

SOUTHERN PARS 1 CONDENSATE

TABLE 1: CONDENSATE GENERAL PROPERTIES ANALYSIS

CHARACTERISTICS	UNITS	RESULT	TEST METHOD
Specific Gravity @ 15.56 /15.56 °C	---	0.7327	ASTM D4052
API Gravity	°API	61.6	
Sulfur Content (Total)	wt.%	0.25	ASTM D4294
H2S Content	ppm	<1	UOP 163
Mercaptan Content	wt.%	0.17	UOP 163
Nitrogen Content (Total)	ppm	<10	ASTM D4629
Water Content	vol.%	<0.025	ASTM D4006
Salt Content	P.T.B	<1	ASTM D3230
Hydrocarbon Types:			
Saturates	vol.%	89.5	ASTM D1319
Olefins	vol.%	2.0	
Aromatics	vol.%	8.5	
Kinematic Viscosity @ 0 °C	mm ² /s	1.061	ASTM D445
Kinematic Viscosity @ 10 °C	mm ² /s	0.862	
Kinematic Viscosity @ 20 °C	mm ² /s	0.777	
Cloud Point	°C	-44	ASTM D2500
Pour Point (Upper)	°C	-57	ASTM D97
Reid Vapor Pressure	psi	11.0	ASTM D5191
Wax Content	wt.%	0.40	BP 237
Corrosion Copper Strip (3h/50°C)	---	1a	ASTM D130
Total Acid Number	mg KOH/g	<0.05	ASTM D 664
Aniline Point	°C	60	IP2
Molecular Weight	g/mol	112.6	Osmomat
Saybolt Color	---	20	ASTM D156
Bromine Index	mg Br ₂ /100 g	807	IP 130
Lead Content	mg/kg	<1	ASTM D 5863

Sampling Date: 23 Bahman 1395 (11 Feb. 2017)

Report Date: 25 Esfand 1395 (15 Mar. 2017)



NATIONAL IRANIAN OIL COMPANY (NIOC)
 RESEARCH INSTITUTE OF PETROLEUM INDUSTRY (RIPI)
 CRUDE OIL AND PETROLEUM PRODUCTS EVALUATION DEPARTMENT

SOUTHERN PARS 1 CONDENSATE

TABLE 2: TBP DISTILLATION ANALYSIS (ASTM D2892)

Frac. No.	Boiling Range, °C	Yield, wt. %	Cumulative Yield, wt. %	Sp.Gr. @ 15.56/15.56 °C	Yield, vol. %	Cumulative Yield, vol. %
1	IBP-15	6.02	6.02	0.5831	7.56	7.56
2	15-65	13.17	19.19	0.6395	15.09	22.65
3	65-100	18.14	37.33	0.7163	18.56	41.21
4	100-125	14.33	51.66	0.7455	14.08	55.29
5	125-150	10.85	62.51	0.7652	10.39	65.68
6	150-175	9.33	71.84	0.7747	8.82	74.50
7	175-200	6.81	78.65	0.7855	6.35	80.85
8	200-225	5.38	84.03	0.7997	4.93	85.78
9	225-250	4.78	88.81	0.8068	4.34	90.12
10	250-275	4.23	93.04	0.8163	3.80	93.92
11	275-300	2.88	95.92	0.8266	2.55	96.47
12	300-325	2.04	97.96	0.8352	1.79	98.26
13	325+	2.04	100.00	0.8600	1.74	100.00



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SOUTHERN PARS 2-3 CONDENSATE

TABLE 1: CONDENSATE GENERAL PROPERTIES ANALYSIS

CHARACTERISTICS	UNITS	RESULT	TEST METHOD
Specific Gravity @ 15.56 /15.56 °C	---	0.7326	ASTM D4052
API Gravity	°API	61.6	
Sulfur Content (Total)	wt.%	0.28	ASTM D4294
H ₂ S Content	ppm	<1	UOP 163
Mercaptan Content	wt.%	0.21	UOP 163
Nitrogen Content (Total)	ppm	<10	ASTM D4629
Water Content	vol.%	<0.025	ASTM D4006
Salt Content	P.T.B	<1	ASTM D3230
Hydrocarbon Types:			
Saturates	vol.%	88.0	ASTM D1319
Olefins	vol.%	1.6	
Aromatics	vol.%	10.4	
Kinematic Viscosity @ 0 °C	mm ² /s	0.980	ASTM D445
Kinematic Viscosity @ 10 °C	mm ² /s	0.874	
Kinematic Viscosity @ 20 °C	mm ² /s	0.808	
Cloud Point	°C	-36	ASTM D2500
Pour Point (Upper)	°C	-57	ASTM D97
Reid Vapor Pressure	psi	10.7	ASTM D5191
Wax Content	wt.%	0.30	BP 237
Corrosion Copper Strip (3h/50°C)	---	1a	ASTM D130
Total Acid Number	mg KOH/g	<0.05	ASTM D 664
Aniline Point	°C	61	IP2
Molecular Weight	g/mol	108.5	Osmomat
Saybolt Color	---	22	ASTM D156
Bromine Index	mg Br ₂ /100 g	914	IP 130
Lead Content	mg/kg	<1	ASTM D 5863

Sampling Date: 23 Bahman 1395 (11 Feb. 2017)

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SOUTHERN PARS 2-3 CONDENSATE

TABLE 2: TBP DISTILLATION ANALYSIS (ASTM D2892)

Frac. No.	Boiling Range, °C	Yield, wt. %	Cumulative Yield, wt. %	Sp.Gr. @ 15.56/15.56 °C	Yield, vol. %	Cumulative Yield, vol. %
1	IBP-15	4.57	4.57	0.58	5.80	5.80
2	15-65	17.83	22.40	0.64	20.41	26.21
3	65-100	16.79	39.19	0.7143	17.22	43.43
4	100-125	12.30	51.49	0.7442	12.11	55.54
5	125-150	9.40	60.89	0.7630	9.03	64.57
6	150-175	8.60	69.49	0.7757	8.12	72.69
7	175-200	7.80	77.29	0.7853	7.28	79.97
8	200-225	7.30	84.59	0.8012	6.68	86.65
9	225-250	5.20	89.79	0.8069	4.72	91.37
10	250-275	3.71	93.50	0.8196	3.32	94.69
11	275-300	2.39	95.89	0.8280	2.11	96.80
12	300-325	2.00	97.89	0.8476	1.73	98.53
13	325+	2.11	100.00	1.0539	1.47	100.00



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SOUTHERN PARS 4-5 CONDENSATE

TABLE 1: CONDENSATE GENERAL PROPERTIES ANALYSIS

CHARACTERISTICS	UNITS	RESULT	TEST METHOD
Specific Gravity @ 15.56 /15.56 °C	---	0.7330	ASTM D4052
API Gravity	°API	61.5	
Sulfur Content (Total)	wt.%	0.31	ASTM D4294
H2S Content	ppm	<1	UOP 163
Mercaptan Content	wt.%	0.21	UOP 163
Nitrogen Content (Total)	ppm	<10	ASTM D4629
Water Content	vol.%	<0.025	ASTM D4006
Salt Content	P.T.B	<1	ASTM D3230
Hydrocarbon Types:			
Saturates	vol.%	88.0	ASTM D1319
Olefins	vol.%	1.7	
Aromatics	vol.%	10.3	
Kinematic Viscosity @ 0 °C	mm ² /s	1.009	ASTM D445
Kinematic Viscosity @ 10 °C	mm ² /s	0.899	
Kinematic Viscosity @ 20 °C	mm ² /s	0.815	
Cloud Point	°C	-36	ASTM D2500
Pour Point (Upper)	°C	-57	ASTM D97
Reid Vapor Pressure	psi	11.2	ASTM D5191
Wax Content	wt.%	0.20	BP 237
Corrosion Copper Strip (3h/50°C)	---	1a	ASTM D130
Total Acid Number	mg KOH/g	<0.05	ASTM D 664
Aniline Point	°C	61	IP2
Molecular Weight	g/mol	111.2	Osmomat
Saybolt Color	---	22	ASTM D156
Bromine Index	mg Br ₂ /100 g	886	IP 130
Lead Content	mg/kg	<1	ASTM D 5863

Sampling Date: 23 Bahman 1395 (11 Feb. 2017)

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SOUTHERN PARS 4-5 CONDENSATE

TABLE 2: TBP DISTILLATION ANALYSIS (ASTM D2892)

Frac. No.	Boiling Range, °C	Yield, wt. %	Cumulative Yield, wt. %	Sp.Gr. @ 15.56/15.56 °C	Yield, vol. %	Cumulative Yield, vol. %
1	IBP-15	3.18	3.18	0.56	4.14	4.14
2	15-65	19.54	22.72	0.64	22.35	26.49
3	65-100	16.42	39.14	0.7197	16.72	43.21
4	100-125	12.29	51.43	0.7439	12.11	55.32
5	125-150	10.72	62.15	0.7630	10.30	65.62
6	150-175	9.58	71.73	0.7774	9.03	74.65
7	175-200	6.58	78.31	0.7854	6.14	80.79
8	200-225	4.68	82.99	0.8021	4.28	85.07
9	225-250	4.51	87.50	0.8106	4.08	89.15
10	250-275	4.00	91.50	0.8154	3.60	92.75
11	275-300	3.80	95.30	0.8248	3.38	96.13
12	300-325	2.71	98.01	0.8368	2.37	98.50
13	325+	1.99	100.00	0.9745	1.50	100.00



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SOUTHERN PARS 6-7-8 CONDENSATE

TABLE 1: CONDENSATE GENERAL PROPERTIES ANALYSIS

CHARACTERISTICS	UNITS	RESULT	TEST METHOD
Specific Gravity @ 15.56 /15.56 °C	---	0.7346	ASTM D4052
API Gravity	°API	61.1	
Sulfur Content (Total)	wt.%	0.27	ASTM D4294
H2S Content	ppm	<1	UOP 163
Mercaptan Content	wt.%	0.15	UOP 163
Nitrogen Content (Total)	ppm	<10	ASTM D4629
Water Content	vol.%	<0.025	ASTM D4006
Salt Content	P.T.B	<1	ASTM D3230
Hydrocarbon Types:			
Saturates	vol.%	87.0	ASTM D1319
Olefins	vol.%	2.0	
Aromatics	vol.%	11.0	
Kinematic Viscosity @ 0 °C	mm ² /s	1.068	ASTM D445
Kinematic Viscosity @ 10 °C	mm ² /s	0.943	
Kinematic Viscosity @ 20 °C	mm ² /s	0.828	
Cloud Point	°C	-34	ASTM D2500
Pour Point (Upper)	°C	-57	ASTM D97
Reid Vapor Pressure	psi	10.7	ASTM D5191
Wax Content	wt.%	0.30	BP 237
Corrosion Copper Strip (3h/50°C)	---	2a	ASTM D130
Total Acid Number	mg KOH/g	<0.05	ASTM D 664
Aniline Point	°C	62	IP2
Molecular Weight	g/mol	113.8	Osmomat
Saybolt Color	---	24	ASTM D156
Bromine Index	mg Br ₂ /100 g	857	IP 130
Lead Content	mg/kg	<1	ASTM D 5863

Sampling Date: 23 Bahman 1395 (11 Feb. 2017)

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SOUTHERN PARS 6-7-8 CONDENSATE

TABLE 2: TBP DISTILLATION ANALYSIS (ASTM D2892)

Frac. No.	Boiling Range, °C	Yield, wt. %	Cumulative Yield, wt. %	Sp.Gr. @ 15.56/15.56 °C	Yield, vol. %	Cumulative Yield, vol. %
1	IBP-15	5.49	5.49	0.58	6.98	6.98
2	15-65	16.86	22.35	0.65	19.02	26.00
3	65-100	15.70	38.05	0.7147	16.14	42.14
4	100-125	10.86	48.91	0.7443	10.72	52.86
5	125-150	9.70	58.61	0.7626	9.34	62.20
6	150-175	9.04	67.65	0.7778	8.54	70.74
7	175-200	7.50	75.15	0.7876	7.00	77.74
8	200-225	6.41	81.56	0.7997	5.89	83.63
9	225-250	4.98	86.54	0.8107	4.51	88.14
10	250-275	4.52	91.06	0.8200	4.05	92.19
11	275-300	3.25	94.31	0.8275	2.89	95.08
12	300-325	2.29	96.60	0.8327	2.02	97.10
13	325+	3.40	100.00	0.8614	2.90	100.00



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SOUTHERN PARS 9-10 CONDENSATE

TABLE 1: CONDENSATE GENERAL PROPERTIES ANALYSIS

CHARACTERISTICS	UNITS	RESULT	TEST METHOD
Specific Gravity @ 15.56 /15.56 °C	---	0.7360	ASTM D4052
API Gravity	°API	60.8	
Sulfur Content (Total)	wt.%	0.21	ASTM D4294
H2S Content	ppm	<1	UOP 163
Mercaptan Content	wt.%	0.13	UOP 163
Nitrogen Content (Total)	ppm	<10	ASTM D4629
Water Content	vol.%	<0.025	ASTM D4006
Salt Content	P.T.B	<1	ASTM D3230
Hydrocarbon Types:			
Saturates	vol.%	89.0	ASTM D1319
Olefins	vol.%	1.1	
Aromatics	vol.%	9.9	
Kinematic Viscosity @ 0 °C	mm ² /s	1.012	ASTM D445
Kinematic Viscosity @ 10 °C	mm ² /s	0.943	
Kinematic Viscosity @ 20 °C	mm ² /s	0.829	
Cloud Point	°C	-31	ASTM D2500
Pour Point (Upper)	°C	-57	ASTM D97
Reid Vapor Pressure	psi	10.7	ASTM D5191
Wax Content	wt.%	0.50	BP 237
Corrosion Copper Strip (3h/50°C)	---	2a	ASTM D130
Total Acid Number	mg KOH/g	<0.05	ASTM D 664
Aniline Point	°C	62	IP2
Molecular Weight	g/mol	113.8	Osmomat
Saybolt Color	---	20	ASTM D156
Bromine Index	mg Br ₂ /100 g	759	IP 130
Lead Content	mg/kg	<1	ASTM D 5863

Sampling Date: 23 Bahman 1395 (11 Feb. 2017)

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SOUTHERN PARS 9-10 CONDENSATE

TABLE 2: TBP DISTILLATION ANALYSIS (ASTM D2892)

Frac. No.	Boiling Range, °C	Yield, wt. %	Cumulative Yield, wt. %	Sp.Gr. @ 15.56/15.56 °C	Yield, vol. %	Cumulative Yield, vol. %
1	IBP-15	3.47	3.47	0.58	4.44	4.44
2	15-65	17.01	20.48	0.64	19.61	24.05
3	65-100	16.09	36.57	0.7183	16.49	40.54
4	100-125	10.74	47.31	0.7413	10.66	51.20
5	125-150	11.03	58.34	0.7598	10.68	61.88
6	150-175	9.01	67.35	0.7778	8.53	70.41
7	175-200	7.11	74.46	0.7869	6.65	77.06
8	200-225	6.28	80.74	0.8026	5.76	82.82
9	225-250	5.51	86.25	0.8090	5.01	87.83
10	250-275	5.38	91.63	0.8162	4.85	92.68
11	275-300	3.93	95.56	0.8303	3.48	96.16
12	300-325	4.44	100.00	0.8510	3.84	100.00
13	325+	0.00	0.00	0.0000	0.00	0.00



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SOUTHERN PARS 12 CONDENSATE

TABLE 1: CONDENSATE GENERAL PROPERTIES ANALYSIS

CHARACTERISTICS	UNITS	RESULT	TEST METHOD
Specific Gravity @ 15.56 /15.56 °C	---	0.7379	ASTM D4052
API Gravity	°API	60.3	
Sulfur Content (Total)	wt.%	0.21	ASTM D4294
H2S Content	ppm	<1	UOP 163
Mercaptan Content	wt.%	0.11	UOP 163
Nitrogen Content (Total)	ppm	<10	ASTM D4629
Water Content	vol.%	<0.025	ASTM D4006
Salt Content	P.T.B	<1	ASTM D3230
Hydrocarbon Types:			
Saturates	vol.%	88.8	ASTM D1319
Olefins	vol.%	1.7	
Aromatics	vol.%	9.5	
Kinematic Viscosity @ 0 °C	mm ² /s	1.063	ASTM D445
Kinematic Viscosity @ 10 °C	mm ² /s	0.920	
Kinematic Viscosity @ 20 °C	mm ² /s	0.811	
Cloud Point	°C	-36	ASTM D2500
Pour Point (Upper)	°C	-57	ASTM D97
Reid Vapor Pressure	psi	10.3	ASTM D5191
Wax Content	wt.%	0.30	BP 237
Corrosion Copper Strip (3h/50°C)	---	1a	ASTM D130
Total Acid Number	mg KOH/g	<0.05	ASTM D 664
Aniline Point	°C	62	IP2
Molecular Weight	g/mol	114.5	Osmomat
Saybolt Color	---	18	ASTM D156
Bromine Index	mg Br ₂ /100 g	807	IP 130
Lead Content	mg/kg	<1	ASTM D 5863

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SOUTHERN PARS 12 CONDENSATE

TABLE 2: TBP DISTILLATION ANALYSIS (ASTM D2892)

Frac. No.	Boiling Range, °C	Yield, wt. %	Cumulative Yield, wt. %	Sp.Gr. @ 15.56/15.56 °C	Yield, vol. %	Cumulative Yield, vol. %
1	IBP-15	5.50	5.50	0.59	6.92	6.92
2	15-65	13.80	19.30	0.64	15.82	22.74
3	65-100	16.20	35.50	0.7155	16.71	39.45
4	100-125	11.60	47.10	0.7450	11.49	50.94
5	125-150	10.75	57.85	0.7658	10.36	61.30
6	150-175	9.63	67.48	0.7743	9.18	70.48
7	175-200	7.57	75.05	0.7820	7.14	77.62
8	200-225	6.07	81.12	0.7966	5.62	83.24
9	225-250	5.18	86.30	0.8078	4.73	87.97
10	250-275	4.78	91.08	0.8176	4.31	92.28
11	275-300	3.27	94.35	0.8300	2.91	95.19
12	300-325	2.90	97.25	0.8459	2.53	97.72
13	325+	2.75	100.00	0.8900	2.28	100.00



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SOUTHERN PARS 15-16 CONDENSATE

TABLE 1: CONDENSATE GENERAL PROPERTIES ANALYSIS

CHARACTERISTICS	UNITS	RESULT	TEST METHOD
Specific Gravity @ 15.56 /15.56 °C	---	0.7350	ASTM D4052
API Gravity	°API	61.0	
Sulfur Content (Total)	wt.%	0.30	ASTM D4294
H ₂ S Content	ppm	<1	UOP 163
Mercaptan Content	wt.%	0.20	UOP 163
Nitrogen Content (Total)	ppm	<10	ASTM D4629
Water Content	vol.%	<0.025	ASTM D4006
Salt Content	P.T.B	<1	ASTM D3230
Hydrocarbon Types:			
Saturates	vol.%	87.0	ASTM D1319
Olefins	vol.%	2.5	
Aromatics	vol.%	10.3	
Kinematic Viscosity @ 0 °C	mm ² /s	0.996	ASTM D445
Kinematic Viscosity @ 10 °C	mm ² /s	0.881	
Kinematic Viscosity @ 20 °C	mm ² /s	0.813	
Cloud Point	°C	-36	ASTM D2500
Pour Point (Upper)	°C	-57	ASTM D97
Reid Vapor Pressure	psi	10.3	ASTM D5191
Wax Content	wt.%	0.30	BP 237
Corrosion Copper Strip (3h/50°C)	---	2a	ASTM D130
Total Acid Number	mg KOH/g	<0.05	ASTM D 664
Aniline Point	°C	62	IP2
Molecular Weight	g/mol	111.7	Osmomat
Saybolt Color	---	16	ASTM D156
Bromine Index	mg Br ₂ /100 g	858	IP 130
Lead Content	mg/kg	<1	ASTM D 5863

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SOUTHERN PARS 15-16 CONDENSATE

TABLE 2: TBP DISTILLATION ANALYSIS (ASTM D2892)

Frac. No.	Boiling Range, °C	Yield, wt. %	Cumulative Yield, wt. %	Sp.Gr. @ 15.56/15.56 °C	Yield, vol. %	Cumulative Yield, vol. %
1	IBP-15	4.39	4.39	0.58	5.52	5.52
2	15-65	16.85	21.24	0.65	19.20	24.72
3	65-100	16.76	38.00	0.7195	17.12	41.84
4	100-125	12.41	50.41	0.7420	12.29	54.13
5	125-150	10.53	60.94	0.7645	10.12	64.26
6	150-175	9.50	70.44	0.7772	8.98	73.24
7	175-200	7.28	77.72	0.7869	6.80	80.04
8	200-225	6.47	84.19	0.8002	5.94	85.99
9	225-250	5.12	89.31	0.8101	4.65	90.63
10	250-275	3.76	93.07	0.8206	3.37	94.00
11	275-300	2.40	95.47	0.8266	2.13	96.13
12	300-325	4.53	100.00	0.8604	3.87	100.00
13	325+	0.00	0.00	0.0000	0.00	0.00



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SOUTHERN PARS 17-18 CONDENSATE

TABLE 1: CONDENSATE GENERAL PROPERTIES ANALYSIS

CHARACTERISTICS	UNITS	RESULT	TEST METHOD
Specific Gravity @ 15.56 /15.56 °C	---	0.7346	ASTM D4052
API Gravity	°API	61.1	
Sulfur Content (Total)	wt.%	0.25	ASTM D4294
H ₂ S Content	ppm	<1	UOP 163
Mercaptan Content	wt.%	0.17	UOP 163
Nitrogen Content (Total)	ppm	<10	ASTM D4629
Water Content	vol.%	<0.025	ASTM D4006
Salt Content	P.T.B	<1	ASTM D3230
Hydrocarbon Types:			
Saturates	vol.%	87.5	ASTM D1319
Olefins	vol.%	1.5	
Aromatics	vol.%	11.0	
Kinematic Viscosity @ 0 °C	mm ² /s	1.017	ASTM D445
Kinematic Viscosity @ 10 °C	mm ² /s	0.930	
Kinematic Viscosity @ 20 °C	mm ² /s	0.815	
Cloud Point	°C	-36	ASTM D2500
Pour Point (Upper)	°C	-57	ASTM D97
Reid Vapor Pressure	psi	10.9	ASTM D5191
Wax Content	wt.%	0.30	BP 237
Corrosion Copper Strip (3h/50°C)	---	1b	ASTM D130
Total Acid Number	mg KOH/g	<0.05	ASTM D 664
Aniline Point	°C	62	IP2
Molecular Weight	g/mol	110.0	Osmomat
Saybolt Color	---	24	ASTM D156
Bromine Index	mg Br ₂ /100 g	822	IP 130
Lead Content	mg/kg	<1	ASTM D 5863

Sampling Date: 23 Bahman 1395 (11 Feb. 2017)

Report Date: 25 Esfand 1395 (15 Mar. 2017)



NATIONAL IRANIAN OIL COMPANY (NIOC)
 RESEARCH INSTITUTE OF PETROLEUM INDUSTRY (RIPI)
 CRUDE OIL AND PETROLEUM PRODUCTS EVALUATION DEPARTMENT

SOUTHERN PARS 17-18 CONDENSATE

TABLE 2: TBP DISTILLATION ANALYSIS (ASTM D2892)

Frac. No.	Boiling Range, °C	Yield, wt.%	Cumulative Yield, wt.%	Sp.Gr. @ 15.56/15.56 °C	Yield, vol.%	Cumulative Yield, vol.%
1	IBP-15	4.64	4.64	0.59	5.82	5.82
2	15-65	15.91	20.55	0.64	18.25	24.07
3	65-100	17.97	38.52	0.7152	18.46	42.53
4	100-125	12.59	51.11	0.7454	12.41	54.94
5	125-150	11.36	62.47	0.7679	10.87	65.81
6	150-175	8.57	71.04	0.7765	8.11	73.92
7	175-200	7.77	78.81	0.7866	7.26	81.18
8	200-225	6.87	85.68	0.8063	6.26	87.43
9	225-250	4.83	90.51	0.8203	4.33	91.76
10	250-275	3.50	94.01	0.8298	3.10	94.86
11	275-300	2.70	96.71	0.8473	2.34	97.20
12	300-325	3.29	100.00	0.8632	2.80	100.00
13	325+	0.00	0.00	0.0000	0.00	0.00