A/S NORSKE SHELL

SPECIAL CORE ANALYSIS

WELL: 31/2-9

DATE: JULY 1983

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A/S NORSKE SHELL

SPECIAL CORE ANALYSIS

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COMMENTS

GENERAL: Special core analyses have been completed on 16 frozen samples collected from well 31/2-9 at the depths agreed upon by Shell in March 1983. The samples were cylindrical plugs of 1½ inch diameter.

PREPARATION: All samples were gently drilled and cut in frozen condition using liquid nitrogen as a coolant and later cleaned with methanol and toluene. The samples used in the confining pressure measurements were first mounted frozen in a triaxial cell and allowed to thaw overnight with a hydrostatic sleeve pressure of approximately five bar. The cleaning process commenced the following day with subsequent gentle overnight air blow drying. For assurance of completely dry samples, the plugs were vacuum dried before the actual air permeability, porosity and confining pressure measurements.

MEASUREMENTS:

AIR PERMEABILITY

Air permeability was measured on all samples using N_2 gas at three different back pressures. These values were the basis for calculating the Klinkenberg corrected permeability (k.e.l.). Permeabilities presented of the samples used in the capillary pressure measurements were collected using the hassler holder system at 15 bar. Otherwise, the reported permeabilities were obtained using the triaxial sample holder also at 15 bar. Both tabular and graphic compliations of data have been enclosed in this report.

POROSITY AND GRAIN DENSITY

Three samples, depths 1555.65, 1576.5 and 1592.2 m were measured by helium injection in a triaxial cell before the gas confining pressure mesurements began. A 15 bar confining pressure was applied on the sample to avoid heliun leakage. Grain matrix volume was determined using a helium porosimeter after dismounting the sample from the holder. Sample porosity and grain density were then obtained by further calculation of the above data.

Helium porosity (grain volume) and bulk volume by mercury displacement were measured on the six well consolidated samples selected for capillary pressure analysis.

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Porosity values on the remaining samples selected for formation resistivity factor and confining pressure measurements (water) were determined by formation water saturation. The procedure employed was first to evacuate the plug confined in the triaxial cell and then inject a measured volume of water into the void pore space. To ensure better sample saturation, a 15 bar pressure was then applied to the injected water. A net confining pressure on the plug was maintained at a constant level of 15 bar during this operation.

After the subsequent confining pressure analysis was completed, methanol was pumped through each sample to remove the formation water. When the flushing/cleaning process was complete the sample was removed from the triaxial cell and oven-dried overnight. Helium porosimeter grain volume and sample weight were measured on the following day to determine sample grain density.

CONFINING PRESSURE MEASUREMENTS

Net overburden pressure was set in the laboratory without any Geertsma-factor correction. Measurements were carried out using a triaxial cell at increasing pressure levels of 15 ("atmospheric"), 50, 100, 150 and 200 bar.

a) Gas

Three samples, depths 1555.65, 1576.5 and 1592.2m, were selected for gas porosity and gas permeability measurements. It has been assumed that the sample porosities were preserved at 15 bar confining pressure ("atmospheric" condition). Gas porosity was measured by helium injection at each confining pressure. Once stable porosity values were obtained (recorded approximately 15-30 min. after confining pressure increase), the N_2 gas permeability (also at three different back pressures) was measured. Liquid permeability and formation resistivity factor (FRF) measurements at various confining pressures are not possible to complete on such "dry" samples.

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b) Water

The remaining seven samples were, hovewer, selected for formation resistivity factor and consequently saturated with a measured volume of simulated formation water while installed in a triaxial cell set at 15 bar. (The 15 bar porosity measurement procedure has been illustrated above under "Measurements : Porosity and Grain Density"). Porosity determination on these samples was completed by measuring pore volume reduction at each confining pressure step with a graduated pipette (vol. 1.0 ml, grad. 0.01 ml) located at the air-free outlet end of the triaxial holder.

The formation resistivity factor was measured using a frequency of 1 kHz. A platinum screen was placed at each end of the plug to ensure good electrical contact over the end surface. The parameters "a" and "m" in Archies formula were calculated both by least squares method through (FF = 1.0, ϕ = 1.0) and least squares method (free fit).

Archies formula $$FF = \frac{r_o}{r_w} = a \cdot \phi^{-m}$$

r_o = resistivity of sample (100 % saturated)

r_w = restistivity of saturating formation water

a = FF-value at fractional porosity of 1.0

ϕ = fractional porosity

m = cementation

Confining pressure data including N_2 permeability and helium porosity reduction curves plus water porosity reduction curves have been presented. In addition, FRF and fractional water porosity data sets have been presented tabularly followed by a presentation of forced fit curves at the specified confining pressures.

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CATION EXCHANGE CAPACITY (C.E.C.)

C.E.C. was measured on seven samples (1½ inch plug trimmings) by employing the wet chemistry method.

The sample matrix was carefully broken down in an ultra sonic bath using methanol and toluene as cleaning solvents. Actual C.E.C. values were determined as the capacity of spending cobalt in a hexamin cobalt (III) chloride solution recorded by a UV-visible spectrophotometer.

The data have been reported together with the Klinkenberg corrrected air permeability, porosity and grain density valves measured on the 1½ inch plugs from the corresponding depths.

CAPILLARY PRESSURE BY MERCURY INJECTION

Mercury injection was performed on six half-plugs selected from well 31/2-9. Porosity and grain density were measured on the samples prior to the injection measurements.

In the mercury chamber each test specimen was first evacuated and subsequently injected with mercury in measured pressure level increments.

Mercury saturation versus capillary pressure data have been presented tabularly and graphically.

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FLUID PROPERTIES

FORMATION WATER

The formation water was made from chlorides of sodium according to this list:

Na^+	:	23776	ppm
Cl^-	:	36724	ppm

Resistivity (20 °C) : r_w = 0.121 Ω m

Resistivity (54.4°C) : r_w = 0.070 Ω m

Density (20 °C) : ρ = 1.043 g/cm^3

Viscosity (20 °C) : μ = 1.106 cP

NITROGEN GAS

Viscosity (20°C) : μ = 0.0176 cP

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PLUG SIZE

Depth (m)	Length (cm)	Diameter (cm)	Bulk volume (cm^3)
1555.65	6.92	3.76	74.67
1576.5	7.04	3.70	75.01
1577.2	6.90	3.70	74.19
1582.8	6.81	3.76	75.62
1585.5	4.40	3.75	48.60
1592.2	4.74	3.75	50.51
1594.0	6.97	3.63	72.13
1601.2	7.05	3.78	79.12
1603.90	3.36	3.75	37.01
1611.55	5.60	3.78	62.84
1614.30	3.58	3.74	39.58
1615.90	3.56	3.77	39.48
1620.40	3.67	3.76	40.50
1622.25	7.24	3.77	80.82
1625.10	3.61	3.77	40.10
1627.00	3.56	3.74	38.63

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POROSITY AND GRAIN DENSITY

Depth (m)	Porosity (%)	Grain Density(g/cm^3)
1555.65	22.6	2.76
1576.5	33.1	2.65
1577.2	35.1	2.64
1582.8	28.6	2.64
1585.5	34.2	2.66
1592.2	32.3	2.65
1594.0	34.0	2.64
1601.2	24.1	2.63
1603.9	28.1	2.62
1611.55	22.6	2.63
1614.3	27.5	2.61
1615.9	25.3	2.61
1620.4	28.9	2.62
1622.25	23.6	2.63
1625.1	26.6	2.61
1627.0	29.3	2.60

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KLINKENBERG CORRECTED AIR PERMEABILITY

Depth (m)	(Mean Pressure)$^{-1}$ (atm.abs.)$^{-1}$	Air permeability k_a(mD)	Klinkenberg corr. permeability k.e.l.(mD)
1555.65	0.742	30.8	24.6
	0.574	29.5	
	0.447	28.3	
1576.5	0.891	1399	1250
	0.659	1365	
	0.497	1332	
1577.2	0.881	907	730
	0.654	867	
	0.494	828	
1582.8	0.863	150	141
	0.644	148	
	0.489	146	
1585.5	0.897	1398	1044
	0.662	1314	
	0.499	1233	
1592.2	0.900	2023	1642
	0.664	1941	
	0.500	1849	
1594.0	0.906	10566	8007
	0.667	9965	
	0.502	9405	
1601.2	0.664	15.0	13.2
	0.526	14.6	
	0.418	14.3	

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KLINKENBERG CORRECTED AIR PERMEABILITY

Depth (m)	(Mean Pressure)$^{-1}$ (atm.abs.)$^{-1}$	Air permeability k_a(mD)	Klinkenberg corr. permeability k.e.l.(mD)
1603.9	0.715	17.8	15.0
	0.557	17.2	
	0.437	16.7	
1611.55	0.680	13.4	11.4
	0.536	13.3	
	0.424	12.7	
1614.3	0.704	10.8	8.75
	0.551	10.4	
	0.433	10.0	
1615.9	0.601	5.36	4.21
	0.486	5.14	
	0.392	4.96	
1620.4	0.733	36.1	33.3
	0.568	35.5	
	0.444	35.0	
1622.25	0.584	10.9	9.15
	0.475	10.6	
	0.385	10.3	
1625.1	0.711	11.6	9.79
	0.555	11.2	
	0.436	10.9	
1627.0	0.718	14.9	12.6
	0.559	14.4	
	0.438	14.0	

KLINKENBERG CORRECTED AIR PERMEABILITY

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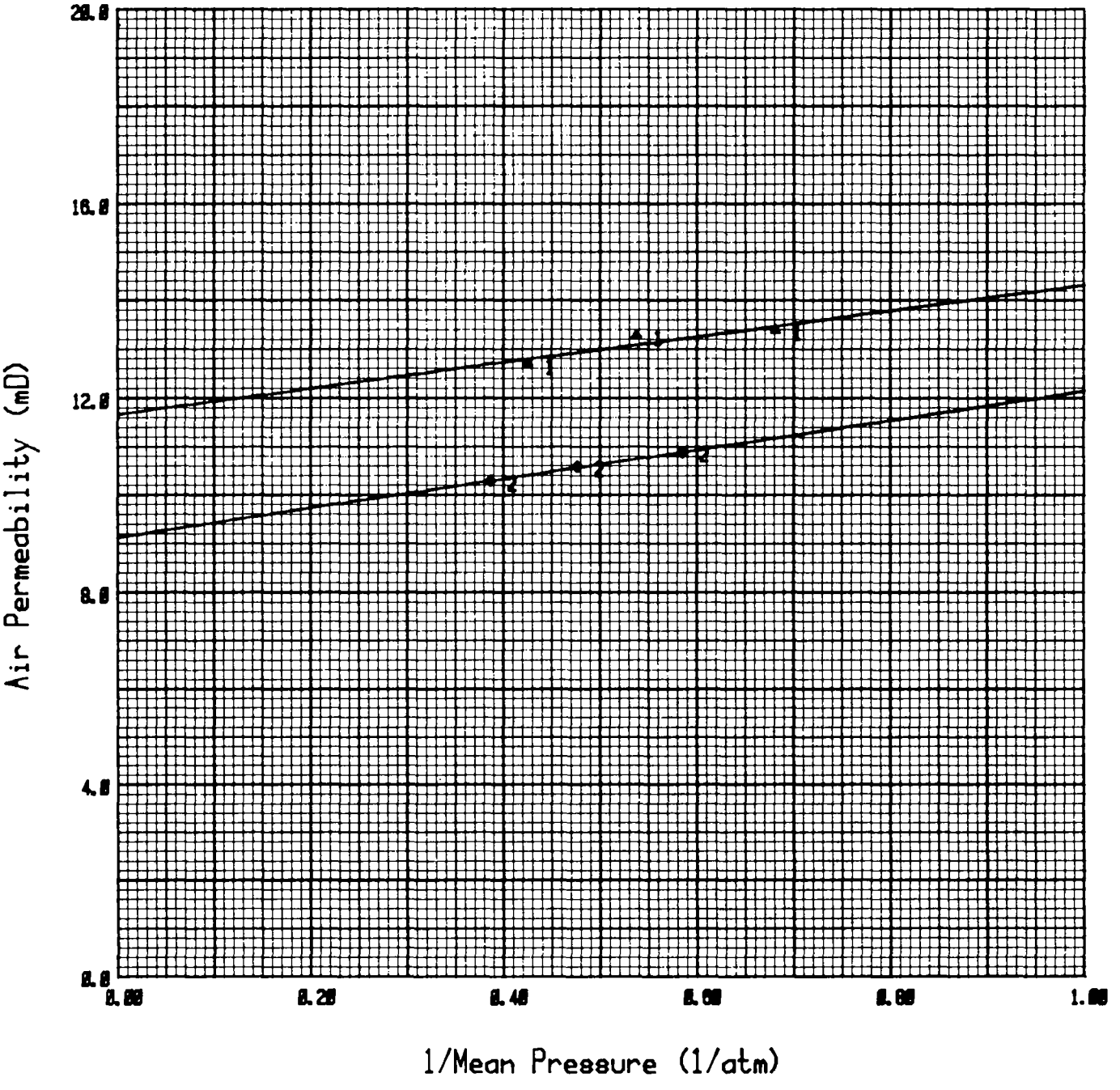
Curve no 1 : Sample no :
Depth : 1611.55 m
Klink. perm.: 11.4 mD

Curve no 2 : Sample no :
Depth : 1622.25 m
Klink. perm.: 9.15 mD



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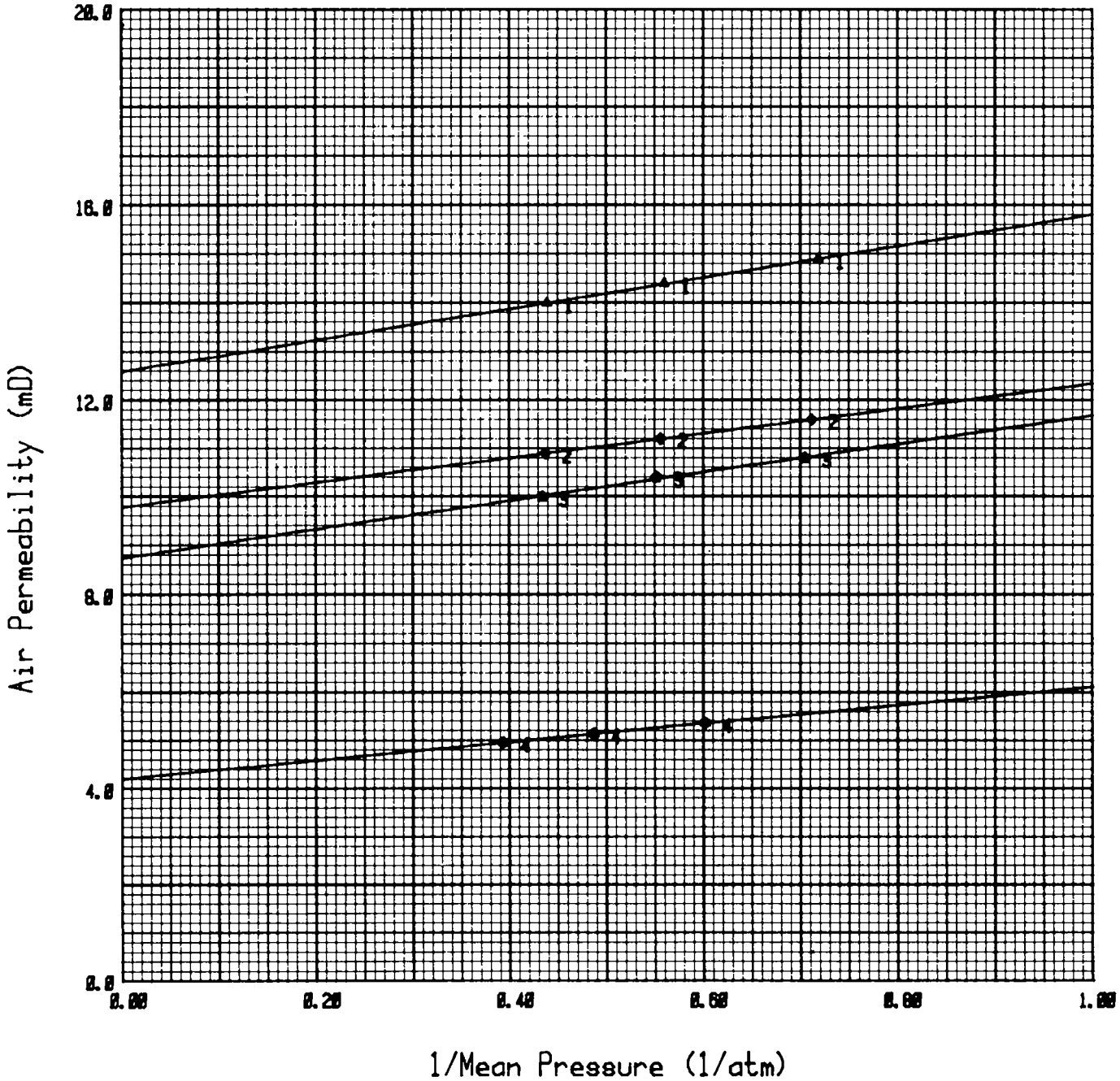
Curve no 1 : Sample no :
Depth : 1627.00 m
Klink. perm.: 12.6 mD

Curve no 2 : Sample no :
Depth : 1625.10 m
Klink. perm.: 9.79 mD

Curve no 3 : Sample no :
Depth : 1614.30 m
Klink. perm.: 8.75 mD

Curve no 4 : Sample no :
Depth : 1615.90 m
Klink. perm.: 4.21 mD



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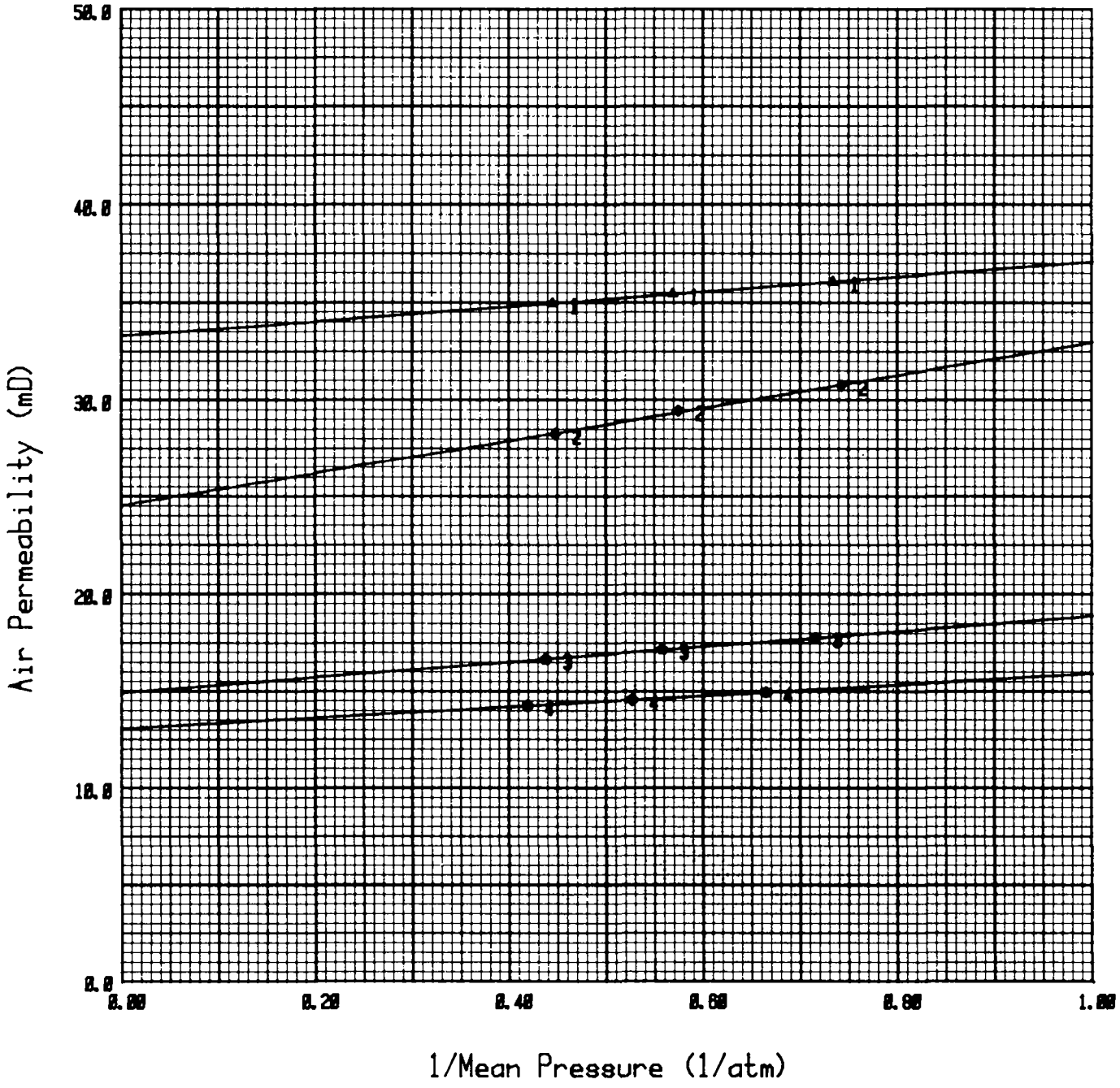
Curve no 1 : Sample no :
Depth : 1620.40 m
Klink. perm.: 33.3 mD

Curve no 2 : Sample no :
Depth : 1555.65 m
Klink. perm.: 24.6 mD

Curve no 3 : Sample no :
Depth : 1603.90 m
Klink. perm.: 15.0 mD

Curve no 4 : Sample no :
Depth : 1601.20 m
Klink. perm.: 13.2 mD



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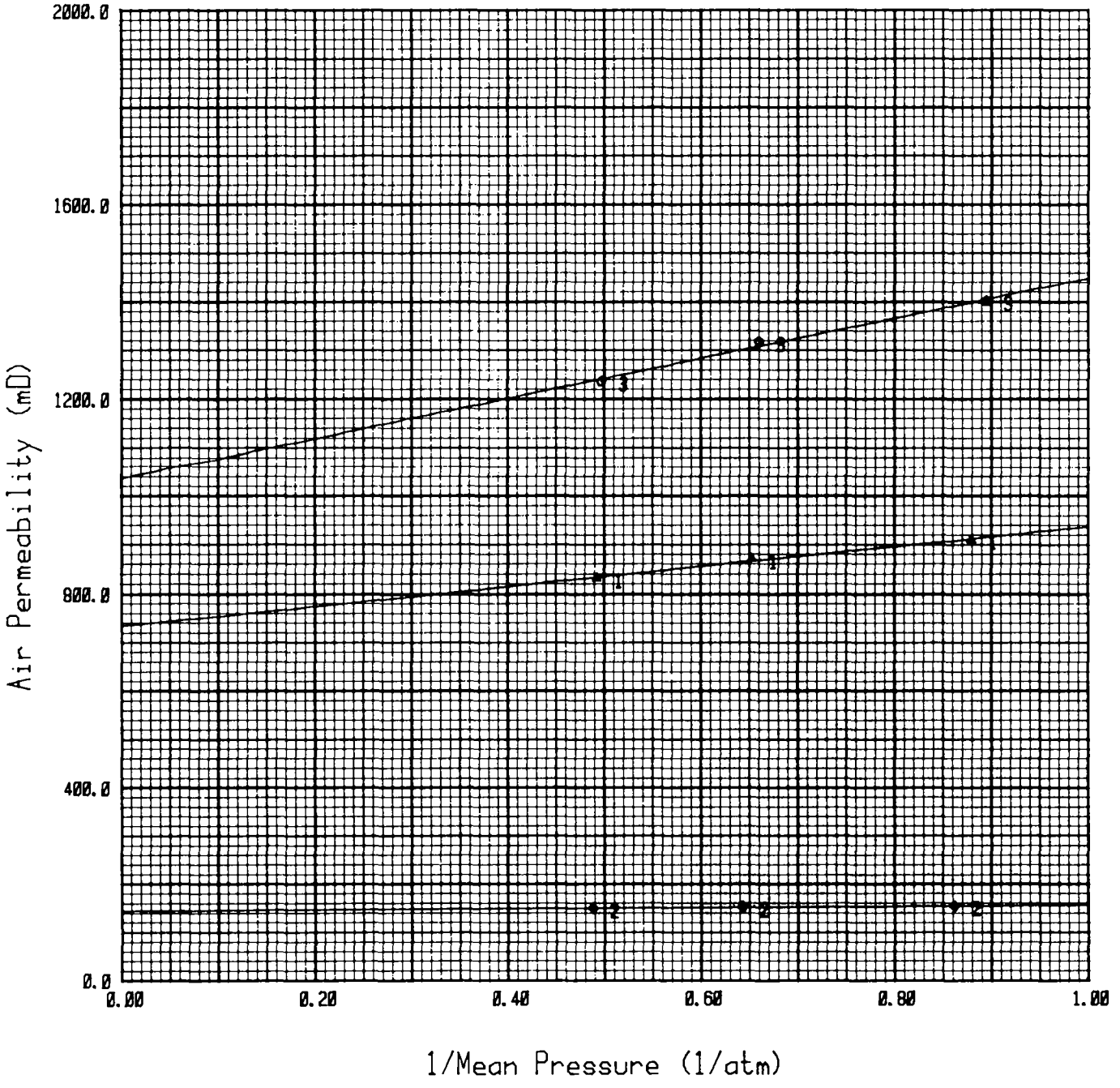
Curve no 1 : Sample no :
Depth : 1577.20 m
Klink. perm.: 730 mD

Curve no 2 : Sample no :
Depth : 1582.80 m
Klink. perm.: 141 mD

Curve no 3 : Sample no :
Depth : 1585.50 m
Klink. perm.: 1044 mD



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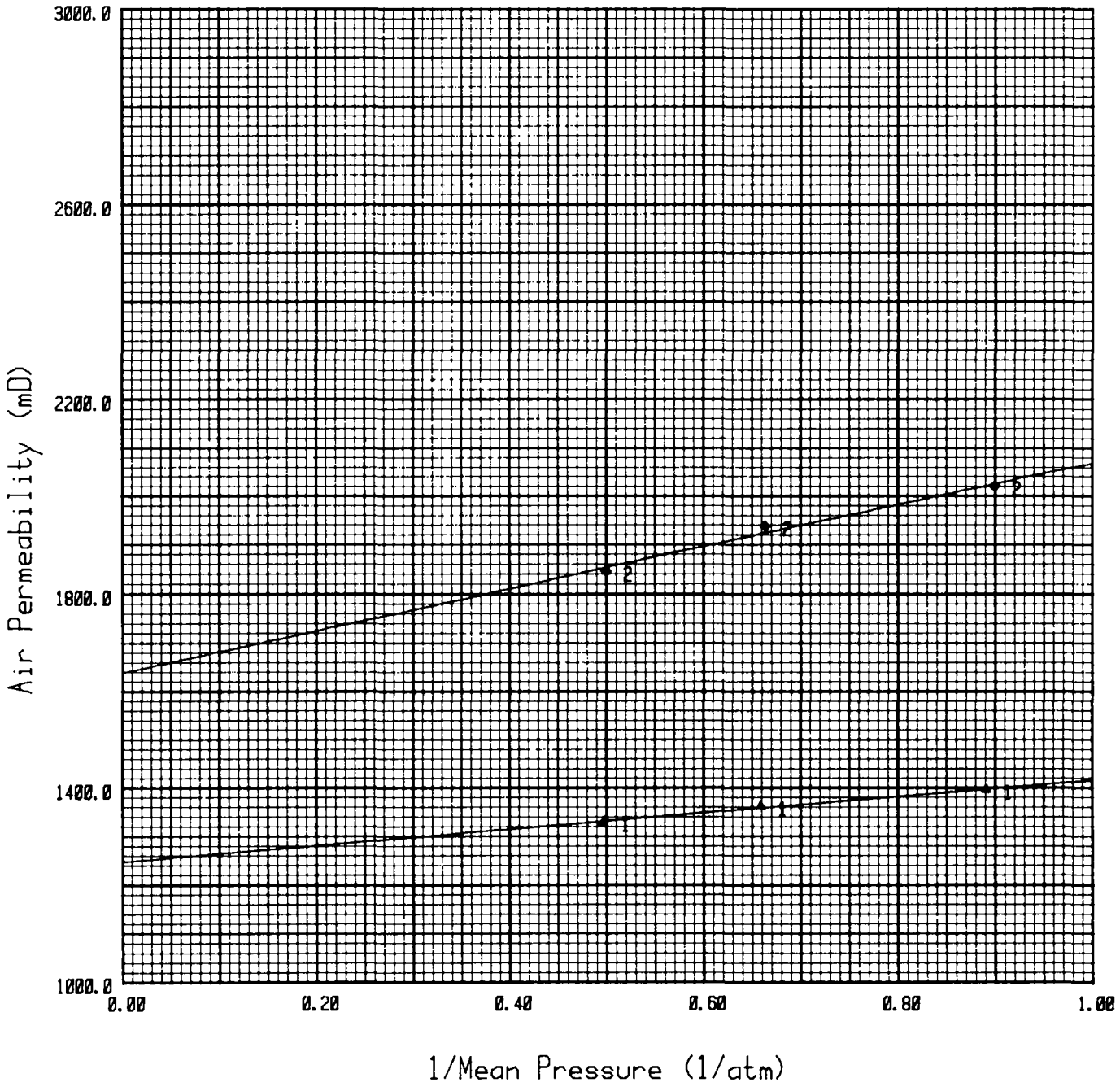
Curve no 1 : Sample no :
Depth : 1576.50 m
Klink. perm.: 1250 mD

Curve no 2 : Sample no :
Depth : 1592.20 m
Klink. perm.: 1642 mD



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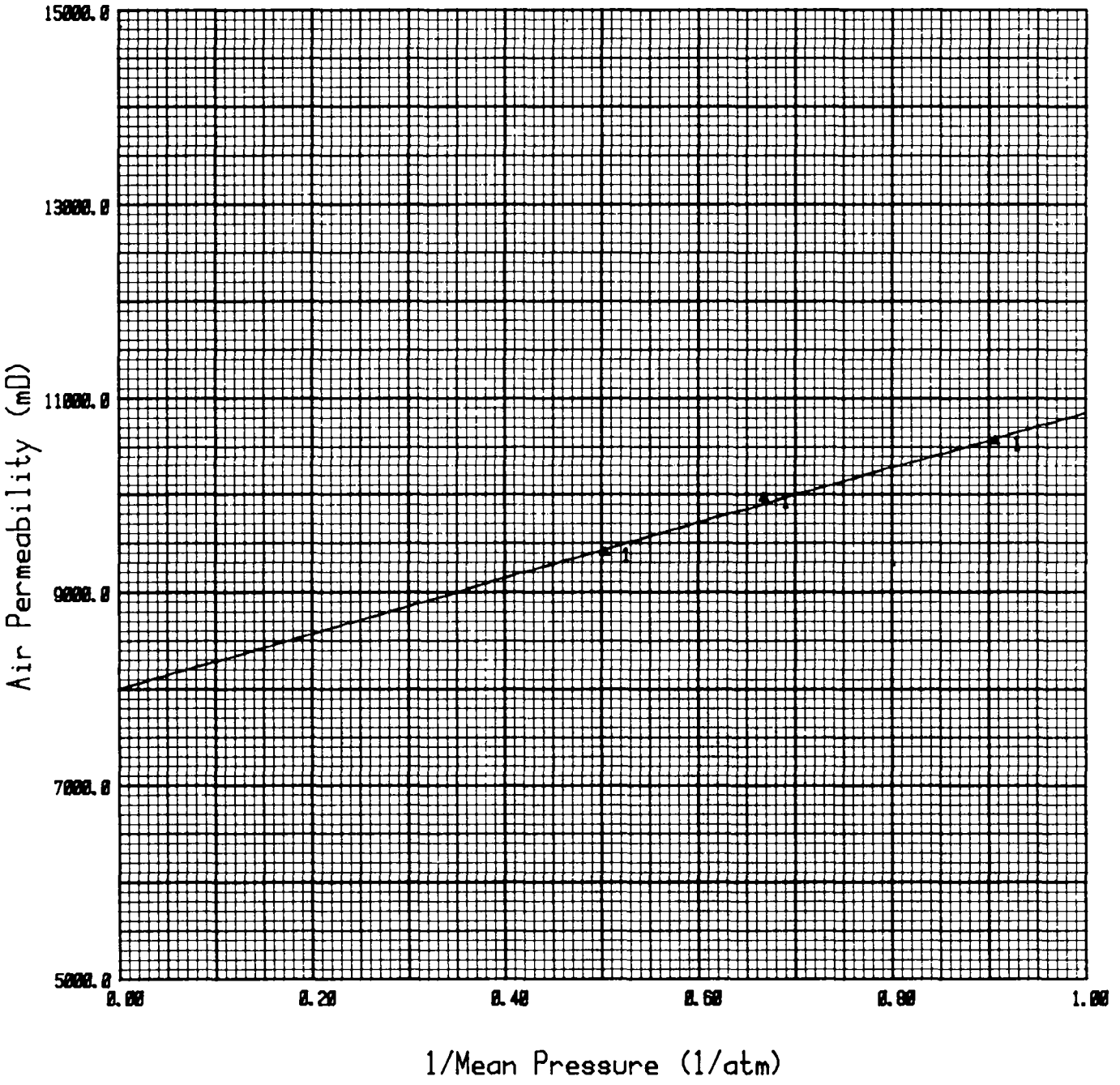
Curve no 1 : Sample no :
Depth : 1594.00 m
Klink. perm.: 8007 mD



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KLINKENBERG PERMEABILITY VS. POROSITY

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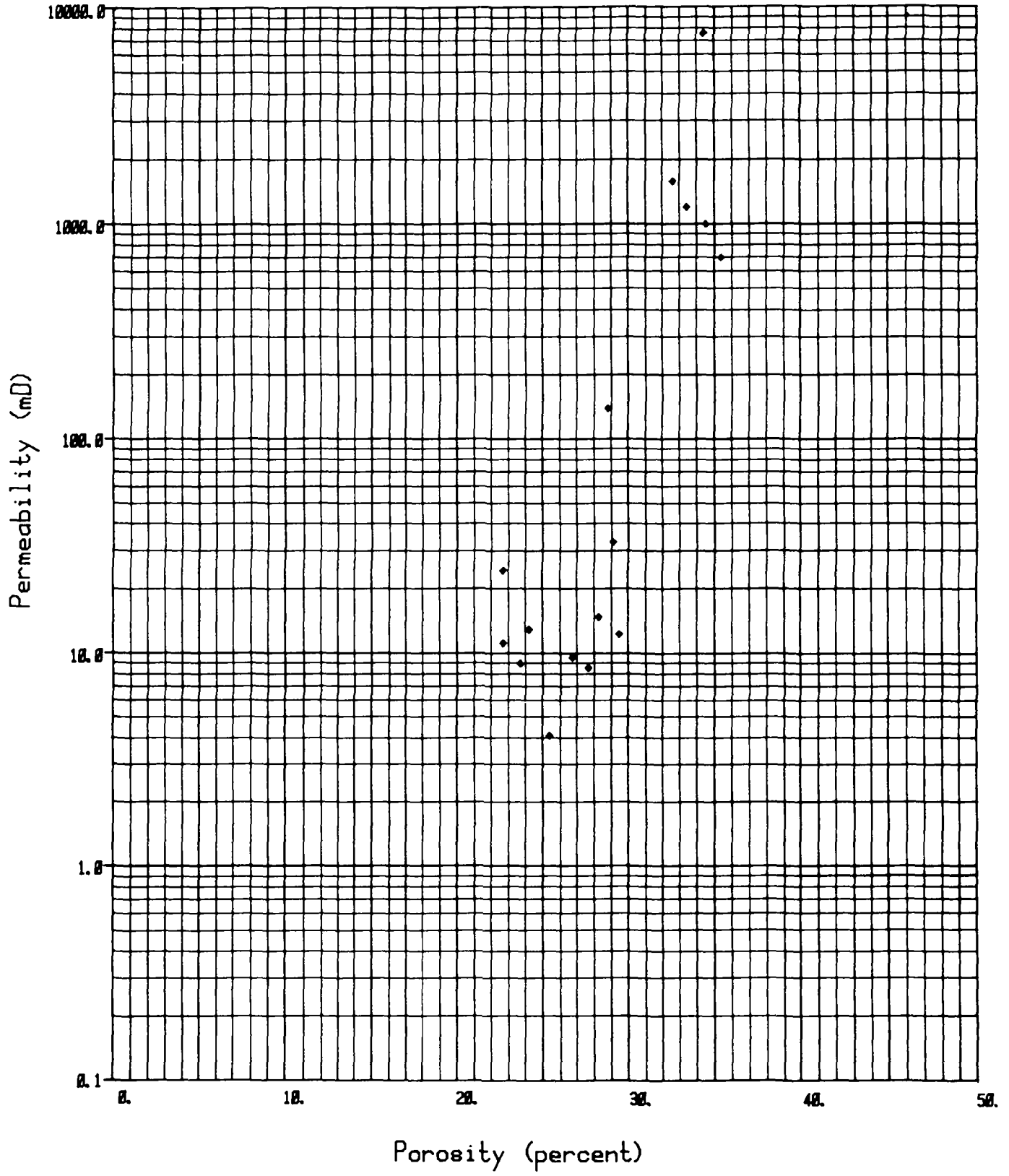
Company : A/S Norske Shell
Well : 31/2-9



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CONFINING PRESSURE MEASUREMENTS

Depth (m): 1555.65

Measurements	"Atmospheric" 15 bar	50 bar	100 bar	150 bar	200 bar
Klinkenberg air perm.(mD):	24.6	22.1	20.4	19.2	18.3
Permeability reduction (fraction of original)	1.00	0.90	0.83	0.78	0.74
Porosity (%):	22.6	22.2	21.8	21.6	21.3
Porosity reduction: (frac. of original)	1.000	0.982	0.965	0.956	0.942
Pore volume (cm^3):	16.91	16.61	16.36	16.16	16.00
Pore volume reduction $\frac{\Delta PV}{\text{orig.PV}}$ (frac. of original)	0.000	0.018	0.033	0.044	0.054

Porosity Reduction = $\frac{\text{Pore volume at press}}{\text{Pore volume at original atm. pressure}}$

Pore vol. reduction = $\frac{\Delta PV}{PV_{orig}} = \frac{\text{orig. pore vol.} - \text{pore vol at specific press}}{\text{orig pore vol.}}$

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PERMEABILITY AND POROSITY VERSUS CONFINING PRESSURE

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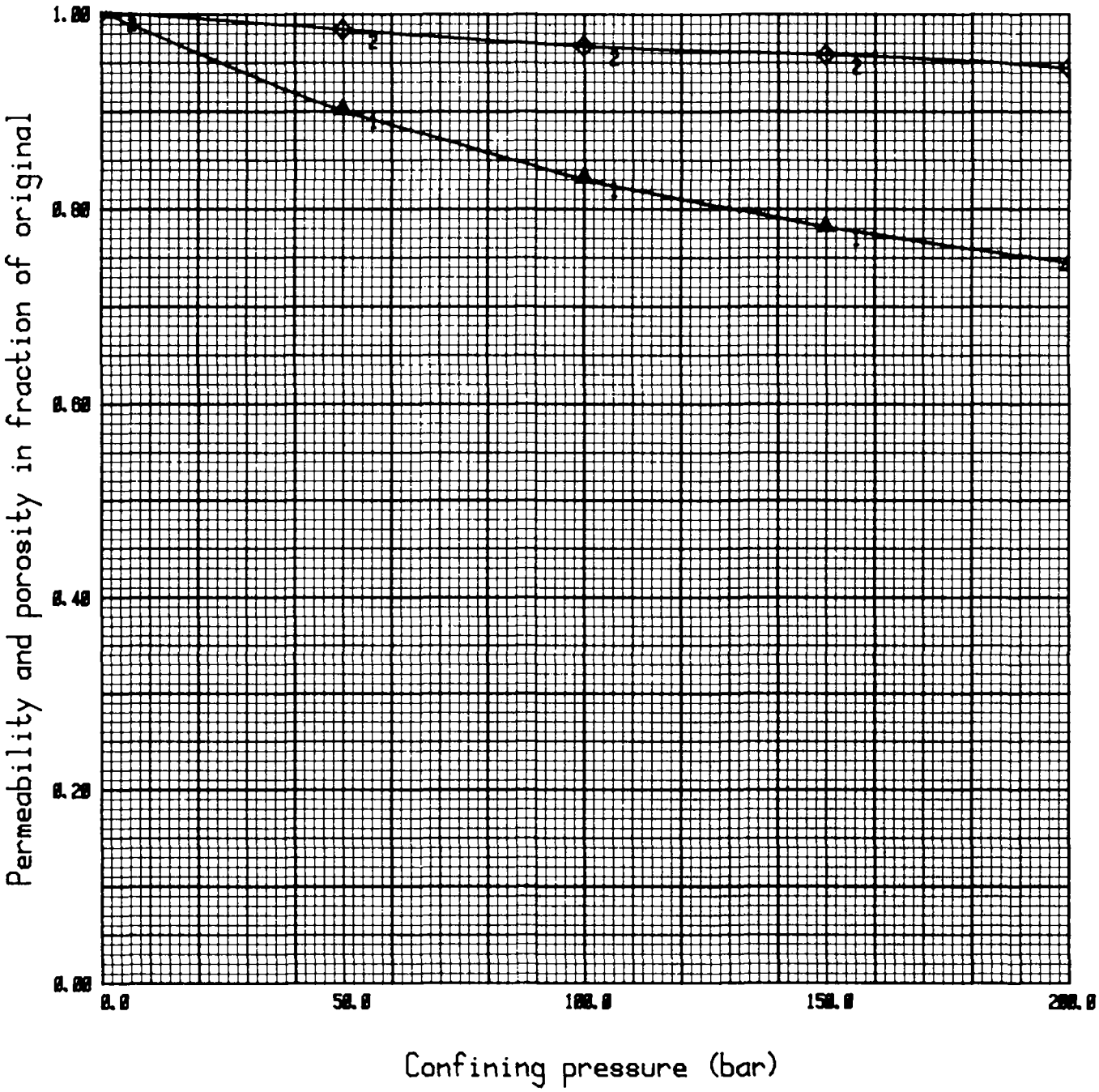
Sample no:
Depth : 1555.65 m

Orig. permeability (curve 1): 24.6 mD
Orig. porosity (curve 2): 22.6 %



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CONFINING PRESSURE MEASUREMENTS

Depth (m): 1576.50

Measurements	"Atmospheric"	15 bar	50 bar	100 bar	150 bar	200 bar
Klinkenberg air perm.(mD):		1250	1028	829	707	586
Permeability reduction (fraction of original)		1.00	0.822	0.66	0.57	0.47
Porosity (%):		33.1	31.9	30.9	30.1	29.4
Porosity reduction: (frac. of original)		1.000	0.964	0.934	0.909	0.888
Pore volume (cm^3):		24.86	23.95	23.15	22.58	22.06
Pore volume reduction (frac. of original)	$\frac{\Delta \text{ PV}}{\text{orig.PV}}$	0.000	0.037	0.069	0.092	0.113

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PERMEABILITY AND POROSITY VERSUS CONFINING PRESSURE

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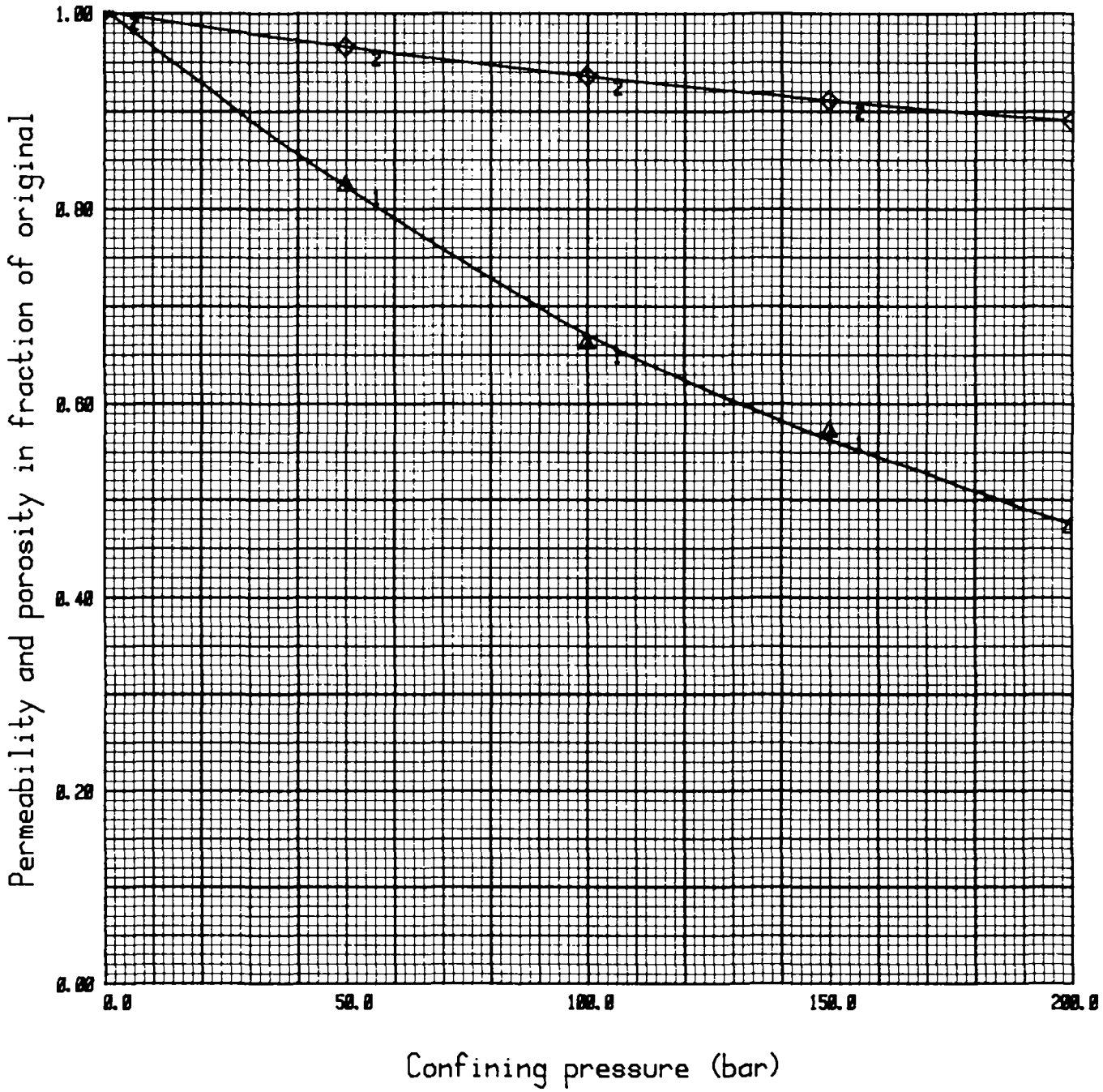
Sample no: 0.
Depth : 1576.50 m

Orig. permeability (curve 1): 1250. mD
Orig. porosity (curve 2): 33.1 %



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CONFINING PRESSURE MEASUREMENTS

Depth (m): 1592.2

Measurements	"Atmospheric" 15 bar	50 bar	100 bar	150 bar	200 bar
Klinkenberg air perm.(mD):	1642	1460	1322	1188	1080
Permeability reduction (fraction of original)	1.00	0.89	0.81	0.72	0.66
Porosity (%):	32.3	31.7	31.0	30.7	30.3
Porosity reduction: (frac. of original)	1.000	0.981	0.960	0.950	0.938
Pore volume (cm^3):	16.32	16.01	15.65	15.50	15.32
Pore volume reduction $\frac{\Delta PV}{orig.PV}$ (frac. of original)	0.000	0.019	0.041	0.050	0.061

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PERMEABILITY AND POROSITY VERSUS CONFINING PRESSURE

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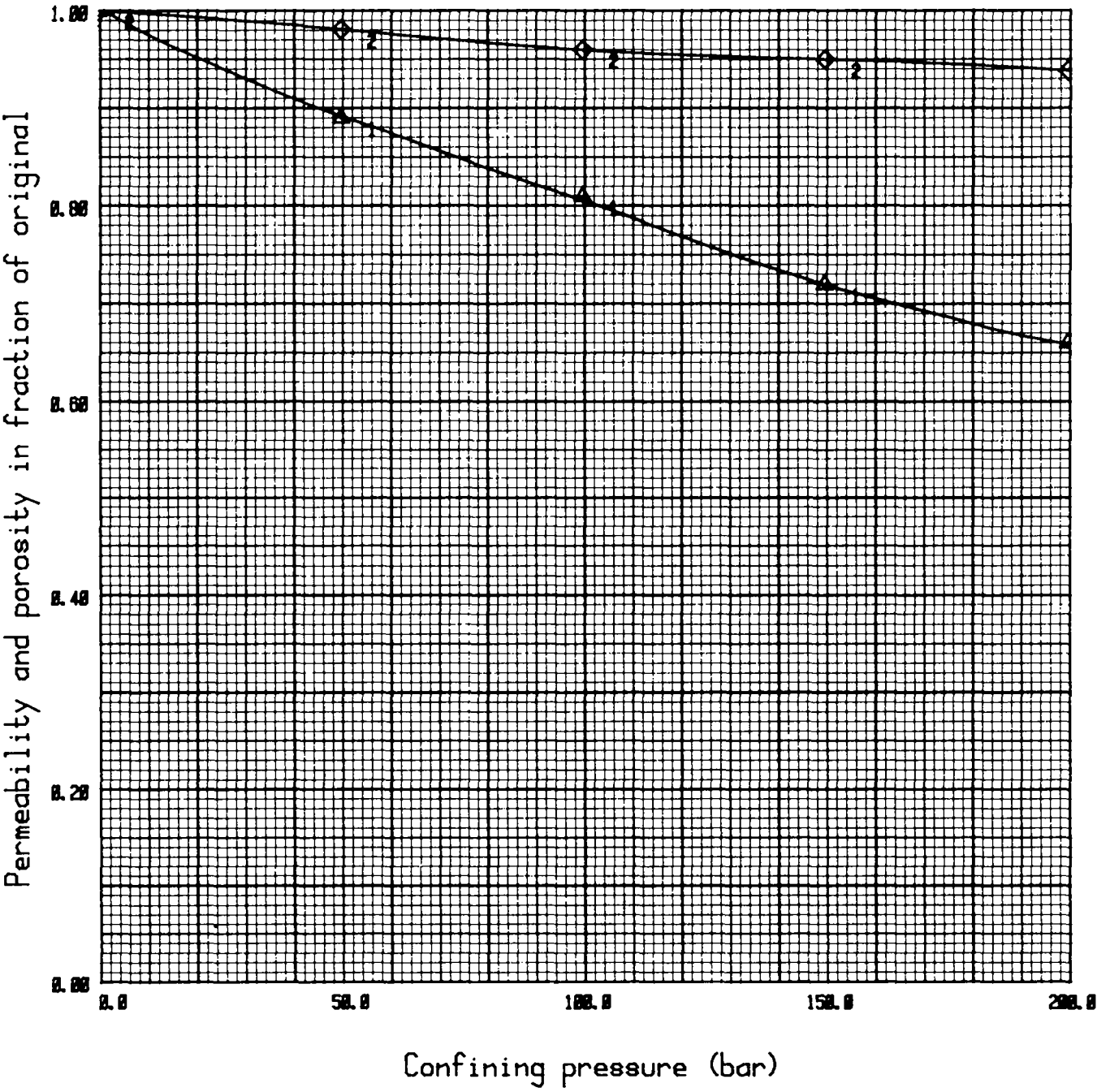
Sample no:
Depth : 1592.20 m

Orig. permeability (curve 1): 1642. mD
Orig. porosity (curve 2): 32.3 %



CONFINING PRESSURE MEASUREMENTS

Depth (m): 1577.2

Measurements	"Atmospheric"	15 bar	50 bar	100 bar	150 bar	200 bar
Porosity (%):		35.1	34.0	33.3	32.8	32.3
Porosity reduction: (frac. of original)		1.000	0.969	0.948	0.934	0.921
Pore volume (cm^3):		26.04	24.81	24.00	23.47	23.00
Pore volume reduction: $\frac{\Delta \text{ PV}}{\text{org. PV}}$ (frac. of original)		0.000	0.047	0.078	0.099	0.117
Formation resistivity factor (1 kHz)		4.70	5.05	5.29	5.46	5.60
FRF - Increment: (fraction of original)		1.00	1.07	1.13	1.16	1.19

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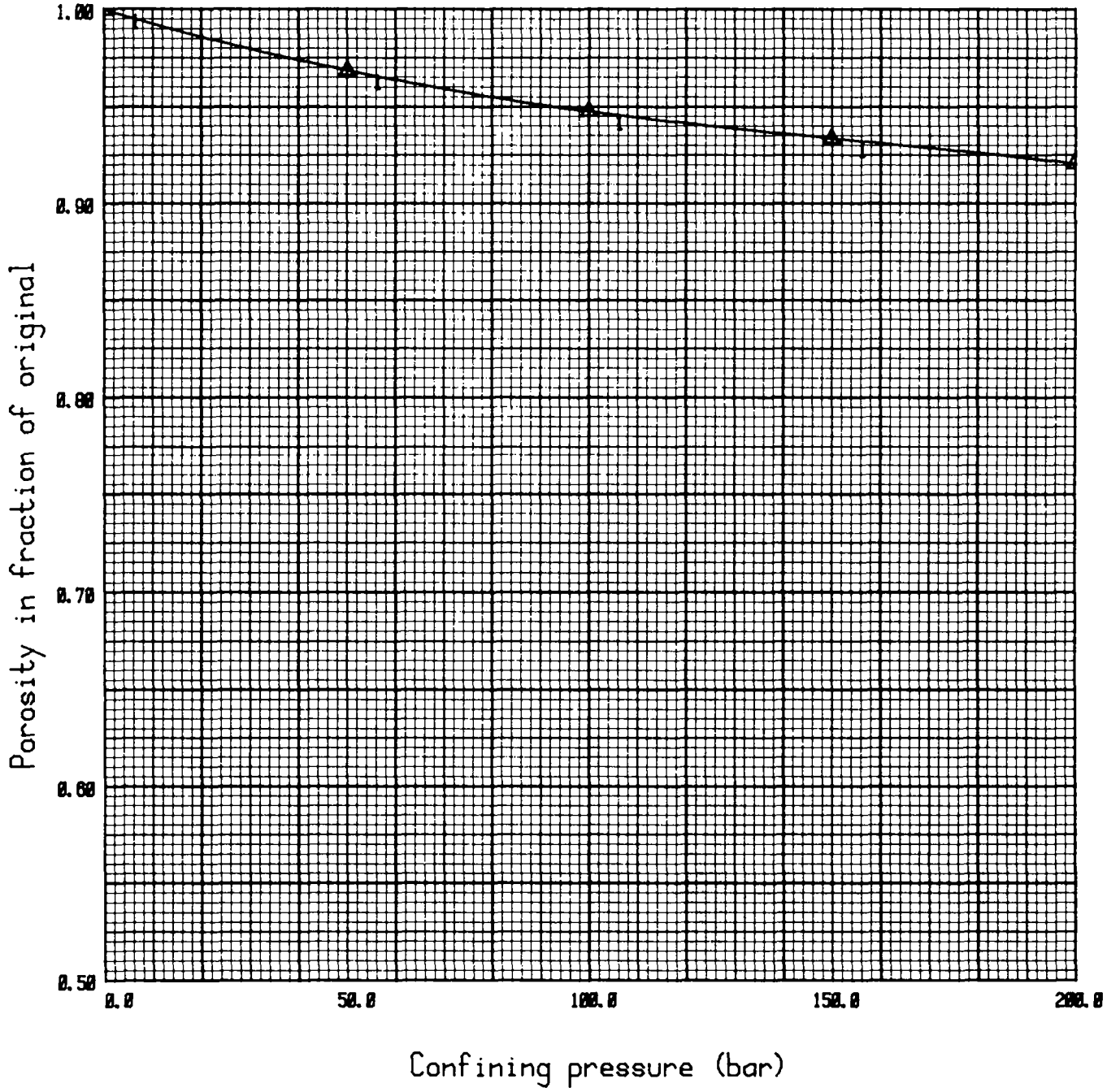
POROSITY VERSUS CONFINING PRESSURE

Depth : 1577.20 m Original Porosity (curve 1) : 35.1 %



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CONFINING PRESSURE MEASUREMENTS

Depth (m): 1582.8

Measurements	"Atmospheric"	15 bar	50 bar	100 bar	150 bar	200 bar
Porosity (%):		28.6	28.0	27.5	27.2	26.9
Porosity reduction: (frac. of original)		1.000	0.977	0.961	0.950	0.940
Pore volume (cm^3):		21.63	20.96	20.48	20.16	19.86
Pore volume reduction: (frac. of original)	$\frac{\Delta \text{ PV}}{\text{org. PV}}$	0.000	0.031	0.053	0.068	0.082
Formation resistivity factor (1 kHz)		8.10	8.64	9.04	9.35	9.63
FRF - Increment: (fraction of original)		1.00	1.07	1.12	1.15	1.19

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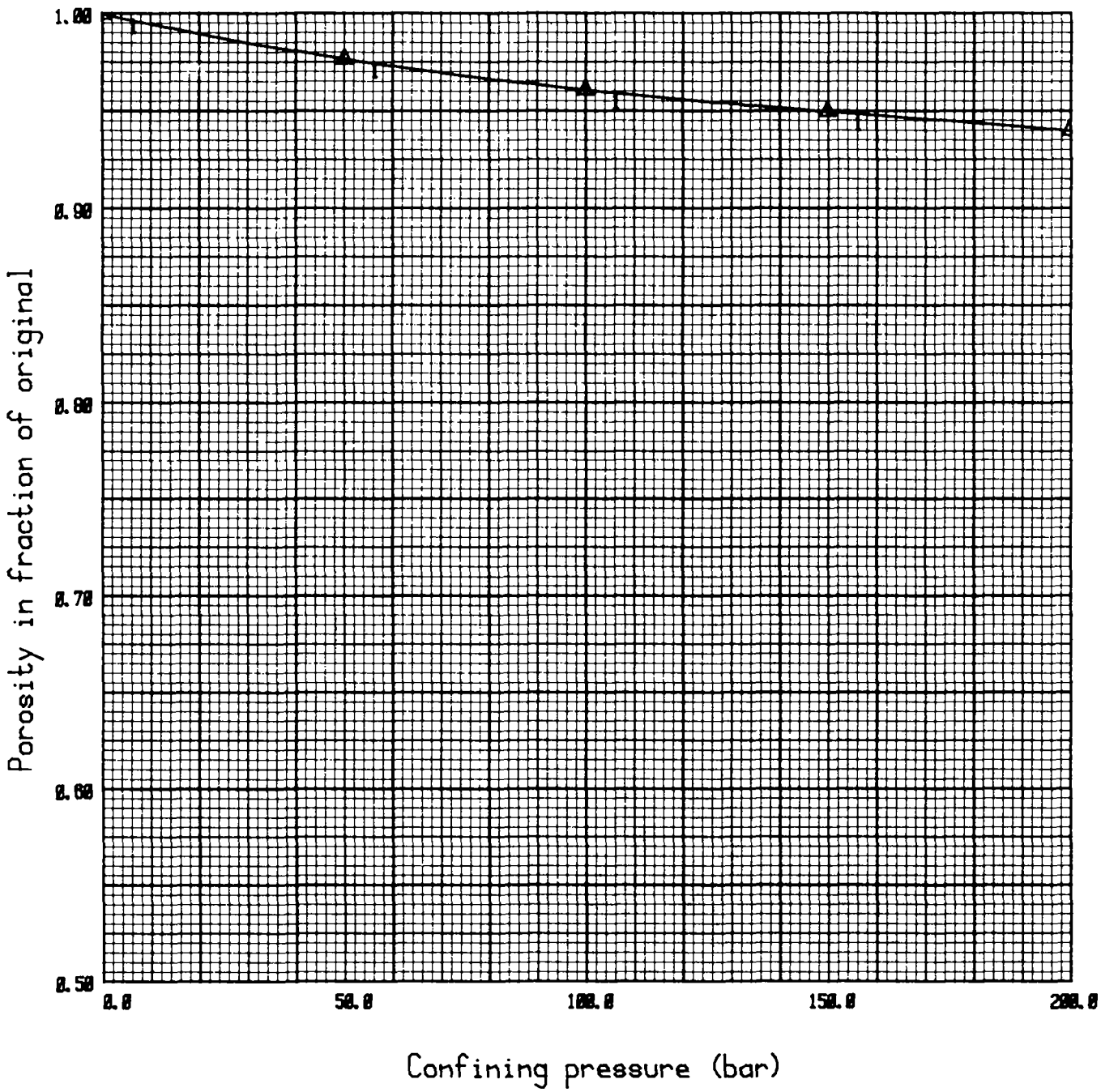
POROSITY VERSUS CONFINING PRESSURE

Depth : 1582.80 m Original Porosity (curve 1) : 28.6 %



CONFINING PRESSURE MEASUREMENTS

Depth (m): 1585.5

Measurements	"Atmospheric" 15 bar	50 bar	100 bar	150 bar	200 bar
Porosity (%):	34.2	33.0	32.3	31.8	31.4
Porosity reduction: (frac. of original)	1.000	0.966	0.944	0.929	0.916
Pore volume (cm^3):	16.63	15.78	15.25	14.89	14.60
Pore volume reduction: $\frac{\Delta \text{ PV}}{\text{org. PV}}$ (frac. of original)	0.000	0.051	0.083	0.105	0.122
Formation resistivity factor (1 kHz)	4.56	4.88	5.09	5.26	5.37
FRF - Increment: (fraction of original)	1.00	1.07	1.12	1.15	1.18

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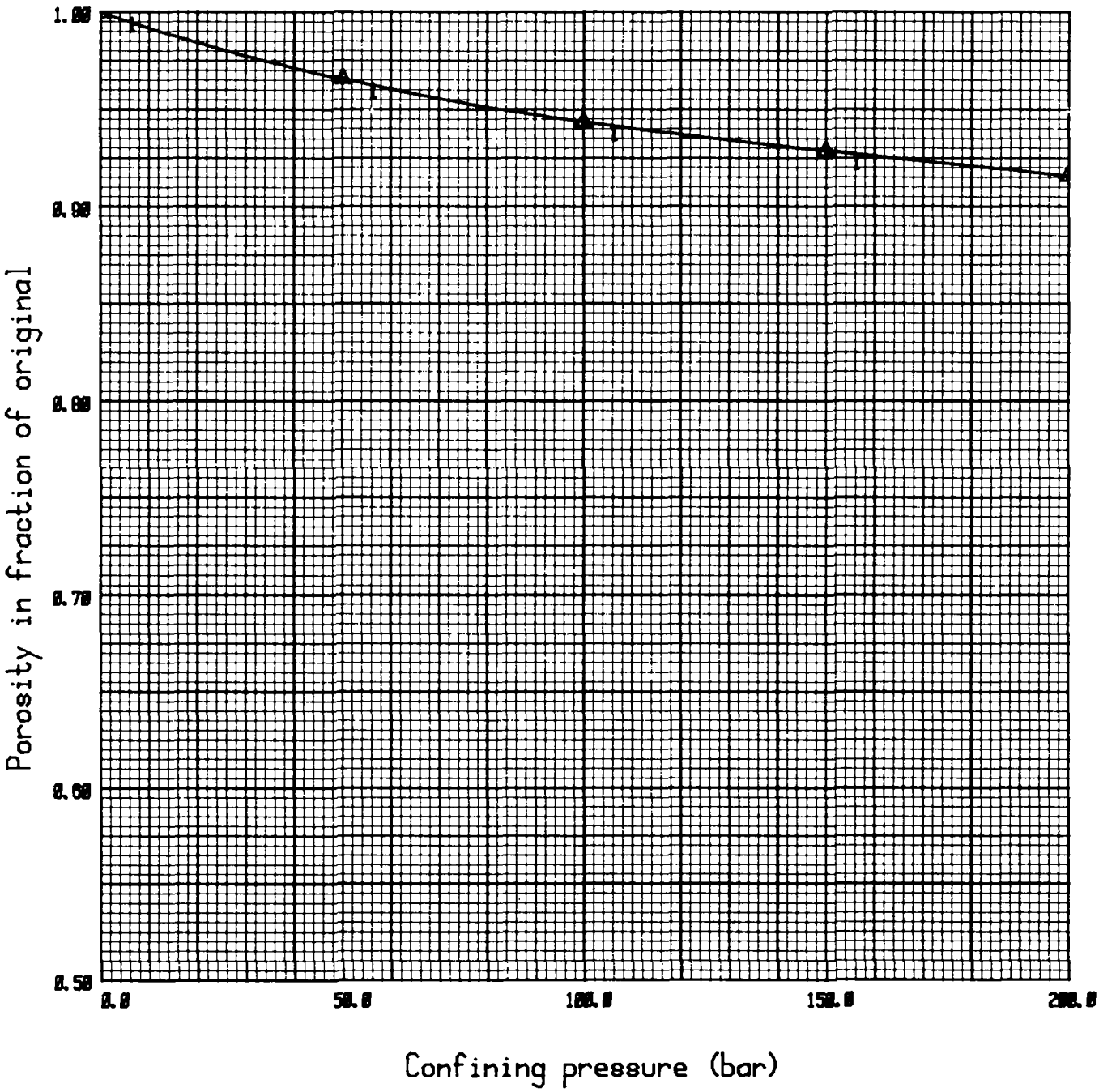
POROSITY VERSUS CONFINING PRESSURE

Depth : 1585.50 m Original Porosity (curve 1) : 34.2 %



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CONFINING PRESSURE MEASUREMENTS

Depth (m): 1594.0

Measurements	"Atmospheric"	15 bar	50 bar	100 bar	150 bar	200 bar
Porosity (%):		34.0	32.9	32.3	31.8	31.5
Porosity reduction: (frac. of original)		1.000	0.970	0.950	0.937	0.927
Pore volume (cm^3):		24.50	23.40	22.69	22.24	21.87
Pore volume reduction: (frac. of original)	$\frac{\Delta \text{ PV}}{\text{org. PV}}$	0.000	0.045	0.074	0.092	0.107
Formation resistivity factor (1 kHz)		4.80	5.10	5.32	5.44	5.55
FRF - Increment: (fraction of original)		1.00	1.06	1.11	1.13	1.16

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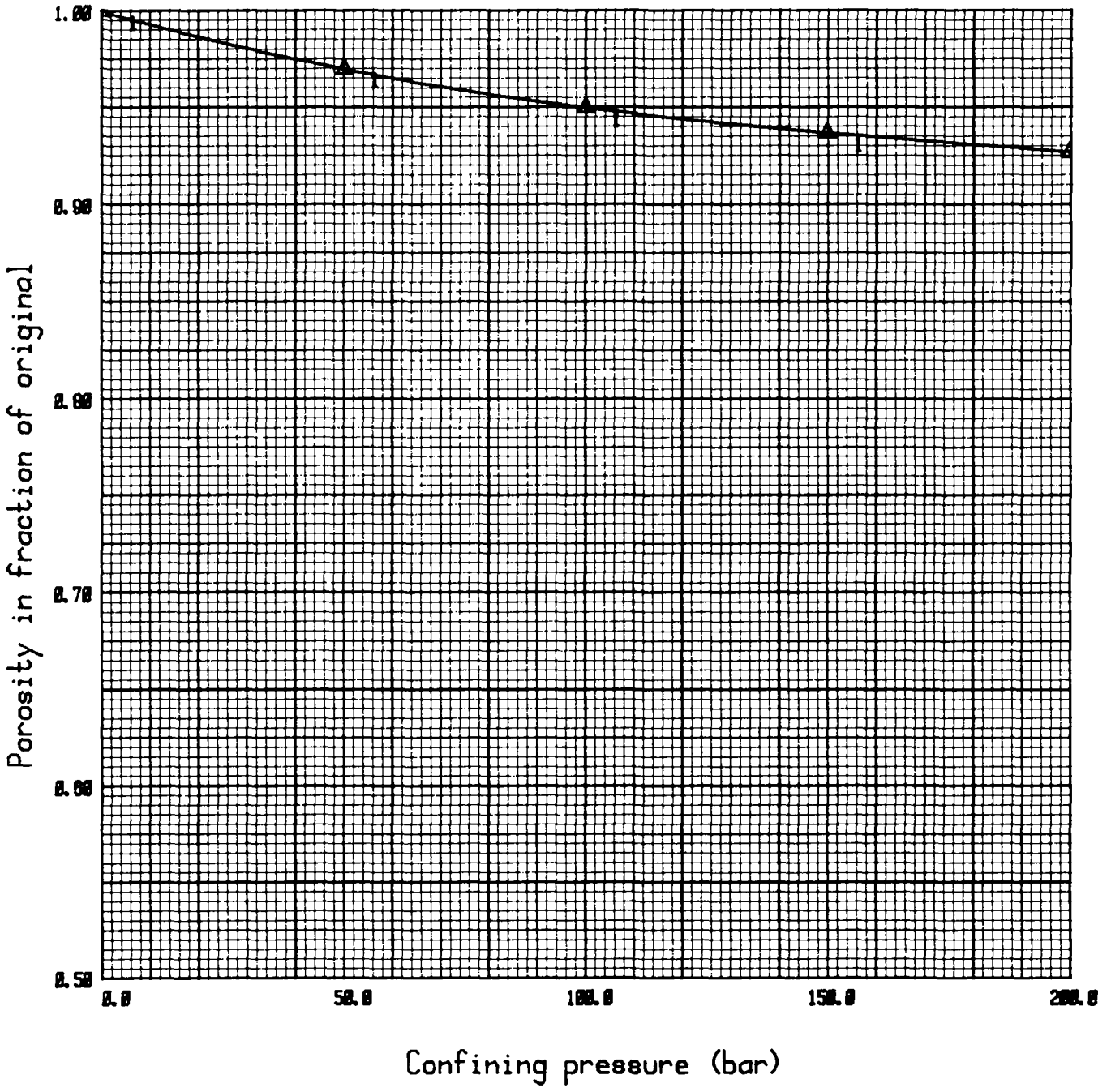
POROSITY VERSUS CONFINING PRESSURE

Depth : 1594.00 m Original Porosity (curve 1) : 34.0 %



CONFINING PRESSURE MEASUREMENTS

Depth (m): 1601.2

Measurements	"Atmospheric" 15 bar	50 bar	100 bar	150 bar	200 bar
Porosity (%):	24.1	23.4	22.9	22.6	22.4
Porosity reduction: (frac. of original)	1.000	0.973	0.952	0.940	0.929
Pore volume (cm^3):	19.05	18.38	17.86	17.56	17.31
Pore volume reduction: $\frac{\Delta \text{ PV}}{\text{org. PV}}$ (frac. of original)	0.000	0.035	0.062	0.078	0.091
Formation resistivity factor (1 kHz)	11.5	12.9	14.0	14.8	15.3
FRF - Increment: (fraction of original)	1.00	1.12	1.21	1.28	1.33

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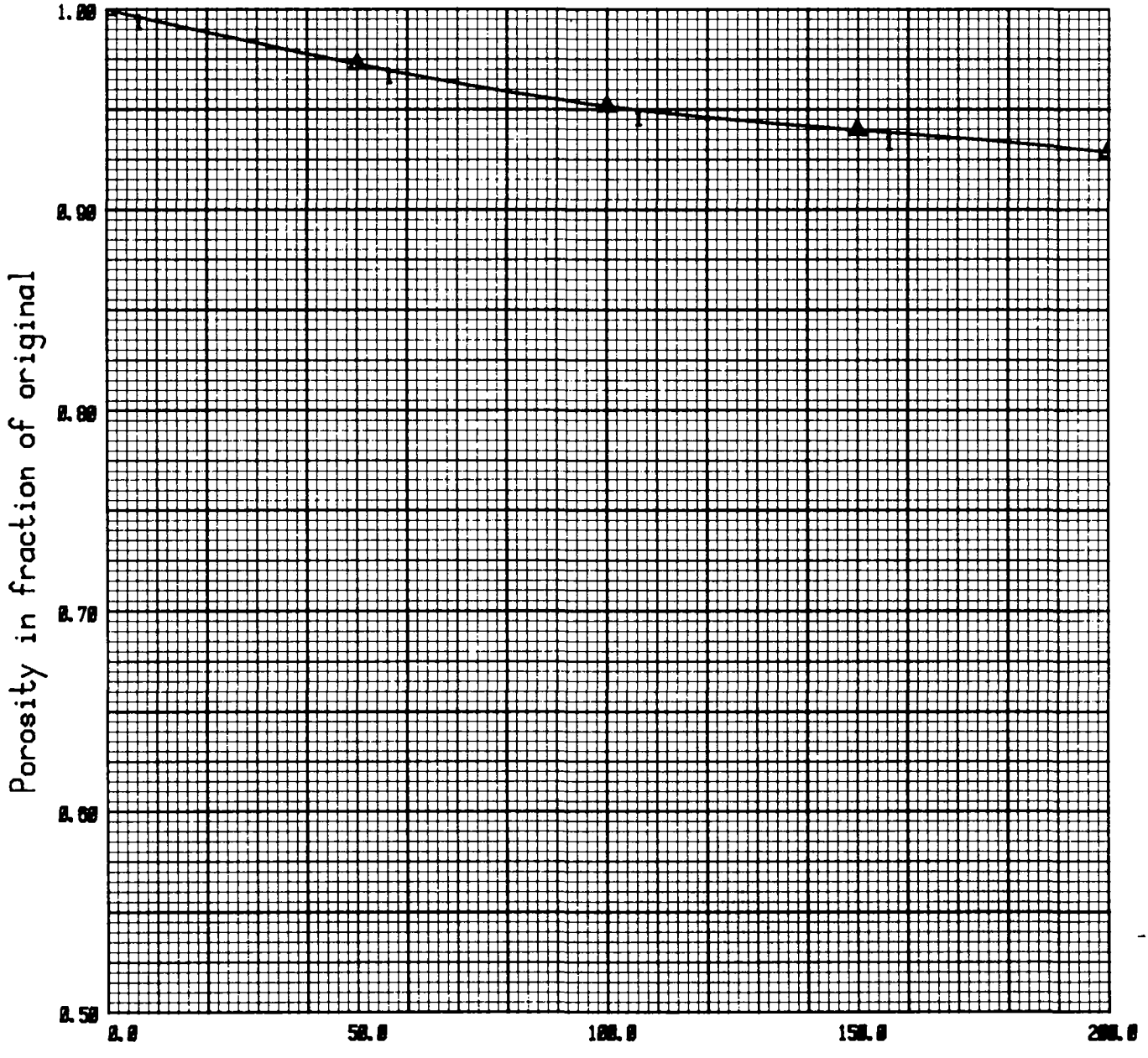
POROSITY VERSUS CONFINING PRESSURE

Depth : 1601.20 m Original Porosity (curve 1) : 24.1 %



CONFINING PRESSURE MEASUREMENTS

Depth (m): 1611.55

Measurements	"Atmospheric"	15 bar	50 bar	100 bar	150 bar	200 bar
Porosity (%):		22.6	21.6	21.0	20.6	20.4
Porosity reduction: (frac. of original)		1.000	0.956	0.930	0.914	0.903
Pore volume (cm^3):		14.19	13.40	12.94	12.66	12.46
Pore volume reduction: (frac. of original)	$\frac{\Delta \text{ PV}}{\text{org. PV}}$	0.000	0.056	0.088	0.108	0.122
Formation resistivity factor (1 kHz)		11.5	13.4	14.9	15.7	16.3
FRF - Increment: (fraction of original)		1.00	1.17	1.30	1.37	1.42

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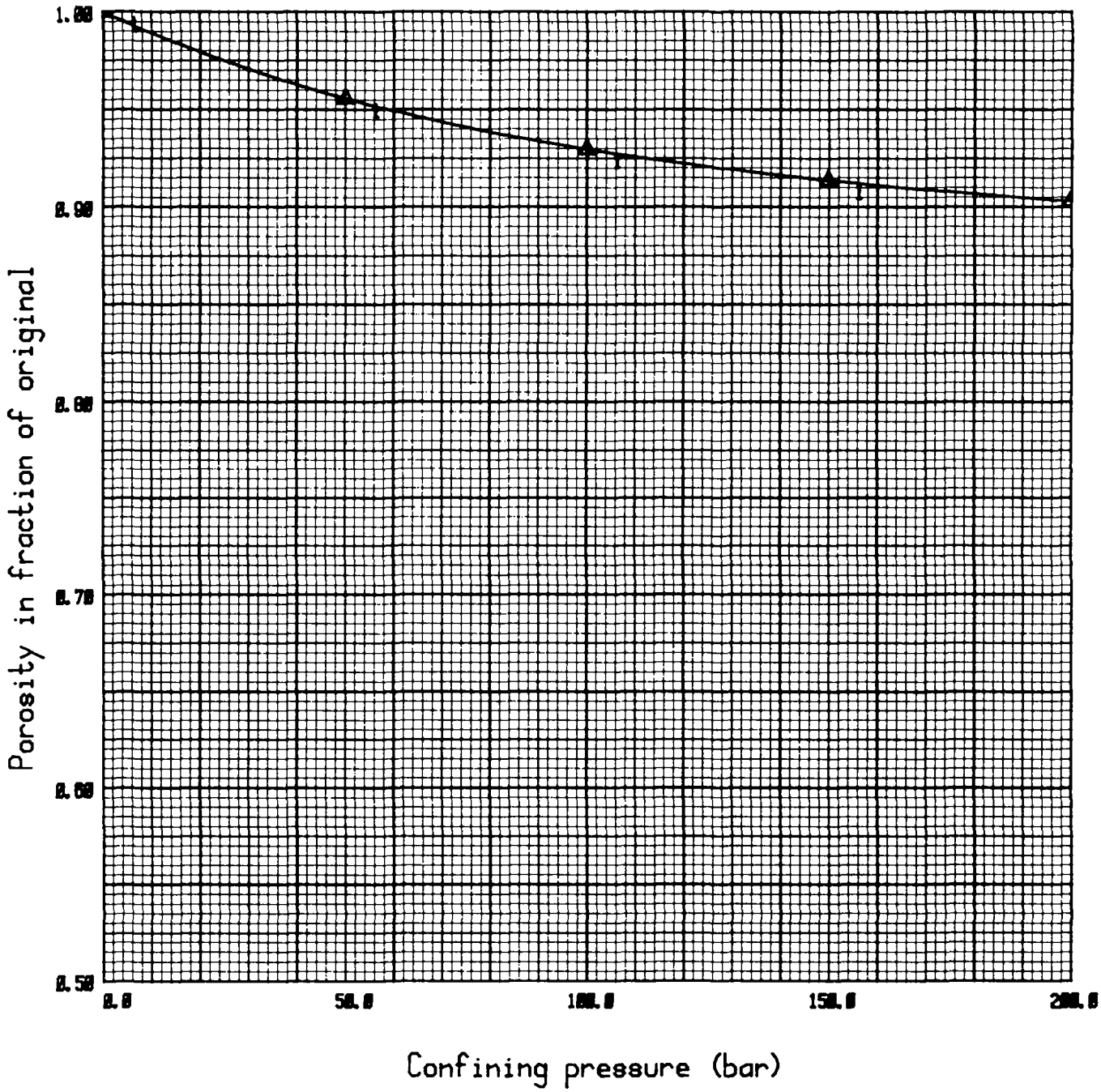
POROSITY VERSUS CONFINING PRESSURE

Depth : 1611.55 m Original Porosity (curve 1) : 22.6 %



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CONFINING PRESSURE MEASUREMENTS

Depth (m): 1622.25

Measurements	"Atmospheric" 15 bar	50 bar	100 bar	150 bar	200 bar
Porosity (%):	23.6	22.7	22.1	21.8	21.6
Porosity reduction: (frac. of original)	1.000	0.964	0.938	0.925	0.915
Pore volume (cm^3):	19.04	18.15	17.53	17.23	16.99
Pore volume reduction: $\frac{\Delta \text{ PV}}{\text{org. PV}}$ (frac. of original)	0.000	0.047	0.079	0.095	0.108
Formation resistivity factor (1 kHz)	10.7	12.1	13.2	13.8	14.3
FRF - Increment: (fraction of original)	1.00	1.14	1.24	1.29	1.34

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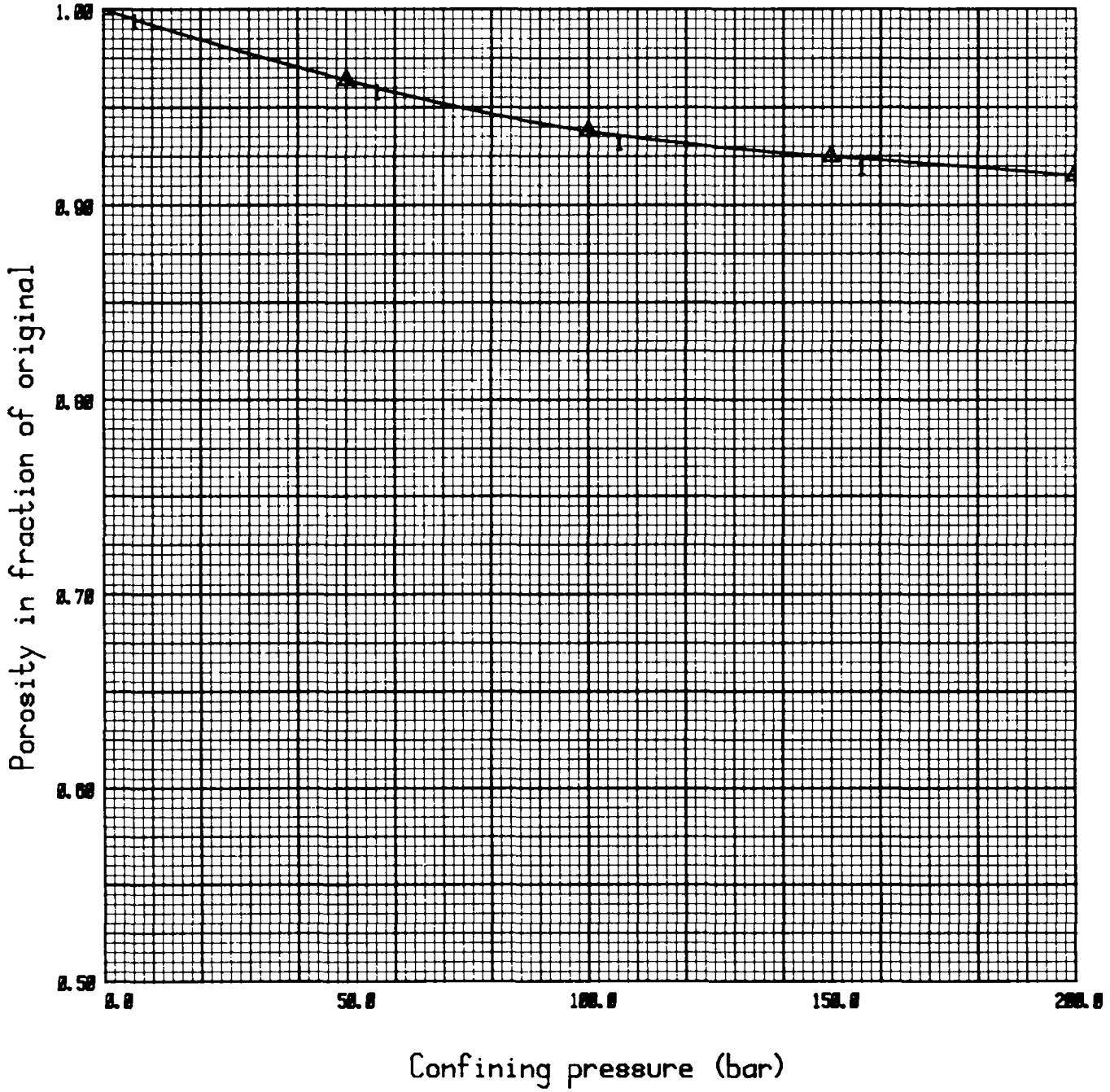
POROSITY VERSUS CONFINING PRESSURE

Depth : 1622.25 m Original Porosity (curve 1) : 23.6 %



CONFINING PRESSURE: FORMATION FACTOR / POROSITY

WELL 31/2-9

Depth (m)	"Atmospheric" 15 bar FF	frac.por.	50 bar FF	frac.por.	100 bar FF	frac.por.	150 bar FF	frac.por.	200 bar FF	frac.por.
1577.2	4.70	0.351	5.05	0.340	5.29	0.333	5.46	0.328	5.60	0.323
1582.8	8.10	0.286	8.64	0.280	9.04	0.275	9.35	0.272	9.63	0.269
1585.5	4.56	0.342	4.88	0.330	5.09	0.323	5.26	0.318	5.37	0.314
1594.0	4.80	0.340	5.10	0.329	5.32	0.323	5.44	0.318	5.55	0.315
1601.2	11.5	0.241	12.9	0.234	14.0	0.229	14.8	0.226	15.3	0.224
1611.55	11.5	0.226	13.4	0.216	14.9	0.210	15.7	0.206	16.3	0.204
1622.25	10.7	0.236	12.1	0.227	13.2	0.221	13.8	0.218	14.3	0.216

Forced fit: $FF = \phi^{-1.60}$ $FF = \phi^{-1.63}$ $FF = \phi^{-1.66}$ $FF = \phi^{-1.67}$ $FF = \phi^{-1.68}$

Free fit : $FF = 0.44 \cdot \phi^{-2.24}$ $FF = 0.38 \cdot \phi^{-2.36}$ $FF = 0.35 \cdot \phi^{-2.45}$ $FF = 0.33 \cdot \phi^{-2.50}$ $FF = 0.30 \cdot \phi^{-2.55}$

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FORMATION RESISTIVITY FACTOR VERSUS POROSITY

GECO
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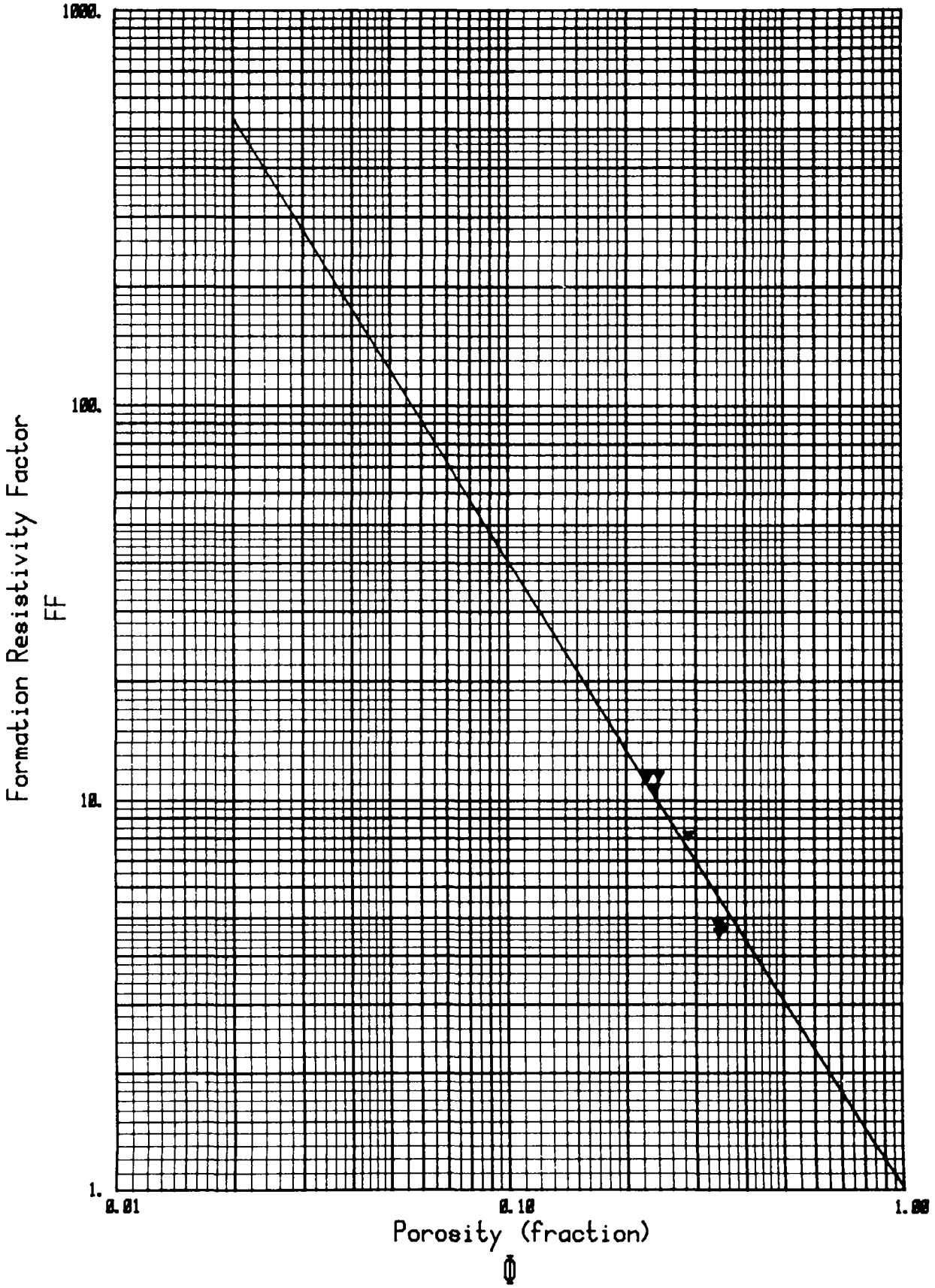
Petroleum laboratory

Company : A/S Norske Shell
Well : 31/2-9
Confining pressure : Atmospheric pressure. (15 bar)
$FF = 1.00 * \phi^{-1.68}$



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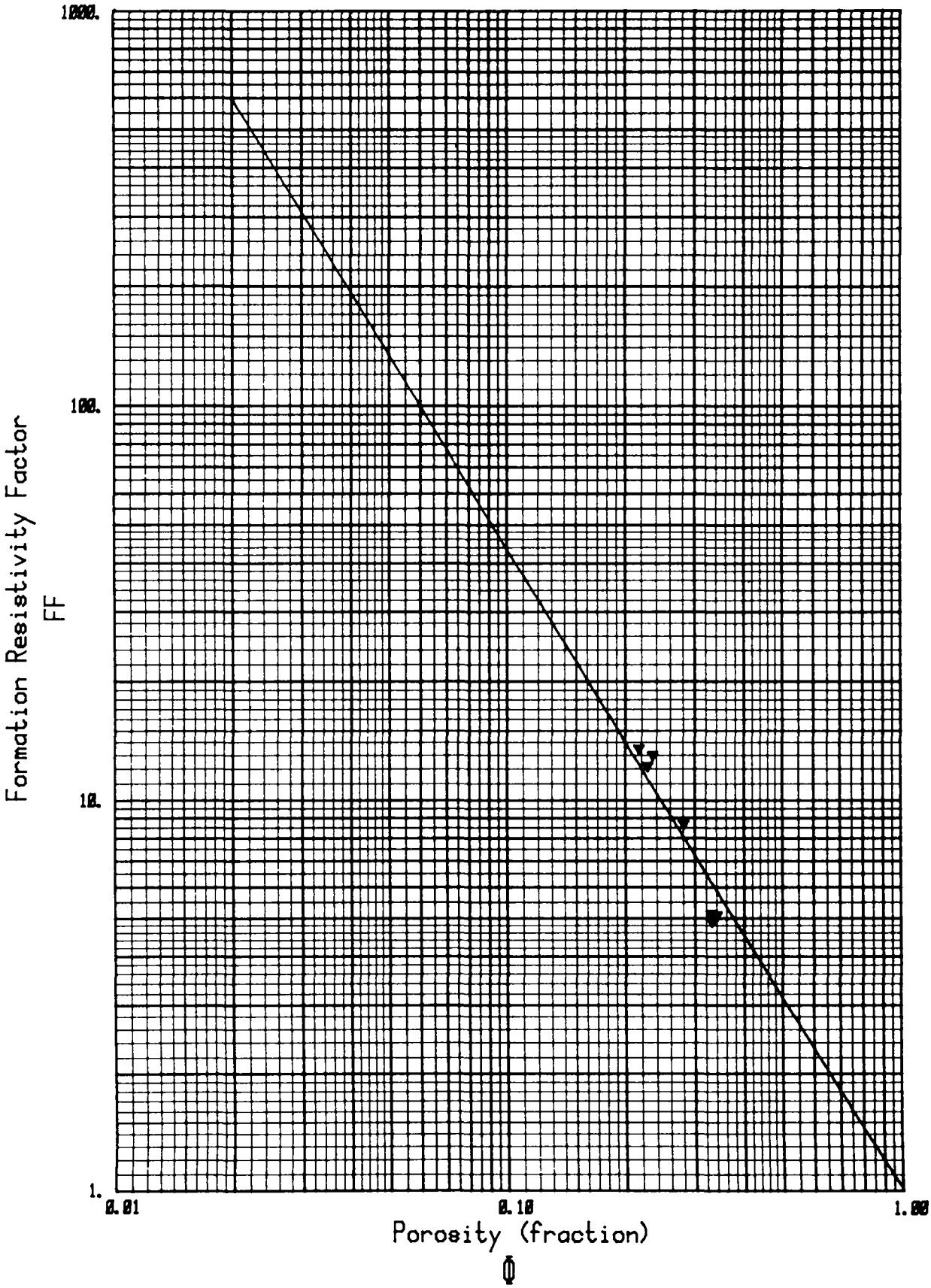
FORMATION RESISTIVITY FACTOR VERSUS POROSITY

GECO
GEOPHYSICAL COMPANY OF NORWAY A.S
Petroleum laboratory

Company : A/S Norske Shell
Well : 31/2-9
Confining pressure : 50 bar
FF = 1.00 * $\Phi^{-1.63}$



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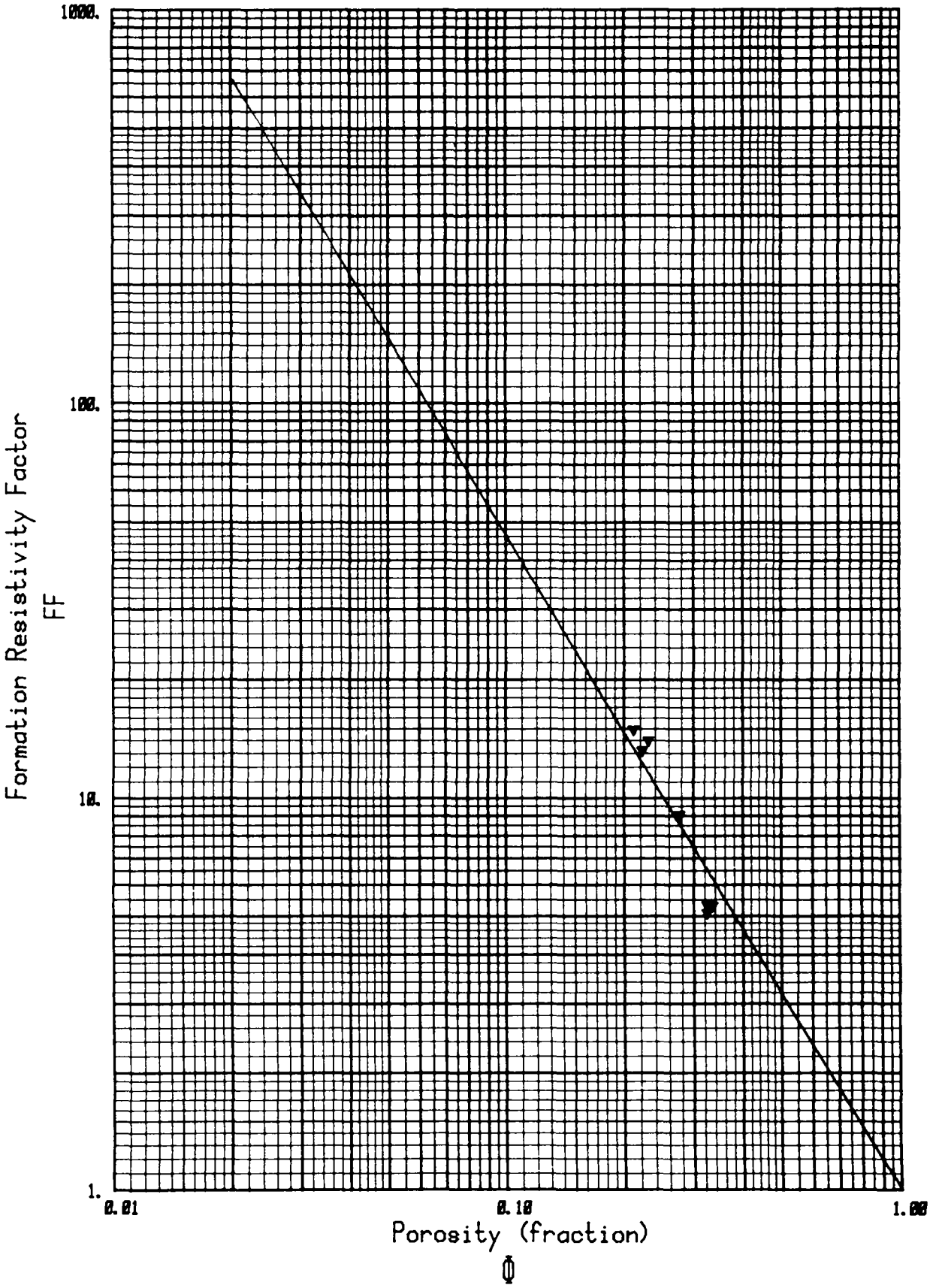
FORMATION RESISTIVITY FACTOR VERSUS POROSITY

GECO
GEOPHYSICAL COMPANY OF NORWAY A.S
Petroleum laboratory

Company : A/S Norske Shell
Well : 31/2-9
Confining pressure : 100 bar
$FF = 1.00 * \Phi^{-1.66}$



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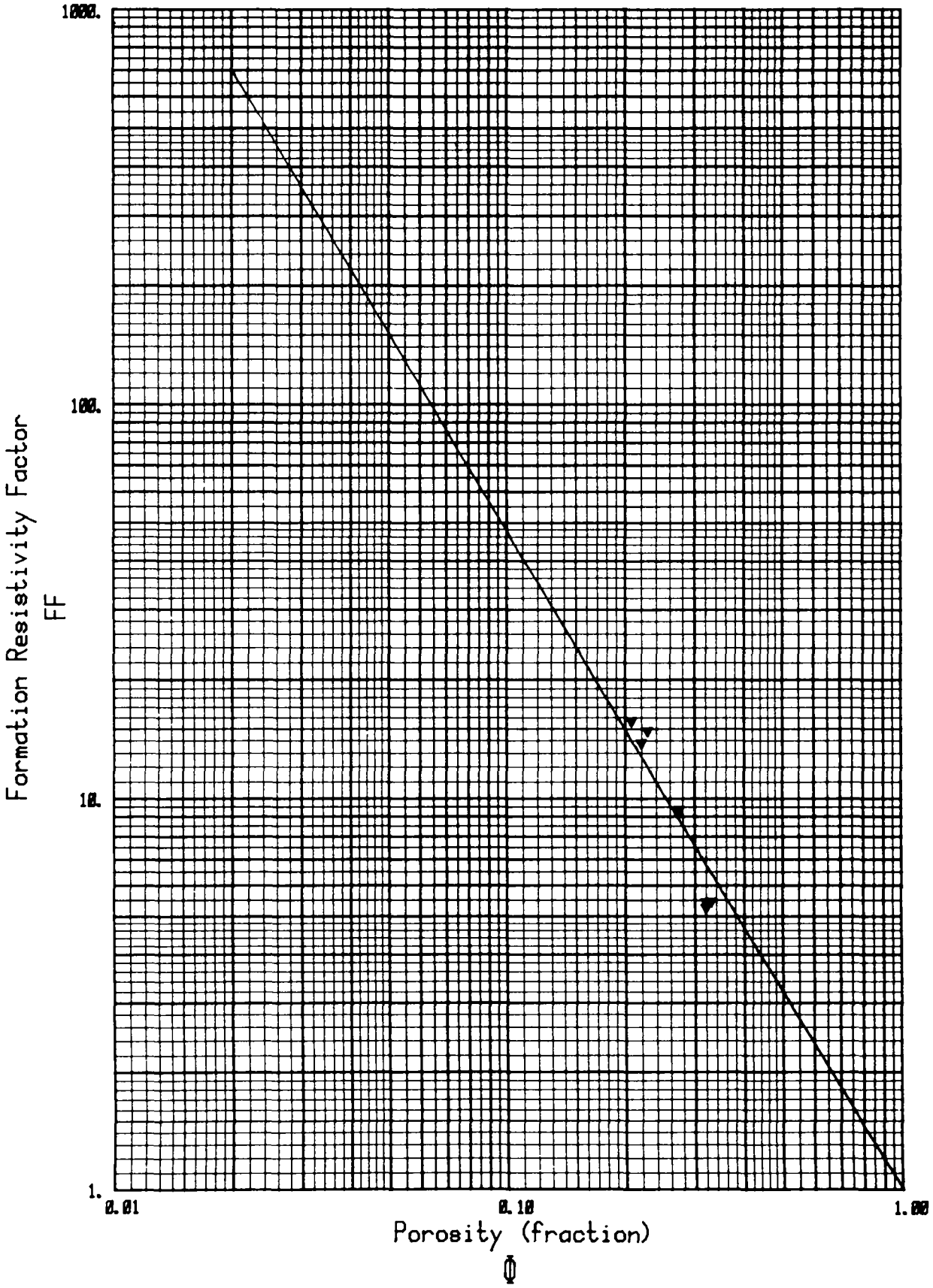
FORMATION RESISTIVITY FACTOR VERSUS POROSITY

GECO
GEOPHYSICAL COMPANY OF NORWAY A.S
Petroleum laboratory

Company : A/S Norske Shell
Well : 31/2-9
Confining pressure : 150 bar
$FF = 1.00 * \Phi^{-1.67}$



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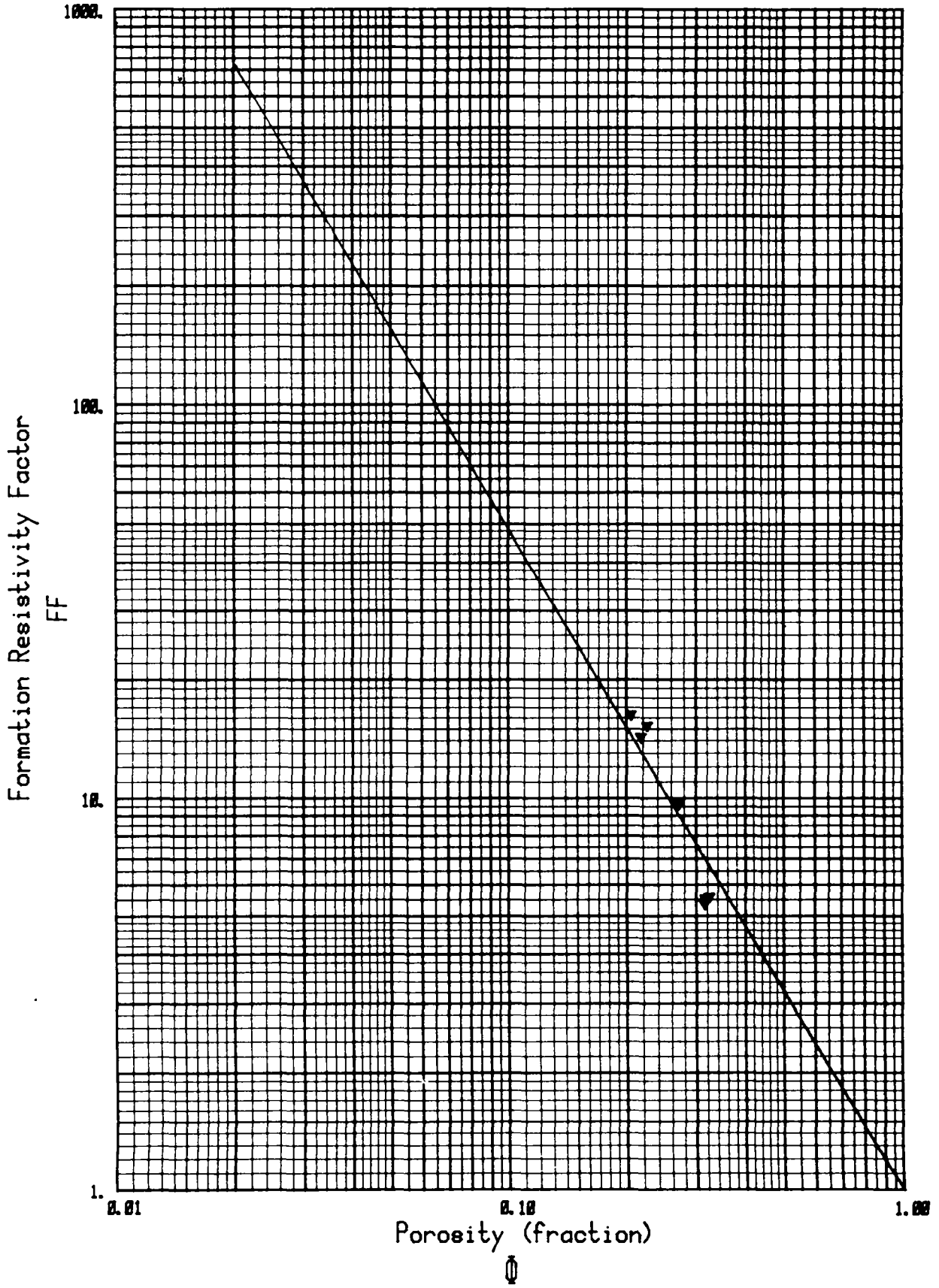
FORMATION RESISTIVITY FACTOR VERSUS POROSITY

GECO
GEOPHYSICAL COMPANY OF NORWAY A.S
Petroleum laboratory

Company : A/S Norske Shell
Well : 31/2-9
Confining pressure : 200 bar
FF = 1.00 * $\phi^{-1.86}$



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CATION EXCHANGE CAPACITY

Depth (m)	Klinkenberg perm. (mD)	Porosity (%)	Grain Density (g/cm^3)	C.E.C. (meq/100g)
1577.2	730	35.1	2.64	2.9
1582.8	141	28.6	2.64	7.4
1585.5	1044	34.2	2.66	2.0
1594.0	8007	34.0	2.64	1.9
1601.2	13.2	24.1	2.63	12
1611.55	11.4	22.6	2.63	15
1622.25	9.15	23.6	2.63	12

GECO

CAPILLARY PRESSURE BY MERCURY INJECTION

Depth (m)	:	1603.90	1614.30	1615.90
Klink. perm. (mD)	:	15.0	8.75	4.21
Pore volume (cm^3)	:	10.40	10.87	9.99
Porosity (%)	:	28.1	27.5	25.3
Grain density (g/cm^3):		2.62	2.61	2.61

Capillary pressure (bar abs.)	Pore entry radius (microns)	Mercury saturation (percent of pore volume)		
0.2	36.8	0.6	0.9	0.9
0.4	18.4	0.8	1.1	1.1
0.7	10.5	1.2	1.3	1.2
1.0	7.36	2.1	1.4	1.3
1.5	4.91	6.1	1.9	1.6
2.0	3.68	12.2	4.0	2.2
3.0	2.45	22.0	11.1	4.8
5.0	1.47	33.6	26.5	15.7
8.0	0.920	42.0	36.5	25.7
12.0	0.613	49.4	45.6	38.2
17.0	0.433	55.2	52.7	45.9
25.0	0.294	60.5	60.5	54.6
35.0	0.210	66.5	66.0	61.2
50.0	0.147	71.6	71.9	68.1
70.0	0.105	75.9	76.2	72.3
100	0.0736	79.9	80.0	77.6
140	0.0526	83.0	83.7	81.1

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CAPILLARY PRESSURE BY MERCURY INJECTION

Depth (m)	:	1620.40	1625.10	1627.00
Klink. perm. (mD)	:	33.3	9.79	12.6
Pore volume (cm^3)	:	11.69	10.66	11.32
Porosity (%)	:	28.9	26.6	29.3
Grain density (g/cm^3):		2.62	2.61	2.60

Capillary pressure (bar abs.)	Pore entry radius (microns)	Mercury saturation (percent of pore volume)		
0.2	36.8	1.5	1.7	0.9
0.4	18.4	1.7	2.0	1.2
0.7	10.5	2.1	2.3	1.6
1.0	7.36	5.2	2.5	2.5
1.5	4.91	10.9	3.0	5.2
2.0	3.68	15.1	4.0	8.9
3.0	2.45	22.1	9.9	17.0
5.0	1.47	33.6	21.1	28.5
8.0	0.920	42.1	32.3	37.4
12.0	0.613	49.8	40.9	45.8
17.0	0.433	56.1	48.6	52.6
25.0	0.294	62.9	57.2	59.6
35.0	0.210	68.8	63.0	65.5
50.0	0.147	74.1	69.8	70.8
70.0	0.105	77.1	74.6	74.9
100	0.0736	81.9	79.3	78.7
140	0.0526	85.0	82.9	81.7

CAPILLARY PRESSURE (MERCURY INJECTION)

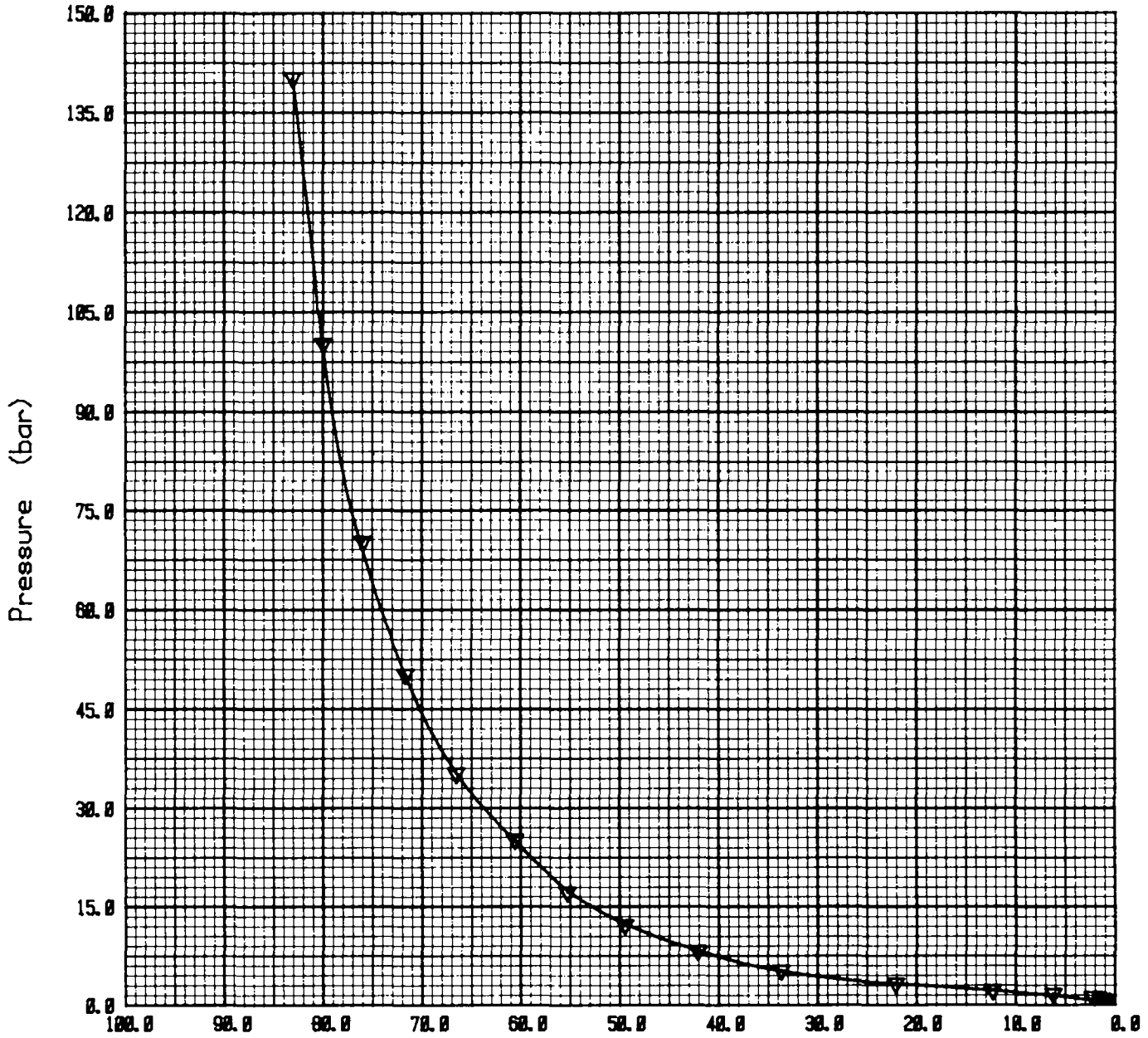
GECO
GEOPHYSICAL COMPANY OF NORWAY A.S
Petroleum laboratory

Company : A/S Norske Shell

Well : 31/2-9 Klink. perm.: 15.0 mD

Sample no : Porosity : 28.1 %

Depth : 1603.90 m Grain dens. : 2.62 g/cm^3



CAPILLARY PRESSURE (MERCURY INJECTION)

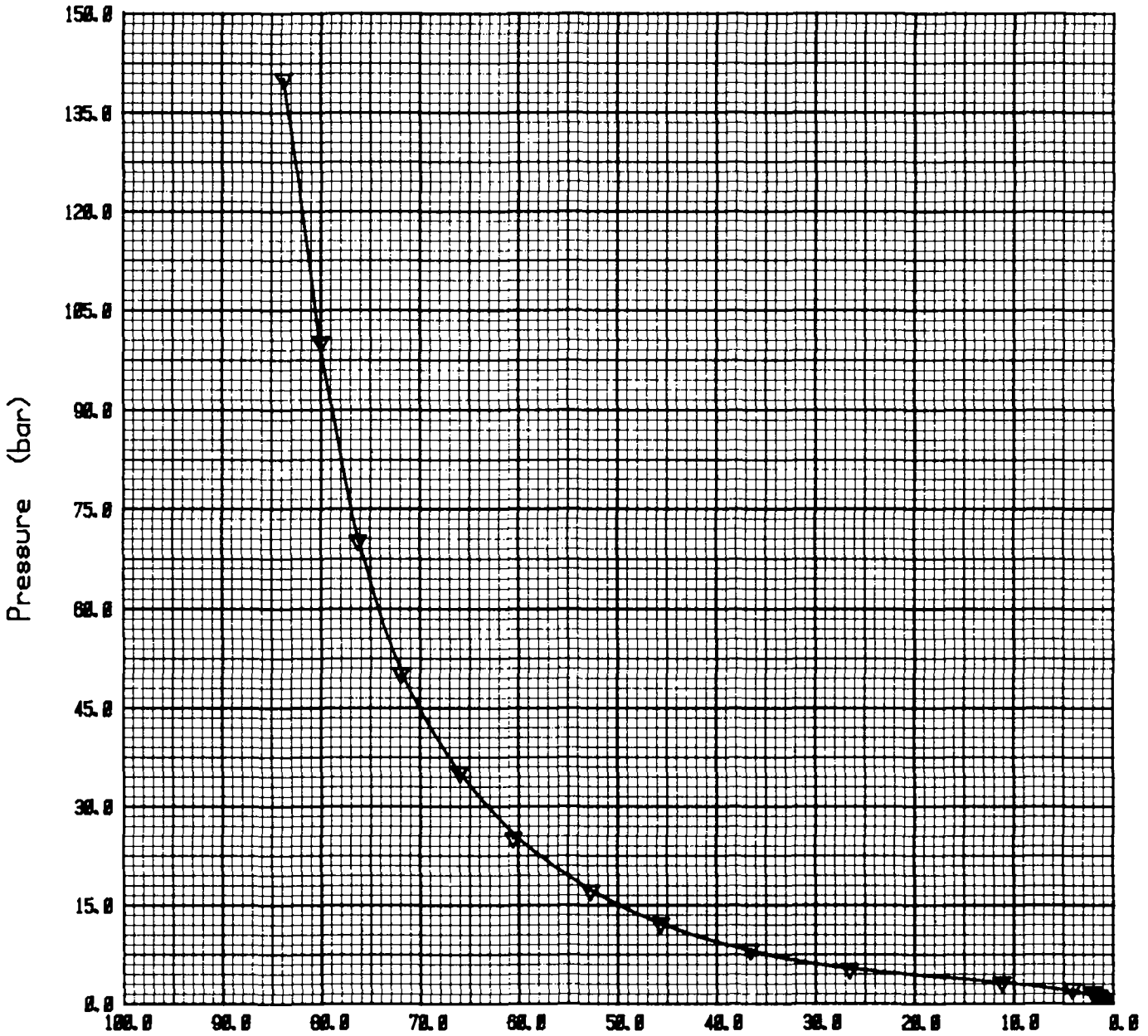
GECO
GEOPHYSICAL COMPANY OF NORWAY A.S
Petroleum laboratory

Company : A/S Norske Shell

Well : 31/2-9 Klink. perm.: 8.75 mD

Sample no : Porosity : 27.5 %

Depth : 1614.30 m Grain dens. : 2.61 g/cm^3



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CAPILLARY PRESSURE (MERCURY INJECTION)

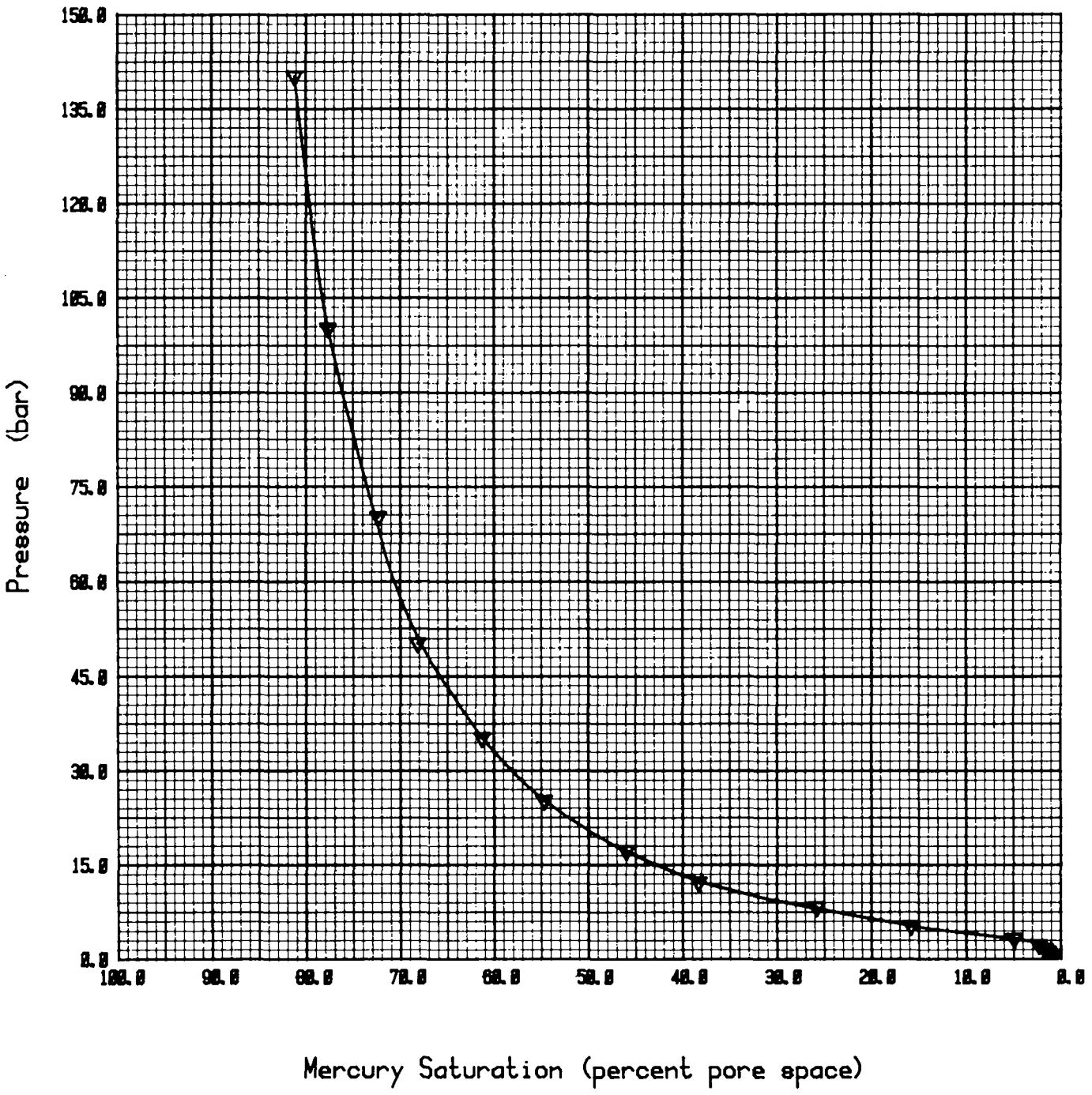
GECO
GEOPHYSICAL COMPANY
OF NORWAY A.S
Petroleum laboratory

Company : A/S Norske Shell

Well : 31/2-9 Klink. perm.: 4.21 mD

Sample no : Porosity : 25.3 %

Depth : 1615.90 m Grain dens. : 2.61 g/cm^3



CAPILLARY PRESSURE (MERCURY INJECTION)

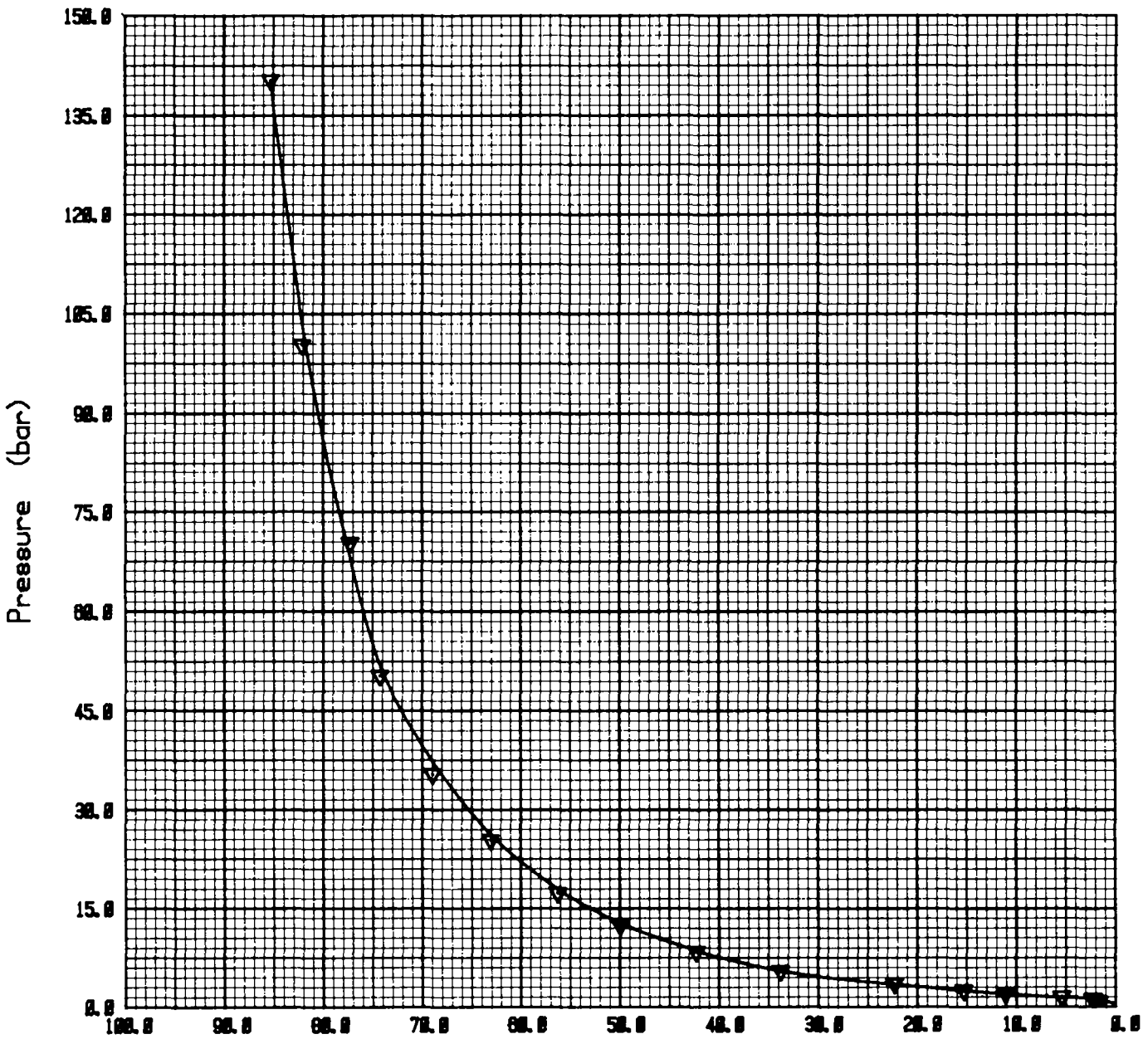
GECO
GEOPHYSICAL COMPANY
OF NORWAY A.S
Petroleum laboratory

Company : A/S Norske Shell

Well : 31/2-9 Klink. perm.: 33.3 mD

Sample no : Porosity : 28.9 %

Depth : 1620.40 m Grain dens. : 2.62 g/cm^3



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CAPILLARY PRESSURE (MERCURY INJECTION)

GECO
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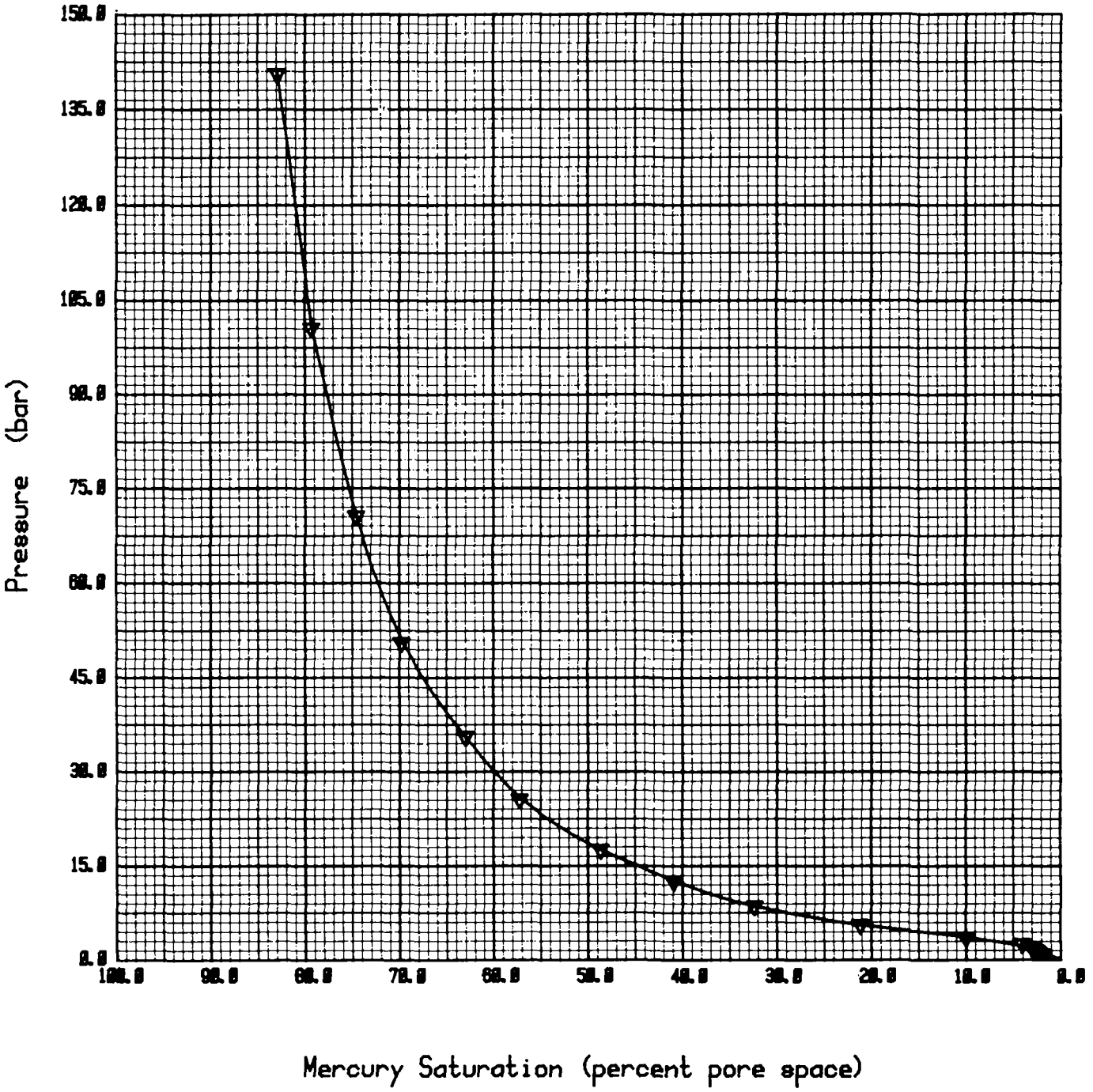
OF NORWAY A.S
Petroleum laboratory

Company : A/S Norske Shell

Well : 31/2-9 Klink. perm.: 9.79 mD

Sample no : Porosity : 26.6 %

Depth : 1625.10 m Grain dens. : 2.61 g/cm^3



CAPILLARY PRESSURE (MERCURY INJECTION)

GECO
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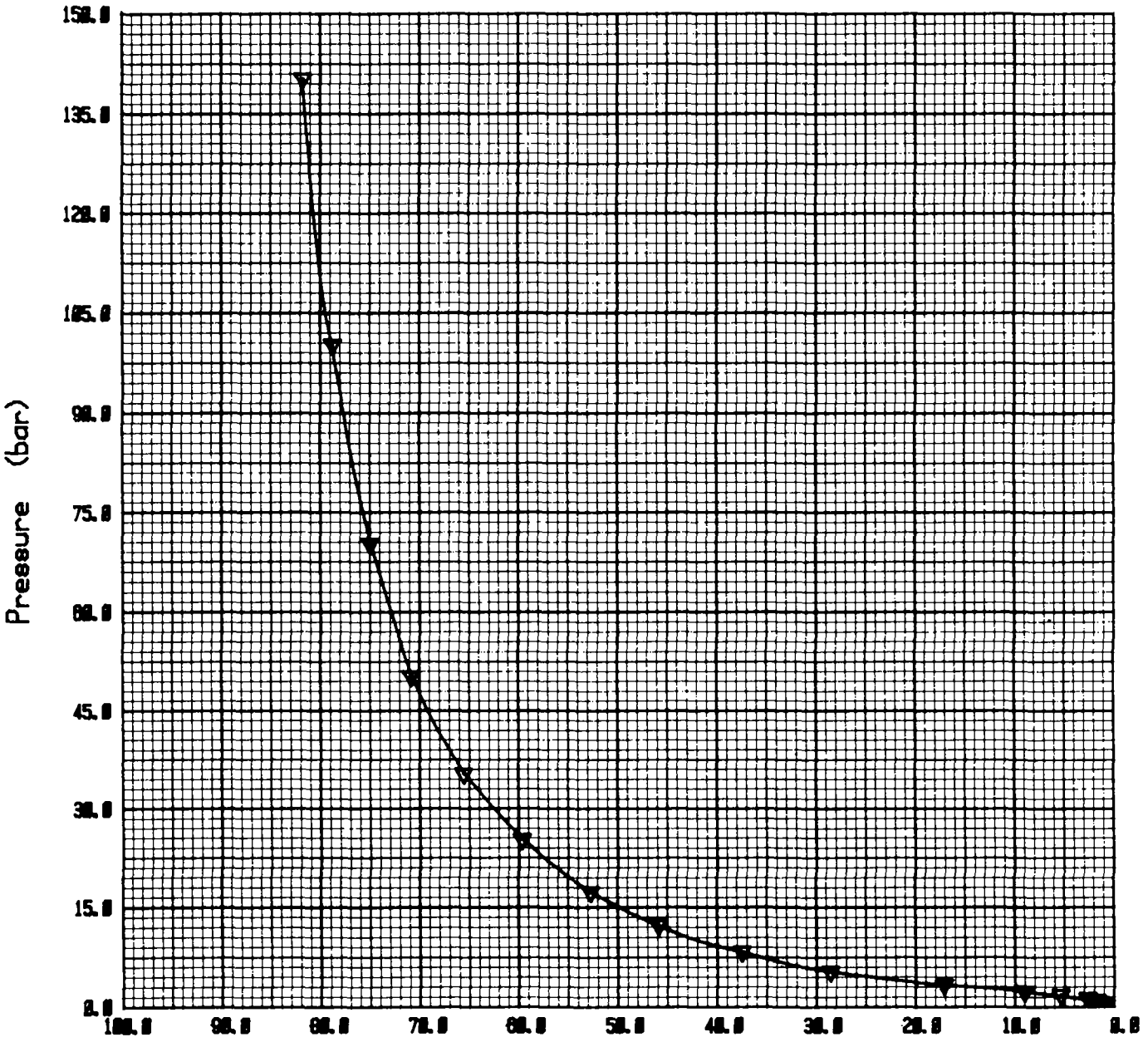
OF NORWAY A.S
Petroleum laboratory

Company : A/S Norske Shell

Well : 31/2-9 Klink. perm.: 12.6 mD

Sample no : Porosity : 29.3 %

Depth : 1627.00 m Grain dens. : 2.60 g/cm^3



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