



Certificate # 3512.05

**Construction Materials Testing Laboratory FUGRO - SUHAIMI**Jubail Branch  
P.O. Box 2165 - Tel.: (013) 341 2700  
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السحيمي - فيفرو

**SUMMARY OF TEST REPORT**

<b>Client</b>	A.H. Al Marhoon & Bros. Co.	<b>Job No.</b>	SA08-3012
<b>Project</b>	Concrete Batch Plant, Rahima	<b>Lab No.</b>	11366
<b>Material</b>	3/4" (20 mm) Coarse Aggregate	<b>Date Sampled</b>	02 Sept. 2015
<b>Source</b>	Al Osais, Abuhadriya (Sampled by FSL)	<b>Date Reported</b>	13 Sept. 2015

**Properties:**

Properties Tested	Test Method	Results	S. Aramco Specification
Sieve analysis	ASTM C-136	See Attached	--
Material finer than No. 200 sieve %	ASTM C-117	0.68	5.0 max.
Clay lumps & friable particles %	ASTM C-142	0.46	5.0 Max.
Los Angeles Abrasion	ASTM C-131		
Loss at 100 revolutions %		8.1	--
Loss at 500 revolutions %		31.9	40 max.
Ratio 100/500 rev.		0.25	--
Magnesium sulfate soundness loss (5 cycles) %	ASTM C-88	9.7	25.0 max.
Specific gravity and absorption	ASTM C-127		
Apparent		2.629	--
SSD basis		2.573	--
Dry basis		2.560	--
Absorption		0.99	2.5 max
Acid soluble chloride, (Cl), %	ASTM C 114		
(Cl), %		0.012	0.03 max
Acid soluble sulphate (SO <sub>4</sub> ), %	BS-812 Part 118	0.241	0.40 Max
Flakiness index	BS-812	7.2	--
Elongation index	BS-812	9.5	--
Coal & lignite	ASTM C-123	NIL	--

**Remarks:** All test results indicate compliance with the Saudi Aramco standard 09-SAMSS-088.Tested By: CBB Reviewed By: Imran Ahmed  
CTTA # : 0428 CTTA # : 0556Sr. Laboratory Supervisor  
Muhammad Nawaz CTTA # 0037

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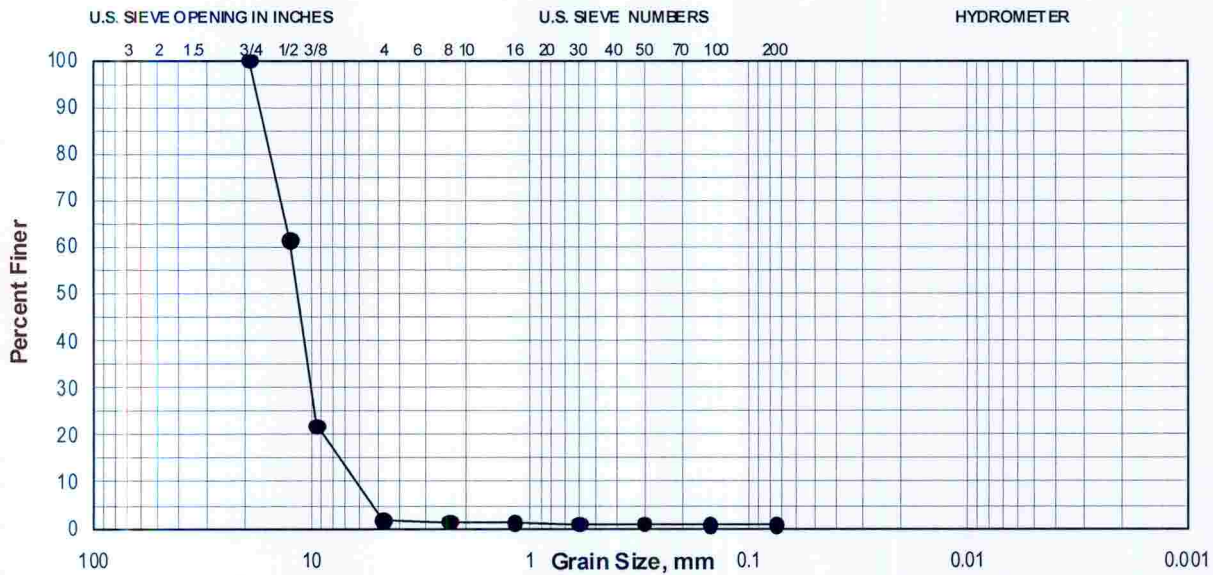
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**PARTICLE SIZE ANALYSIS TEST REPORT**

<b>Client</b>	A.H. Al Marhoon & Bros. Co.	<b>Job No.</b>	SA08-3012
<b>Project</b>	Concrete Batch Plant, Rahima	<b>Lab No.</b>	11366
<b>Material</b>	3/4" (20 mm) Coarse Aggregate	<b>Date Sampled</b>	02 Sept. 2015
<b>Source</b>	Al Osais, Abuhadriya (Sampled by FSL)	<b>Date Tested</b>	03 Sept. 2015
<b>Method</b>	ASTM C-136/117	<b>Date Reported</b>	13 Sept. 2015



Gravel		Sand			Silt or Clay
Coarse	fine	Coarse	medium	fine	

**Description of Sand / Gravel Particles:**

Shape	Hardness	Specific Gravity

Sieve Size Inch(mm)	Passing g %	Specification	Properties Tested		
			Item	Description	Result
1 (25.0 mm)					
3/4 (19 mm)	100				
1/2 (12.5 mm)	61.5				
3/8 (9.5 mm)	22.0				
#4 (4.75 mm)	1.7				
#8 (2.36 mm)	1.52				
#16 (1.18 mm)	1.32				
#30 (0.600 mm)	1.00				
#50 (0.300 mm)	0.91				
#100 (0.150 mm)	0.75				
#200 (0.075 mm)	0.68				

<b>Remarks</b>	
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Tested By: CBB      Reviewed By: Imran Ahmed  
CTTA # : 0428      PCTTA # : 0556



*(Handwritten Signature)*

**Sr. Laboratory Supervisor**  
Muhammad Nawaz CTTA # 0037





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## SUMMARY OF TEST REPORT

<b>Client</b>	A.H. Al Marhoon & Bros. Co.	<b>Job No.</b>	SA08-3012
<b>Project</b>	Concrete Batch Plant, Rahima	<b>Lab No.</b>	11367
<b>Material</b>	3/8" (10- mm) Coarse Aggregate	<b>Date Sampled</b>	02 Sept. 2015
<b>Source</b>	Al Osais, Abuhadriya (Sampled by FSL)	<b>Date Reported</b>	13 Sept. 2015

### Properties:

Properties Tested	Test Method	Results	S. Aramco Specification
Sieve analysis	ASTM C-136	See Attached	--
Material finer than No. 200 sieve %	ASTM C-117	1.4	5.0 max.
Clay lumps & friable particles %	ASTM C-142	0.47	5.0 max.
Los Angeles Abrasion	ASTM C-131		
Loss at 100 revolutions %		8.2	--
Loss at 500 revolutions %		33.7	40 max.
Ratio 100/500 rev.		0.24	--
Magnesium sulfate soundness loss (5 cycles) %	ASTM C-88	14.9	25.0 max.
Specific gravity and absorption	ASTM C-127		
Apparent		2.637	--
SSD basis		2.575	--
Dry basis		2.537	--
Absorption		1.5	2.5 max
Acid soluble chloride, (Cl), % %	ASTM C 114		
		0.016	0.03 max
Acid soluble sulphate (SO <sub>4</sub> ), %	BS-812 Part 118		
		0.346	0.40 Max
Flakiness index	BS-812	7.8	--
Elongation index	BS-812	10.2	--
Coal & lignite	ASTM C-123	NIL	--

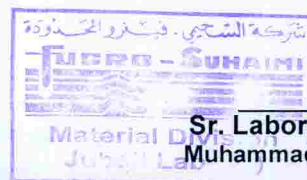
**Remarks:** All test results indicate compliance with the Saudi Aramco standard 09-SAMSS-088.

Tested By: CBB

Reviewed By: Imran Ahmed

CTTA # : 0428

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**Sr. Laboratory Supervisor**  
Muhammad Nawaz CTTA # 0037

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