

Práctica 6. Porosimetría por inyección de mercurio: Obtención de parámetros del sistema poroso.

A partir de los informes de porosimetría por inyección de mercurio de las siguientes rocas (filas), determina los parámetros del sistema poroso indicados (columnas):

TIPO DE ROCA	DENSIDAD		POROSIDAD			SUPERFICIE ESPECÍFICA (m ² /g)
	Densidad corregida (Kg/m ³)	Densidad de la roca seca (Kg/m ³)	Porosidad abierta (%)	Porosidad atrapada (%)	Porosidad atrapada relativa (%)	
Arenisca de Villaviciosa						
Arenisca de Montjüic						
Calaliza de Piedramuelle						
Dolomía de Boñar						
Dolomía de Laspra						
Granito de Fraguas						

TIPO DE ROCA	Radio de acceso de poro (μm)			Poros con radio de acceso mayor de 10 μm (%)		Poros con radio de acceso de 10 a 0,1 μm (%)		Poros con radio de acceso menor de 0,1 μm (%)	
	media	moda	mediana	relativos	absolutos	relativos	absolutos	relativos	absolutos
Arenisca de Villaviciosa									
Arenisca de Montjüic									
Calaliza de Piedramuelle									
Dolomía de Boñar									
Dolomía de Laspra									
Granito de Fraguas									

ARENISCA DE VILLAVICIOSA (11536)

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Milestone 200 Report generator

Instrument name : Porosimeter 2000
Method name    : blcmv
Method filename : VVICI02.POR

Sample informations
Company name   : UNIVERSIDAD DE OVIEDO / E:891
Sample name    : Arenisca de Villaviciosa (11536)
Preparation    : Tiempo: 1 horas; 229C.....
Date           : 25/03/97
Operator       : J.A. P4=24.29
Sample mass (g) : 12.05
Samp.dens. (g/cm3) : 0
Weight Dilatometer (g) : 0
Weight Dil.+ Mercury (g) : 683.45
Weight Dil.+ Mer.+Sample (g) : 617.86

Instrument parameters
Porosimeter type : Po-WS
Capillary radius (mm) : 3
Dilatometer Vol (cm3) : 34
Macropores connection : Auto
Macropore Press. unit : (kPa)

Acquisition parameters
Step wise time (s) : 3
Max pressure (bar) : 2000
Pump speed : 3

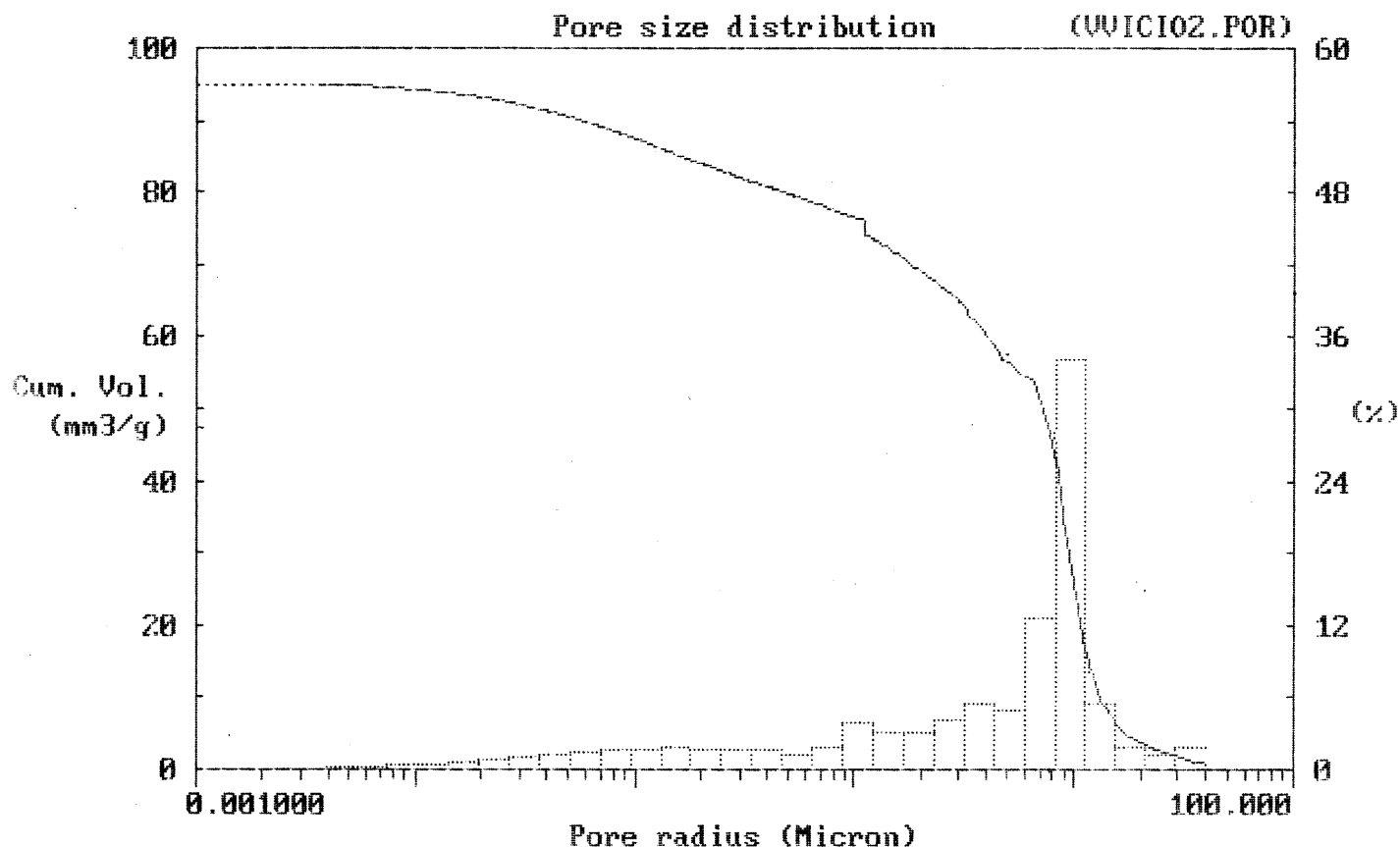
Analytical conditions
Contact angle (Deg) : 141.3
Hg Surf.tens.(Dyn/cm) : 480
Mercury height (mm) : 100
Hg density (g/cm3) : 13.6

Disk and filename of Blank measurement to subtract
Filename :C:\RPOR3\BLANCON\BLAN13B

Calculation & Report parameters
Data report type : Summary
Calculation model : Cylindrical

Total volume specific surface and pore radius average (Ver 3.0b)
Total cumulative vol.(mm3/g) : 95.02905
Specific surface area (m2/g) : .75
Pore radius average (Micron) : 9.373
Bulk density (g/cm3) : 2.11
Correc. Bulk density (g/cm3) : 2.639187
Total sample porosity (%) : 20.05

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ARENISCA DE MONTJÚIC GRIS (10768)

Milestone 200 Report generator

Instrument name : Porosimeter 2000WS
 Method name : blcmv
 Method filename : 10768E2.POR

Sample informations
 Company name : UNIVERSIDAD DE OVIEDO / E:800
 Sample name : Arenisca de Montjuic / 10768 E2
 Preparation : Tiempo:45m(18Pa) ; 199C/1000mb
 Date : 07/10/94 11:30
 Operator : FLORO P4=29.343
 Sample mass (g) : 19.098
 Samp.dens. (g/cm3) : 0
 Weight Dil+Mer.(g) : 593.51
 W.Dil+Mer+Samp.(g) : 497.38

Instrument parameters
 Porosimeter type : Po-WS
 Capillary radius (mm) : 3
 Dilatometer Vol (cm3) : 34
 Macropores connection : Auto
 Macropore Press. unit : (kPa)

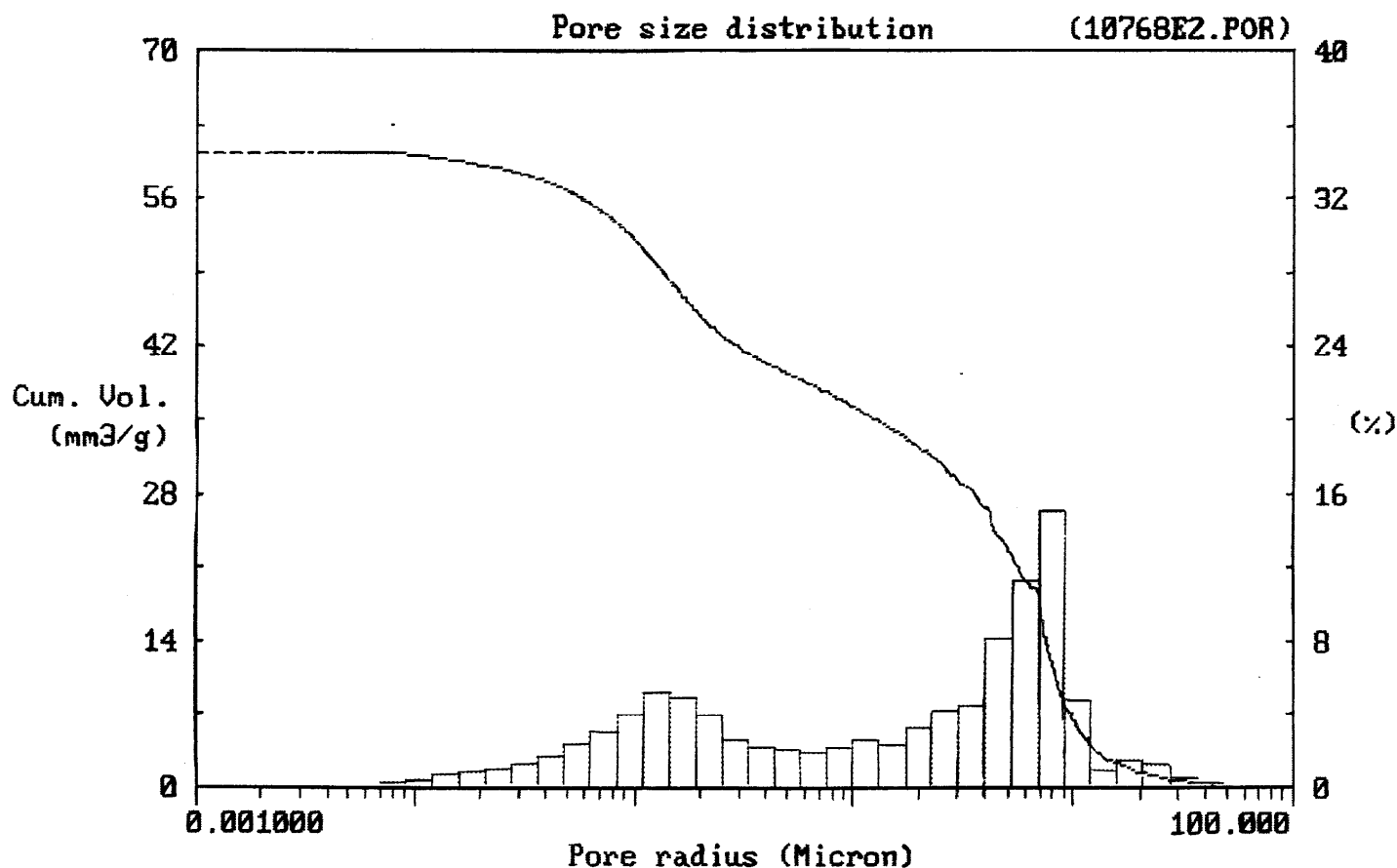
Acquisition parameters
 Step wise time (s) : 3
 Max pressure (bar) : 2000
 Pump speed : 3

Analytical conditions
 Contact angle (Deg) : 141.3
 Hg Surf.tens.(Dyn/cm) : 480
 Mercury height (mm) : 100
 Hg density (g/cm3) : 13.6

Disk and filename of Blank measurement to subtract
 Filename : C:\PORO\BLANCOS\BLANC096

Calculation & Report parameters
 Data report type : Summary
 Calculation model : Cylindrical

Total volume specific surface and pore radius average (Ver 2.05)
 Total cumulative vol.(mm3/g) : 60.30998
 Specific surface area (m2/g) : .64
 Pore radius average (Micron) : 6.683
 Bulk density (g/cm3) : 2.25
 Correc. Bulk density (g/cm3) : 2.603255
 Total sample porosity (%) : 13.56



CALIZA DE PIEDRAMUELLE (11548)

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stone 200 Report generator

Instrument name : Porosimeter 2000
Method name : blcmv
Method filename : PMUELLE.POR

Sample informations
Company name : UNIVERSIDAD DE OVIEDO / E:899
Sample name : PIEDRA DE PIEDRAMUELLE nº11548
Preparation : Tiempo: 48 horas.....
Date : 4/04/97
Operator : L.V. P4=15.77
Sample mass (g) : 9.22
Samp.dens. (g/cm3) : 0
Weight Dilatometer (g) : 15
Weight Dil.+ Mercury (g) : 667.65
Weight Dil.+ Mer.+Sample (g) : 621.44

Instrument parameters
Porosimeter type : Po-WS
Capillary radius (mm) : 3
Dilatometer Vol (cm3) : 34
Macropores connection : Auto
Macropore Press. unit : (kPa)

Acquisition parameters
Step wise time (s) : 3
Max pressure (bar) : 2000
Pump speed : 3

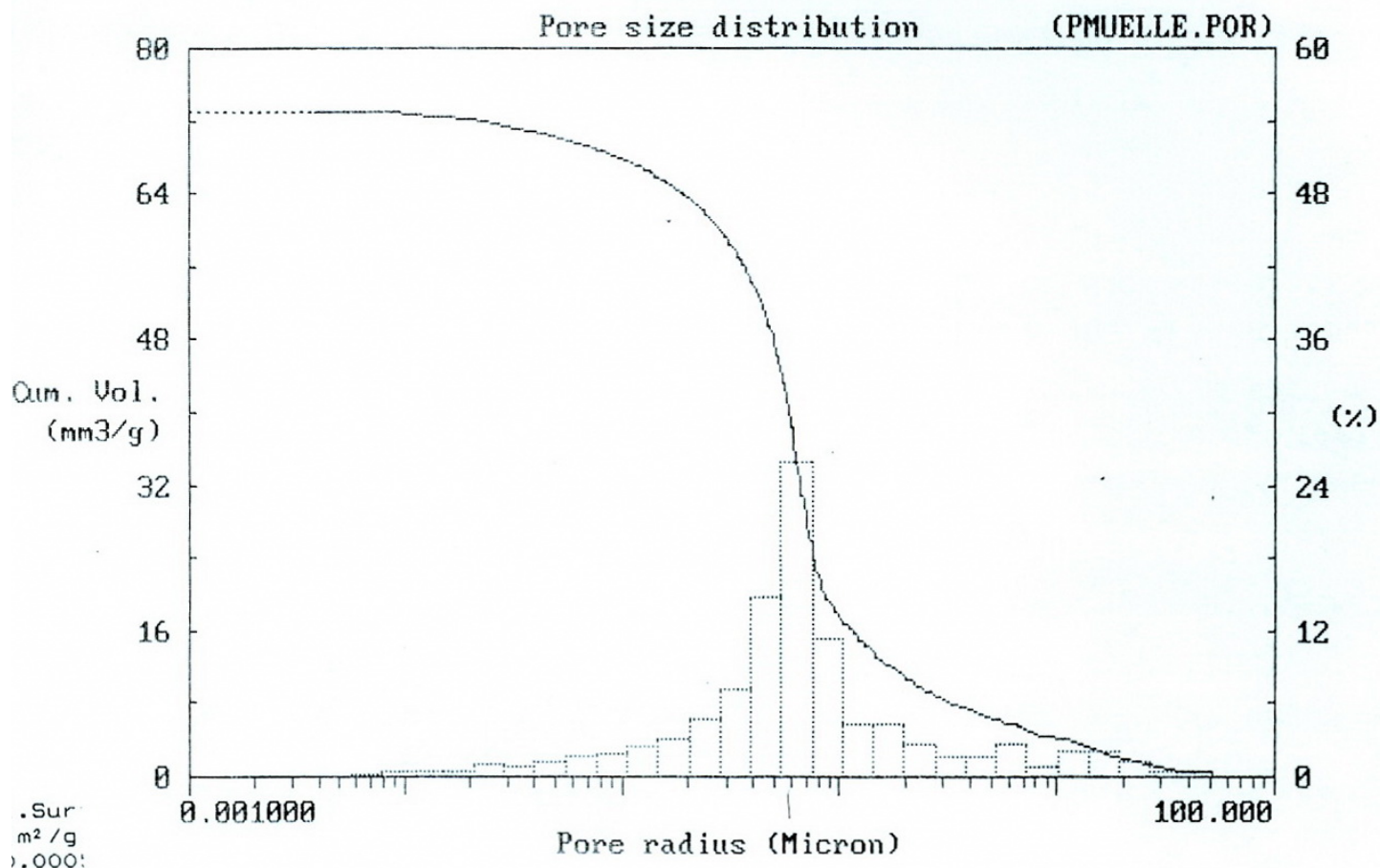
Analytical conditions
Contact angle (Deg) : 141.3
Hg Surf.tens.(Dyn/cm) : 480
Mercury height (mm) : 100
Hg density (g/cm3) : 13.6

Disk and filename of Blank measurement to subtract
Filename : C:\PDR3\BLANCO\BLANC15E

Calculation & Report parameters
Data report type : Summary
Calculation model : Cylindrical

Total volume specific surface and pore radius average (Ver 3.0b)
Total cumulative vol.(mm3/g) : 73.05856
Specific surface area (m2/g) : .62
Pore radius average (Micron) : .585
Bulk density (g/cm3) : 2.26
Correc. Bulk density (g/cm3) : 2.706951
Total sample porosity (%) : 16.51

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DOLOMÍA DE BOÑAR (7730)

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stone 200 Report generator

Instrument name : Porosimeter 2000WS
Method name    : blcmv
Method filename : B17D.POR

Sample informations
Company name   : UNIVERSIDAD DE OVIEDO / E:769
Sample name    : Boñar B17D
Preparation    : Tiempo:30m.(7Pa) ; 199C/980mb
Date           : 22/04/94 10:00
Operator       : FLORO P4=25.02
Sample mass    (g) : 15.03
Samp.dens.    (g/cm3) : 0
Weight Dil+Mer.(g) : 593.51
W.Dil+Mer+Samp.(g) : 523.37

Instrument parameters
Porosimeter type : Po-WS
Capillary radius (mm) : 3
Dilatometer Vol (cm3) : 34
Macropores connection : Auto
Macropore Press. unit : (kPa)

Acquisition parameters
Step wise time (s) : 3
Max pressure (bar) : 2000
Pump speed : 3

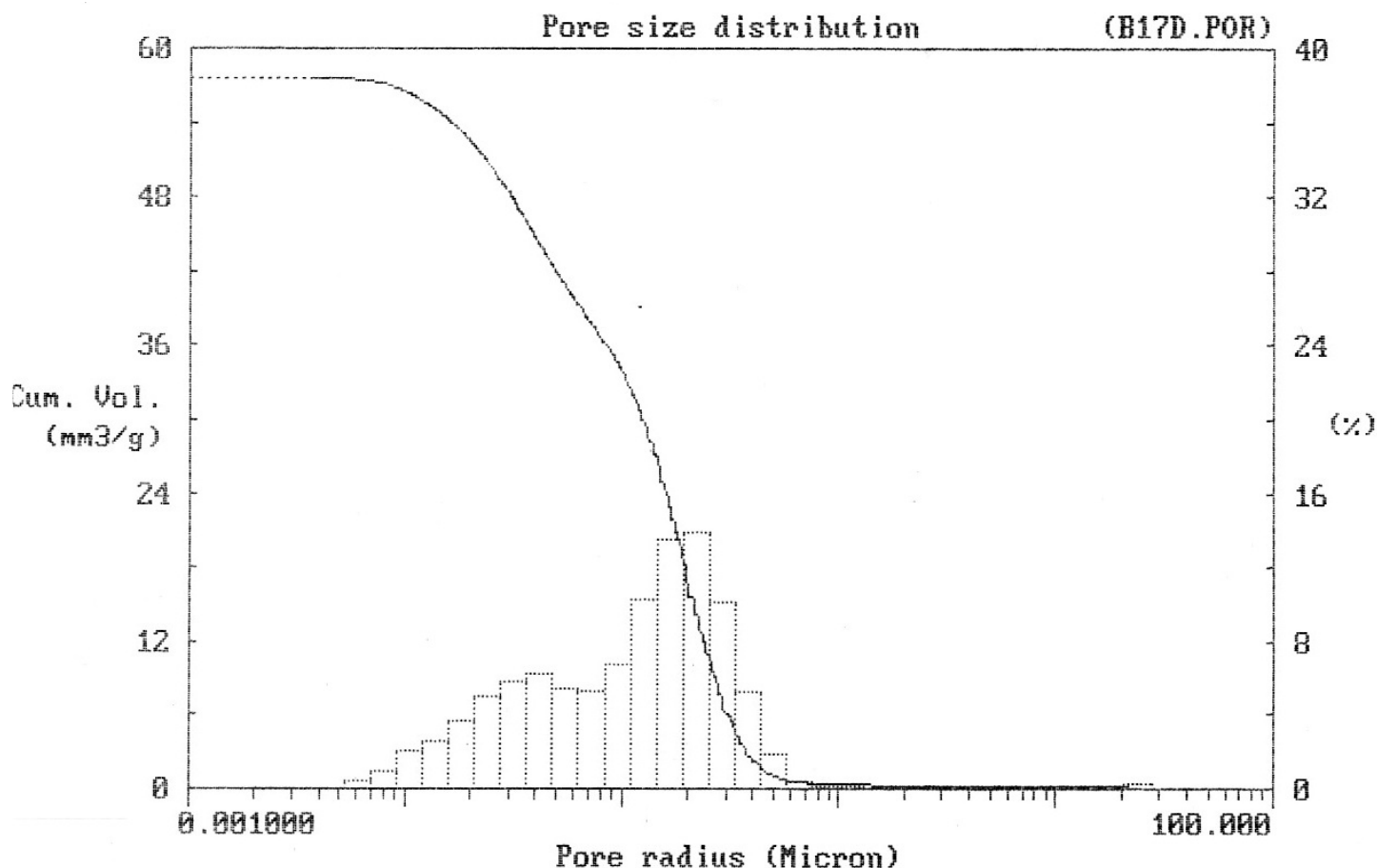
Analytical conditions
Contact angle (Deg) : 141.3
Hg Surf.tens.(Dyn/cm) : 480
Mercury height (mm) : 100
Hg density (g/cm3) : 13.6

Disk and filename of Blank measurement to subtract
Filename : C:\NFOR\BLANCOS\BLANC09G

Calculation & Report parameters
Data report type : Summary
Calculation model : Cylindrical

Total volume specific surface and pore radius average (Ver 2.05)
Total cumulative vol.(mm3/g) : 57.52495
Specific surface area (m2/g) : 2.1
Pore radius average (Micron) : .211
Bulk density (g/cm3) : 2.39
Correc. Bulk density (g/cm3) : 2.770965
Total sample porosity (%) : 13.74

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DOLOMÍA DE LASPRA (10179)

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Milestone 200 Report generator iC

Instrument name : Porosimeter 2000
Method name : blcmv
Method filename : LP10179A.POR

Sample informations
Company name : UNIVERSIDAD DE OVIEDO / E:998
Sample name : LASPRA nº 10.179
Preparation : Tv=2h; Pv=6Pa; T=179C; Hr=40%
Date : 16/4/99
Operator : JA P4=18.033
Sample mass (g) : 9.874
Samp.dens. (g/cm3) : 0
Weight Dilatometer (g) : 19
Weight Dil.+ Mercury (g) : 672.76
Weight Dil.+ Mer.+Sample (g) : 617.32

Instrument parameters
Porosimeter type : Po-WS
Capillary radius (mm) : 3
Dilatometer Vol (cm3) : 34
Macropores connection : Auto
Macropore Press. unit : (kPa)

Acquisition parameters
Step wise time (s) : 3
Max pressure (bar) : 2000
Pump speed : 3

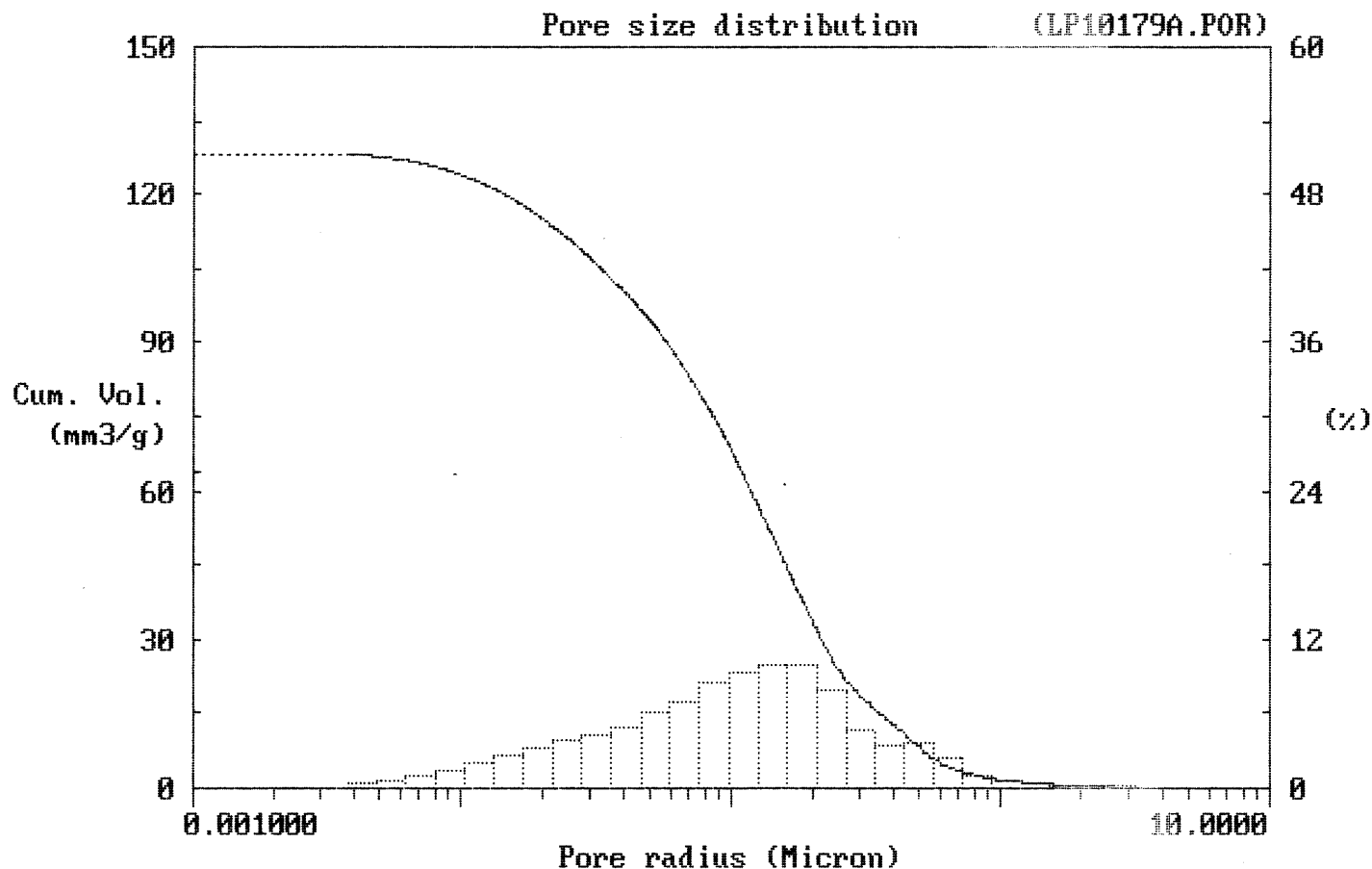
Analytical conditions
Contact angle (Deg) : 141.3
Hg Surf.tens.(Dyn/cm) : 480
Mercury height (mm) : 103
Hg density (g/cm3) : 13.6

Disk and filename of Blank measurement to subtract
Filename : C:\NFOR3\BLANCOR\BLANC19A

Calculation & Report parameters
Data report type : Summary
Calculation model : Cylindrical

Total volume specific surface and pore radius average (Ver 3.0b)
Total cumulative vol.(mm3/g) : 128.256
Specific surface area (m2/g) : 5.26
Pore radius average (Micron) : .165
Bulk density (g/cm3) : 2.05
Correc. Bulk density (g/cm3) : 2.781263
Total sample porosity (%) : 26.29

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GRANITO DE FRAGUAS (12500)

Report general			
WIN9400 Series V2.00	Unit 757	Port 1/1	Page 1
Sample: PC2 Operator: Felix J Mateos Redondo Submitter: Granito Mallo (Cantera Mallo PC) File: C:\WIN9420\DATA\PC2.SMP			
LP Analysis Time: 11/06/81 14:41:55		Sample Weight: 8.9605 g	
HP Analysis Time: 11/06/81 15:10:22		Correction Type: Blank	
Report Time: 11/06/81 15:10:23		Show Neg. Int: No	
Summary Report			
Penetrometer: #s/n - (01) 15 Bulb, 0.392 Stem, Solid			
Pen. Constant:	10.790 $\mu\text{L/pF}$	Adv. Contact Angle:	130.000 degrees
Pen. Weight:	64.0093 g	Rec. Contact Angle:	130.000 degrees
Stem Volume:	0.3920 mL	Hg Surface Tension:	485.000 dynes/cm
Max. Head Pressure:	4.4500 psia	Hg Density:	13.5335 g/mL
Pen. Volume:	14.3570 mL	Sample Weight:	8.9605 g
		Assembly Weight:	219.3770 g
$P_2 \text{ Dilat} + H_g = 258'617 \text{ g}$ $P_4 = 9'806 \text{ g}$			
Low Pressure:			
Evacuation Pressure:	40.000 μmHg		
Evacuation Time:	10 mins		
Mercury Filling Pressure:	0.54 psia		
Equilibration Time:	10 secs		
Maximum Intrusion Volume:	0.005 mL/g		
High Pressure:			
Equilibration Time:	10 secs		
Maximum Intrusion Volume:	0.005 mL/g		
Blank Correction Sample: C:\WIN9420\BLANCOS\PENETR-4\BLANCO4A.SMP			
Blank Correction ID: BLANCO4A			
Intrusion Data Summary			
Total Intrusion Volume =	0.0211 mL/g		
Total Pore Area =	0.336 m^2/g		
Median Pore Radius (Volume) =	0.4886 μm		
Median Pore Radius (Area) =	0.0234 μm		
Average Pore Radius (2V/A) =	0.1255 μm		
Bulk Density =	2.5320 g/mL		
Apparent (skeletal) Density =	2.6748 g/mL		
Porosity =	5.3385 %		
Stem Volume Used =	48 %		

Cumulative Intrusion vs Radius

