



**PARS ETHYLENE KISH Co.**  
**Manufacturer of Polyethylene Pipe and Fitting**  
**TESTING CERTIFICATE**  
**HDPE PIPE**

**Raw Material Test Report**

Sample Code: M0007024	Type of Raw Material: PE80	MRS: 8 MPa	Production Date: 1400	Test Date: 1400/07/25			
Company: Shazand Petrochemical Co.	Made In: Iran	Lot No.: 1400371	Grade: ARMCPR100B	Color: Black			
Reference Standard: INSO 14427-1	Applicant: Vaniya Fateh Andisheh Nasl Pasargad Co.						
Characteristics	Value	Unit	Requirement	Test Status	Pro. Of Conformity (%)	Conditions	Test Method
Carbon Black Content (CBC)	2.16	Percent	2.00-2.50	OK	100	Temperature:(550±50) °C & (900±25) °C (Time:5 min, Flow: (200±20) ml/min) (Time: 45min, Flow: (100±10) ml/min)	ISO 6964 INSO 19990 (Method A)
Carbon Black Degree of Dispersion	1.3	Grade	less than or Equal to 3.0	OK	100	Sample Weight: (0.2±0.1) mg Thickness: (20±10)µm	ISO 18553 INSO 20059
Carbon Black Appearance of Dispersion	A2	---	A1, A2, A3 or B	OK	100	Magnify: 100X Film Width: 4mm	
Density	0.959	Gr/cm <sup>3</sup>	Greater than or Equal to 0.941	OK	100	Test Method: A Immersion Fluid: Methanol (CH <sub>3</sub> OH) Temperature: (23±2) °C	ISO 1183-1 INSO 7090-1
Melt Flow Rate (MFR)	0.21	Gr/10min	0.15-0.70	OK	100	Weight: 5Kg Temperature: 190 °C Cut Time: 120 s	ISO 1133-1 INSO 6980-1
Oxidation Induction Time (OIT)	>20	min	Greater than or Equal to 20	OK	100	Type of dish: Al Temperature: 200 °C Sample Weight: (15±2) mg Test Environment: Oxygen	ISO 11357-6 INSO 7186-6
Volatile Content	200	PPM	less than or Equal to 350	OK	100	Temperature: (105±2) °C Time: (65±5) min Sample Weight: 25 gr	BS EN 12099 INSO 19441

**Pipe Test Report**

Sample Code: P0007105	Nominal OD (mm): 63	PN (Bar): 16	Safety Factor (SF): 1.25	SDR: 9	Application: Water Supply		
Nominal Wall Thickness (mm): 7.10	Production Line: EX3	Reference Standard: INSO 14427-2	Standard of Butt Fusion Jointing Procedure: INSO 18648				
Pipe Production Date: 1400/07/25	Pipe Test Date: 1400/07/26	Report Issue Date: 1400/9/17	Standard of Field Leak Testing Procedure: INSO 22591				
Characteristics	Value	Unit	Requirement	Test Status	Pro. Of Conformity (%)	Conditions	Test Method
Mean Outside Diameter	63.16	mm	$d_{gm, min}$ : 63.00   $d_{gm, max}$ : 63.40	OK	100	Temperature: (23±2) °C	ISO 3126 INSO 2412
Maximum Out of Roundness (Ovality)	0.54	mm	1.50	OK	100		
Minimum Wall Thickness ( $e_{min}$ )	7.19	mm	7.10	OK	100		
Maximum Wall Thickness ( $e_{max}$ )	7.63	mm	8.00	OK	100		
Marking	Correspond	---	Perfect, Permanent and Legible	OK	100	Without Magnification	ISO 4427-2 INSO 14427-2
Appearance	Correspond	---	Flawless on inner and outer Surface	OK	100		
Colour	Correspond	---	The Pipes shall be Black	OK	100		
Effect on Water Quality	Correspond	---	no Change in color, smell and taste	OK	100		
Carbon Black Content (CBC)	2.16	Percent	2.00-2.50	OK	100	Temperature:(550±50) °C & (900±25) °C (Time:5 min, Flow: (200±20) ml/min) (Time: 45min, Flow: (100±10) ml/min)	ISO 6964 INSO 19990 (Method A)
Carbon Black Degree of Dispersion	1.3	Grade	less than or Equal to 3.0	OK	100	Sample Weight: (0.2±0.1) mg Thickness: (20±10)µm	ISO 18553 INSO 20059
Carbon Black Appearance of Dispersion	A2	---	A1, A2, A3 or B	OK	100	Magnify: 100X Film Width: 4mm	
Hydrostatic Strength	25.68	Bar	No Failure During the test Period of any test Piece	OK	100	Temperature: 20 °C Time: 100 hr Type of Test: Water in Water	ISO 1167-1,2 ISIRI 12181-1,2
Hydrostatic Strength	11.56	Bar		OK	100	Temperature: 80 °C Time: 165 hr Type of Test: water in Water	
Hydrostatic Strength for butt fusion Joint (Pipe to Pipe)	11.56	Bar		OK	100		
Density	0.958	Gr/cm <sup>3</sup>	Greater than or Equal to 0.941	OK	100	Test Method: A Immersion Fluid: Methanol (CH <sub>3</sub> OH) Temperature: (23±2) °C	ISO 1183-1 INSO 7090-1
Melt Flow Rate (MFR)	0.23 9.07	Gr/10min Percent	Change of MFR by Processing ±20%	OK	100	Weight: 5Kg Temperature: 190 °C Cut Time: 120 s	ISO 1133-1 INSO 6980-1
Longitudinal Reversion	Correspond 1.15	--- Percent	No effect on Surface less than or Equal to 3	OK	100 100	Time: 60min, Temperature: (110±2) °C	ISO 2505 INSO 17614
Oxidation Induction Time (OIT)	>20	min	Greater than or Equal to 20	OK	100	Type of dish: Al Temperature: 200 °C Sample Weight: (15±2) mg Test Environment: Oxygen	ISO 11357-6 INSO 7186-6
Elongation at Break	>350	Percent	Greater than or Equal to 350	OK	100	Type: 1, Speed: 50 mm/min, Gauge Length: (50±1)mm	ISO 6259-1, 3 INSO 17140-1, 3
Tensile Strength for butt fusion Joint (Pipe to Pipe)	---	---	Ductile Failure	Not Applicable	---	Type: A, Speed: (5±1) mm/min	ISO 13953 INSO 17304

**Summary of Results:**  
**All Results Conform to the Requirement of the Reference Standards (INSO 14427-1, 2)**

**Remarks:**

 Laboratory Expert <b>M. Mael</b>	 Laboratory Technical Manager <b>M. Goshtasb</b>	 Laboratory Manager <b>H. Fazeli</b>
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**Notice:**  
 - Uncertainties of Results will be reported upon customer's request.  
 - These Results are Valid just for these samples.  
 - All rights are reserved for Pars Ethylene Kish Laboratory.  
 - the sampling is done by QC Department.

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**PARS ETHYLENE KISH Co.**  
**Manufacturer of Polyethylene Pipe and Fitting**  
**TESTING CERTIFICATE**  
**HDPE PIPE**

**Raw Material Test Report**

Sample Code: M0007018	Type of Raw Material: PE80	MRS: 8 MPa	Production Date: 1400	Test Date: 1400/07/20			
Company: Shazand Petrochemical Co.	Made In: Iran	Lot No.: 1400362	Grade: ARMCRP100B	Color: Black			
Reference Standard: INSO 14427-1	Applicant: Vaniya Fateh Andisheh Nasl Pasargad Co.						
Characteristics	Value	Unit	Requirement	Test Status	Pro. Of Conformity (%)	Conditions	Test Method
Carbon Black Content (CBC)	2.10	Percent	2.00-2.50	OK	100	Temperature:(550±50) °C & (900±25) °C (Time:5 min, Flow: (200±20) ml/min) (Time: 45min, Flow: (100±10) ml/min)	ISO 6964 INSO 19990 (Method A)
Carbon Black Degree of Dispersion	1.4	Grade	less than or Equal to 3.0	OK	100	Sample Weight: (0.2±0.1) mg Thickness: (20±10)µm Magnify: 100X Film Width: 4mm	ISO 18553 INSO 20059
Carbon Black Appearance of Dispersion	A2	---	A1, A2, A3 or B	OK	100		
Density	0.958	Gr/cm <sup>3</sup>	Greater than or Equal to 0.941	OK	100	Test Method: A Immersion Fluid: Methanol (CH <sub>3</sub> OH) Temperature: (23±2) °C	ISO 1183-1 INSO 7090-1
Melt Flow Rate (MFR)	0.22	Gr/10min	0.15-0.70	OK	100	Weight: 5Kg Temperature: 190 °C Cut Time: 120 s	ISO 1133-1 INSO 6980-1
Oxidation Induction Time (OIT)	>20	min	Greater than or Equal to 20	OK	100	Type of dish: Al Temperature: 200 °C Sample Weight: (15±2) mg Test Environment: Oxygen	ISO 11357-6 INSO 7186-6
Volatile Content	214	PPM	less than or Equal to 350	OK	100	Temperature: (105±2) °C Time: (65±5) min Sample Weight: 25 gr	BS EN 12099 INSO 19441

**Pipe Test Report**

Sample Code: P0007085	Nominal OD (mm): 110	PN (Bar): 16	Safety Factor (SF): 1.25	SDR: 9	Application: Water Supply		
Nominal Wall Thickness (mm): 12.30	Production Line: EX3	Reference Standard: INSO 14427-2	Standard of Butt Fusion Joining Procedure: INSO 18648				
Pipe Production Date: 1400/07/21	Pipe Test Date: 1400/07/22	Report Issue Date: 1400/9/17	Standard of Field Leak Testing Procedure: INSO 22591				
Characteristics	Value	Unit	Requirement	Test Status	Pro. Of Conformity (%)	Conditions	Test Method
Mean Outside Diameter	110.10	mm	d <sub>em, min</sub> : 110.00   d <sub>em, max</sub> : 110.70	OK	100	Temperature: (23±2) °C	ISO 3126 INSO 2412
Maximum Out of Roundness (Ovality)	1.52	mm	2.20	OK	100		
Minimum Wall Thickness (e <sub>min</sub> )	12.38	mm	12.30	OK	100		
Maximum Wall Thickness (e <sub>max</sub> )	13.31	mm	13.70	OK	100		
Marking	Correspond	---	Perfect, Permanent and Legible	OK	100	Without Magnification	ISO 4427-2 INSO 14427-2
Appearance	Correspond	---	Flawless on inner and outer Surface	OK	100		
Colour	Correspond	---	The Pipes shall be Black	OK	100		
Effect on Water Quality	Correspond	---	no Change in color, smell and taste	OK	100	---	---
Carbon Black Content (CBC)	2.10	Percent	2.00-2.50	OK	100	Temperature:(550±50) °C & (900±25) °C (Time:5 min, Flow: (200±20) ml/min) (Time: 45min, Flow: (100±10) ml/min)	ISO 6964 INSO 19990 (Method A)
Carbon Black Degree of Dispersion	1.4	Grade	less than or Equal to 3.0	OK	100	Sample Weight: (0.2±0.1) mg Thickness: (20±10)µm Magnify: 100X Film Width: 4mm	ISO 18553 INSO 20059
Carbon Black Appearance of Dispersion	A2	---	A1, A2, A3 or B	OK	100		
Hydrostatic Strength	25.34	Bar	No Failure During the test Period of any test Piece	OK	100	Temperature: 20 °C Time: 100 hr Type of Test: Water in Water	ISO 1167-1,2 ISIRI 12181-1,2
Hydrostatic Strength	11.40	Bar		OK	100	Temperature: 80 °C Time: 165 hr Type of Test: water in Water	
Hydrostatic Strength for butt fusion Joint (Pipe to Pipe)	11.40	Bar		OK	100	---	
Density	0.957	Gr/cm <sup>3</sup>	Greater than or Equal to 0.941	OK	100	Test Method: A Immersion Fluid: Methanol (CH <sub>3</sub> OH) Temperature: (23±2) °C	ISO 1183-1 INSO 7090-1
Melt Flow Rate (MFR)	0.23	Gr/10min	Change of MFR by Processing ±20%	OK	100	Weight: 5Kg Temperature: 190 °C Cut Time: 120 s	ISO 1133-1 INSO 6980-1
	4.51	Percent					
Longitudinal Reversion	Correspond	---	No effect on Surface	OK	100	Time: 120 min, Temperature: (110±2) °C	ISO 2505 INSO17614
	1.33	Percent	less than or Equal to 3	OK	100		
Oxidation Induction Time (OIT)	>20	min	Greater than or Equal to 20	OK	100	Type of dish: Al Temperature: 200 °C Sample Weight: (15±2) mg Test Environment: Oxygen	ISO 11357-6 INSO 7186-6
Elongation at Break	>350	Percent	Greater than or Equal to 350	OK	100	Type: 1, Speed: 25 mm/min, Gauge Length: (50±1)mm	ISO 6259-1, 3 INSO 17140-1, 3
Tensile Strength for butt fusion Joint (Pipe to Pipe)	Ductile	---	Ductile Failure	OK	100	Type: A, Speed: (5±1) mm/min	ISO 13953 INSO 17304

**Summary of Results:**

All Results Conform to the Requirement of the Reference Standards (INSO 14427-1, 2)

**Remarks:**

 Laboratory Expert <b>M. Moei</b>	 Laboratory Technical Manager <b>M. Goshtasb</b>	 Laboratory Manager <b>H. Fazeli</b>
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Form Code: LMS-FP-19-19-03

