circumstances beyond our control.
Local Restrictions	Please note that as a result of specific local regulations the performance of this product may vary from country to country. Please consult the local Product Data Sheet for the exact description of the application fields.
Health & Safety Inform	mation
Protective Measures	 To avoid allergic reactions, we recommend the use of protective gloves. Change soiled work clothes and wash hands before breaks and after finishing work.
	 Local regulations as well as health and salety advice on packaging labels must be observed.
	 For further information refer to the Sika Material Safety Data Sheet which is available on www.sika.co.nz, or on request.
	• If in doubt always follow the directions given on the pack or label.
	First Aid: Eyes: Hold eyelids apart and flush thoroughly with water for 15 minutes. Skin: Remove contaminated clothing. Wash skin thoroughly for 15 minutes with soap and water. Inhalation: Remove person to fresh air. Ingestion: Do not induce vomiting. Dilute with water. Contact a physician. In all cases, contact a physician immediately if symptoms persist.
Legal Notes	The information, and, in particular, the recommendations relating to the application and end-use of Sika products, are given in good faith based on Sika's current knowledge and experience of the products when properly stored, handled and applied under normal conditions in accordance with Sika's recommendations. In practice, the differences in materials, substrates and actual site conditions are such that no warranty in respect of merchantability or of fitness for a particular purpose, nor any liability arising out of any legal relationship whatsoever, can be inferred either from this information, or from any written recommendations, or from any other advice offered. The user of the product must test the product's suitability for the intended application and purpose. Sika reserves the right to change the properties of its products. The proprietary rights of third parties must be observed. All orders are accepted subject to our current terms of sale and delivery. Users must always refer to the most recent issue of the local Product Data Sheet for the product concerned, copies of which will be supplied on request.



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PRODUCT DATA SHEET Sika[®] ViscoCrete[®]-3115 N

CONCRETE ADMIXTURE FOR HIGH FLOW / SELF-COMPACTING CONCRETE

DESCRIPTION

Sika[®] ViscoCrete[®]-3115 N is a third generation superplasticiser for concrete and mortar. It is particularly developed for the production of high flow concrete with exceptional flow retention properties.

USES

Sika[®] ViscoCrete[®]-3115 N facilitates extreme water reduction, excellent flowability with optimal cohesion and strong self-compacting behaviour.

Sika[®] ViscoCrete[®]-3115 N is used for the following types of concrete :

- High flow concrete
- Self-compacting concrete (S.C.C.)
- Concrete with very high water reduction (up to 30%)
- High strength concrete
- Watertight concrete
- Pre-cast concrete

The combination of high water reduction, excellent flowability and high early strength provides clear benefits in the above mentioned applications.

CHARACTERISTICS / ADVANTAGES

Sika[®] ViscoCrete[®]-3115 N acts by surface adsorption on the cement particles producing a sterical separation effects. Concrete produced with Sika[®]

- ViscoCrete[®]-3115 N exhibits the following properties : • Excellent flowability (resulting in highly reduced pla-
- cing and compacting efforts)Strong self-compacting behaviour
- Extremely high water reduction (resulting in high density and strengths)
- Improved shrinkage and creep behaviour
- Increased carbonation resistance of the concrete
- Improved finish

Sika[®] ViscoCrete[®]-3115 N does not contain chlorides or other ingredients which promotes steel corrosion. Therefore, it may used without restriction for reinforced and pre-stressed concrete construction. Sika[®] ViscoCrete[®]-3115 N gives the concrete extended workability and depending on the mix design and the quality of materials used, self-compacting properties can be maintained for more than 1 hour at 30 °C.

Composition	Aqueous solution of modified polycarboxylate copolymers			
Packaging	20 L jerrycan 200 L drum 1000 L tanks	20 L jerrycan 200 L drum 1000 L tanks		
Appearance / Colour	Liquid / Turbid, Yellowi	Liquid / Turbid, Yellowish		
Shelf life	12 months from date o packaging	12 months from date of production when stored in original unopened packaging		
Storage conditions	Store in dry condition a from direct sunlight an	Store in dry condition at temperature between +5 °C and +30 °C. Protect from direct sunlight and frost.		
Density	at +20 °C	at +20 °C 1.05 ± 0.01 kg/L		

PRODUCT INFORMATION

Product Data Sheet Sika® ViscoCrete®-3115 N November 2016, Version 01.01 021301011000001634

TECHNICAL INFORMATION

Concreting Guidance	The standard rules of good concret placing, are to be followed. Laboratory trials before concreting when using a new mix design or pr Fresh concrete must be cured prop	The standard rules of good concreting practice, concerning production and placing, are to be followed. Laboratory trials before concreting on site are strongly recommended when using a new mix design or producing new concrete components. Fresh concrete must be cured properly and as early as possible.		
APPLICATION INFORM	ATION			
Recommended Dosage	For soft plastic concrete For flowing and self compacting concrete (S.C.C.)	0.3 – 0.8 % by weight of binder 0.8 – 2.0 % by weight of binder		
Compatibility	Sika® ViscoCrete®-3115 N may be o Plastiment® P121R Plastiment® VZ Sika® Fume SikaFibre® Do not use viscocrete / viscoflow so To produce flowing and / or self-co design is required. Pre-trials are recommended and m products are required. Please consult to our Technical Ser	combined with the following products: eries combined with sikament series. ompacting concrete, special concrete mix nandatory if combinations with the above vice Department.		

APPLICATION INSTRUCTIONS

DISPENSING

Sika® ViscoCrete®-3115 N is added to the gauging water or simultaneously poured with it into the concrete mixer. For optimum utilisation of its high water reduction property, it is recommended to thoroughly mix the concrete at a minimal wet mixing time of 5 minutes.

The addition of the remaining gauging water (to fine tune concrete consistency) may only be started after two-thirds of the wet mixing time, to avoid surplus water in the concrete.

BASIS OF PRODUCT DATA

All technical data stated in this Data Sheet are based on laboratory tests. Actual measured data may vary due to circumstances beyond our control.

LOCAL RESTRICTIONS

Note that as a result of specific local regulations the declared data and recommended uses for this product may vary from country to country. Consult the local Product Data Sheet for the exact product data and uses.

ECOLOGY, HEALTH AND SAFETY

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For information and advice on the safe handling, storage and disposal of chemical products, users shall refer to the most recent Safety Data Sheet (SDS) containing physical, ecological, toxicological and other safety-related data.

Product Data Sheet Sika® ViscoCrete®-3115 N November 2016, Version 01.01 021301011000001634



LEGAL NOTES

The information, and, in particular, the recommendations relating to the application and end-use of Sika products, are given in good faith based on Sika's current knowledge and experience of the products when properly stored, handled and applied under normal conditions in accordance with Sika's recommendations. In practice, the differences in materials, substrates and actual site conditions are such that no warranty in respect of merchantability or of fitness for a particular purpose, nor any liability arising out of any legal relationship whatsoever, can be inferred either from this information, or from any written recommendations, or from any other advice offered. The user of the product must test the product's suitability for the intended application and purpose. Sika reserves the right to change the properties of its products. The proprietary rights of third parties must be observed. All orders are accepted subject to our current terms of sale and delivery. Users must always refer to the most recent issue of the local Product Data Sheet for the product concerned, copies of which will be supplied on request.

PT. Sika Indonesia Head Office and

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Product Data Sheet Sika® ViscoCrete®-3115 N November 2016, Version 01.01 021301011000001634 SikaViscoCrete-3115N-en-ID-(11-2016)-1-1.pdf



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FedFiber

TDS-Technical Data Sheet

Company Name: SHANDONG FEDERAL FIBER CO., LTD.

ADD: HUIMIN,BINZHOU ,SHANDONG,251700,CN.

ATT: Peter Lee

Phone: +86-543-5779757 18678313600

Emai: peter@fedfiber.com

Production: Copper coated steel fiber

Description: Copper coated steel fiber is a special kind of metal fiber, which has strong stress, tensile and crack resistance. It is widely used in high-speed rail prefabrication, RPC cover, UHPC, exterior wall painting, and important engineering components. It can greatly improve the tensile, stress, shear strength, impermeability, impact resistance and fatigue strength of

concrete.



Fiber Type:	Copper coated	Material	Carbon steel
Shape	straight	Grade	Low carbon
Diameter	0.2mm	Tensile Strength:	2850Mpa
Length:	6mm,12mm,or customized	Elastic modulus:	230Gpa
Reference Standards	UNI-EN 10016: Non-alloy steel rod for drawing and/or cold rolling - Part 1: General Requirements BS-EN 14889-1: Fibres for concrete - Part 1: Steel Fibres—Definition, specifications & conformity		

Benefit:

1. Improving the ability of concrete to resist earthquake and natural disasters

- 2. Improving crack resistance of concrete
- 3. Reduces settlement and bleeding

4. Reduces plastic shrinkage and settlement cracking

5. Increase the wear resistance of concrete

6. Improving the capacity of concrete to protect steel

7. Increasing the concrete crack resistance, flexural strength

Dosage: The mixing ratio of steel fiber with concrete matrix is about 1-5% by weight.

Packing: Fibres are delivered packed in 25KG/bag, or packing according to requirements.

Health & Safety:

1. Using steel fibres under normal conditions does not present an inhalation, ingestion or contact health hazard.

2. Because of their physical nature, we recommend that operatives handling the fibres should always wear gloves.

3. To avoid deterioration of packing, the fibres should be stored in a dry environment.