



CIVIL-AID

1/2

Ref:CIVILAIID:FA:BL/1642/10/2014

Date:08.11.2014

Test Order dated:21.10.2014

M/s Larsen & Toubro Limited-
Construction, Heavy Civil IC
Gate No. 1, Kannur International Airport Project,
Mattannur-Anjarakandi Road
Mattannur P.O, Kannur-670 702

PHYSICAL TEST REPORT ON FINE AGGREGATE SAMPLE
(MANUFACTURED SAND)

Source of sample : Sample supplied by the customer
Customer's Reference : Letter No. LTCD/B&F/KIAL-KANNUR/PLAN-EXT/006/2014 Dated 20.10.2014
Sample Unique Identification No : 130511
Period of test : 27.10.2014 to 29.10.2014
Project* : Construction of Integrated Passenger Terminal Building & other structures
for Kannur International Airport
Source* : M/s V.K. Stone Crusher, Vellervally, Peravoor
Condition of sample : Satisfactory
Test Method : IS:2386 (Part I to VIII)-1963 (Reaffirmed - 2011)

SIEVE ANALYSIS:

Table with 7 columns: IS Sieve Designation, Cumulative Percent Retained, Cumulative Percent Passing, and Specification as per IS:383-1970 (Reaffirmed 2007) for Fine Aggregate (Percentage Passing) in Zone-I, Zone II, Zone-III, and Zone IV.

REMARKS: The sample supplied satisfies the requirements of grading Zone II as per IS:383-1970 (RA 2007). According to IS:383-1970 (RA 2007) for Crushed Stone Sands, the permissible limit on 150 micron IS Sieve is increased to 20%. This does not affect the 5% allowance permitted in Cl. 4.3

Table with 3 columns: Test Conducted, Results, and Requirements as per IS:383-1970 (RA 2007). Rows include Material finer than 75 microns (%), Specific gravity, and Moisture content (%).

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Manager - Lab





2/2

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Test Conducted	Results	Requirements as per IS:383-1970 (RA 2007)
Water absorption (%)	3.0	Not Specified
Bulking (%)	17.6	Not Specified
Bulk Density (kg/lit)		
Loose	1.827	Not Specified
Rodded	2.060	Not Specified
Voids (%)		
Loose	31.0	Not Specified
Rodded	22.3	Not Specified

* As furnished by the customer.

- Note:
1. The results relate only to the Items tested.
 2. Report shall not be reproduced, except in full, without the written approval of the lab.
 3. Any correction invalidates this report.

for CIVIL AID TECHNOCLINIC PVT. LTD.

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Manager - Lab





CIVIL AID

Ref:CIVIL/ID:FA/BL/1642/10/2014a

Date:12.11.2014

Test Order dated:21.10.2014

M/s Larsen & Toubro Limited-
Construction, Heavy Civil IC
Gate No. 1, Kannur International Airport Project,
Mattannur-Anjarakandi Road
Mattanur P.O, Kannur-670 702

CHEMICAL TEST REPORT ON FINE AGGREGATE SAMPLE
(MANUFACTURED SAND)

Source of sample : Sample supplied by the customer
Customer's Reference : Letter No. LTCD/BB&F/KIAL-KANNUR/PLAN-EXT/006/2014 Dated 20.10.2014
Sample Unique Identification No : 130511
Period of test : 22.10.2014 to 06.11.2014
Project* : Construction of Integrated Passenger Terminal Building & other structures
for Kannur International Airport
Source* : M/s V.K. Stone Crusher, Vellervally, Peravoor
Condition of sample : Satisfactory
Test Method : IS:2386 (Part II, V & VII)-1963 (RA - 2008)

Table with 3 columns: Test Conducted, Results, and Requirements as per IS:383-1970 (RA 2007). Rows include Organic Impurities, Light weight pieces, Soundness (%), Sodium Sulphate, and Magnesium Sulphate.

Table with 3 columns: Test Conducted, Results, and Remarks. Rows include Alkali aggregate Reactivity (a) Reduction in Alkalinity of 1.0 N NaOH and (b) Silica Dissolved.

* As furnished by the customer.

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for CIVIL AID TECHNOCLINIC PVT. LTD.

Handwritten signature and name: Sudhakarishma, Manager - Lab



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Ref:CIVILAIID:CA: BL/1642/10/2014
 Test Order dated: 21.10.2014

Date:08.11.2014

M/s Larsen & Toubro Limited-
 Construction, Heavy Civil IC
 Kannur International Airport Project,
 Site Office: Gate No. 1, Kannur International Airport Campus
 Mattannur-Anjarakandi Road,
 Mattannure (Post), Kannur District -670 702

PHYSICAL TEST REPORT ON COARSE AGGREGATE SAMPLE

Source of sample : Sample supplied by the customer
 Customer's Reference : Letter No. LTCD:B&F:KIAL-KANNUR:PLAN-EXT:006/2014 Dated 20.10.2014
 Sample Unique Identification No : 130511
 Period of test : 28.10.2014 to 30.10.2014
 Project* : Construction of Integrated Passenger Terminal Building & other Structures for Kannur International Airport Project
 Source* : V.K Stone Crusher, Vellervally, Peravoor
 Condition of sample : Satisfactory
 Test Method : IS: 2386 (Part I to VIII)-1963 (Reaffirmed – 2011)

SIEVE ANALYSIS - 20mm and Down :

IS Sieve Designation	Cumulative Percent		Specification as per IS:383-1970 (Reaffirmed 2011) In respect of 20mm nominal size aggregate (% passing)	
	Retained	Passing	Graded	Single Size
40.00 mm	0	100	100	100
20.00 mm	12.4	87.6	95-100	85-100
12.50 mm	73.1	26.9	-	-
10.00 mm	86.2	13.8	25-55	0-20
04.75 mm	99.4	0.6	0-10	0-5

Remarks : The above tested sample conforms to the requirement of single size aggregate as per IS:383-1970 (RA in 2011).

SIEVE ANALYSIS – 12.5mm and Down :

IS Sieve Designation	Cumulative Percent		Specification as per IS:383-1970 (Reaffirmed 2011) in respect of 12.5mm nominal size aggregate (% passing)	
	Retained	Passing	Graded	Single Size
20.00 mm	0	100	100	100
12.50 mm	2.9	97.1	90-100	85-100
10.00 mm	57.1	42.9	40-85	0-45
04.75 mm	99.8	0.2	0-10	0-10

Remarks : The above tested sample conforms to the requirement of graded aggregate as per IS:383-1970 (RA in 2011).

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 08/11/2014

K.N.VISHWANATH
 Sr. Manager - Lab





2/2

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Test Conducted	Results		Requirements IS:383-1970 (RA 2011)
	20mm	12.5mm	
Water absorption (%)	0.1	0.1	Not Specified
Flakiness index (%)	8.9	16.5	Flakiness shall not exceed 25% as per SP-23 : 1982
Elongation index (%)	12.1	12.0	Not Specified
Specific gravity	3.0	2.99	Not Specified
Clay Lumps	Nil	Nil	Not Specified
Material finer than 75 micron	0.07	0.09	Max. 3% by weight
Bulk Density (Kg/lt)			
Loose	1.633	1.531	Not Specified
Rodded	1.815	1.737	Not Specified

* As furnished by the customer.

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for CIVIL AID TECHNOCLINIC PVT. LTD.

K.N. Vishwanath
08/11/2014
K.N.VISHWANATH
Sr. Manager - Lab





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Site Office: Gate No. 1, Kannur International Airport Campus
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CHEMICAL TEST REPORT ON COARSE AGGREGATE SAMPLE

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 Sample Unique Identification No : 130511
 Period of test : 28.10.2014 to 30.10.2014
 Project* : Construction of Integrated Passenger Terminal Building & other Structures for Kannur International Airport Project
 Source* : V.K.Stone Crusher, Vellervally, Peravoor
 Condition of sample : Satisfactory
 Test Method : IS: 2386 (Part II, V & VII)-1963 (Reaffirmed - 2011)

Test Conducted	Results		Requirements as per IS:383-1970 (RA 2011)
	12.5mm	20mm	
Soundness (% by Mass) (weight loss after 5 cycles) Sodium Sulphate	0.62	0.23	Max. 12%
Magnesium Sulphate	0.70	0.40	Max. 18%
Deleterious Materials (%) Light weight pieces	Nil	Nil	Max. 1% by weight
Organic Impurities	Intensity of the colour developed by the test specimen is lighter than the standard solution indicating the presence of insufficient quantity of harmful organic compounds.		The aggregate shall not contain harmful organic impurities in sufficient quantities to effect adversely the strength or durability of concrete.
Alkali aggregate Reactivity: (millimoles/ltr.)			As per IS:2386 (Part VII) 1963 (Reaffirmed - 2011) the samples fall under Innocuous aggregate i.e., the samples do not indicate potential deleterious degree of Alkali Reactivity.
a) Reduction in Alkalinity of 1.0 N NaOH	44.00	36.00	
b) Silica Dissolved	5.99	6.55	

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C. N. Vishwanath
08/11/2014

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Sr. Manager, Lab

