

## Auditing Test Report

Date: 12/07/2017

Lab No. : 40156-2

### Client

Saudi Vitrified Clay Pipe Co.  
P.O. Box 6415  
Riyadh 11442  
Kingdom of Saudi Arabia

### Sampling Date:

10/7/2017

### Testing Date:

11/7/2017

### Auditing Purpose:

Testing of Pipes Joints material for Vitrified Clay Pipes & Fittings " System F" according to EN 295-1:2013

### Description:

Pipe joints of socketted pipes made from rubber sealing elements - class 50

### Jointing System:

System F

### Nominal Size:

DN 100 up & DN 150

### Samples (taken):

Three specimens of rubber sealing elements - System F, manufactured by Umm Al Quwain Rubber Industries UAE

### Description of Sampling

Samples were taken from the stock at the client's manufacturing works in Riyadh (Kingdom of Saudi Arabia) by the agent of the Suhaimi - Fugro

### Underlying specification /description of the tests

EN 295-1:2013	"Vitrified clay pipe systems for drains and sewers - Part 1: Requirements for pipes, fittings & joints"
EN 295-2:2013	"Vitrified clay pipe systems for drains and sewers - Part 2: Evaluation of conformity and sampling"
EN 295-3:2012	"Vitrified clay pipe systems for drains and sewers - Part 3: Test Methods"
EN 681-1:1996	"Elastomeric seals - Material requirements for pipe joint seals used in water and drainage applications - Part 1: Vulcanized rubber"



**Results of Joint Material tests**

Joint Material	Tests	Unit	Requirements (EN 681-1:1996)	Readings			Result
				1	2	3	
<b>Rubber Sealing Element ( L-ring)</b>	Dimensions			Confrom according to ISO 3302			Pass
	Visual Imperfections			None			Pass
	Hardness	IRHD	50 ± 5	51	50	49	Pass
	Tensile Strength	Mpa	≥ 9	18.8	16	20.23	Pass
	Elongation at Break	%	≥ 375	610	601	605	Pass
	*Compression Set: 72 hrs at 23 C°	%	≤ 12	8.6	7.2	7.1	Pass
	Compression Set: 24 hrs at 70 C°	%	≤ 20	16.6	15.1	17.2	Pass
	*Compression Set: 72 hrs at -10 C°	%	≤ 40	26.5	29.4	20	Pass
	*Aging 7 days at 70°, Hardness change	IRHD	50 +8/-5	47	48.5	53	Pass
	*Aging 7 days at 70°, Tensile strength change	%	≤ -20	-5.2	-6.8	-6.2	Pass
	* Aging 7 days at 70°, Elongation change	%	≤ +10/-30	-10.5	-11.5	-10.2	Pass
	*Stress relaxation : 7 days at 23 C°	%	≤ 14	8.6	9.7	8.1	Pass
	*Stress relaxation: 100 days at 23 C°	%	≤ 20	15.5	16.1	13.2	Pass
	*Volume change ( water immersion 7 d, 70° C)	%	≤ +8/-1	4.7	5.2	3.2	Pass
	*Ozone resistance (50 ppm)	-	No cracks	No cracks			Pass

\* These type tests are required just once annually as per EN 681-1

**FUGRO - SUHAIMI LTD**  
**Anil K Mathew**

