

### TEST REPORT

Test Report Issued To:

**APCO INFRATECPVT LTD**

BEHIND IMS ENGG COLLEGE, VILLAGE ROAD,DASNA,  
GHAZIABAD, UTTAR PRADESH, INDIA, 201015,

Test Report No: **N190522037/N190522037-1**

Date of Issue: **03-Jun-2019**



Sample Booking/Receipt Date: **22-May-2019**

Date of Start of Testing: **28-May-2019**

Date of Completion of Test: **03-Jun-2019**

Customer Relationship Number **54693**

**Sample Description :**

COARSE AGGREGATE (20 MM) SOURCE-KOTHPUTLI



**Customer Reference No :**

APCO/NCRTC/2019/MISS/01 DATE-20/05/2019

**Kind Attention :** MR MANOJ SRIVASTAVA

**E-Mail:** billing.dmc2@apcoinfra.com

**Contact No:** 9582775035

**Sample Condition :** NA

Sample Quantity (Approx) : NA

Sample Size (Approx) : NA

SAMPLE NOT DRAWN BY OUR LABORATORY. THE RESULTS RELATE ONLY TO THE ITEMS TESTED

**Report Issued by**

Authenticity of report can be verified by mail at [verification@spectrolab.in](mailto:verification@spectrolab.in)

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# TEST REPORT

**ID:N190522037-1**

**COARSE AGGREGATE -20 MM**

<u>S.No.</u>	<u>Test Parameters</u>	<u>Observed Results</u>	<u>Test Method</u>	<u>Requirement as per "IS: 383-2016" Specification</u>	<u>Conformity</u>
1	Specific Gravity	2.77	IS 2386 (Pt-3)1963/ R 2016	---	---
2.	Bulk Density, Kg/litre	1.60	IS 2386 (Pt-3)1963/ R 2016	----	---
3	Water Absorption, %	0.15	IS 2386 (Pt-3)1963/ R 2016	---	---
4	Combined Flakiness & Elongation Index, %	20.1	IS 2386 (Pt-1)1963/ R 2016	40 Max.	Yes
5	Soundness, % (after 5 cycles)				
	(a) With Sodium Sulphate	0.4	IS 2386 (Pt-5)1963/ R 2016	12 Max.	Yes
	(b) With Magnesium Sulphate	0.5		18 Max.	Yes
6	Aggregate Crushing Value, %	22.8	IS 2386 (Pt-4)1963/ R 2016	30 Max. for Wearing Surface	Yes
7	Aggregate Impact Value, %	20	IS 2386 (Pt-4)1963/ R 2016	30 Max. for Wearing Surface	Yes
				45 Max. for Non-Wearing Surface	Yes
8	Aggregate Abrasion Value, % (Los Angeles)	23.8	IS 2386 (Pt-4)1963/ R 2016	30 Max. for Wearing Surface	Yes
				50 Max. for Non-Wearing Surface	Yes

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9	Deleterious Material, %		IS 2386 (Pt-I& 2)1963/R 2016		
	(a) Material Finer than 75	0.11		1.00 Max.	Yes
	(b) Coal & Lignite	Nil		1.00 Max.	Yes
	(c) Clay Lumps	Nil		1.00 Max.	Yes
	(d) Total Deleterious Material	0.10		2.00 Max.	Yes
10.	Sieve Analysis, % passing		IS 2386 (Pt-1)1963/ R 2016		
	Sieve Sizes				
	40 mm	100		100	Yes
	20 mm	95.7		85-100	Yes
	10 mm	1.8		0-20	Yes
	4.75 mm	0.2		0-5	Yes
11.	Alkali Aggregate Reactivity		IS 2386 (Pt-7)1963/ R 2016		
	a. Dissolve Silica , (Milimoles/Ltr)	44.62		---	----
	b. Reduction in alkalinity (Milimoles/ltr)	100.85		-----	-----
	c. Nature of Aggregate	Innocuous		Shall be Innocuous	Yes
12.	Chloride % by mass	0.010	BS EN 1744 (Pt-1)-2009	--	--
13.	Sulphate % by mass	0.022	BS EN 1744 (Pt-1)-2009	--	--



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### Megascope Observation:

The given sample of 20 mm coarse aggregate consists of gray to gray in colour.

### Microscopic Examination:

Under microscope the aggregate is found to consist of > 40% Quartz. Quartz is the predominant mineral and carbonates of calcium and magnesium constitute the cementing material.

**Identification of Rock Group** - Calcareous sandstone

### Petrographic Details:

S.No	Particulars	
1	Shape of Particle	Angular in outline.
2	Particle Surface	Crystalline
3	Texture	Granular
4	Grain Size	Fine grained.
5	Colour	gray to gray colored.
6	Mineral Composition	The main mineral is quartz. The accessory minerals are feldspar, biotite and iron-oxide.
7	Nature of Rock	Innocuous
8	General Physical Condition	Compact and hard



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## Mineralogy:

S. No.	Quartz, %	Aluminium oxide,%	Magnesium oxide,%	Iron oxide, %	Calcium oxide, %
1	45 - 50	5 - 10	1 - 5	1 - 5	20 - 25
2	45 - 50	5 - 10	1 - 5	1 - 5	20 - 25
3	40 - 45	5 - 10	1 - 3	1 - 5	20 - 25

## Description:

The given sample 20 mm coarse aggregate is a mixture of different type of rocks. Predominantly it consists of calcareous sandstone with some pieces of granite also present. Calcareous sandstone consists of quartz grains which are cemented with carbonates of calcium and magnesium.

The aggregates are gray to gray colour. The grains are angular to subangular and this indicates that the rock is made by cementing of grains that are either fragments of a pre-existing rock or mono-mineralic crystals. The given sample consists of aggregates, which are predominantly fine grained and have equigranular texture. Some aggregates show porphyritic texture i.e. large crystals embedded in fine-grained matrix. The main mineral is quartz and the accessory minerals are feldspars, micas, garnet and magnetite. The grains in aggregate are compactly packed. It has medium density.

## Comments:

The sample consists of coarse aggregate of sedimentary rock consisting of the mineral quartz along with the accessory minerals of feldspars, micas, garnet and magnetite. The sample is compact and hard and quite suitable for its use as coarse aggregate in construction purpose.

  
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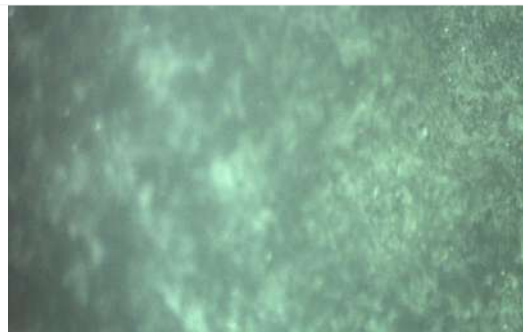


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**PETROGRAPHIC EXAMINATION - PHOTOMICROGRAPHS**

**AS-RECEIVED SAMPLE**



20X

**Photomicrograph Details:**

**Microscopic Light:** Cross Polarized

**Objective Magnification:** X20

**Photomicrograph Description:** General view of structure exhibiting quartz, calcium oxide, iron-oxide and Magnesium oxide.

Protocol: IS 2386 (Part VIII)-1963 & IS 383-2016

-- End of Test Report --

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