

#### **GRAIN SIZE ANALYSIS**

(HYDROMETER)



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#### HIDROSUELOS CIA, LTDA.

HIDROMETRO/HIDROMETER

PROYECTO/PROJECT: Trasvases/Trasbasins LOCALIZACION/SITE: Canal ablerto/Open Channel M-1 CALICATA No./PIT No. C-10 MUESTRA No./SAMPLE No.; PROFUNDIDAD/DEPT 0.50 - 1.40 FECHA/DATE: Enero94/Jan.94 CALC./CALCULATED BY: F.V. ENSAY./PERFORM.BY G.S. gr/cm^3 2.768 G\$= CONSTANTES/Kles: 100 % %Pass.No.10: K16= 0.0139 HIDRM No 151-H 57.46 Ws= TEMP Hidrom.read CORRECCIO %PASS. R TIME HÓUR Correction CORR. °Ċ (min) 62.67 1.021 8.91 0.058 1.026 0.00534 9:10 16.00 0.5 1.022 9.20 0.042 59.94 1.027 0.00534 16.00 1 0.00534 1.021 9.40 0.030 57.22 1.026 16.00 2 0.020 51.77 16.00 1.024 0.00534 1.019 10.00 5 46.32 10.50 0.014 0.00534 1.017 16.00 1.022 10 10.70 0.012 43.60 0.00534 1.016 16.00 1.021 15 0.008 38.15 1.019 0.00534 1.014 11.30 16.00 30 32.70 0.006 1.012 11.80 16.00 1.017 0.00534 60 12.60 0.004 24.52 1.009 1.014 0.00534 120 16.00 0.003 21.80 0.00534 1.008 12.90 16.00 1.013 180

## Hidrometer

1.007

0.001

13.10

19.07

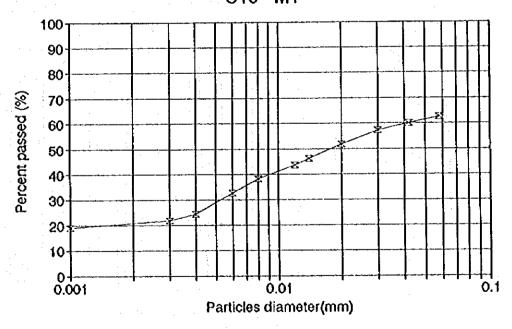
C10 - M1

0.00534

16.00

1440

1.012

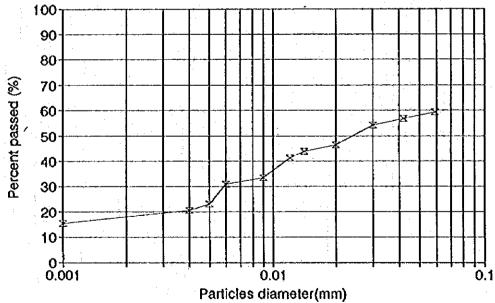




#### HIDROMETRO/HIDROMETER

PROYE	CTO/PR	OJECT:	Trasyases/Tr	asbasins				
LOCAL	IZACIO	V/SITE:	Canal ablerto	/Open Channe	<b>4</b>			17
CALIC	ATA No.,	PIT No.	C-10	MUESTRA No	./SAMPL	E No.:	M-2	1.0
PROFL	INDIDAD	/DEPT	2.00 - 3.00	FECHA/DATE	1	:	Enero94/Ja	n 94
ENSAY	/./PERFC	YB.MRC	G.S.	CALC./CALC	JLATED E	3Y:	F.V.	
CONST	TANTES/	Kles:		Gs=	2.727	gr/cm^3		
K16=	0.014			%Pass.No.10:	100	%		
K17=	0.0138		•	Ws=	61.07	gr	HIDRM,No	151-H
TIME	HOUR	TEMP	Hidrom.read	CORRECCIO	R	L	D	%PASS.
(min)		°C		Correction				CORR.
0.5	9:25	16.00	1.028	0.00534	1.023	8.89	0.059	59.47
1		16.00	1.027	0.00534	1.022	9.16	0.042	56.88
2		16.00	1.026	0.00534	1.021	9.42	0.030	54.30
5		16.00	1.023	0.00534	1.018	10.21	0.020	46.54
10		16.00	1.022	0.00534	1.017	10.48	0.014	43.96
15		16.00	1.021	0.00534	1.016	10.74	0.012	41.37
30		16.00	1.018	0.00534	1.013	11.54	0.009	33.61
60		16,00	1.017	0.00534	1.012	11.80	0.006	31.03
120		16.00	1.014	0.00534	1.009	12.60	0.005	23.27
180		17.00	1.013	0.00508	1.008	12.86	0.004	20.68
1440	·	17.00	1.011	0.00508	1.006	13.39	0.001	15.51

# Hidrometer C10 - M2





HIDROSUELOS CIA. LTDA. HIDROMETRO/HIDROMETER

		Trasvases/Trasbasins

LOCALIZACION/SITE: Canal abierto/Open Channel

CALICATA No./PIT No. C-11

MUESTRA No./SAMPLE No.:

PROFUNDIDAD/DEPT 0.55-1.60m FECHA/DATE:

Enero94/Jan.94

ENSAY./PERFORM.BY G.S.

CALC./CALCULATED BY:

CONSTANTES/Ktes:

K16= 0.0145

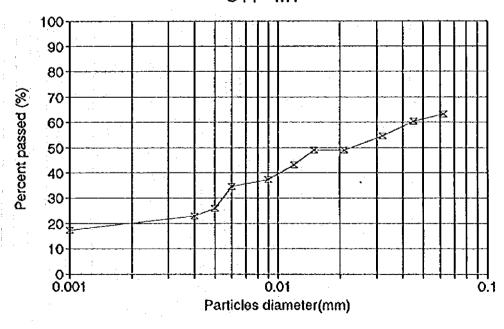
2.606 gr/cm^3

%Pass.No.10: 100

1.				Ws=	56.37	gr	HIDRM.No	151-H
TIME	HOUR	TEMP	Hidrom.read	CORRECCIO	R	L	D	%PASS.
(min)	-	°C		Correction				CORR.
0.5	į	16.00	1027	0.00534	1.022	9.16	0.062	63.33
. 1		16.00	1026	0.00534	1.021	9.42	0.045	60.45
2		16.00	1024	0.00534	1.019	9.95	0.032	54.69
5		16.00	1022	0.00534	1.017	10.48	0.021	48.94
10		16.00	1022	0.00534	1.017	10.48	0.015	48.94
15		16.00	1020	0.00534	1.015	11.01	0.012	43.18
30		16.00	1018	0.00534	1.013	11.54	0.009	37.42
60		16.00	1017	0.00534	1.012	11.80	0.006	34.54
120		16.00	1014	0.00534	1.009	12.60	0.005	25.91
180		16.00	1013	0.00534	1.008	12.86	0.004	23.03
1440		16.00	1011	0.00534	1.006	13.39	0.001	17.27

## Hidrometer

011 - M1





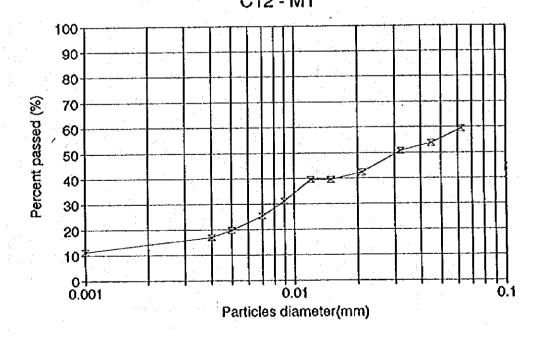
## HIDROSUELOS CIA. LTDA. HIDROMETRO/HIDROMETER

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					MICHIGAN PARTICIPATION OF THE	neronen perketen				
PROYE	CTO/PR	OJECT:	Trasvases/Tra	asbasins						
LOCAL	IZACION	V/SITE:	Canal abjerto	/Open Channe	Ï	<ul><li>1</li><li>1</li></ul>	Section 18 Section 1			
CALIC	ATA No.	PIT No.	C-12	MUESTRA No	/SAMPLI	E No.:	M-1			
PROFU	NDIDAD	/DEPT	0.60-1.60m.	FECHA/DATE		100	Enero94/Ja	n.94		
ENSAY	/PERFC	NM.BY	<b>G.S.</b>	CALC./CALCU	JLATED E	Y:	F.V.			
CONSTANTES/Ktes: Gs= 2.68 gr/cm^3										
K16= 0.0142 %Pass.No.10: 100 %										
K17=	0.014			Ws=	56.46	gr	HIDRM.No	151-H		
TIME	HOUR	TEMP	Hidrom.read	CORRECCIO	R	L	D	%PASS.		
(min)		°C		Correction				CORR.		
	9:20	16.00	1026	0.00534	1.021	9.42	0.062	59.33		
1		16.00	1024	0.00534	1.019	9.95	0.045	53.68		
2	:	16.00	1023	0.00534	1.018	10.21	0.032	50.86		
5		16.00	1020	0.00534	1.015	11.01	0.021	42.38		
10		16.00	1019	0.00534	1.014	11.27	0.015	39.56		
15		16.00	1019	0.00534	1.014	11.27	0.012	39.56		
30		16.00	1016	0.00534	1.011	12.07	0.009	31.08		
60	10:20	16.00	1014	0.00534	1.009	12.60	0.007	25.43		
120		16.00	1012	0.00534	1.007	13.12	0.005	19.78		
180	<del> </del> -	17.00	1011	0.00508	1.006	13.39	0.004	16.95		
1440		17.00	1009	0.00508	1.004	13.92	0.001	11.30		

## Hidrometer C12 - M1

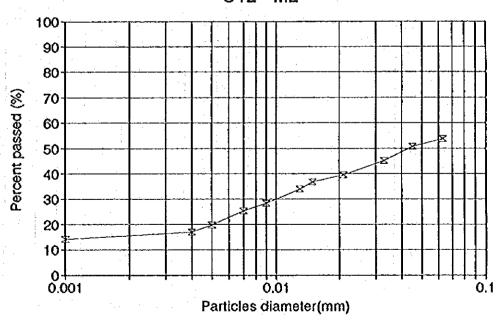




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PROY	ECTO/PF	OJECT:	Trasvases/Tr	asbasins	CARCOLINA EL TOTA	Maryanan sancaran	***************************************	
1				o/Open Channe	1		e e e e e e e e e e e e e e e e e e e	
			i contract of the contract of	MUESTRA No		E No.:	M-2	the state of the
				FECHA/DATE				n.94
				CALC./CALC			F.V.	
	TANTES			Gs≔	2.683	gr/cm^3		
K16=	0.0142			%Pass,No.10:	100	%		
K17=	0.014	4		Ws=	56.42	gr	HIDRM.No.	151-H
TIME	HOUR	TEMP	Hidrom.read	CORRECCIO	R	L	D	%PASS.
(min)		°C		Correction			1.11	CORR.
0.5	9:30	16.00	1024	0.00534	1.019	9.95	0.063	53.69
1		16.00	1023	0.00534	1.018	10.21	0.045	50.86
2		16.00	1021	0.00534	1.016	10.74	0.033	45.21
5	1.	16.00	1019	0.00534	1.014	11.27	0.021	39.56
10		16.00	1018	0.00534	1.013	11.54	0.015	36.73
15		16.00	1017	0.00534	1.012	11.80	0.013	33.91
30		16.00	1015	0.00534	1.010	12.33	0.009	28.26
60	10:30	16.00	1014	0.00534	1.009	12.60	0.007	25.43
120	1	16.00	1012	0.00534	1.007	13.12	0.005	19.78
180	1	17.00	1011	0.00508	1.006	13.39	0.004	16.95
1440		17.00	1010	0.00508	1.005	13.65	0.001	14.13

# Hidrometer C12 - M2



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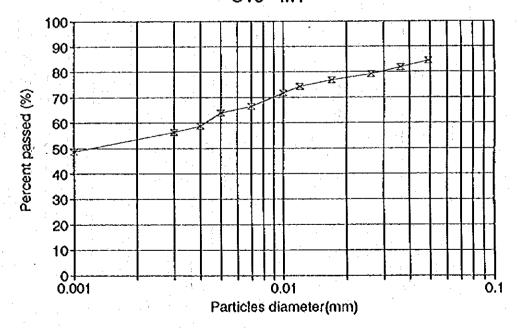
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HIDROMETRO/HIDROMETER

PROYE	CTO/PF	OJECT:	Trasvases/Tr	asbasin <b>s</b>		: .		
LOCAL	IZACIO	N/SITE:	Canal abient	/Open Channe	ĺ		er e de la compa	
CALIC	ATA No.	PIT No.	C-13	MUESTRA No	/SAMPLI	E No.:	M-1 📡 🔻	
PROFL	INDIDA	DEPT	0.80-2.00m.	FECHA/DATE:		\$	Enero94/Ja	ເກ.94 ′
ENSA	//PERF	ORM.BY	G.S.	CALC./CALCU	ILATED E	Y:	F.V.	
	TANTES	The second second second	والمراوري والمستوي فأورون ويشرقك	Gs=		gr/cm^3		
K16≃	0.014	K18=	0.1362	%Pass.No.10:	100	%		1 1/2
K17=	0.0138			Ws=	61.53	gr	HIDRM.No	151-H
TIME	HOUR	TEMP	Hidrom.read	CORRECCIO	R	L:	D	%PASS.
(min)		°C		Correction				CORR.
0.5	15:05	16.00	1038	0.00534	1.033	6.25	0.049	84.40
1		16.00	1037	0.00534	1.032	6.51	0.036	81.84
2		16.00	1036	0.00534	1.031	6.78	0.026	79.29
5		16.00	1035	0.00534	1.030	7.04	0.017	76.73
10		16.00	1034	0.00534	1.029	7.30	0.012	74.17
15		16.00	1033	0.00534	1.028	7.57	0.010	71.61
30		17.00	1031	0.00508	1.026	8.10	0,007	66.50
60		17.00	1030	0.00508	1.025	8.36	0.005	63.94
120		17.0Ò	1028	0.00508	1.023	8.89	0.004	58.83
180		18.00	1027	0.00482	1.022	9.16	0.003	56.27
1440		17.00	1024	0.00508	1.019	9.95	0.001	48.60

# Hidrometer C13 - M1





HIDROMETRO/HIDROMETER

PROYECTO/PROJECT:	Trasvases/Trasbasins
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LOCALIZACION/SITE: Canal abierto/Open Channel

CALICATA No./PIT No. C-13

**MUESTRA No./SAMPLE No.:** M-2

Enero94/Jan.94

PROFUNDIDAD/DEPT 2.00-3.50m. FECHA/DATE: ENSAY./PERFORM.BY G.S.

CONSTANTES/Kles:

CALC./CALCULATED BY:

gr/cm^3

K16= 0.0145 K18=

0.01412

%Pass.No.10: 100

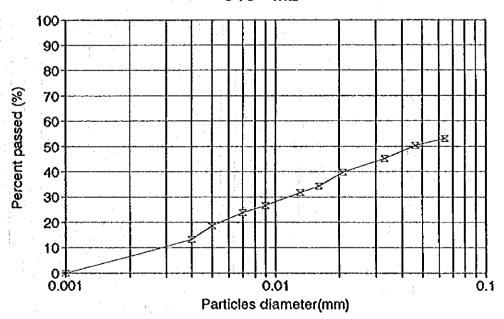
2.622

K17=	0.0143			Ws=	60.95	gr	HIDRM.No	151-H
TIME	HOUR	TEMP	Hidrom.read	CORRECCIO	R	L	D	%PASS.
(min)		°C		Correction	t			CORR.
0.5	14:00	16.00	1025	0.00534	1.020	9.69	0.064	53.04
1		16.00	1024	0.00534	1.019	9.95	0,046	50.39
2		16.00	1022	0.00534	1.017	10.48	0.033	45.09
5		16.00	1020	0.00534	1.015	11.01	0.021	39.78
10		16.00	1018	0.00534	1.013	11.54	0.016	34.48
15	,	16.00	1017	0.00534	1.012	11.80	0.013	31.83
30		16.00	1015	0.00534	1.010	12.33	0.009	26.52
60	1 1	16.00	1014	0.00534	1.009	12.60	0.007	23.87
120		16.00	1012	0.00534	1.007	13.12	0.005	18.57
180		18.00	1010	0.00502	1.005	13.65	0.004	13.26
1440		17.00	1004	0.00508	1.000	15.24	0.001	0.00

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## Hidrometer

C13 - M2



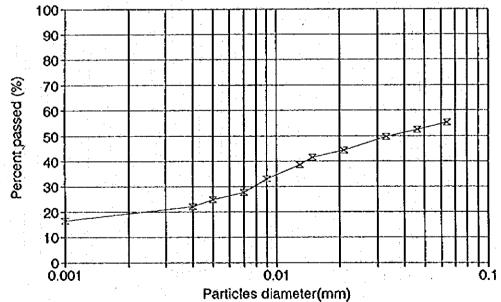


#### HIDROMETRO/HIDROMETER

PROYE	CTO/PF	OJECT:	Trasvases/Tr	asbasins				
LOCAL	IZACIO	V/SITE:	Canal ablerto	/Open Channe	l ·		2	
CALIC	ATA No.	PIT No.	C-14	MUESTRA No	/SAMPLI	E No.:	M-1	
PROFL	INDIDAC	DEPT	0.90-1.90m.	FECHA/DATE	1		Enero94/Ja	າກ.94
ENSAY	/./PERFC	YB.MRC	G.S.	CALC./CALCL	JLATED E	<u>3Y:</u>	F۷	(
CONST	TANTES,	gr/cm^3						
K16=	0.0146	K18=	0.01421	%Pass.No.10:	100	%		
K17=	0.0144			Ws≕	58.79	gr	HIDRM.No	151-H
TIME	HOUR	TEMP	Hidrom.read	CORRECCIO	R	L	D	%PASS.
(min)		°C⊧		Correction	·			CORR.
0.5	13:50	16.00	1025	0.00534	1.020	9.69	0.064	55.31
1	1	16.00	1024	0.00534	1.019	9.95	0.046	52.54
2		16.00	1023	0.00534	1.018	10.21	0.033	49.78
5		16.00	1021	0.00534	1.016	10.74	0.021	44.25
10		16.00	1020	0.00534	1.015	11.01	0.015	41.48
15		16.00	1019	0.00534	1.014	11.27	0.013	38.72
30	1	17.00	1017	0.00508	1.012	11.80	0.009	33.18
60		17.00	1015	0.00508	1.010	12.33	0.007	27.65
120		17.00	1014	0.00508	1.009	12.60	0.005	24.80
180		18.00	1013	0.00502	1.008	12.86	0.004	22.12
1440		17.00	1011	0.00508	1.006	13.39	0.001	16.59

## Hidrometer





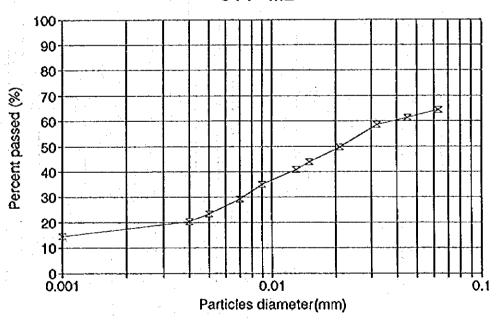


## HIDROSUELOS CIA. LTDA. HIDROMETRO/HIDROMETER

					Name and Address of the Owner, where the Publisher, where the Publisher the Publisher, where the Publisher the Publisher, where the Publisher	Market Carlotte & Carlotte		وبروا فليستماث فيناه والبراء والمنافع والمنافع والمنافع والمنافع والمنافع والمنافع والمنافع والمنافع والمنافع
PROY	ECTO/PF	OJECT:	Trasvases/Tr	asbasins			•	
LOCAL	LIZACIO	N/SITE:	Canal abjerto	/Open Channe	1			
CALIC	ATA No.	PIT No.	C-14	MUESTRA No	./SAMPLI	E No.:	M-2	
PROFL	JNDIDA	D/DEPT	2.00-3.50m.	FECHA/DATE	•		Enero94/Ja	n.94
ENSA	Y./PERF	YB.MRC	G.\$.	CALC/CALC	JLATED E	<u> </u>	F.V.	
	TANTES			Gs	2.565	gr/cm^3	: .	
K16=	0.0148	K18=	0.01438	%Pass.No.10:	100	%		
K17=	0.0146	100	4.3	Ws=	56.11	gr	HIDRM.No	151-H
TIME	HOUR	TEMP	Hidrom.read	CORRECCIO	R	Ł	D	%PASS.
(min)		•0		Correction				CORR.
0.5	14:00	16.00	1027	0.00534	1.022	9.16	0,063	64.26
.1		16.00	1026	0.00534	1.021	9.42	0.045	61.34
2		16.00	1025	0.00534	1.020	9.69	0.032	58.42
5		16.00	1022	0.00534	1.017	10.48	0.021	49.66
10		16.00	1020	0.00534	1.015	11.01	0.015	43.82
15		16.00	1019	0.00534	1.014	11.27	0.013	40.89
30	14.19	17.00	1017	0.00508	1.012	11.80	0,009	35.05
60		17.00	1015	0.00508	1.010	12.33	0,007	29.21
120	Ī	17.00	1013	0.00508	1.008	12.86	0.005	23.37
180	1.2	18.00	1012	0.00502	1.007	13.12	0.004	20,45
1440		17.00	1010	0.00508	1.005	13.65	0.001	14.61

## Hidrometer

C14 - M2





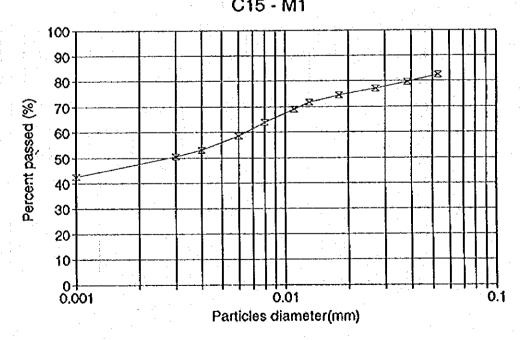
#### HIDROMETRO/HIDROMETER

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PROYE	СТО/РЕ	OJECT:	Trasvases/Tr	asbasins		* *	1000	No. of Marie
LOCAL	IZACIO	N/SITE:	Canal ablerto	/Open Channe	1	* .		at a same
CALIC.	ATA No.	PIT No.	C-15	MUESTRA No	/SAMPLI	E No.:	M-1	
PROFL	INDIDA	D/DEPT	0.40-1.00m.	FECHA/DATE:			Enero94/Ja	ın.94
ENSAY	/./PERFC	YB.MRC	G.\$.	CALC./CALCU	JLATED E	<u>Y:</u>	F.V.	
CONS	TANTES,	/Ktes:		Gs=	2.658	gr/cm^3		
K16=	0.0143	K18=	0.01395	%Pass.No.10:	100	%		g <sup>re</sup>
K17=	0.0141			Ws≔	60.31	gr	HIDRM No	151·H
TIME	HOUR	TEMP	Hidrom.read	CORRECCIO	R	L	D	%PASS.
(min)		က္		Correction	111			CORR.
0.5	13:45	16.00	1036	0.00534	1.031	6.78	0.053	82.40
1		16.00	1035	0.00534	1.030	7.04	0.038	79.74
2	:	16.00	1034	0.00534	1.029	7.30	0.027	77.09
5	4 4	16.00	1033	0.00534	1.028	7.57	0.018	74.43
10		16.00	1032	0.00534	1.027	7.83	0.013	71.72
15		16.00	1031	0.00534	1.026	8.10	0.011	69.11
30		17.00	1029	0.00508	1.024	8.63	0.008	63.80
60		17.00	1027	0.00508	1.022	9.16	0.006	58.48
120		17.00	1025	0.00508	1.020	9.69	0.004	53.16
180		18.00	1024	0.00482	1.019	9.95	0.003	50.51
1440		17.00	1021	0.00508	1.016	10.74	0.001	42.53

### Hidrometer C15 - M1





HIDROMETRO/HIDROMETER

PROYECTO/PROJECT: Trasvases/Trasbasins

LOCALIZACION/SITE: Canal ablerto/Open Channel

CALICATA No./PIT No. C-15

MUESTRA No./SAMPLE No.;

M-2

PROFUNDIDAD/DEPT 1.20-1.60m. FECHA/DATE:

Enero94/Jan.94

ENSAY./PERFORM.BY G.S.

CALC./CALCULATED BY:

CONSTANTES/Kles:

2.698 gr/cm^3

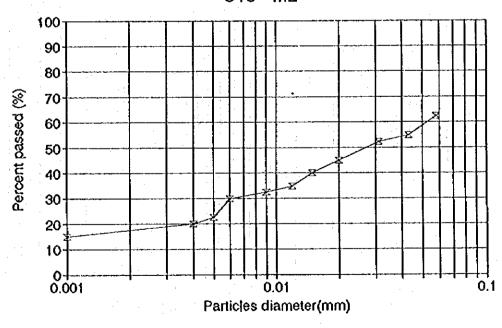
K16= 0.0141

%Pass.No.10: 100

K17=	0.014	100	<u> </u>	Ws=	63.74	gr	HIDRM.No	151-H
TIME	HOUR	TEMP	Hidrom.read	CORRECCIO	R	L	D	%PASS.
(min)		<b>°</b> C		Correction				CORR
0.5	12:20	16.00	1030	0.00534	1.025	8.36	0.058	62.32
1		16.00	1027	0.00534	1.022	9.16	0.043	54.84
2		16.00	1026	0.00534	1.021	9.42	0.031	52.35
5		16.00	1023	0.00534	1.018	10.21	0,020	44.87
10		16.00	1021	0,00534	1.016	10.74	0.015	39.89
15		16.00	1019	0.00534	1,014	11.27	0.012	34.90
30	4 3	17.00	1018	0.00508	1.013	11.54	0.009	32.41
60		17.00	1017	0.00508	1.012	11.80	0.006	29.91
120		17.00	1014	0.00508	1.009	12.60	0.005	22,44
180		17.00	1013	0.00508	1.008	12.86	0.004	19.94
1440		17.00	1011	0.00508	1.006	13.39	0.001	14.96

### Hidrometer

C15 - M2



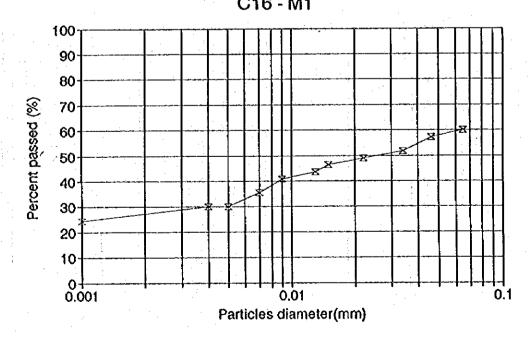
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#### HIDROMETRO/HIDROMETER

PROY	CTO/PR	OJECT:	Trasvases/Tr	asbasins	an aya a san an a			i la				
LOCAL	IZACION	I/SITE:	Canal ablerto	/Open Channe	1							
CALIC	ATA No.	PIT No.	C-16	MUESTRA No	/SAMPL	E No.1	M-1					
				FECHA/DATE			Enero94/Ja	n.94				
				CALC./CALC		BY;	F.V.					
CONSTANTES/Kles; Gs= 2.457 gr/cm^3												
K16=												
K17=	0.015			Ws=	61.86	gr	HIDRM.No	151-H				
TIME	HOUR	TEMP	Hidrom.read	CORRECCIO	R	L	D	%PASS.				
(min)		°C		Correction			1.	CORR.				
0.5	12.05	16,00	1027	0.00534	1.022	9.16	0.065	59.97				
1		16.00	1026	0.00534	1.021	9.42	0.046	57.25				
2		16.00	1024	0.00534	1.019	9.95	0.034	51.80				
5		16.00	1023	0.00534	1.018	10.21	0.022	49.07				
10		16.00	1022	0.00534	1.017	10.48	0.015	46,34				
15		16.00	1021	0.00534	1.016	10.74	0.013	43.62				
30		16.00	1020	0.00534	1.015	11.01	0.009	40.89				
60		17.00	1018	0,00508	1.013	11.54	0.007	35.44				
120		17.00	1016	0.00508	1.011	12.07	0.005	29.99				
180	7	17,00	1016	0.00508	1.011	12.07	0.004	29.99				
1440		17.00	1014	0.00508	1,009	12.60	0.001	24.53				

### Hidrometer C16 - M1





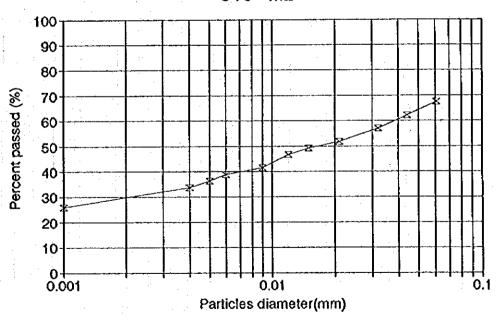
#### HIDROSUELOS CIA. LTDA.

HIDROMETRO/HIDROMETER

PROY	СТО/РЯ	OJECT:	Trasvases/Tr	asbasins				
LOCAL	IZACIO	V/SITE:	Canal Abierto	o/Open Channe	1	:		and spatial
				MUESTRA No		E No.:	M-2	. (
			and the second second	FECHA/DATE			Enero94/Ja	n.94
				CALC./CALCU		Y:	F.V.	
	TANTES			Gs	2.457	gr/cm^3		
	0.0151			%Pass No.10:	100	%		*
K17=	0.015	1		Ws=	66.36	gr	HIDRM.No	151-H
TIME	HOUR	TEMP	Hidrom.read	CORRECCIO	R	L	D	%PASS.
(min)	: :	°C :		Correction				CORR.
0.5	12:10	16.00	1.031	0.00534	1.026	8.10	0.061	67.46
1	:	16.00	1.029	0.00534	1.024	8.63	0.044	62.27
2	:	16.00	1.027	0.00534	1.022	9.16	0.032	57.08
5		16.00	1.025	0.00534	1.020	9.69	0.021	51,89
10		16.00	1.024	0.00534	1.019	9.95	0.015	49,30
15		16.00	1.023	0.00534	1.018	10.21	0.012	46.70
30		17.00	1.021	0.00508	1.016	10.74	0.009	41.51
60		17.00	1.02	0.00508	1.015	11.01	0.006	38.92
120		17.00	1.019	0.00508	1.014	11.27	0.005	36.32
180		17.00	1.018	0.00508	1.013	11.54	0.004	33.73
1440		17.00	1.015	0.00508	1.010	12.33	0.001	25.95

## Hidrometer

C16 - M2



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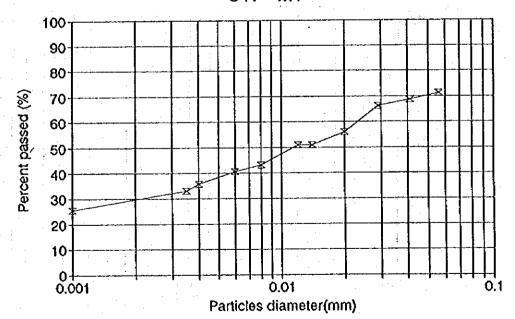
#### HIDROSUELOS CIA. LTDA. HIDROMETRO/HIDROMETER

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PROYECTO/PROJECT: Trasvases/Trasbasins											
LOCAL	IZACION	I/SITE:	Canal ablerto	o/Open Channe	1						
CALIC	ATA No.	PIT No.	C-17	MUESTRA No	./SAMPLI	₹ No.:	M-1				
PROFL	INDIDAD	DEPT	0.40-1.60m.	FECHA/DATE:			Enero94/Ja	n.94			
ENSAY./PERFORM.BY G.S. CALC./CALCULATED BY: F.V.											
	rantes/			Gs=	2.623	gr/cm^3					
K16= 0.0145 %Pass.No.10: 100 %											
K17=	0.0143			Ws=	63.49	gr	HIORM.No	151-H			
TIME	HÖUR	TEMP	Hidrom read	CORRECCIO	R	L	D	%PASS.			
(min)		,*C		Correction				CORR.			
0.5	12:15	16.00	1033	0.00534	1.028	7.57	0.056	71.27			
1		16.00	1032	0.00534	1.027	7.83	0.041	68.75			
2		16.00	1031	0.00534	1.026	8.10	0.029	66.18			
5		16.00	1027	0.00534	1.022	9.16	0.020	56.00			
10		16.00	1025	0.00534	1.020	9.69	0.014	50.91			
15		16.00	1025	0.00534	1.020	9.69	0.012	50.91			
30		17.00	1022	0.00508	1.017	10.48	0.008	43.27			
60	13:15	17.00	1021	0.00508	1.016	10.74	0.006	40.73			
120		17.00	1019	0.00508	1.014	11.27	0.004	35.64			
180	2	17.00	1018	0.00508	1.013	11.54	0.004	33.09			
1440		17.00	1015	0.00508	1.010	12.33	0.001	25.46			

# Hidrometer C17 - M1



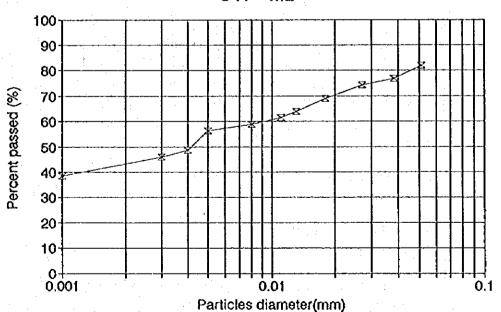


#### HIDROMETRO/HIDROMETER

PROYECTO/PROJECT: Trasvases/Trasbasins LOCALIZACION/SITE: Canal ablerto/Open Channel MUESTRA No./SAMPLE No.: M-2 CALICATA No./PIT No. C-17 PROFUNDIDAD/DEPT 2.00-3.00m. FECHA/DATE: Enero94/Jan.94 CALC./CALCULATED BY: F.V. ENSAY./PERFORM.BY G.S. gr/cm 13 Gs= 2.681 CONSTANTES/Kles: 100 K16= 0.0142 %Pass.No.10: % HIDRM.No 151-H K17= 0.014 Ws= 62.3 gr HOUR TEMP Hidrom.read **CORRECCIO** L %PASS. TIME °C CORR. Correction (min) 12:25 16.00 1037 0.00534 1.032 6.51 0.051 81.92 0.5 1 16.00 1035 0.00534 1.030 7.04 0.038 76.80 1.029 0.027 74.24 16.00 1034 0.00534 7.30 2 0.00534 1.027 7.83 0.018 69.12 5 16.00 1032 64.00 10 16.00 1030 0.00534 1.025 8.36 0.013 61.44 0.00534 1.024 8.63 0.011 15 16.00 1029 8.89 0.008 58.88 17.00 1028 0.00508 1.023 30 0.005 56.32 13:25 17.00 1027 0.00508 1,022 9.16 60 0.004 48.64 1024 1.019 9.95 120 17.00 0.00508 10.21 0.003 46.08 1.018 180 17.00 1023 0.00508 1440 17.00 1020 0.00508 1.015 11.01 0.001 38.40

### Hidrometer

C17 - M2



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**GRAVEDAD ESPECIFICA / SPECIFIC GRAVITY** 

PROYECTO/PROJECT: Trasvases/Trasbasins

LOCALIZACION/SITE: Canal ablerto/Open Channel

CALICATA No./PIT No.: C-10

**MUESTRA No./SAMPLE No M-1** 

Enero94/Jan.94

PROFUNDIDAD/DEPTH: 0.50 - 1.40 FECHA/DATE: ENSAY./PERFORM.BY: G.S.

CALC./CALCULATED BY: F.V.

SUELOS/Soils

b= PESO DEL PICNOMETRO LLENO DE AGUA DESTILADA A 20°C,+/- 1°C:

b= Picnometer weight filled of detilled water 20°C,+/-1°C

155.25 gr.

C=PESO DEL SUELO SECADO AL HORNO

c=Dry soil weight:

18.27 gr.

d=PESO DEL PICNOMETRO LLENO CON SUELO Y AGUA A 20°C, +/-1°C

d=Picnometer weight filled with soil and water, 20°C,+/- 1°C

GRAVEDAD ESPECIFICA/Specific gravity:

2.7682 gr/cm^3

#### HIDROSUELOS CIA. LTDA. **GRAVEDAD ESPECIFICA / SPECIFIC GRAVITY**

PROYECTO/PROJECT: Trasvases/Trasbasin

LOCALIZACION/SITE: Canal ablerto/Open Channel

CALICATA No./PIT No.: C-10

MUESTRA No./SAMPLE No M-2

PROFUNDIDAD/DEPTH: 2.00 - 3.00 FECHA/DATE: ENSAYADO/PERFORM, G.S.

CALCULO/CALCULATED 8 F.V.

SUELOS/Soils

b= PESO DEL PICNOMETRO LLENO DE AGUA DESTILADA A 20°C,+/- 1°C:

b⇒ Picnometer weight filled of detilled water 20°C,+/-1°C

161.45 gr.

Enero94/Jan.94

c=PESO DEL SUELO SECADO AL HORNO

c=Dry soil weight:

24.27 gr.

d=PESO DEL PICNOMETRO LLENO CON SUELO Y AGUA A 20°C,+/-1°C

d=Picnometer weight filled with soil and water, 20°C,+/- 1°C

176.82 gr

GRAVEDAD ESPECIFICA/Specific gravity:

2.7270 gr/cm ^ 3



#### HIDROSUELOS CIA. LTDA. **GRAVEDAD ESPECIFICA / SPECIFIC GRAVITY**

PROYECTO/PROJECT: Trasvases/Trasbasins

LOCALIZACION/SITE: Canal ablerto/Open Channel

CALICATA No./PIT No.: C-11

**MUESTRA No./SAMPLE No M-1** 

PROFUNDIDAD/DEPTH: 0.65 - 1.60 FECHA/DATE:

Enero94/Jan.94

ENSAY./PERFORM.BY: G.S.

CALC./CALCULATED BY: F.V.

SUELOS/Soils

b= PESO DEL PICNOMETRO LLENO DE AGUA DESTILADA A 20°C,+/- 1°C:

b= Picnometer weight filled of detilled water 20°C,+/-1°C

161.4 gr.

c=PESO DEL SUELO SECADO AL HORNO

c=Dry soil weight:

14.49 gr.

d=PESO DEL PICNOMETRO LLENO CON SUELO Y AGUA A 20°C,+/-1°C

d=Picnometer weight filled with soil and water, 20°C,+/- 1°C

GRAVEDAD ESPECIFICA/Specific gravity:

2.6061 gr/cm ^3

#### HIDROSUELOS CIA. LTDA. **GRAVEDAD ESPECIFICA / SPECIFIC GRAVITY**

PROYECTO/PROJECT: Trasvases/Trasbasin

LOCALIZACION/SITE: Canal ablerto/Open Channel

CALICATA No./PIT No.: C-12

MUESTRA No./SAMPLE No M-1

PROFUNDIDAD/DEPTH: 0.60 - 1.60 FECHA/DATE:

Enero94/Jan.94

ENSAYADO/PERFORM. G.S.

CALCULO/CALCULATED B F.V.

SUELOS/Soils

b= PESO DEL PICNOMETRO LLENO DE AGUA DESTILADA A 20°C,+/- 1°C:

b= Picnometer weight filled of detilled water 20°C,+/-1°C

155.25 gr.

c=PESO DEL SUELO SECADO AL HORNO

c=Dry soil weight:

22.67 gr.

d=PESO DEL PICNOMETRO LLENO CON SUELO Y AGUA A 20°C,+/-1°C

d=Picnometer weight filled with soil and water, 20°C,+/- 1°C

169.46

GRAVEDAD ESPECIFICA/Specific gravity:

gr/cm^3 2.6797



**GRAVEDAD ESPECIFICA / SPECIFIC GRAVITY** 

PROYECTO/PROJECT: Trasvases/Trasbasins

LOCALIZACION/SITE: Canal ablarto/Open Channel

CALICATA No./PIT No.: C-12

**MUESTRA No./SAMPLE No M-2** 

PROFUNDIDAD/DEPTH: 2.00 - 3.60 FECHA/DATE:

Enero94/Jan.94

ENSAY./PERFORM.BY: G.S.

CALC./CALCULATED BY: F.V.

SUELOS/Soils

b= PESO DEL PICNOMETRO LLENO DE AGUA DESTILADA A 20°C,+/- 1°C:

b= Picnometer weight filled of detilled water 20°C,+/-1°C

161.45 gr.

C=PESO DEL SUELO SECADO AL HORNO

c=Dry soil weight:

22.86 gr.

d=PESO DEL PICNOMETRO LLENO CON SUELO Y AGUA A 20°C,+/-1°C

d=Picnometer weight filled with soil and water, 20°C,+/-1°C

175.79 gr

GRAVEDAD ESPECIFICA/Specific gravity:

2,6831 gr/cm

#### HIDROSUELOS CIA. LTDA. GRAVEDAD ESPECIFICA / SPECIFIC GRAVITY

PROYECTO/PROJECT: Trasvases/Trasbasin

LOCALIZACION/SITE: Canal ablerto/Open Channel

CALICATA No./PIT No.: C-13

MUESTRA No./SAMPLE No M-1

PROFUNDIDAD/DEPTH: 0.80 - 2.00 FECHA/DATE:

Enero94/Jan.94

ENSAYADO/PERFORM, G.S.

CALCULO/CALCULATED B F.V.

SUELOS/Soils

b= PESO DEL PICNOMETRO LLENO DE AGUA DESTILADA A 20°C,+/- 1°C:

b= Picnometer weight filled of detilled water 20°C, +/-1°C

161.4 gr.

c=PESO DEL SUELO SECADO AL HORNO

c=Dry soil weight:

28.12 gr.

d=PESO DEL PICNOMETRO LLENO CON SUELO Y AGUA A 20°C,+/-1°C

d=Picnometer weight filled with soil and water, 20°C, +/- 1°C

179.27 gr

GRAVEDAD ESPECIFICA/Specific gravity:

2.7434 gr/cm ^ 3

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## HIDROSUELOS CIA. LTDA. GRAVEDAD ESPECIFICA / SPECIFIC GRAVITY

PROYECTO/PROJECT: Trasvases/Trasbasins

LOCALIZACION/SITE: Canal ablerto/Open Channel

CALICATA No./PIT No.: C-13 MUESTRA No./SAMPLE No M-2

PROFUNDIDAD/DEPTH: 2.00 - 3.50 FECHA/DATE:

Enero94/Jan.94

ENSAY./PERFORM.BY: G.S.

CALC./CALCULATED BY: F.V.

SUELOS/Soils

b= PESO DEL PICNOMETRO LLENO DE AGUA DESTILADA A 20°C,+/- 1°C:

b= Pichometer weight filled of detilled water 20°C,+/-1°C

155.25 gг.

C=PESO DEL SUELO SECADO AL HORNO

c=Dry soil weight:

30.6 gr.

d=PESO DEL PICNOMETRO LLENO CON SUELO Y AGUA A 20°C,+/-1°C

d=Picnometer weight filled with soil and water, 20°C,+/-1°C

174.18 gr

GRAVEDAD ESPECIFICA/Specific gravity:

2.6221 gr/cm ^ 3

## HIDROSUELOS CIA. LTDA. GRAVEDAD ESPECIFICA / SPECIFIC GRAVITY

PROYECTO/PROJECT: Trasvases/Trasbasin

LOCALIZACION/SITE: Canal ablerto/Open Channel

CALICATA No./PIT No.: C-14

MUESTRA No /SAMPLE No M-1

PROFUNDIDAD/DEPTH: 0.90 - 1.90 FECHA/DATE:

Enero94/Jan.94

ENSAYADO/PERFORM, G.S.

CALCULO/CALCULATED B F.V.

SUELOS/Soils

b= PESO DEL PICNOMETRO LLENO DE AGUA DESTILADA A 20°C,+/- 1°C:

b= Picnometer weight filled of detitled water 20°C,+/-1°C

161.45 gr.

c=PESO DEL SUELO SECADO AL HORNO

c=Dry soil weight:

25.15 gr.

d=PESO DEL PICNOMETRO LLENO CON SUELO Y AGUA A 20°C,+/-1°C

d=Picnometer weight filled with soil and water, 20°C,+/-1°C

176.92 gr

GRAVEDAD ESPECIFICA/Specific gravity:

2.5981 gr/cm^3



#### HIDROSUELOS CIA. LTDA. GRAVEDAD ESPECIFICA / SPECIFIC GRAVITY

PROYECTO/PROJECT: Trasvases/Trasbasins

LOCALIZACION/SITE: Canal ablerto/Open Channel

CALICATA No./PIT No.: C-14

MUESTRA No./SAMPLE No. M-2

PROFUNDIDAD/DEPTH: 2.00 - 3.50 FECHA/DATE:

ENSAY /PERFORM BY: G.S.

Enero94/Jan.94

CALC./CALCULATED BY: F.V.

SUELOS/Soils

b= PESO DEL PICNOMETRO LLENO DE AGUA DESTILADA A 20°C, +/- 1°C:

b= Picnometer weight filled of detilled water 20°C,+/-1°C

161.4 gr.

c=PESO DEL SUELO SECADO AL HORNO

c=Dry soil weight:

13.44 gr.

d=PESO DEL PICNOMETRO LLENO CON SUELO Y AGUA A 20°C.+/-1°C

d=Pichometer weight filled with soil and water, 20°C,+/- 1°C

GRAVEDAD ESPECIFICA/Specific gravity:

2.5649 gr/cm ^ 3

#### HIDROSUELOS CIA. LTDA. **GRAVEDAD ESPECIFICA / SPECIFIC GRAVITY**

PROYECTO/PROJECT: Trasvases/Trasbasin

LOCALIZACION/SITE: Canal ablerto/Open Channel:

CALICATA No./PIT No.: C-15

MUESTRA No./SAMPLE No M-1

PROFUNDIDAD/DEPTH: 0.40 - 1.00 FECHA/DATE:

Enero94/Jan.94

ENSAYADO/PERFORM. G.S.

CALCULO/CALCULATED B F.V.

SUELOS/Soils

b= PESO DEL PICNOMETRO LLENO DE AGUA DESTILADA A 20°C,+/- 1°C:

b= Picnometer weight filled of detilted water 20°C,+/-1°C

161.45 gr.

C=PESO DEL SUELO SECADO AL HORNO

c=Dry soil weight:

21.05 gr.

d=PESO DEL PICNOMETRO LLENO CON SUELO Y AGUA A 20°C,+/-1°C

d=Picnometer weight filled with soil and water, 20°C,+/- 1°C

174.58 gr

GRAVEDAD ESPECIFICA/Specific gravity:

2.6578 gr/cm ^ 3



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HIDROSUELOS CIA. LTDA.
GRAVEDAD ESPECIFICA / SPECIFIC GRAVITY

PROYECTO/PROJECT: Trasvases/Trasbasins

LOCALIZACION/SITE: Canal ablerto/Open Channel

CALICATA No./PIT No.: C-15 MUESTRA No./SAMPLE No M-2

PROFUNDIDAD/DEPTH: 1.20 - 1.60 FECHA/DATE:

Enero94/Jan.94

ENSAY./PERFORM.BY: G.S.

CALC./CALCULATED BY: F.V.

SUELOS/Soils

b= PESO DEL PICNOMETRO LLENO DE AGUA DESTILADA A 20°C,+/- 1°C:

b= Picnometer weight filled of detilled water 20°C,+/-1°C

155.25 gr.

c=PESO DEL SUELO SECADO AL HORNO

c=Dry soil weight:

24.9 gr.

d=PESO DEL PICNOMETRO LLENO CON SUELO Y AGUA A 20°C.+/-1°C

d≐Picnometer weight filled with soil and water, 20°C, +/- 1°C

170.92 gr

GRAVEDAD ESPECIFICA/Specific gravity:

2.6977 gr/cm ^ 3

## HIDROSUELOS CIA. LTDA. GRAVEDAD ESPECIFICA / SPECIFIC GRAVITY

PROYECTO/PROJECT: Trasvases/Trasbasin

LOCALIZACION/SITE: Canal ablerto/Open Channel

CALICATA No./PIT No.: C-16 MUESTRA No./SAMPLE No M-1

PROFUNDIDAD/DEPTH: 0.85 - 1.80 FECHA/DATE: Enero94/Jan.94

ENSAYADO/PERFORM. G.S. CALCULO/CALCULATED B F.V.

SUELOS/Soils

b= PESO DEL PICNOMETRO LLENO DE AGUA DESTILADA A 20°C,+/- 1°C:

b= Picnometer weight filled of detilled water 20°C,+/-1°C 161.4 gr.

c=PESO DEL SUELO SECADO AL HORNO

c=Dry soil weight:

26.26 gr.

d=PESO DEL PICNOMETRO LLENO CON SUELO Y AGUA A 20°C,+/-1°C

d=Picnometer weight filled with soil and water, 20°C,+/- 1°C

177.7 gr

GRAVEDAD ESPECIFICA/Specific gravity:

2.6365 gr/cm ^ 3



#### HIDROSUELOS CIA. LTDA. GRAVEDAD ESPECIFICA / SPECIFIC GRAVITY

PROYECTO/PROJECT: Trasvases/Trasbasins

LOCALIZACION/SITE: Canal ablerto/Open Channel

CALICATA No./PIT No.: C-16

MUESTRA No./SAMPLE No M-2

PROFUNDIDAD/DEPTH: 2.00 - 3.50 FECHA/DATE:

Enero94/Jan.94

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ENSAY./PERFORM.BY: G.S.

CALC./CALCULATED BY: F.V.

SUELOS/Soils

b= PESO DEL PICNOMETRO LLENO DE AGUA DESTILADA A 20°C,+/- 1°C:

b= Picnometer weight filled of detilled water 20°C,+/-1°C

155.25 gr.

C=PESO DEL SUELO SECADO AL HORNO

c=Dry soil weight:

26.9 gr.

d=PESO DEL PICNOMETRO LLENO CON SUELO Y AGUA A 20°C,+/-1°C

d=Picnometer weight filled with soil and water, 20°C,+/- 1°C

171.2 gr

GRAVEDAD ESPECIFICA/Specific gravity:

2.4566 gr/cm^3

#### HIDROSUELOS CIA. LTDA. GRAVEDAD ESPECIFICA / SPECIFIC GRAVITY

PROYECTO/PROJECT: Trasvases/Trasbasin

LOCALIZACION/SITE: Canal ablerto/Open Channel

CALICATA No./PIT No.: C-17

MUESTRA No./SAMPLE No M-1

PROFUNDIDAD/DEPTH: 0.40 - 1.60 FECHA/DATE:

Enero94/Jan.94

ENSAYADO/PERFORM. G.S.

CALCULO/CALCULATED B F.V.

SUELOS/Soils

b= PESO DEL PICNOMETRO LLENO DE AGUA DESTILADA A 20°C,+/- 1°C:

b= Picnometer weight filled of detilled water 20°C,+/-1°C

161.45 gr.

c=PESO DEL SUELO SECADO AL HORNO

c=Dry soil weight:

18.07 gr.

d=PESO DEL PICNOMETRO LLENO CON SUELO Y AGUA A 20°C,+/-1°C

d=Picnometer weight filled with soil and water, 20°C,+/- 1°C

172.63 gr

GRAVEDAD ESPECIFICA/Specific gravity:

2.6226 gr/cm^3

#### HIDROSUELOS CIA. LTDA. GRAVEDAD ESPECIFICA / SPECIFIC GRAVITY

PROYECTO/PROJECT: Trasvases/Trasbasins

LOCALIZACION/SITE: Canal ablerto/Open Channel

CALICATA No./PIT No.: C-17 MUESTRA No./SAMPLE No M-2

PROFUNDIDAD/DEPTH: 2.00 - 3.00 FECHA/DATE:

Enero94/Jan.94

ENSAY./PERFORM.BY: G.S.

CALC./CALCULATED BY: F.V.

SUELOS/Soils

b= PESO DEL PICNOMETRO LLENO DE AGUA DESTILADA A 20°C,+/- 1°C:

b= Picnometer weight filled of detilled water 20°C,+/-1°C

CEPESO DEL SUELO SECADO AL HORNO

c=Dry soil weight:

23.83 gr.

d=PESO DEL PICNOMETRO LLENO CON SUELO Y AGUA A 20°C,+/-1°C

d=Picnometer weight filled with soil and water, 20°C,+/-1°C

176.34 gr

GRAVEDAD ESPECIFICA/Specific gravity:

2.6805 gr/cm ^ 3

#### HIDROSUELOS CIA. LTDA. **GRAVEDAD ESPECIFICA / SPECIFIC GRAVITY**

PROYECTO/PROJECT: Trasvases/Trasbasin

LOCALIZACION/SITE: Canal ablerto/Open Channel

CALICATA No./PIT No.: C-18

MUESTRA No./SAMPLE No M-1

PROFUNDIDAD/DEPTH: 0.30 - 1.60 FECHA/DATE:

Enero94/Jan.94

ENSAYADO/PERFORM. G.S.

CALCULO/CALCULATED B F.V.

SUELOS/Soils

b= PESO DEL PICNOMETRO LLENO DE AGUA DESTILADA A 20°C,+/- 1°C:

b= Picnometer weight filled of detilled water 20°C,+/-1°C

155.25 gr.

C=PESO DEL SUELO SECADO AL HORNO

c=Drv soil weight:

23.2 gr.

d=PESO DEL PICNOMETRO LLENO CON SUELO Y AGUA A 20°C,+/-1°C

d=Picnometer weight filled with soil and water, 20°C,+/- 1°C

169.94 gr

GRAVEDAD ESPECIFICA/Specific gravity:

2,7262 gr/cm ^ 3



#### HIDROSUELOS CIA. LTDA. GRAVEDAD ESPECIFICA / SPECIFIC GRAVITY

PROYECTO/PROJECT: Trasvases/Trasbasins

LOCALIZACION/SITE: Canal ablerto/Open Channel

CALICATA No./PIT No.: C-18 MUESTRA No./SAMPLE No M-2

PROFUNDIDAD/DEPTH: 2.00 - 3.50 FECHA/DATE:

Enero94/Jan.94

ENSAY./PERFORM.8Y: G.S.

CALC./CALCULATED BY: F.V.

SUELOS/Soils

b= PESO DEL PICNOMETRO LLENO DE AGUA DESTILADA A 20°C,+/- 1°C:

b= Picnometer weight filled of detilled water 20°C,+/-1°C

161.45 ar.

C=PESO DEL SUELO SECADO AL HORNO

c=Dry soil weight:

24.82 gr.

d=PESO DEL PICNOMETRO LLENO CON SUELO Y AGUA A 20°C,+/-1°C

d=Picnometer weight filled with soil and water, 20°C,+/- 1°C

177.13 gr

GRAVEDAD ESPECIFICA/Specific gravity:

2.7155 gr/cm 1.3

#### HIDROSUELOS CIA. LTDA. GRAVEDAD ESPECIFICA / SPECIFIC GRAVITY

PROYECTO/PROJECT: Trasvases/Trasbasin

LOCALIZACION/SITE: Canal ablerto/Open Channel

CALICATA No./PIT No.: C-19 MUESTRA No./SAMPLE No M-1

Enero94/Jan.94 PROFUNDIDAD/DEPTH: 1.10 - 1.70 FECHA/DATE:

CALCULO/CALCULATED B F.V. ENSAYADO/PERFORM. G.S.

SUELOS/Soils

b= PESO DEL PICNOMETRO LLENO DE AGUA DESTILADA A 20°C,+/- 1°C:

b= Picnometer weight filled of detilled water 20°C,+/-1°C

c=PESO DEL SUELO SECADO AL HORNO

c=Dry soil weight:

26.25 gr.

d=PESO DEL PICNOMETRO LLENO CON SUELO Y AGUA A 20°C,+/-1°C

d=Picnometer weight filled with soil and water, 20°C,+/- 1°C

177.92 gr

GRAVEDAD ESPECIFICA/Specific gravity:

2.6978 gr/cm ^ 3



## HIDROSUELOS CIA, LTDA. GRAVEDAD ESPECIFICA / SPECIFIC GRAVITY

PROYECTO/PROJECT: Trasvases/Trasbasins

LOCALIZACION/SITE: Canal ablerto/Open Channel

CALICATA No./PIT No.: C-19 MUESTRA No./SAMPLE No M-2

PROFUNDIDAD/DEPTH: 2.00 - 4.00 FECHA/DATE:

Enero94/Jan.94

ENSAY./PERFORM.BY: G.S.

CALC./CALCULATED BY: F.V.

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#### SUELOS/Soils

b= PESO DEL PICNOMETRO LLENO DE AGUA DESTILADA A 20°C,+/- 1°C;

b= Picnometer weight filled of detilled water 20°C,+/-1°C

155.25 gr.

C≅PESO DEL SUELO SECADO AL HORNO

c=Dry soil weight:

18,64 gr.

d=PESO DEL PICNOMETRO LLENO CON SUELO Y AGUA A 20°C,+/-1°C

d=Pichometer weight filled with soil and water, 20°C,+/- 1°C

166,74 gr

GRAVEDAD ESPECIFICA/Specific gravity:

2.6070 gr/cm ^ 3

## HIDROSUELOS CIA. LTDA. GRAVEDAD ESPECIFICA / SPECIFIC GRAVITY

PROYECTO/PROJECT: Trasvases/Trasbasin

LOCALIZACION/SITE: Linea Transmision/Transmission Line

CALICATA No./PIT No.: C-20 MUESTRA No./SAMPLE No M-1

PROFUNDIDAD/DEPTH: 0.35 - 1.10 FECHA/DATE: Enero94/Jan.94

ENSAYADO/PERFORM. G.S. CALCULO/CALCULATED B F.V.

SUELOS/Soils

b= PESO DEL PICNOMETRO LLENO DE AGUA DESTILADA A 20°C,+/- 1°C:

b= Picnometer weight filled of detilled water 20°C,+/-1°C

161.45 gr.

c=PESO DEL SUELO SECADO AL HORNO

c=Dry soil weight:

18,23 gr.

d=PESO DEL PICNOMETRO LLENO CON SUELO Y AGUA A 20°C,+/-1°C

d=Picnometer weight filled with soil and water, 20°C,+/- 1°C

172.8 gr

GRAVEDAD ESPECIFICA/Specific gravity:

2.6497 gr/cm ^ 3

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#### HIDROSUELOS CIA. LTDA. GRAVEDAD ESPECIFICA / SPECIFIC GRAVITY

PROYECTO/PROJECT: Trasvases/Trasbasins

LOCALIZACION/SITE: Linea Transmiston/Transmission Line

CALICATA No./PIT No.: C-21

MUESTRA No./SAMPLE No M-1

PROFUNDIDAD/DEPTH: 0.40 - 1.00 FECHA/DATE:

Enero94/Jan.94

ENSAY./PERFORM.BY: G.S. CALC./CALCULATED BY: F.V.

SUELOS/Soils

b= PESO DEL PICNOMETRO LLENO DE AGUA DESTILADA A 20°C,+/- 1°C:

b⇒ Picnometer weight filled of detilled water 20°C,+/-1°C

161.4 gr.

C=PESO DEL SUELO SECADO AL HORNO

c=Dry soil weight:

22.24 gr.

d=PESO DEL PICNOMETRO LLENO CON SUELO Y AGUA A 20°C,+/-1°C

d=Picnometer weight filled with soil and water, 20°C,+/- 1°C

GRAVEDAD ESPECIFICA/Specific gravity:

2,6731 gr/cm ^

#### HIDROSUELOS CIA. LTDA. GRAVEDAD ESPECIFICA / SPECIFIC GRAVITY

PROYECTO/PROJECT: Trasvases/Trasbasin

LOCALIZACION/SITE: Linea Transmision/Transmission Line

CALICATA No./PIT No.: C-21

MUESTRA No./SAMPLE No M-2

PROFUNDIDAD/DEPTH: 1.10 - 2.15 FECHA/DATE:

Enero94/Jan.94

ENSAYADO/PERFORM. G.S.

CALCULO/CALCULATED B F.V.

SUELOS/Soils

b= PESO DEL PICNOMETRO LLENO DE AGUA DESTILADA A 20°C,+/- 1°C

b= Picnometer weight filled of detilled water 20°C,+/-1°C

155.25 gr.

c=PESO DEL SUELO SECADO AL HORNO

c=Dry soil weight:

27.36 gr.

d=PESO DEL PICNOMETRO LLENO CON SUELO Y AGUA A 20°C,+/-1°C

d=Pionometer weight filled with soil and water, 20°C,+/- 1°C

172

GRAVEDAD ESPECIFICA/Specific gravity:

gr/cm 2,5787

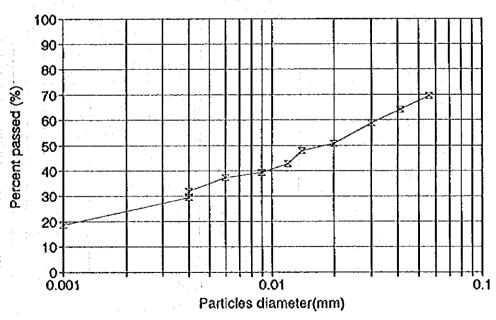


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#### HIDROSUELOS CIA. LTDA. HIDROMETRO/HIDROMETER

				MILES A PERSON WITH THE PROPERTY OF THE SERVICE OF	Committee Committee or 1975 and	THE PARTY AND PERSONS ASSESSMENT OF THE PARTY AND PARTY.		
PROY	CTO/PF	OJECT:	Trasvases/Tr	asbasins				
LOCAL	IZACIO	N/SITE:	Canal Ablerte	o/Open Channe	et Di	i i	1 6 1	
CALIC	ATA No.	PIT No.	C-18	MUESTRA No	/SAMPL	E No.:	M-1	
				FECHA/DATE		:	Enero94/Ja	n.94
				CALC./CALC		<u>3Y:</u>	F.V.	
	TANTES,			Gs=	2.726	gr/cm^3		
k 16=	0.014			%Pass.No.10:	100	%		
K 17=	0.0138	-11.11		Ws=	59.15	gr	HIDRM.No	151 H
TIME	HOUR	TEMP	Hidrom.read	CORRECCIO	R	L	D	%PASS.
(min)		°C		Correction	* . 			CORR.
0.5		16.00	1031	0.00534	1.026	8.10	0.056	69.42
1		16.00	1029	0.00534	1.024	8.63	0.041	64.08
2		16.00	1027	0.00534	1.022	9.16	0.030	58.74
5	- 1	16.00	1024	0.00534	1.019	9.95	0.020	50.73
10		16,00	1023	0.00534	1.018	10.21	0.014	48.06
15		16.00	1021	0.00534	1.016	10.74	0.012	42.72
30	N 149	16.00	1019	0.00534	1.011	11.27	0.009	39.37
60		16.00	1019	0.00534	1.014	11.27	0.006	37.38
120	,	16.00	1017	0.00534	1.012	11.80	0.004	32.04
180		17.00	1016	0.00508	1.011	12.07	0.004	29.37
1440	. :	16,00	1012	0.00534	1.007	13.12	0.001	18,69

# Hidrometer C18 - M1

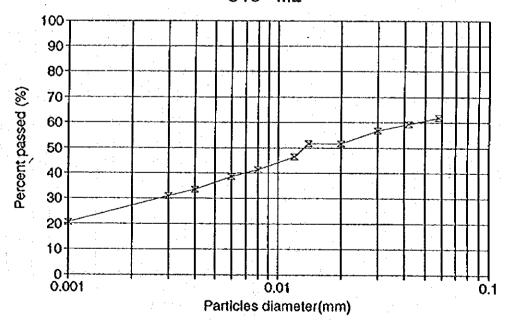




HIDR	OM	ETRO	/HIDE	OMETER

PROY	ECTO/PF	OJECT:	Trasvases/Tr	asbasin <b>s</b>							
LOCAL	LIZACIO	N/SITE:	Canal Abiert	o/Open Chann	el		. 4.				
CALIC	ATA No.	/PIT No.	C-18	MUESTRA No	./SAMPL	E No.:	M-2				
PROF	JNDIDAL	DEPT	2.00-3.50m	FECHA/DATE	1		Enero94/Ja	ın.94			
ENSAY./PERFORM.BY G.S. CALC./CALCULATED BY: F.V.											
CONSTANTES/Ktes: Gs= 2.72 gr/cm^3											
k 16≔	0.0141			%Pass.No.10:	100	%					
K 17=	0.0139	: :	100	Ws=	61.19	gr	HIDRM.No	151·H			
TIME	HOUR	TEMP	Hidrom.read	CORRECCIO	R	L	D	%PASS.			
(min)		•c		Correction		į į	1.5	CORR.			
0.5	1	16.00	1029	0.00534	1.024	8.63	0.058	62.03			
1		16.00	1028	0.00534	1.023	8.89	0.042	59.44			
2		16.00	1027	0.00534	1.022	9.16	0.030	56.86			
5		16.00	1025	0.00534	1.020	9.69	0.020	51.69			
10		16.00	1025	0.00534	1.020	9.69	0.014	51.69			
15		16.00	1023	0.00534	1.018	10.21	0.012	46.52			
30	:1	16.00	1021	0.00534	1.016	10.74	0.008	41.35			
60		16.00	1020	0.00534	1.015	11.01	0.006	38.77			
120		16.00	1018	0.00534	1.013	11.54	0.004	33,60			
180		17.00	1017	0.00508	1.012	11.80	0.003	31.01			
1440		16.00	1013	0.00534	1.008	12.86	0.001	20.68			

# Hidrometer C18 - M2





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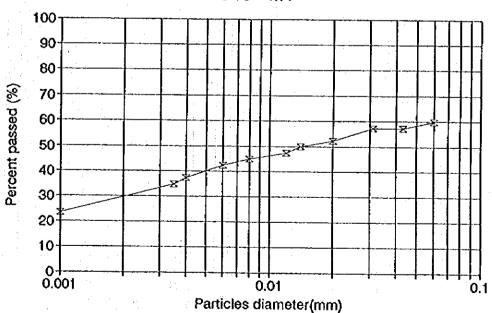
## HIDROSUELOS CIA. LTDA.

HIDROMETRO/HIDROMETER
PROYECTO/PROJECT: Trasvases/Trasbasins

PROYECTO/PROJECT: Trasvases/Trasbasins												
LOCA	LOCALIZACION/SITE: Canal ablerto/Open Channel											
CALIC	ATA No.	/PIT No.	C-19	MUESTRA NO	./SAMPL	E No.:	M-1					
PROF	UNDIDA	D/DEPT	1.10-1.70m.	FECHA/DATE	:		Enero94/Ja	an.94				
ENSA	Y./PERF	ORM.BY	G.S.	CALC./CALC	ULATED E	3Y: :	F.V.					
F	TANTES			Gs=	2.618	gr/cm^3						
K16=	0.0145			%Pass.No.10;	100	%		7				
K17=	0.0143			Ws=	64.97	gr	HIDRM.No	151-H				
TIME	HOUR	TEMP	Hidrom.read	CORRECCIO	Я	L :	D	%PASS.				
(mln)		°C		Correction				CORR.				
0.5	11:25	16.00	1029	0.00534	1.024	8.63	0.060	59.77				
1	1 m	16.00	1028	0.00534	1.023	8.89	0.043	57.28				
2	- 1	16.00	1028	0.00534	1.023	8.89	0.031	57.28				
5		16.00	1026	0.00534	1.021	9.42	0.020	52.30				
10		16.00	1025	0.00534	1.020	9.69	0.014	49.81				
15	4	16.00	1024	0.00534	1.019	9.95	0.012	47,32				
30		16.00	1023	0.00534	1.018	10.21	0.008	44.83				
60	18.0	16.00	1022	0.00534	1.017	10.48	0.006	42.34				
120		16.00	1020	0.00534	1,015	11.01	0.004	37.36				
180		17.00	1019	0.00508	1.014	11.27	0.004	34.87				
1440		16.00	1016	0.00534	1.011	12.07	0.001	23.39				

## Hidrometer

C19 - M1



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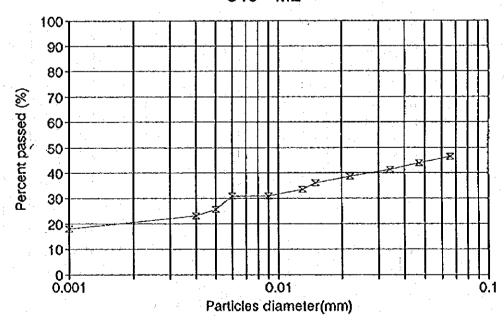
#### HIDROSUELOS CIA. LTDA. HIDROMETRO/HIDROMETER

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PROYECTO/PROJECT: Trasvases/Trasbasins										
		-		/Open Channe	1					
1				MUESTRA No		E No.:	M-2			
1		A 25		FECHA/DATE			Enero94/Ja	n.94		
				CALC./CALC		Y:	F.V.			
AND DESCRIPTION OF	The Real Property lies, the Re			Gs=	2.607	gr/cm^3		<b>V</b>		
CONSTANTES/Ktes: Gs= 2.607 gr/cm^3 K16= 0.0145 %Pass No.10: 100 %										
	K17= 0.0144 Ws= 62.87 gr HIDRM.No 151-H									
TIME	HOUR	TEMP	Hidrom.read	CORRECCIO	R	Ĺ	D	%PASS.		
(min)		•0		Correction		1		CORR.		
0.5	11:30	16.00	1023	0.00534	1.018	10.21	0.066	46.45		
1		16.00	1022	0.00534	1.017	10.48	0.047	43.87		
2	-	16.00	1021	0.00534	1.016	10.74	0.034	41.29		
5		16.00	1020	0.00534	1.015	11.01	0.022	38.71		
10		16.00	1019	0.00534	1.014	11.27	0.015	36.13		
15		16.00	1018	0.00534	1.013	11.54	0.013	33.54		
30		16.00	1017	0.00534	1.012	11.80	0.009	30.96		
60		16.00	1017	0.00534	1.012	11.80	0.006	30.96		
120		16.00	1015	0.00534	1.010	12.33	0.005	25.80		
180		17.00	1014	0.00508	1.009	12.60	0.004	23.22		
1440		16.00	1012	0.00534	1.007	13,12	0.001	18.06		

# Hidrometer C19 - M2





HIDROSUELOS CIA, LTDA. HIDROMETRO/HIDROMETER

PROYECTO/PROJECT: Trasvases/Trasbasins

LOCALIZACION/SITE: Linea Transmision/Transmision Line

CALICATA No./PIT No. C-20

MUESTRA No./SAMPLE No.:

M-1

PROFUNDIDAD/DEPT 0.35-1.10m. FECHA/DATE:

Enero94/Jan.94

ENSAY./PERFORM.BY G.S.

**CALC./CALCULATED BY:** 

CONSTANTES/Ktes:

Gs=

2.65 gr/cm^3

K16= 0.0144

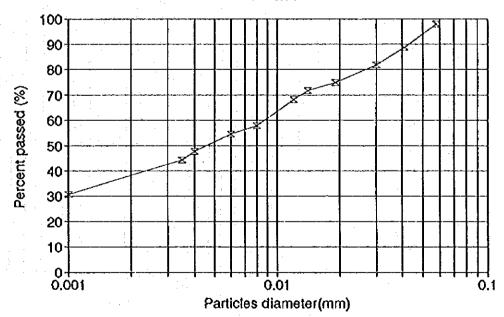
%Pass.No.10:

100 %

K17≟	0.0142			Ws=	61.45	gr	HIDRM.No	151-H	
TIME	HOUR	TEMP	Hidrom.read	CORRECCIO	R	L	D	%PASS.	
(min)		*C		Correction	7 july 1			CORR.	
0.5	11:30	16.00	1031	0.00534	1.026	8.10	0.058	97.95	
14		16.00	1031	0.00534	1.026	8.10	0.041	88.64	
2		16.00	1029	0.00534	1.024	8.63	0.030	81.82	
5		16.00	1027	0.00534	1.022	9.16	0.019	75.00	
10		16.00	1026	0.00534	1.021	9.42	0.014	71,59	
15		16.00	1025	0.00534	1.020	9.69	0.012	68.18	
30		16.00	1022	0.00534	- 1.017	10.48	0.008	57.95	
60		16,00	1021	0.00534	1.016	10.74	0.006	54.54	
120		16.00	1019	0.00534	- 1.014	11.27	0.004	47.73	
180		17.00	1018	0.00508	1.013	11.54	0.004	44.32	
1440		16.00	1014	0.00534	1.009	12.60	0.001	30.68	

### Hidrometer

C20 - M1

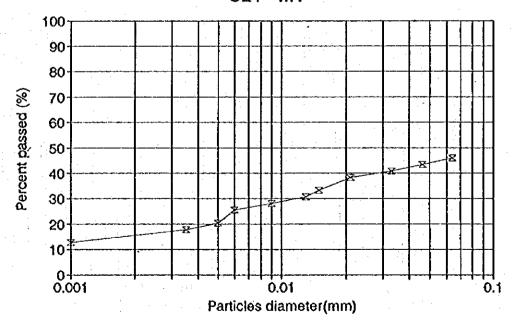




#### HIDROMETRO/HIDROMETER

PROY	ECTO/PF	OJECT:	Trasvases/Tr	asbasins								
LOCA	LIZACIO	N/SITE:	Linea Transn	nision/Transmis	lon Line	ter in						
CALIC	ATA No.	PIT No.	C-21	MUESTRA No	/SAMPL	E No.:	M-1					
PROF	UNDIDAD	D/DEPT	0.40-1.00m.	FECHA/DATE:		- 1	Enero94/Ja	ก.94				
ENSA	Y./PERFO	DRM.BY	G.S.	CALC./CALCL	JLATED E	<u>3Y:</u>	F.V.					
CONS	TANTES	Ktes:		Gs=	2.673	gr/cm^3						
K16=	K16= 0.0143 %Pass.No.10: 100 %											
K17=	0.0141			Ws=	62.49	gr	HIDRM.No	151-H				
TIME	HOUR	TEMP	Hidrom.read	CORRECCIO	R	L	D	%PASS.				
(min)		°C		Correction				CORR.				
0.5	10:30	16.00	1023	0.00534	1.018	10.21	0.064	46.02				
1		16.00	1022	0.00534	1.017	10.48	0.046	43.47				
2		16.00	1021	0.00534	1.016	10.74	0.033	40.91				
5		16.00	1020	0.00534	1.015	11.01	0.021	38.35				
10		16.00	1018	0.00534	1.013	11.54	0.015	33.24				
15		16.00	1017	0.00534	1.012	11.80	0.013	30.68				
30		16.00	1016	0.00534	1.011	12.07	0.009	28.12				
60		17.00	1015	0.00508	1.010	12.33	0.006	25.57				
120		17.00	1013	0.00508	1.008	12.86	0.005	20.45				
180	:	17.00	1012	0.00508	1.007	13.12	0.004	17.80				
1440		17.00	1010	0.00508	1.005	13.65	0.001	12.78				

# Hidrometer C21 - M1





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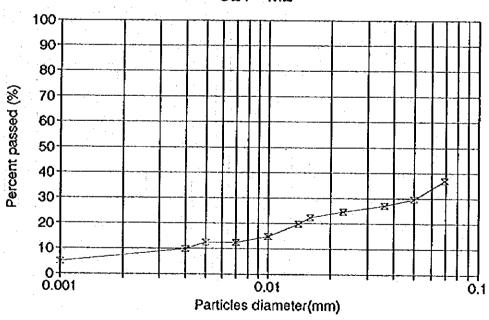
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### HIDROSUELOS CIA. LTDA.

HIDROMETRO/HIDROMETER

and the same of	-	_		Manager Street, Square Control of the Control of th	70,111,101				
PROY	ECTO/PI	OVECT	Trasvases/Tr	rasbasins	1				
LOCA	LIZACIO	N/SITE:	Linea Transr	nision/Transmi	ssion Line				
CALIC	ATA No.	PIT No.	C-21	MUESTRA NO	./SAMPL	E No.:	M-2		
PROF	JNDIDAD	D/DEPT	1.00-2.15m	FECHA/DATE	<u>i</u>		Enero94/Jan.94		
ENSA	/./PERFC	DRM.BY	G.S.	CALC./CALC	ULATED E	BY:			
	TANTES,			Gs=		gr/cm^3	والمراجع		
k 16≂	0.0147		· · ·	%Pass.No.10:	100	%		i	
K 17=	0.0145		·	Ws=	66.18	gr	HIDRM.No	151-H	
TIME	HOUR	TEMP	Hidrom.read	CORRECCIO	R	L	D	%PASS.	
(min)				Correction				CORR	
0.5		16.00	1020	0.00534	1.015	11.01	0.069	37.02	
1		16.00	1017	0.00534	1.012	11.80	0.050	29.62	
2		16.00	1016	0.00534	1.011	12.07	0.036	27.15	
5		16.00	1015	0.00534	1.010	12.33	0.023	24.68	
10		16.00	1014	0.00534	1.009	12.60	0.016	22.21	
15		16.00	1013	0.00534	1.008	12.86	0.014	19.74	
30	9 p	16.00	1011	0.00534	1.006	13.39	0.010	14.81	
60		17.00	1010	0.00508	1.005	13.65	0.007	12.34	
120	1	17.00	1010	0.00508	1.005	13.65	0.005	12.34	
180		17.00	1009	0.00508	1.004	13.92	0.004	9.87	
1440		17.00	1007	0.00508	1.002	14.45	0.001	4.94	

# Hidrometer C21 - M2



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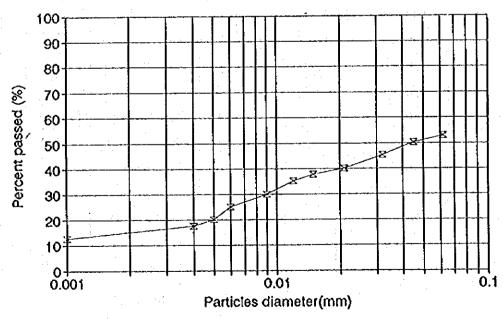


#### HIDROMETRO/HIDROMETER

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PROYECTO/PROJECT: Trasyases/Trasbasins											
LOCALIZACION/SITE: Linea Transmission/Transmission Line											
CALICATA No./PIT No. C-22 MUESTRA No./SAMPLE No.: M-2											
PROFUNDIDAD/DEPT 1.00-2.35m FECHA/DATE: Enero94/Jan.94											
ENSAY, PERFORM.BY G.S. CALC. CALCULATED BY: F.V.											
CONSTANTES/Kies: Gs= 2.659 gr/cm^3											
k 16=	0.0143			%Pass.No.10:	100	%					
K 17=	0.0141	: .		Ws≔	63.74	gr	HIDRM No	151-H			
TIME	HOUR	TEMP	Hidrom.read	CORRECCIO	R	L	D	%PASS.			
(min)		•°C		Correction		·		CORR.			
0.5		16.00	1026	0.00534	1.021	9.42	0.062	52.81			
1	,	16.00	1025	0.00534	1.020	9.69	0.045	50.29			
2		16.00	1023	0.00534	1.018	10.21	0.032	45.26			
5		16.00	1021	0.00534	1.016	10.74	0.021	40.23			
10		16.00	1020	0.00534	1.015	5 11.01	0.015	37.72			
15		16.00	1019	0.00534	1.014	11.27	0.012	35.20			
30		16.00	1017	0.00534	1.012	11.80	0.009	30.17			
60		17.00	1015	0.00508	1.010	12.33	0.006	25.15			
120		17.00	1013	0.00508	1.008	12.86	0.005	20.12			
180		17.00	1013	0.00508	: 1.007.	13.12	0.004	17.60			
1440	<del></del> -	17.00	1010	0.00508	1.005	13.65	0.001	12.57			

# Hidrometer C22 - M2



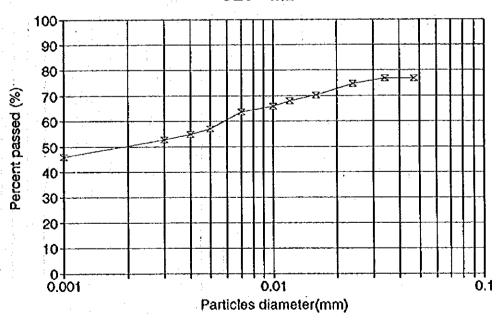


## HIDROSUELOS CIA. LTDA. HIDROMETRO/HIDROMETER

PROYECTO/PROJECT: Trasvases/Trasbasins											
LOCALIZACION/SITE: Linea Transmision/Transmission Line											
CALICATA No./PIT No. C-23 MUESTRA No./SAMPLE No.: M-2											
				FECHA/DATE:			Enero94/Jan.94				
ENSAY./PERFORM.BY G.S. CALC./CALCULATED BY: F.V.											
particular periods and	TANTES/			Gs=	2.733	gr/cm^3		مونور <u>دارس به براکند که اساسال</u> ای			
k 16= 0.014 %Pass No.10: 100 %											
	0.0138			Ws=	71.87	gr	HIDRM.No	151-H			
TIME	HOUR	TEMP	Hidrom read	CORRECCIO	R	L	D	%PASS.			
(min)		°C		Correction				CORR.			
0.5		16.00	1040	0.00534	1.035	5.72	0.047	76.80			
1		16.00	1040	0.00534	1.035	5.72	0.034	76.80			
2		16.00	1039	0.00534	1.034	5.98	0.024	74.61			
5		16.00	1037	0.00534	1.032	6.51	0.016	70.22			
10		16.00	1036	0.00534	1.031	6,78	0.012	68.02			
15		16.00	1035	0.00534	1.030	7.04	0.010	65.83			
30		16.00	1034	0.00534	1.029	7.30	0.007	63.63			
60		17.00	1031	0.00508	1.026	8.10	0.005	57.05			
120		17.00	1030	0.00508	1.025	8.36	0.004	54.86			
180	· · · · · · · · · · · · · · · · · · ·	17.00	1029	0.00508	1.024	8.63	0.003	52.66			
1440		17.00	1026	0.00508	1.021	9.42	0.001	46.08			

## Hidrometer

C23 - M2

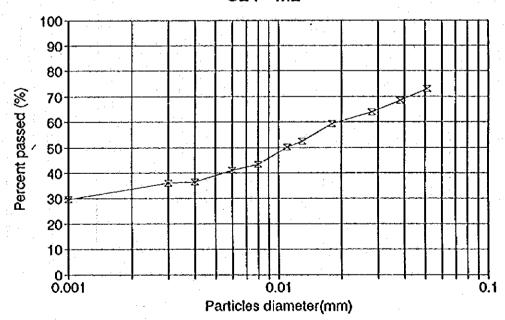




# HIDROMETRO/HIDROMETER

PROY	ЕСТО/РЯ	OJECT:	Trasyases/Tr	asbasins		***************************************		
				nision/Transmis	sion Line			
		· · · · · · · · · · · · · · · · · · ·		MUESTRA No			M-2	
			and the second second	FECHA/DATE			Enero94/Ja	n.94
				CALC./CALC		3Y:	F.V.	****
	TANTES/		Marie of the Control	Gs	2.681	gr/cm^3		
K16=	0.0142			%Pass No.10:	100	%		
K17=	0.014			Ws≖	69.89	19	HIDRM.No	151-H
TIME	HOUR	TEMP	Hidrom.read	CORRECCIO	R	L	D	%PASS.
(min)		•0		Correction				CORR.
0.5	10:50	16,00	1.037	0.00534	1.032	6.51	0.051	73.02
1		16.00	1.035	0.00534	1.030	7.04	0.038	68.46
2		16.00	1.033	0.00534	1.028	7,57	0.028	63.90
5		16.00	1.031	0.00534	1.026	8.10	0.018	59.33
10	:	16.00	1.028	0.00534	1.023	8.89	0.013	52.49
15		16.00	1.027	0.00534	1.022	9,16	0.011	50.20
30		16.00	1.024	0.00534	1.019	9.95	0.008	43.36
60		17.00	1.023	0.00508	1.018	10.21	0.006	41.08
120		17.00	1.021	0.00508	1.016	10.74	0.004	36.51
.180	:	17.00	1.021	0.00508	1.016	10.74	0.003	36.00
1440		17.00	1.018	0.00508	1.013	11.54	0.001	29.67

# Hidrometer C24 - M2



# UNDISTURBED SAMPLE

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# ESCUELA POLITECNICA NACIONAL FACULTAD DE INGENIERIA CIVIL LABORATORIO DE MECANICA DE ROCAS

# "TRASVASES MANABI"

Preside Contraction Discoulation in virtual Contraction Contractio

Quito, enero de 1994

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ENVIO # =	2
MUESTRA:	C-22; M-1
PROFUNDIAD (m)=	0.60-0.90
HIDROMETRO No. =	877286
TEMPERATURA (?C) =	14.00
CORRECCION POR MENISCO Cm =	1,00
CORRECCION POR DEFLOCULANTE Cd =	6,50
CORRECCION POR TEMPERATURA mT =	-1.30
PESO DE SOLIDOS Ws =	31.20
DENSIDAD DE SOLIDOS Gs =	2.832
VISCOSIDAD DINAMICA DEL AGUA? =	1.194E-05
DENSIDAD DEL AGUA Sw =	0.9993

	C	RANULO	METRIA I	HDROMETRO	)	
TIEMPO	LECTURA	RH	H	V	D	% QUE
(min)	R'H	į	(cm)	(cm/s)	(mm)	PASA
0.25	30.6	31.60	11.04	0.7363	0.093	73.39
0.5	30.2	31.20	11.11	0.3703	0.066	72.16
0.75	29.8	30.80	11.17	0.2483	0.054	70.93
1	29.4	30.40	11.24	0.1873	0.047	69.69
1.5	29.0	30.00	11.30	0.1256	0.038	68.46
2	28.9	29.90	11.32	0.0943	0.033	68.15
5	28.0	29.00	11.46	0.0382	0.021	65.38
10	27.5	28.50	11.54	0.0192	0.015	63.83
15	26.8	27.80	11.65	0.0129	0.012	61.68
20	26.7	27.70	11.67	0.0097	0.011	61.37
30	26.7	27.70	11.67	0.0065	0.009	61.37
60	26.0	27.00	11.78	0.0033	0.006	59.21
90	25.3	26.30	11.89	0.0022	0.005	57.05
120	25.0	26.00	11.94	0.0017	0.004	56.13
180	24.5	25.50	12.02	0.0011	0.004	54.58
1440	22.0	23.00	12.42	0,0001	0.001	46.87
2880	21.0	22.00	12.58	0.0001	0.001	43.79

ESCUELA POLITECNICA NACIONAL FACULTAD DE INGENIERIA CIVIL LABORATORIO DE MECANICA DE ROCAS

PROYECTO "TRASVASES MANABI"

GRANULOMETRIA POR HIDROMETR DIAMETRO DE PARTICULAS (mm) SOLIDOS MENORES AL DIAMETRO (%)

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# PROYECTO "TRASVASES MANABI"

Quito, enero de 1994

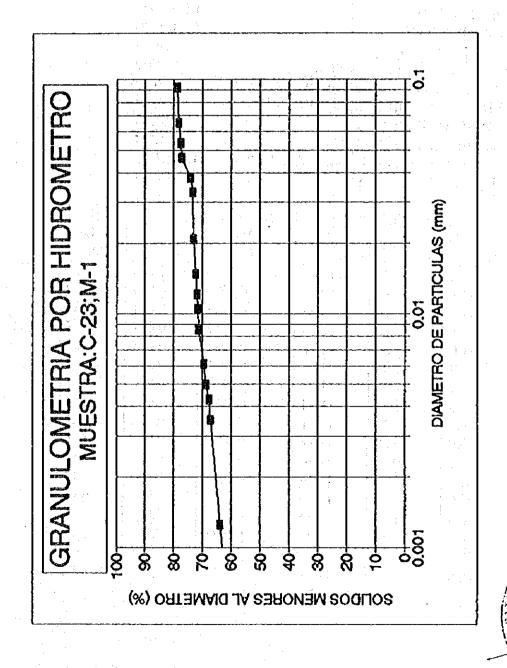
ENVIO # =	2
MUESTRA:	C-23;M-1
PROFUNDIAD (m)=	1.20-1.50
HIDROMETRO No. =	877286
TEMPERATURA (?C) =	14.00
CORRECCION POR MENISCO Cm =	1.00
CORRECCION POR DEFLOCULANTE Cd =	6.50
CORRECCION POR TEMPERATURA mT =	-1.30
PESO DE SOLIDOS Ws =	27.70
DENSIDAD DE SOLIDOS Gs =	2.878
VISCOSIDAD DINAMICA DEL AGUA? =	1.194E-05
DENSIDAD DEL AGUA Sw =	0.9993

		GRANULO	METRIA I	HIDROMETR	9	
TIEMPO	LECTURA	RH	Н	V	D	% QUE
(min)	R'H	*	(cm)	(cm/s)	(mm)	PASA
0.25	29.7	30.70	11.19	0.7459	0.092	78.85
0.5	29.5	30.50	11.22	0.3740	0.065	78.17
0.75	29.3	30.30	11.25	0.2500	0.053	77.48
1	29.2	30.20	11.27	0.1878	0.046	77.13
1.5	28.3	29.30	11.41	0.1268	0.038	74.03
2	28.1	29.10	11.44	0.0954	0.033	73,35
5	28.0	29.00	11.46	0.0382	0.021	73.00
10	27.8	28.80	11.49	0.0192	0.015	72.31
15	27.7	28.70	11.51	0.0128	0.012	71.97
20	27.6	28.60	11.52	0.0096	0.010	71.62
30	27.5	28.50	11.54	0.0064	0.009	71.28
60	27.0	28.00	11.62	0.0032	0.006	69.56
90	26.8	27.80	11.65	0.0022	0.005	68.87
120	26.5	27.50	11.70	0.0016	0.004	67.84
180	26.3	27.30	11.73	0.0011	0.004	67.15
1440	25.3	26.30	11.89	0.0001	0.001	63.70
2880	25.1	26.10	11.92	0,0001	0.001	63.01/

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ESCUELA POLITECNICA NACIONAL FACULTAD DE INGENIERIA CIVIL LABORATORIO DE MECANICA DE ROCAS

PROYECTO "TRASVASES MANABI"



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# PROYECTO "TRASVASES MANABI"

Quito, enero de 1994

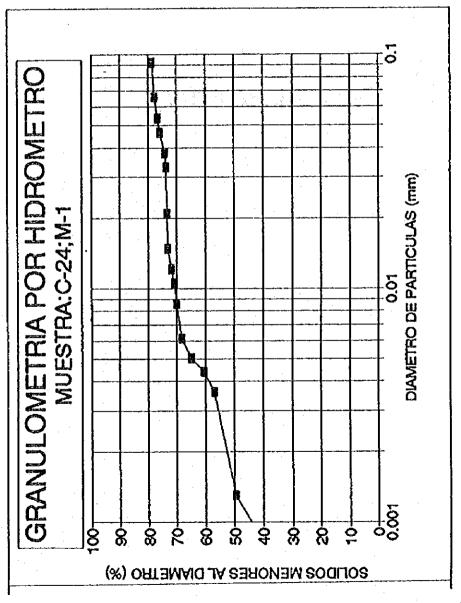
ENVIO # =	. 2
MUESTRA:	C-24;M-1
PROFUNDIAD (m)=	1.50-1.80
HIDROMETRO No. =	877286
TEMPERATURA (?C) =	14.00
CORRECCION POR MENISCO Cm =	1.00
CORRECCION POR DEFLOCULANTE Cd =	6.50
CORRECCION POR TEMPERATURA mT =	-1.30
PESO DE SOLIDOS Ws =	31.50
DENSIDAD DE SOLIDOS Gs =	2.803
VISCOSIDAD DINAMICA DEL AGUA? =	1.194E-05
DENSIDAD DEL AGUA Sw =	0.9993

		GRANULO	MBTRIA I	HOROMETRO	9	
TIEMPO	LECTURA	RH	H	V	D	% QUB
(min)	R'H	,	(cm)	(cm/s)	(mm)	PASA
0.25	32.5	33.50	10.74	0.7160	0.092	78.94
0.5	32.1	33.10	10.80	0.3601	0.065	77.72
0.75	31.8	32.80	10.85	0.2412	0.054	76.79
1	31.5	32.50	10.90	0.1817	0.047	75.87
1.5	31.0	32.00	10.98	0.1220	0.038	74.34
2	30.8	31,80	11.01	0.0918	0.033	73.72
5	30.7	31.70	11.03	0.0368	0.021	73.41
10	<b>20.6</b>	31.60	11.04	0.0184	0.015	73.11
15	30.2	31.20	11.11	0.0123	0.012	71.88
20	29.8	30.80	11.17	0.0093	0.011	70.65
30	29.6	30.60	11,20	0.0062	0.009	70.04
60	29.0	30.00	11.30	0.0031	0.006	68.19
90	28.0	29.00	11.46	0.0021	0.005	65.12
120	26.5	27.50	11.70	0.0016	0.004	60.51
180	25,3	26.30	11,89	0.0011	0.004	56.83
1440	22.9	23.90	12.28	0,0001	0.001	49.46
2880	20.8	21.80	12.61	0.0001	0.001	43.00

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ESCUELA FOLITECNICA NACIONAL
FACULTAD DE INGENIERIA CIVIL
LABORATORIO DE MECANICA DE ROCAS

# PROYECTO "TRASVASES MANABI"



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# SPECIFIC GRAVITY

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# HIDROSUELOS CIA. LTDA. **GRAVEDAD ESPECIFICA / SPECIFIC GRAVITY**

PROYECTO/PROJECT: Trasvases/Trasbasins

LOCALIZACION/SITE: Linea Transmision/Transmission Line

CALICATA No./PIT No.: C-22 **MUESTRA No./SAMPLE No M-2** 

PROFUNDIDAD/DEPTH: 1.00 - 1.35 FECHA/DATE:

Enero94/Jan.94

ENSAY./PERFORM.BY: G.S.

CALC./CALCULATED BY: F.V.

SUELOS/Soils

b= PESO DEL PICNOMETRO LLENO DE AGUA DESTILADA A 20°C, +/- 1°C:

b= Picnometer weight filled of detilled water 20°C,+/-1°C

161,45 gr.

c=PESO DEL SUELO SECADO AL HORNO

c=Dry soil weight:

24.54 ar.

d=PESO DEL PICNOMETRO LLENO CON SUELO Y AGUA A 20°C,+/-1°C

d=Picnometer weight filled with soil and water, 20°C,+/- 1°C

176.76 gr

GRAVEDAD ESPECIFICA/Specific gravity:

2.6587 gr/cm ^ 3

# HIDROSUELOS CIA. LTDA. **GRAVEDAD ESPECIFICA / SPECIFIC GRAVITY**

PROYECTO/PROJECT: Trasvases/Trasbasin

LOCALIZACION/SITE: Linea Transmission/Transmission Line

CALICATA No./PIT No.: C-23 MUESTRA No./SAMPLE No M-2

Enero94/Jan.94 PROFUNDIDAD/DEPTH: 2.00 - 2.80 FECHA/DATE:

ENSAYADO/PERFORM. G.S. CALCULO/CALCULATED B F.V.

SUELOS/Soils

b= PESO DEL PICNOMETRO LLENO DE AGUA DESTILADA A 20°C,+/- 1°C:

161.4 gr. b= Picnometer weight filled of detilled water 20°C,+/-1°C

c=PESO DEL SUELO SECADO AL HORNO

c=Dry soil weight:

19.05 gr.

d=PESO DEL PICNOMETRO LLENO CON SUELO Y AGUA A 20°C.+/-1°C

d=Picnometer weight filled with soil and water, 20°C,+/- 1°C

173,48 gr

GRAVEDAD ESPECIFICA/Specific gravity:

2.7331 gr/cm ^ 3



# HIDROSUELOS CIA. LTDA. GRAVEDAD ESPECIFICA / SPECIFIC GRAVITY

PROYECTO/PROJECT: Trasvases/Trasbasins

LOCALIZACION/SITE: Linea Transmission/Transmission Line

CALICATA No./PIT No.: C-24 MUESTRA No./SAMPLE No M-2

PROFUNDIDAD/DEPTH: 2.50 - 3.50 FECHA/DATE: Enero94/Jen.94

ENSAY./PERFORM.BY: G.S. CALC./CALCULATED BY: F.V.

SUELOS/Soils

b= PESO DEL PICNOMETRO LLENO DE AGUA DESTILADA À 20°C,+/- 1°C:

b = Picnometer weight filled of detilled water 20°C,+/-1°C 155.25 gr.

C=PESO DEL SUELO SECADO AL HORNO

c=Dry soil weight:

22.87 gr.

d=PESO DEL PICNOMETRO LLENO CON SUELO Y AGUA A 20°C,+/-1°C

d=Picnometer weight filled with soil and water, 20°C,+/-1°C 169

169.59 gr

GRAVEDAD ESPECIFICA/Specific gravity:

2.6811 gr/cm ^ 3

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UNDISTURBED SAMPLE

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**UNIT WEIGHT** 



# HIDROSUELOS CIA. LTDA. UNIT DENSITY sins TESTED BY:

PROJECT:		Trasbasins		TESTED BY:				G.S.
DATE:	-	JANUARY-1994		CALCULATED BY:	3Y:			F.V.
SAMPLE	SITE	DEPTH	DIAMETER	HEIGHT	VOL	WEIGHT	MOISTURE	&m
S.			Ë	cm.	cm^3	9.	*	gr/cm^3
C10 - M1	OPEN CHANNEL	0.50-1.40m	6.35	2,54	80.44	123.88	43.85	1,540
C10 - M2	OPEN CHANNEL	2.00-3.00m	6.35	2.54	80.44	123.72	43.12	1.538
C11 - M1	OPEN CHANNEL	0,55-1.60m	6.35	2.54	80.44	125.33	44.10	1.558
C12 - M1	OPEN CHANNEL	0.60-1.60m	6.35	2.54	80.44	127.09	40.12	1.580
C12 - M2	OPEN CHANNEL	2.00-3.60m	6.35	2.54	80.44	123.88	41.36	1.540
C13 - M1	OPEN CHANNEL	0.80-2.00m	6.35	2.54	80.44	125.97	35.50	1.566
C14-M1	OPEN CHANNEL	0.90-1.90m	6.35	2.54	80.44	122.11	35.52	1.518
C14 - M2	OPEN CHANNEL	2.00-3.50m	6.35	2.54	80.44	122.51	37.06	1.523
C15-M1	OPEN CHANNEL	0.40-1.00m	6.35	2.54	80.44	112.54	33.91	1.399
C15 - M2	OPEN CHANNEL	1,20-1,60m	6.35	2,54	80.44	112.62	33.19	1.400
C16-M1	OPEN CHANNEL	0.85-1.80m	6.35	2.54	80,44	130.88	31.82	1.627
C16 - M2	OPEN CHANNEL	2.00-3.50m	6.35	2.54	80.44	132.08	31.43	1.642
C17 - M1	OPEN CHANNEL	0.40-1.60m	6.35	2.54	80.44	120.50	31.56	1,498
C17 - M2	OPEN CHANNEL	2.00-3.00m	6.35	2.54	80.44	120.34	31.82	1.496
C18 - M1	OPEN CHANNEL	0.30-1.60m	6.35	2.54	80.44	122.91	32.83	1.528
C18 - M2	OPEN CHANNEL	2.00-3.50m	6.35	2.54	80.44	122.83	40.22	1,527
C19-M1	OPEN CHANNEL	1.10-1.70m	6.35	2.54	80.44	114.47	28.71	1.423
C19 - M2	OPEN CHANNEL	2.00-4.00m	6.35	2.54	80.44	114.47	28.61	1.423
C20 - M1	TRANSMISSION LINE	0.35-1,10m	6.35	2.54	80.44	123.96	35.52	1.541
C21 - M1	TRANSMISSION UNE	0.40-1.00m	6.35	2.54	80.44	134.17	29.96	1,668
C21 - M2	TRANSMISSION LINE	1.10-2.15m	6.35	2.54	80.44	134.33	30.10	1.670
C22 - M2	TRANSMISSION LINE	1.00-2.35m	6,35	2.54	80.44	133.53	28.16	1.660
C23 - M2	TRANSMISSION LINE	2.00-2.80m	6.35	2.54	80.44	134.33	29.80	1.670
C24 - M2	TRANSMISSION LINE	2.50-3.50m	6.35	5,54	80.44	133.53	31.12	1.660

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# HIDROSUELOS CIA. LTDA. SATURED SPECIFIC WEIGHT

PROJECT:	TRASBASINS				
DATE:	JANUARY-1994				CALCULATED BY:
SAMPLE	SITE	рертн	<b>8</b> 5	P	•
Š			gr/cm3	gr/cm3	
C10 - M1	OPEN CHANNEL	0.50-1.40m	2.768	1.070	1.587
C11-M1	OPEN CHANNEL	0.55-1.60m	2.606	1.070	1.436
C12 - M1	OPEN CHANNEL	0.60-1.60m	2.679	1.130	1.371
C12 - M2	OPEN CHANNEL	2.00-3.60m	2.683	1.060	1.461
C13-M1	OPEN CHANNEL	0.80-2.00m	2.743	1.180	1,325
C14 - M1	OPEN CHANNEL	0.90-1.90m	2.598	1.160	1,240
C14 - M2	OPEN CHANNEL	2.00-3.50m	2.565	1,160	1,211
C15-M1	OPEN CHANNEL	0.40-1.00m	2.658	1.080	1.508
C16-M1	OPEN CHANNEL	0.85-1.80m	2.636	1.280	1.059
C16-M2	OPEN CHANNEL	2.00-3.50m	2.456	1.280	0.919
C17 - M1	OPEN CHANNEL	0.40-1.60m	2.623	1.160	1.261
C18- KH	OPEN CHANNEL	0.30-1.60m	2.726	1.190	1.291
C18-M2	OPEN CHANNEL	2.00-3.50m	2.715	1.120	1.424
C19-M1	OPEN CHANNEL	1.10-1.70m	2.698	1.320	1.044
C19 - M2	OPEN CHANNEL	2.00-4.00m	2.607	1.390	9/8.0
C20 - M1	TRANSMISSION LINE	0.35-1.10m	2.649	1.170	1.264
221 - M1	TRANSMISSION LINE	0.40-1.00m	2.673	1.320	1.025
C22 - IM1	TRANSMISSION LINE	0.60-0.90m	2.832	1.160	1.42.
C23 - M1	TRANSMISSION LINE	1.20-1.50m	2.878	1.160	1.481
27	ONE NOISOMANAGE	* 50-1 80m	2803	1 310	1140

1.733

1.831

7.56

1.708

1.736

1.694

gr/cm3

1.659

1.683

1.825 1.826 1.730 <u>.</u> 3

1.757



# UNDISTURBED SAMPLE

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# PROYECTO "TRASVASES MANABI"

SOLICITADO FOR: ENVIO: FECHA: HIDROSUELOS 2 ENERO 1994

+			
F	ESO UNITARIO		<b>.</b>
MUESTRA	C-22 ; M-1	;  C-23 ; M-1	C-24 ; M-1
; FROFUNDIDAD	0.40-0.90	: 1.20-1.50	1.50-1.80
; Diam. Sup. (cm)	3.63	3.61	! 3.65
Diam. Med. (cm)	3.63	3.61	3.62
Diam. Inf. (cm)	3.64	3,62	3.66
; Altura (cm)	7.95	7.96	: 6.00
Peso Natural (gr)	137.74	140.170	137.110
¦ Peso Seco (gr)	97.60	97.95	! 95
; WX	41.13	43.10	; 44.33
¦F.Unit. nat. (gr/cm3)	1.673	1.719	1.655
¦P.Unit. seco (gr/cm3)	1.185	1.201	1.146
	r	-,	

Ing. German Luna H.
JEFY DEL LABORATORIO



UNCONFINED COMPRESSION



#### HIDROSUELOS CIA. LTDA.

#### COMPRESION SIMPLE / SIMPLE COMPRESSION

PROYECTO/PROJECT:

Trasvases/Trasbasin

LOCALIZACION/SITE:

Canal abterto/Open Channel

FECHA/DATE:

Enero-94/January-94

CALICATA No./PIT No.:

C-10 M-1

MUESTRA No./SAMPLE No.: PROFUNDIDAD/DEPTH:

0.50 • 1.40 m.

ENSAYADO/PERFORMED BY:

G.S.

CALCULADO/CALCULATED BY:

G.S. F.V.

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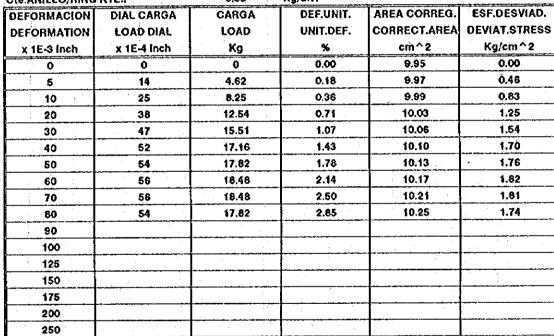
DATOS DE LA MUESTRA/SAMPLE DATAS:

DIAMETRO/DIAMETER: 3.58 cm. ALTURA/HEIGHT: 7.12 cm, 108.66 PESO/WEIGHT: gr. VOLUMEN/VOLUME: 70.87 cm^3 AREA/AREA: 9.95 cm^2 gr/cm^3 DENSIDAD HUMEDA/WET DENSITY 1.533 gr/cm^3 DENSIDAD SECA/DRY DENSITY: 1.058

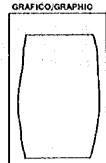
Cte ANILLO/RING KTE .:

0.33

Kg/dlv.



Cap. No.	320
Wcap.+SH	128.57
Wcap.+SS	94.99
Wcap.	20.20
w%	44.90





# COMPRESION SIMPLE / SIMPLE COMPRESSION GRAFICO ESFUERZO-DEFORMACION/STRESS DEFORMATION GRAPHIC

PROYECTO/PROJECT:

Trasvases/Trasbasin

LOCALIZACION/SITE:

Canal ablerto/Open Channel

()

FECHA/DATE:

Enero-94/January-94

CALICATA No./PIT No.:

C-10

MUESTRA No./SAMPLE No.: PROFUNDIDAD/DEPTH:

M-1

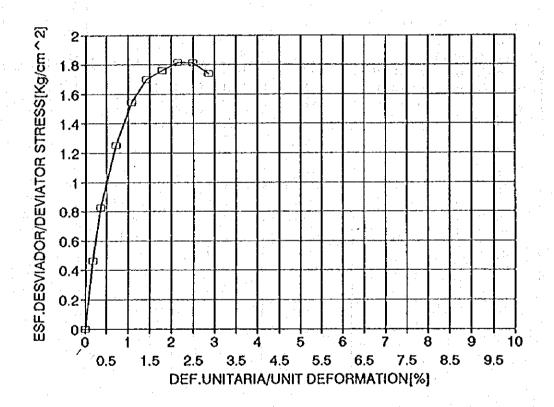
0.50 • 1.40 m.

ENSAYADO/PERFORMED BY:

G.S.

CALCULADO/CALCULATED BY:

F.V.



qu= 1.82 Kg/cm^2



#### HIDROSUELOS CIA. LTDA.

#### COMPRESION SIMPLE / SIMPLE COMPRESSION

PROYECTO/PROJECT:

Trasyases/Trasbasin

LOCALIZACION/SITE:

Canal ablerto/Open Channel

GRAFICO/GRAPHIC

FECHA/DATE:

Enero-94/January-94

CALICATA No./PIT No.:

C-11

MUESTRA No./SAMPLE No.:

M-1

PROFUNDIDAD/DEPTH:

0.55-1.60 m.

ENSAYADO/PERFORMED BY:

G.S.

CALCULADO/CALCULATED BY:

F.V.

#### DATOS DE LA MUESTRA/SAMPLE DATAS:

DIAMETRO/DIAMETER:	3.56	cm.
ALTURA/HEIGHT:	7.12	em.
PESO/WEIGHT:	110.28	gr.
VOLUMEN/VOLUME:	70.87	cm ^3
AREA/AREA:	9.95	cm^2
DENSIDAD HUMEDA/WET DENSITY	1.556	gr/cm^3
DENSIDAD SECA/DRY DENSITY:	1.099	ar/cm^3

DENSIDAD SECA/DRY DENSITY: 1.099 gr/cm^3

CIE ANILLO/RING KTE.: 0.33 Kg/div. ANILLO No.: 13260

	<del> </del>
x 1E-3 inch         x 1E-4 inch         Kg         %         cm^2           0         0         0         0.00         9.95           5         10         3.3         0.18         9.97           10         18         5.94         0.38         9.99           20         30         9.9         0.71         10.03           30         40         13.2         1.07         10.06           40         45         14.85         1.43         10.10           50         50         16.5         1,78         10.13           60         52         17.16         2.14         10.17           70         52         17.16         2.50         10.21           80         52         17.16         2.85         10.25           90         49         16.17         3.21         10.28           100         100         10.28         10.28         10.28	SF.DESVIAD.
0         0         0         0.00         9.95           5         10         3.3         0.18         9.97           10         18         5.94         0.36         9.99           20         30         9.9         0.71         10.03           30         40         13.2         1.07         10.06           40         45         14.85         1.43         10.10           50         50         16.5         1,78         10.13           60         52         17.16         2.14         10.17           70         52         17.16         2.50         10.21           80         52         17.16         2.85         10.25           90         49         16.17         3.21         10.28           100         100         100         100         100         100	VIAT.STRESS
5         10         3.3         0.18         9.97           10         18         5.94         0.38         9.99           20         30         9.9         0.71         10.03           30         40         13.2         1.07         10.06           40         45         14.85         1.43         10.10           50         50         16.5         1.78         10.13           60         52         17.16         2.14         10.17           70         52         17.16         2.50         10.21           80         52         17.16         2.85         10.25           90         49         16.17         3.21         10.28           100         100         100         100         100	Kg/cm^2
10         18         5.94         0.38         9.99           20         30         9.9         0.71         10.03           30         40         13.2         1.07         10.06           40         45         14.85         1.43         10.10           50         50         16.5         1.78         10.13           60         52         17.16         2.14         10.17           70         52         17.16         2.50         10.21           80         52         17.16         2.85         10.25           90         49         16.17         3.21         10.28           100         100         100         100         100	0.00
20         30         9.9         0.71         10.03           30         40         13.2         1.07         10.06           40         45         14.85         1.43         10.10           50         50         16.5         1.78         10.13           60         52         17.16         2.14         10.17           70         52         17.16         2.50         10.21           60         52         17.16         2.85         10.25           90         49         16.17         3.21         10.28           100         100         100         100         100	0.33
30     40     13.2     1.07     10.06       40     45     14.85     1.43     10.10       50     50     16.5     1,78     10.13       60     52     17.16     2.14     10.17       70     52     17.16     2.50     10.21       80     52     17.16     2.85     10.25       90     49     16.17     3.21     10.28       100	0.59
40     45     14.85     1.43     10.10       50     50     16.5     1,78     10.13       60     52     17.16     2.14     10.17       70     52     17.16     2.50     10.21       80     52     17.16     2.85     10.25       90     49     16.17     3.21     10.28       100     100	0.99
50         50         16.5         1.78         10.13           60         52         17.16         2.14         10.17           70         52         17.16         2.50         10.21           80         52         17.16         2.85         10.25           90         49         16.17         3.21         10.28           100         100         100         100         100	1.31
60         52         17.16         2.14         10.17           70         52         17.16         2.50         10.21           80         52         17.16         2.85         10.25           90         49         16.17         3.21         10.28           100         100         100         100         100	1.47
70         52         17.16         2.50         10.21           80         52         17.16         2.85         10.25           90         49         16.17         3.21         10.28           100         100         100         100	1.63
60     52     17.16     2.85     10.25       90     49     16.17     3.21     10.28       100	1,69
90 49 16.17 3.21 10.28 100	1.68
100	1.67
	1.57
125	
150	
175	
200	
250	

Cap. No.	334
Wcap.+SH	131.49
Wcap.+SS	98.80
Wcap.	20.28
w%	41.63



# COMPRESION SIMPLE / SIMPLE COMPRESSION

## GRAFICO ESFUERZO-DEFORMACION/STRESS DEFORMATION GRAPHIC

PROYECTO/PROJECT:

Trasvases/Trasbasin

LOCALIZACION/SITE:

Canal ablerto/Open Channel

FECHA/DATE:

Enero-94/January-94

CALICATA No./PIT No.:

C-11

MUESTRA No./SAMPLE No.:

M-1

PROFUNDIDAD/DEPTH:

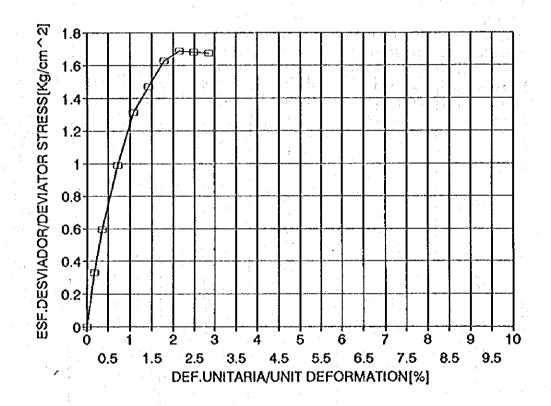
0.55-1.60 m.

ENSAYADO/PERFORMED BY:

G.S.

CALCULADO/CALCULATED BY:

F.V.



qu= 1.70Kg/cm^2



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# HIDROSUELOS CIA. LTDA.

#### COMPRESION SIMPLE / SIMPLE COMPRESSION

PROYECTO/PROJECT:

Trasyases/Trasbasin

LOCALIZACION/SITE:

Canal ablerto/Open Channel

GRAFICO/GRAPHIC

FECHA/DATE:

Enero-94/January-94

CALICATA No./PIT No.:

C-12 M-2

MUESTRA No./SAMPLE No.: PROFUNDIDAD/DEPTH:

2.00-3.60 m.

**ENSAYADO/PERFORMED BY:** 

G.S.

CALCULADO/CALCULATED BY:

F.V.

#### DATOS DE LA MUESTRA/SAMPLE DATAS:

DIAMETRO/DIAMETER: 3.58 cm. 7.12 ALTURA/HEIGHT: cm. PESO/WEIGHT: 109,67 g۲, VOLUMEN/VOLUME: 70.87 cm^3 AREA/AREA: 9.95 ćm^2 1.547 DENSIDAD HUMEDA/WET DENSITY gr/cm ^3 **DENSIDAD SECA/DRY DENSITY:** 1.094 gr/cm^3

Cte.ANILLO/RING KTE.: 0.33 Kg/div. ANILLO No.: 13260

KIE	0.33	Ng/aiv.	ANICEO NO.: 1320	· · · · · · · · · · · · · · · · · · ·
DIAL CARGA	CARGA	DEF.UNIT.	AREA CORREG.	ESF.DESVIAD.
LOAD DIAL	LOAD	UNIT.DEF.	CORRECT AREA	DEVIAT.STRESS
x 1E-4 Inch	Kg	%	cm^2	Kg/cm^2
0	0	0.00	9.95	0.00
20	6.6	0.18	9.97	0.66
33	10.89	0.36	9.99	1.09
50	16.5	0.71	10.03	1.65
60	19.8	1.07	10.08	1.97
63	20.79	1.43	10.10	2,06
66	21.78	1.78	10.13	2.15
67	22.11	2.14	10.17	2.17
63	20.79	2.50	10.21	2.04
	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1			
	DIAL CARGA LOAD DIAL x 1E-4 Inch 0 20 33 50 60 63 66 67	DIAL CARGA         CARGA           LOAD DIAL         LOAD           x 1E-4 Inch         Kg           0         0           20         6.6           33         10.89           50         16.5           60         19.8           63         20.79           66         21.78           67         22.11	DIAL CARGA         CARGA         DEF.UNIT.           LOAD DIAL         LOAD         UNIT.DEF.           x 1E-4 Inch         Kg         %           0         0         0.00           20         6.6         0.18           33         10.89         0.36           50         16.5         0.71           60         19.8         1.07           63         20.79         1.43           66         21.78         1.78           67         22.11         2.14           63         20.79         2.50	DIAL CARGA         CARGA         DEF.UNIT.         AREA CORREG.           LOAD DIAL         LOAD         UNIT.DEF.         CORRECT.AREA           x 1E-4 Inch         Kg         %         cm^2           0         0         0.00         9.95           20         6.6         0.18         9.97           33         10.89         0.36         9.99           50         16.5         0.71         10.03           60         19.8         1.07         10.06           63         20.79         1.43         10.10           66         21.78         1.78         10.13           67         22.11         2.14         10.17           63         20.79         2.50         10.21

Cap. No.	260
Wcap.+SH	130.21
Wcap.+SS	98.15
Wcap.	20.81
w%	41.45

96



#### COMPRESION SIMPLE / SIMPLE COMPRESSION

# GRAFICO ESFUERZO-DEFORMACION/STRESS DEFORMATION GRAPHIC

PROYECTO/PROJECT:

Trasvases/Trasbasin

LOCALIZACION/SITE:

Canal ablerto/Open Channel

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FECHA/DATE:

Enero-94/January-94

CALICATA No./PIT No.:

C-12

MUESTRA No./SAMPLE No.:

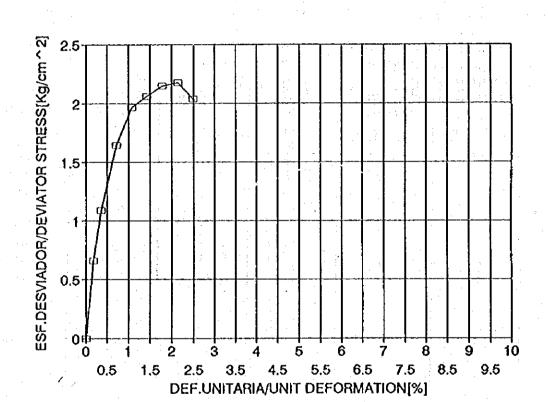
M-2

PROFUNDIDAD/DEPTH:

2.00-3.60 m.

ENSAYADO/PERFORMED BY: CALCULADO/CALCULATED BY:

G.S. F.V.



qu= 2.18Kg/cm^2



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# HIDROSUELOS CIA, LTDA.

# COMPRESION SIMPLE / SIMPLE COMPRESSION

PROYECTO/PROJECT:

Trasvases/Trasbasin

LOCALIZACION/SITE:

Canal ablerto/Open Channel

GRAFICO/GRAPHIC

FECHA/DATE:

Enero-94/January-94

CALICATA No./PIT No.:

C-13

MUESTRA No./SAMPLE No.:

M-1

PROFUNDIDAD/DEPTH:

0.80-2.00 m.

**ENSAYADO/PERFORMED BY:** 

G.S.

CALCULADO/CALCULATED BY:

F.V.

#### DATOS DE LA MUESTRA/SAMPLE DATAS:

DIAMETRO/DIAMETER:	3.56	cm.
ALTURA/HEIGHT:	7.12	cm.
PESO/WEIGHT:	113	gr.
VOLUMEN/VOLUME:	70.87	cm^3
AREA/AREA:	9.95	ċm^2
DENSIDAD HUMEDA/WET DENSITY	1.594	gr/cm^3
DENSIDAD SECA/DRY DENSITY:	1.166	gr/cm^3

ANILLO No.: 13260

Cte.ANILLO/RING	KTE:	0.33	Kg/aiv.	ANILLO NO.: 13260	
DEFORMACION	DIAL CARGA	CARGA	DEF.UNIT.	AREA CORREG.	ESF.DESVIAD.
DEFORMATION	LOAD DIAL	LOAD	UNIT.DEF.	CORRECT.AREA	DEVIAT.STRESS
x 1E-3 inch	x 1E-4 inch	Kg	%	cm^2	Kg/cm^2
0	0	0	0.00	9.95	0.00
5	8	2.64	0.18	9.97	0.26
10	15	4.95	0.36	9.99	0.50
20	28	9.24	0.71	10.03	0.92
30	44	14.52	1.07	10.06	1,44
40	52	17.16	1.43	10.10	1.70
50	62	20.46	1.78	10.13	2.02
60	68	22.44	2.14	10,17	2.21
70	72	23.76	2.50	10.21	2.33
80	74	24.42	2.85	10.25	2.38
90	77	25.41	3.21	10.28	2.47
100	78	25.74	3.57	10.32	2.49
120	79	26.07	4.28	10.40	2.51
140	76	25.08	4.99	10.48	2.39
175				44.4	
200					
250					<u>                                     </u>

Cap. No.	460
Wcap.+SH	137.35
Wcap.+SS	107.00
Wcap.	24.51
w%	36.79



# COMPRESION SIMPLE / SIMPLE COMPRESSION

# GRAFICO ESFUERZO-DEFORMACION/STRESS DEFORMATION GRAPHIC

PROYECTO/PROJECT:

Trasvases/Trasbasin

LOCALIZACION/SITE:

Canal ablerto/Open Channel

FECHA/DATE:

Enero-94/January-94

CALICATA No./PIT No.:

C-13

MUESTRA No./SAMPLE No.:

M-i

PROFUNDIDAD/DEPTH:

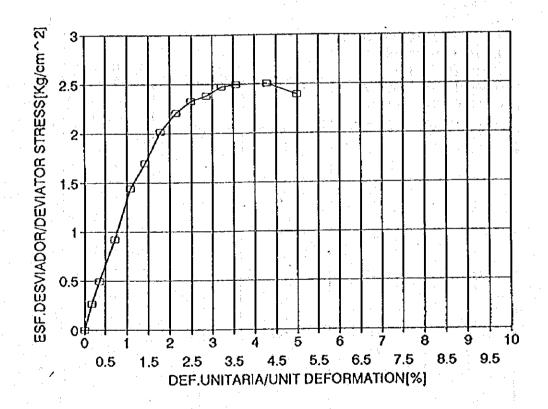
0.80-2.00 m.

ENSAYADO/PERFORMED BY:

G.S.

CALCULADO/CALCULATED BY:

F.V.



qu= 2.53Kg/cm^2



#### HIDROSUELOS CIA. LTDA.

#### COMPRESION SIMPLE / SIMPLE COMPRESSION

PROYECTO/PROJECT:

Trasvases/Trasbasin

LOCALIZACION/SITE:

Linea de Transmision / Transmission Line

FECHA/DATE:

Enero-94/January-94

CALICATA No./PIT No.:

C-14

MUESTRA No./SAMPLE No.:

M-2

PROFUNDIDAD/DEPTH: **ENSAYADO/PERFORMED BY:**  2.00-3.50 m.

G.S.

CALCULADO/CALCULATED BY:

F.Y.

DATOS DE LA MUESTRA/SAMPLE DATAS:

DIAMETRO/DIAMETER: 3.56 cm. ALTURA/HEIGHT: 7.12 cm. PESO/WEIGHT: 110.84 gr. VOLUMEN/VOLUME: 70.87

9.95

cm^3

AREA/AREA: **DENSIDAD HUMEDA/WET DENSITY** 

1.564

cm^2 gr/cm^3

DENSIDAD SECA/DRY DENSITY:

1.153

gr/cm^3

GRAFICO/GRAPHIC

Cle.ANILLO/RING	KTE.:	0.33	Kg/div.	ANILLO No.: 1326	0
DEFORMACION	DIAL CARGA	CARGA	DEF.UNIT.	AREA CORREG.	ESF.DESVIAD.
DEFORMATION	LOAD DIAL	LOAD	UNIT.DEF.	CORRECT.AREA	DEVIAT STRESS
x IE-3 Inch	x 1E-4 Inch	Kg	%	cm^2	Kg/cm^2
0	0	0	0.00	9.95	0.00
5	8	2.64	0.18	9.97	0.26
10	15	4.95	0.36	9.99	0.50
20	18	5.94	0.71	10.03	0.59
30	21	6.93	1.07	10.06	0.69
40	26	8.58	1.43	10.10	0.85
50	30	9.9	1.78	10.13	0.98
60	31	10.23	2.14	10,17	1.01
70	30	9.9	2.50	10.21	0.97
80					
90					
100					
120					en a En a
140					
160					
200					
250			T		

Cap. No.	438
Wcap.+SH	130.00
Wcap.+SS	101.32
Weap.	20.73
w%	35.59

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# HIDROSUELOS CIA. LTDA.

## COMPRESION SIMPLE / SIMPLE COMPRESSION

# GRAFICO ESFUERZO-DEFORMACION/STRESS DEFORMATION GRAPHIC

PROYECTO/PROJECT:

Trasvases/Trasbasin

LOCALIZACION/SITE:

Linea de Transmision / Transmission Line

FECHA/DATE:

Enero-94/January-94

CALICATA No./PIT No.:

C-14

MUESTRA No./SAMPLE No.:

M-2

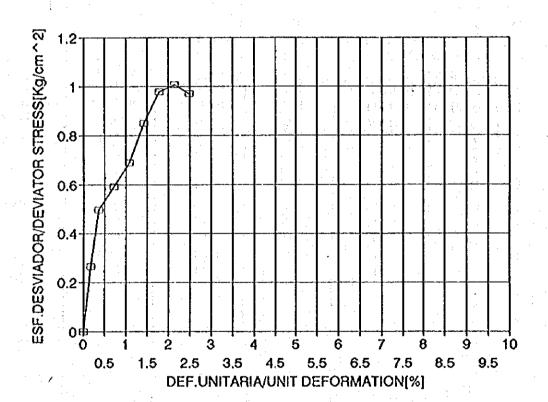
PROFUNDIDAD/DEPTH:

2.00-3.50 m.

ENSAYADO/PERFORMED BY:

G.S.

CALCULADO/CALCULATED BY: F.V.



qu= 1.01 Kg/cm^2



# COMPRESION SIMPLE / SIMPLE COMPRESSION

PROYECTO/PROJECT:

Trasvases/Trasbasin

LOCALIZACION/SITE:

Canal ablerto/Open Channel

FECHA/DATE:

Enero-94/January-94

CALICATA No./PIT No.:

C-15 M-1

MUESTRA No./SAMPLE No.: PROFUNDIDAD/DEPTH:

0.40-1.00 m.

**ENSAYADO/PERFORMED BY:** 

G.S.

CALCULADO/CALCULATED BY:

F.V.

DATOS DE LA MUESTRA/SAMPLE DATAS:

DIAMETRO/DIAMETER: 3.56 cm. 7.12 ALTURA/HEIGHT: cm. PESO/WEIGHT: 101.41 gr. 70.87 cm^3 VOLUMEN/VOLUME: cm^2 AREA/AREA: 9.95 gr/cm^3 1.431 DENSIDAD HUMEDA/WET DENSITY DENSIDAD SECA/DRY DENSITY:

1.065 gr/cm^3

Cte.ANILLO/RING	KTE:	0.33	Kg/div.	ANILLO No.: 1320	30
DEFORMACION	DIAL CARGA	CARGA	DEF.UNIT.	AREA CORREG.	ESF.DESVIAD.
DEFORMATION	LOAD DIAL	LOAD	UNIT.DEF.	CORRECT.AREA	DEVIAT.STRESS
x 1E-3 Inch	x 1E-4 inch	Kg	%	cm^2	Kg/cm^2
0	0	0	0.00	9.95	0.00
5	10	3.3	0,18	9.97	0.33
10	17	5,61	0.36	9,99	0.56
20	23	7.59	0.71	10.03	0.76
30	28	9.24	1.07	10.06	0.92
40	32	10.56	1.43	10.10	1.05
50	33	10.89	1.78	10.13	1.07
60	33	10.89	2.14	10.17	1.07
70	32	10.58	2.50	10.21	1.03
80					
90		:			:
100					
120					
140				1	
175					
200		!			
250					

455
126.00
100.08
24.65
34.36

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# COMPRESION SIMPLE / SIMPLE COMPRESSION

# GRAFICO ESFUERZO-DEFORMACION/STRESS DEFORMATION GRAPHIC

PROYECTO/PROJECT:

Trasvases/frasbasin

LOCALIZACION/SITE:

Canal abterto/Open Channel

()

FECHA/DATE:

Enero-94/January-94

CALICATA No./PIT No.:

C-15

MUESTRA No./SAMPLE No.:

M-1

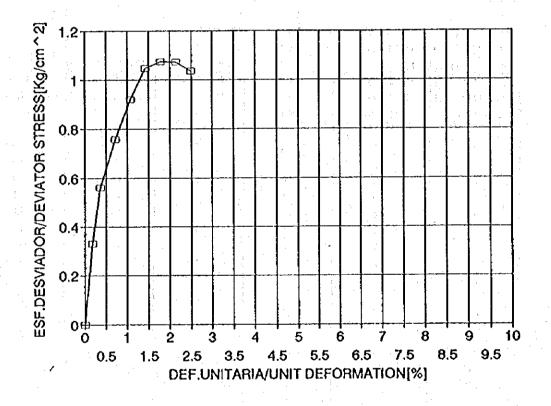
PROFUNDIDAD/DEPTH:

0.40-1.00 m.

ENSAYADO/PERFORMED BY:

G.S.

CALCULADO/CALCULATED BY: F.V.



qu= 1.09Kg/cm^2



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#### HIDROSUELOS CIA. LTDA.

#### COMPRESION SIMPLE / SIMPLE COMPRESSION

PROYECTO/PROJECT:

Trasvases/Trasbasin

LOCALIZACION/SITE:

Canal ablerto/Open Channel

FECHA/DATE:

Enero-94/January-94

CALICATA No./PIT No.:

C-18 M-2

MUESTRA No./SAMPLE No.: PROFUNDIDAD/DEPTH:

2.00-3.50 m.

0.33

ENSAYADO/PERFORMED BY:

G.S.

CALCULADO/CALCULATED BY:

F.V.

DATOS DE LA MUESTRA/SAMPLE DATAS:

DIAMETRO/DIAMETER: 3.56 èm. ALTURA/HEIGHT: 7.12 cm. PESO/WEIGHT: 121 gr. **VOLUMEN/VOLUME:** 70.87 cm^3 AREA/AREA: 9.95 cm^2 DENSIDAD HUMEDA/WET DENSITY 1.707 gr/cm^3 DENSIDAD SECA/DRY DENSITY: 1.283 gr/cm^3

Cte.ANILLO/RING KTE.:

Ka/div.

ANILLO No.: 13260

GRAFICO/GRAPHIC

CIE.MILLO/MING	VIE	0.33	Kg/uiv.	ANILLO NO.: 1320	×0
DEFORMACION	DIAL CARGA	CARGA	DEF.UNIT.	AREA CORREG.	ESF.DESVIAD.
DEFORMATION	LOAD DIAL	LOAD .	UNIT.DEF.	CORRECT.AREA	DEVIAT.STRESS
x 1E-3 inch	x 1E-4 Inch	Kg	%	cm^2	Kg/cm^2
0	0	0	0.00	9.95	0.00
5	17	5,61	0.18	9.97	0.56
10	25	8.25	0.36	9.99	0,83
20	37	12.21	0.71	10.03	1.22
30	43	14.19	1.07	10.06	1.41
40	47	15.51	1.43	10.10	1.54
50	49	16.17	1.78	10.13	1.60
60	51	16.83	2.14	10.17	1.65
70	53	17.49	2,50	10.21	1.71
80	54	17.82	2.85	10.25	1.74
90	56	18.48	3.21	10.28	1.80
100	57	18.81	3.57	10.32	1.82
120	59	19.47	4.28	10.40	1.87
140	59	19.47	4.99	10.48	1.66
160	58	19.14	5.71	10.56	1.81
200					
250		_			

Cap. No.	412
Wcap.+SH	141.00
Wcap.+SS	111.00
Weap.	20.17
w%	33.03

. . . .



# COMPRESION SIMPLE / SIMPLE COMPRESSION

# GRAFICO ESFUERZO-DEFORMACION/STRESS DEFORMATION GRAPHIC

PROYECTO/PROJECT:

Trasvases/frasbasin

LOCALIZACION/SITE:

Canal ablerto/Open Channel

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FECHA/DATE:

Enero-94/January-94

CALICATA No./PIT No.:

C-16

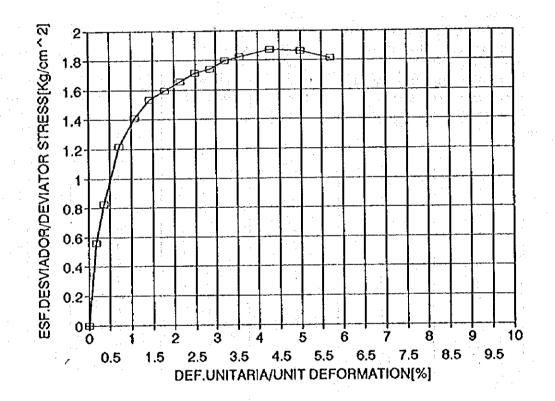
MUESTRA No./SAMPLE No.:

M-2

PROFUNDIDAD/DEPTH: ENSAYADO/PERFORMED BY: 2.00-3.50 m.

CALCULADO/CALCULATED BY:

G.S. F.V.



qu = 1.88Kg/cm<sup>2</sup>



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# HIDROSUELOS CIA, LTDA.

COMPRESION SIMPLE / SIMPLE COMPRESSION

PROYECTO/PROJECT:

Trasvases/frasbasin

LOCALIZACION/SITE:

Canal ablerto/Open Channel

GRAFICO/GRAPHIC

FECHA/DATE:

Enero-94/January-94

CALICATA No./PIT No.:

C-17

MUESTRA No./SAMPLE No.:

M-1

PROFUNDIDAD/DEPTH:

0.40-1.60 m.

ENSAYADO/PERFORMED BY:

G.S.

CALCULADO/CALCULATED BY:

F.V.

#### DATOS DE LA MUESTRA/SAMPLE DATAS:

DIAMETRO/DIAMETER:	3.56	cm.
ALTURA/HEIGHT:	7.12	cm.
PESO/WEIGHT:	109	gr.
VOLUMEN/VOLUME:	70.87	cm^3
AREA/AREA:	9.95	cm^2
DENSIDAD HUMEDA/WET DENSITY	1.538	gr/cm^3
DENSIDAD SECA/DRY DENSITY:	1.184	gr/cm ^3

Cte ANILLO/RING KTE.: 0.33 Kg/dlv. ANILLO No.: 13260

	0.33	Kg/alv.	ANILLO NO.: 1326	
IAL CARGA	CARGA	DEF.UNIT.	AREA CORREG.	ESF.DESVIAD.
LOAD DIAL	LOAD	UNIT.DEF.	CORRECT.AREA	DEVIAT.STRESS
x 1E-4 Inch	Kg	%	cm^2	Kg/cm^2
0	0	0.00	9.95	0.00
14	4.62	0.18	9.97	0.46
22	7.26	0.36	9.99	0.73
36	11.88	0.71	10.03	1,18
44	14.52	1.07	10.06	1.44
50	16.5	1.43	10.10	1.63
51	18.83	1.78	10.13	1.68
50	16.5	2.14	10.17	1.62
		3		14.
		s e		
	IAL CARGA  OAD DIAL  ( 1E-4 inch  0  14  22  36  44  50  51	IAL CARGA CARGA  LOAD DIAL LOAD  ( 1E-4 inch Kg	IAL CARGA         CARGA         DEF.UNIT.           LOAD DIAL         LOAD         UNIT.DEF.           K 1E-4 inch         Kg         %           0         0         0.00           14         4.62         0.18           22         7.26         0.36           36         11.88         0.71           44         14.52         1.07           50         16.5         1.43           51         18.83         1.78	IAL CARGA         CARGA         DEF.UNIT.         AREA CORREG.           OAD DIAL         LOAD         UNIT.DEF.         CORRECT.AREA           K 1E-4 inch         Kg         %         cm^2           0         0         0.00         9.95           14         4.62         0.18         9.97           22         7.26         0.36         9.99           36         11.88         0.71         10.03           44         14.52         1.07         10.06           50         16.5         1.43         10.10           51         18.83         1.78         10.13

Cap. No.	256
Wcap.+SH	128.99
Wcap.+SS	102.56
Wcap.	20.41
w%	32.17



## COMPRESION SIMPLE / SIMPLE COMPRESSION

#### GRAFICO ESFUERZO-DEFORMACION/STRESS DEFORMATION GRAPHIC

PROYECTO/PROJECT:

Trasvasos/Trasbasin

LOCALIZACION/SITE:

Canal ablerto/Open Channel

FECHA/DATE:

Enero-94/January-94

CALICATA No./PIT No.:

C-17

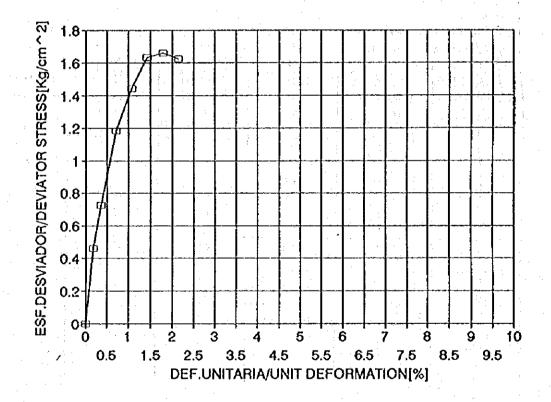
MUESTRA No./SAMPLE No.: PROFUNDIDAD/DEPTH: M-1 0,40-1,60 m.

ENSAYADO/PERFORMED BY:

G.S.

CALCULADO/CALCULATED BY:

F.V.



qu= 1.66Kg/cm^2

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#### HIDROSUELOS CIA. LTDA.

#### COMPRESION SIMPLE / SIMPLE COMPRESSION

PROYECTO/PROJECT:

Trasvases/Trasbasin

LOCALIZACION/SITE:

Canal ablerto/Open Channel

FECHA/DATE:

Enero-94/January-94

CALICATA No./PIT No.:

C-18

MUESTRA No./SAMPLE No.:

M-1

PROFUNDIDAD/DEPTH:

0.30-1.60 m.

**ENSAYADO/PERFORMEO BY:** 

G.\$.

CALCULADO/CALCULATED BY:

F.V.

DATOS DE LA MUESTRA/SAMPLE DATAS:

DATOS DE LA MOLOTINA OAMIT EL DATA	-
DIAMETRO/DIAMETER:	3.56
ALTURA/HEIGHT:	7.12

PESO/WEIGHT:

113.6

gr. cm^3

ċm.

cm.

**VOLUMEN/VOLUME:** AREA/AREA:

70.87 9.95

cm^2

GRAFICO/GRAPHIC

2.39

2.35

2.25

DENSIDAD HUMEDA/WET DENSITY

1.603

24.42

24.09

23.1

gr/cm^3

2.50

2.85

3.21

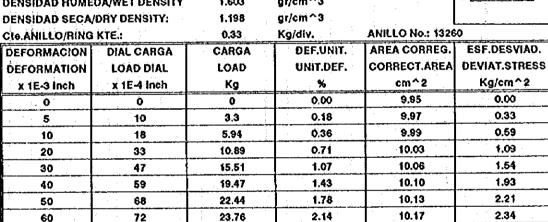
10.21

10.25

10.28

70

80



Cap. No.	306
Wcap.+SH	133.72
Wcap.+SS	105.07
Wcap.	20.20
w%	33.76

74

73



#### COMPRESION SIMPLE / SIMPLE COMPRESSION

#### GRAFICO ESFUERZO-DEFORMACION/STRESS DEFORMATION GRAPHIC

PROYECTO/PROJECT:

Trasvases/Trasbasin

LOCALIZACION/SITE:

Canal ablerto/Open Channel

FECHA/DATE:

Enero-94/January-94

CALICATA No./PIT No.:

C-18

MUESTRA No./SAMPLE No.:

M-1

PROFUNDIDAD/DEPTH:

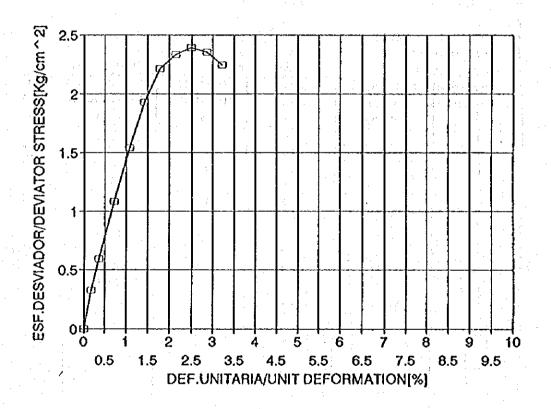
0.30-1.60 m.

**ENSAYADO/PERFORMED BY:** 

G.S.

CALCULADO/CALCULATED BY:

F.V.



qu= 2.40 Kg/cm ^ 2



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#### HIDROSUELOS CIA. LTDA. COMPRESION SIMPLE / SIMPLE COMPRESSION

PROYECTO/PROJECT:

Trasyases/Trasbasin

LOCALIZACION/SITE:

Canal abjerto/Open Channel

FECHA/DATE:

Enero-94/January-94

CALICATA No./PIT No.:

C-19 M-2

MUESTRA No./SAMPLE No.: PROFUNDIDAD/DEPTH:

2.00-4.00 m.

**ENSAYADO/PERFORMED BY:** 

G.S.

CALCULADO/CALCULATED BY:

F.V.

DATOS DE LA MUESTRA/SAMPLE DATAS:

DIAMETRO/DIAMETER: 3.56 cm. ALTURA/HEIGHT: 7.12 cm. PESO/WEIGHT: 127.55 gr. VOLUMEN/VOLUME: 70.87 cm^3 AREA/AREA: 9.95 cm^2 **DENSIDAD HUMEDA/WET DENSITY** 1.800 gr/cm^3 DENSIDAD SECA/DRY DENSITY: gr/cm^3 1.400

GRAFICO/GRAPHIC

Cte.ANILLO/RING KTE.:		0.33	Kg/div.	ANILLO No.: 1326	NILLO No.: 13260	
DEFORMACION	DIAL CARGA	CARGA	DEF.UNIT.	AREA CORREG.	ESF.DESVIAD.	
DEFORMATION	LOAD DIAL	LOAD	UNIT DEF.	CORRECT.AREA	DEVIAT.STRESS	
x 1E-3 Inch	x 1E-4 Inch	Kg	*	cm^2	Kg/cm^2	
0	0	0	0.00	9.95	0.00	
5	9	2.97	0.18	9.97	0.30	
10	16	5.28	0.36	9.99	0.53	
20	32	10.56	0.71	10.03	1.05	
30	48	15.84	1.07	10,06	1.57	
40	59	19.47	1.43	10.10	1.93	
50	65	21.45	1.78	10.13	2.12	
60	70	23.1	2.14	10,17	2.27	
70	74	24.42	2.50	10.21	2.39	
80	77	25.41	2.85	10.25	2.48	
90	79	26.07	3.21	10.28	2.54	
100	80	26.4	3.57	10.32	2.56	
120	80	26.4	4.28	10.40	2.54	
140	77	25.41	4.99	10.48	2.43	
160						
200						
250						

Cap. No.	238
Wcap.+SH	147.82
Wcap.+SS	119.46
Wcap.	20.29
w%	28.60



#### COMPRESION SIMPLE / SIMPLE COMPRESSION

#### GRAFICO ESFUERZO-DEFORMACION/STRESS DEFORMATION GRAPHIC

PROYECTO/PROJECT:

Trasvasos/Trasbasin

LOCALIZACION/SITE:

Canal ablerto/Open Channel

FECHA/DATE:

Enero-94/January-94

CALICATA No./PIT No.:

C-19

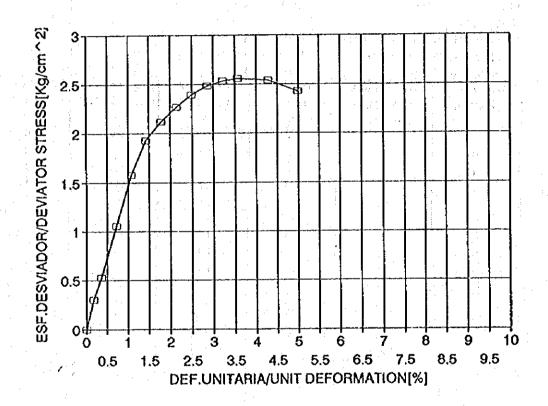
MUESTRA No./SAMPLE No.:

M-2

PROFUNDIDAD/DEPTH: ENSAYADO/PERFORMED BY: 2.00-4.00 m.

CALCULADO/CALCULATED BY:

G.S. F.V.



qu= 2.56 Kg/cm^2



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#### COMPRESION SIMPLE / SIMPLE COMPRESSION

PROYECTO/PROJECT:

Trasvases/Trasbasin

LOCALIZACION/SITE:

Linea de Transmission / Transmission Line

FECHA/DATE:

Enero-94/January-94

CALICATA No./PIT No.:

C-20 M-1

MUESTRA No./SAMPLE No.: PROFUNDIDAD/DEPTH:

0.35-1.10 m.

ENSAYADO/PERFORMED BY:

G.S.

CALCULADO/CALCULATED BY:

F.V.

GRAFICO/GRAPHIC

#### DATOS DE LA MUESTRA/SAMPLE DATAS:

DIAMETRO/DIAMETER:	3.58	cm.
ALTURA/HEIGHT:	7.12	cm.
PESO/WEIGHT:	114.8	gr.
VOLUMEN/VOLUME:	70.87	cm^3
AREA/AREA:	9.95	cm^2
DENSIDAD HUMEDA/WET DENSITY	1.620	- gr/cm^3
DENSIDAD SECA/DRY DENSITY:	1.186	gr/cm^3

Cte.ANILLO/RING	KTE.:	0.33	Kg/div.	ANILLO No.: 1326	30
DEFORMACION	DIAL CARGÁ	CARGA	DEF,UNIT.	AREA CORREG.	ESF.DESVIAD.
DEFORMATION	LOAD DIAL	LOAD	UNIT.DEF.	CORRECT.AREA	DEVIAT.STRESS
x 1E-3 inch	x 1E-4 Inch	Kg	· %	cm^2	Kg/cm^2
0	0	0	0.00	9.95	0.00
5	7	2.31	0.18	9.97	0.23
10	17	5.61	0.36	9.99	0.56
20	35	11.55	0.71	10.03	1.15
30	54	17.82	1.07	10.06	1.77
40	70	23.1	1.43	10.10	2.29
50	79	26.07	1.78	10.13	2.57
60	83	27.39	2.14	10.17	2.69
70	89	29.37	2.50	10.21	2.88
80	90	29.7	2.85	10.25	2.90
90	92	30.36	3.21	10.28	2.95
100	93	30.69	3.57	10.32	2.97
120	94	31.02	4.28	10.40	2.98
140	93	30.69	4.99	10.48	2.93
160					
200					
250					

Cap. No.	452
Wcap.+SH	135.04
Wcap.+SS	104.37
Wcap.	20.40
w%	36.52

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#### COMPRESION SIMPLE / SIMPLE COMPRESSION

#### GRAFICO ESFUERZO-DEFORMACION/STRESS DEFORMATION GRAPHIC

PROYECTO/PROJECT:

Trasvases/Trasbasin

LOCALIZACION/SITE:

Linea de Transmision / Transmission Line

FECHA/DATE:

Enero-94/January-94

CALICATA No./PIT No.:

C-20

MUESTRA No./SAMPLE No.: PROFUNDIDAD/DEPTH:

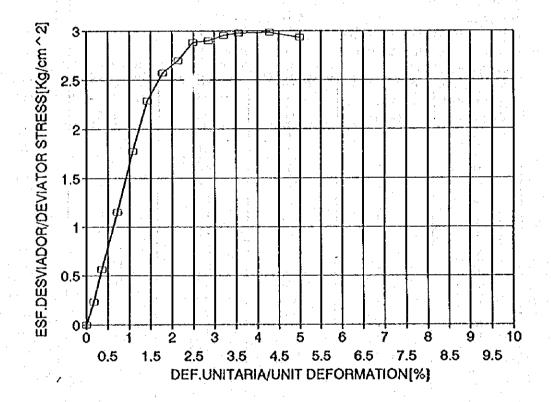
M-1 0.35-1.10 m.

ENSAYADO/PERFORMED BY:

G.S.

CALCULADO/CALCULATED BY:

F.V.



qu= 3.00 Kg/cm^2

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#### HIDROSUELOS CIA. LTDA.

#### COMPRESION SIMPLE / SIMPLE COMPRESSION

PROYECTO/PROJECT:

Trasvases/Trasbasin

LOCALIZACION/SITE:

Linea de Transmision / Transmission Line

FECHA/DATE:

Enero-94/January-94

CALICATA No./PIT No.:

C-21

MUESTRA No./SAMPLE No.:

M-t

PROFUNOIDAD/DEPTH:

0.40-1.00 m.

**ENSAYADO/PERFORMED BY:** 

G.\$.

CALCULADO/CALCULATED BY:

F.V.

DATOS DE LA MUESTRA/SAMPLE DATAS:

3.56 DIAMETRO/DIAMETER: cm. ALTURA/HEIGHT: 7.12 cm. PESO/WEIGHT: 124.17 gr. VOLUMEN/VOLUME: 70.87 cm ^3 cm^2 AREA/AREA: 9.95 **DENSIDAD HUMEDA/WET DENSITY** 1.752 gr/cm^3 DENSIDAD SECA/DRY DENSITY: 1.347 gr/cm^3

Kaldiv.

GRAFICO/GRAPHIC

Çle.ANIL	LO/RING	KTE.:	0,33	Kg/div.	ANILLO No.: 1326	50
DEFORM	ACION	DIAL CARGA	CARGA	DEF.UNIT.	AREA CORREG.	ESF.DESVIAD.
DEFORM	MOITAL	LOAD DIAL	LOAD	UNIT DEF.	CORRECT.AREA	DEVIAT.STRESS
x 1E-3	Inch	x 1E-4 inch	Kg	%	cm^2	Kg/cm^2
	)	0	0	0.00	9.95	0.00
5		7	2.31	0.18	9.97	0.23
1	Ò	10	3,3	0.38	9.99	0.33
2	0	13	4.29	0.71	10.03	0.43
3	0	18	5.94	1.07	10.06	0.59
4	0	21	6.93	1.43	10.10	0.69
5	0	23	7.59	1.78	10.13	0.75
6	0	25	8.25	2.14	10.17	0.81
7	Ò	25	8.25	2.50	10.21	0.81
8	0	24	7.92	2.85	10.25	0.77
9	0	21	6.93	3.21	10,28	0.67
10	XO .			1.		
12	0					
14	0					
16	0		* · · ·		1	-
20	ю					
25	0					

Cap. No.	459
Wcap.+SH	148.99
Wcap.+SS	120.28
Wcap.	24.76
w%	30.06

114



#### COMPRESION SIMPLE / SIMPLE COMPRESSION

### GRAFICO ESFUERZO-DEFORMACION/STRESS DEFORMATION GRAPHIC

PROYECTO/PROJECT:

Trasvases/Trasbasin

LOCALIZACION/SITE:

Linea de Transmision / Transmission Line

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FECHA/DATE:

Enero-94/January-94

CALICATA No./PIT No.:

C-21

MUESTRA No./SAMPLE No.:

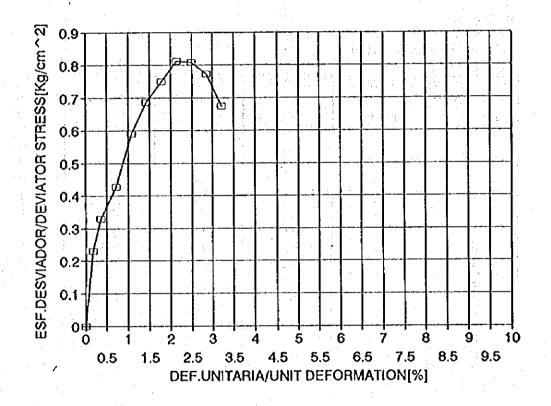
M-1

PROFUNDIDAD/DEPTH:

0.40-1.00 m.

ENSAYADO/PERFORMEO BY: CALCULADO/CALCULATED BY:

G.S. F.V.



qu= 0.83 Kg/cm^2



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UNDISTURBED SAMPLE

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# PROYECTO "TRASVASES MANABI"

	RESION SI				ENVIO	2
FECHA SONDEO: MUESTRA:	): ENE C-22 M-1	RO 1994	FESO NAT(gr)= Hm (cm) =	137.74 7.95	Ds (cm) = Dm (cm) = Di (cm) =	3.63 3.63
PROF(m): 0	.60-0.90		7m(gr/cm3)= PESO SEC(gr)= W % =	1.673 97.60 41.13	PI (Cm) = Ao (cm2) = V (cm3) =	10.36
CTE ANTLL (	ka/div) =	1.175	rd(gr/cm3)≍	1.185		

				·	
LECT DIAL	CARGA	DEFORMAC:	UNITARIA	AREA CORREGIDA (cm2)	ESFUERZO (kg/cm2)
4					. 0.00
9.0	9.00	. 0 ;	0.08	10.36	
11.5	13.51	; 10 ;	0.13	10.37	1.30
22.0	25.85	28	0.25	10.38	2.49
39.5	35.84	: 30	0.38	10.40	3.45
37.5	44.06	40	0.59	18.41	4.23
45.5	53.46	59	8.63	10.42	5.13
61.0	71.68	75	0.94	10.46	6.85
23.2	86.01	199	1.26	10.49	8.20
90.0	105.75	125	1.57	10.52	10.05
199.5	119.09	150	1.89	10.56	11.18
187.5	126.31	175	2.20	10.59	11.93
112.0	131.60	200	2.52	10.63	12.38
120.0	141.00	259	3.14	10.69	13.18
115.0	135.13	260	3.27	10.71	12.62
95.0	111.63	270	3.40	10.72	10.41
85.0	99.88	288	3.52	10.74	9.30
				4	.4

ESFUERZO MAXIMO:

13.18 Kg/cm2

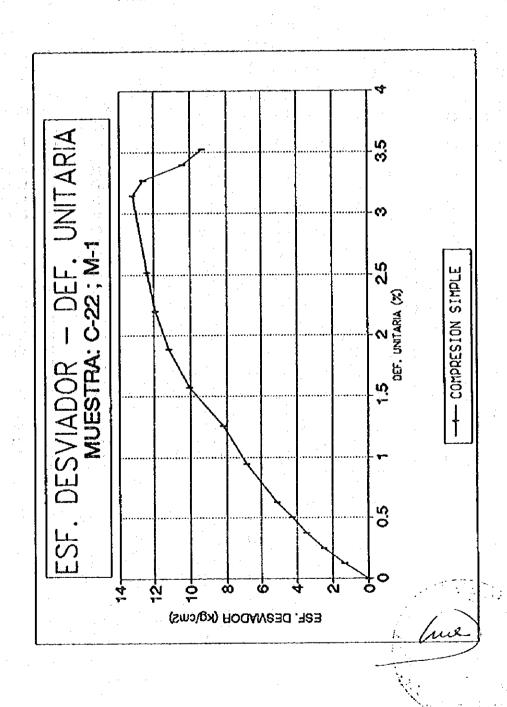
ING. GERMAN LUMA H.
JEFE DE LABORATORIO

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# PROYECTO "TRASVASES MANABI"

SONDEO: MUESTRA: PROFUNDIDAD: C-22 BLOQUE N-1 0.60-0.90



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113

#### ESCUELA POLITECNICA NACIONAL FACULTAD DE INGENIERIA CIVIL LABORATORIO DE MECANICA DE ROCAS

# PROYECTO "TRASVASES MANABI"

COMPRESION SIMPLE	2 4 4	ENVIO 2	
FECHA: ENERO 199 SONDED: C-23	PESO NAT(gr)=	140.17 7.96	Ds (cm) = 3.61 Dm (cm) = 3.61
MUESTRA: M-1 PROF(m): 1.20-1.50	Hm (см) = ⊤m(gr/cm3)= FESO SEC(gr)=	1.719 97.95	Di (cm) = 3.62 Ao (cm2) = 10.24
CTE ANILL (kg/div) = 1.175	₩ % = 1d(gr/cm3)=	43.10 1.201	V (cm3) = 81.55

	\$ 4 × 8				
LECT DIAL	CARGA	DÉFORMAC	DEFORMACION : UNITARIA	AREA CORREGIDA	ESFUERZO
(div)	(kg)	(ma*E-2)	t t	(cm2)	(kg/cm2)   
: 0.0	9.00	. 8	9.00	10.36	9.00
9.5	11.16	; 10 ;	0.13	10.37	1.08
17.5	20.56	; 20 ;	0.25	10.38	1.98
24.5	28.79	30	0.38	10.40	2.77
29.5	34.66	40	0.50	10.41	3.33
34.0	39.95	50	0.63	10.42	3.83
45.5	53.46	75	0.94	10.46	; 5.11
55.8	64.63	100	1.26	10.49	6.16
. 65.0	76.38	125	1.57	10.52	7.26
72.0	84.60	1 150	1.89	18.56	8.01
1 . 75.5	88.71	175	2.20	10.59	8.38
74.0	86.95	186	2.26	10.60	8.20
73.0	85.78	198	2.39	18.61	8.08
72.0	84.60	200	2.52	18.63	7.96
71.0	83.43	210	2.64	10.54	7.84
70.0	82.25	220	2.77	10.65	7.72
68.0	79.90	230	2.89	18.57	7.49
64.0	75.20	240	3.02	10.68	7.04
58.0	68.15	258	3.14	10.69	6.37
52.0	61.10	260	3.27	10.71	5.71
i veen	1	.4	<u> </u>	<b>.</b>	+

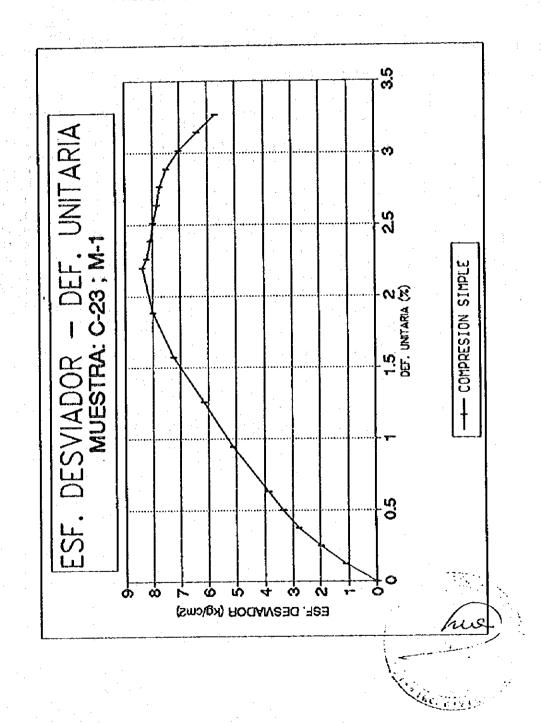
ESFUERZO MAXIMO:

\_8,38\_Kg/çm2

ING. GERMAN LUNA M. JEFE DE LAFORATORIO

### PROYECTO "TRASVASES MANABI"

SONDEO: MUESTRA: PROFUNDIDAD: C-23 BLOQUE M-1 1.20-1.50



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#### ESCUELA POLITECNICA NACIONAL FACULTAD DE INGENIERIA CIVIL LABORATORIO DE MECANICA DE ROCAS

# PROYECTO "TRASVASES MANABI"

COMP FECH	RESION SIM	LE D 1994		ENVIO	2
SONDEO:	C-24	FESO NAT (	gr)= 137.11	Ds (cm) =	3.65
MUESTRA:	M-1	Hm (cm)	= 8.00	Dm (cm) =	3,62
		⊤m(qr/cm3	)= 1.655	Di (cm) =	3.66
PROF(m):	1.50-1.80	PESO SEC(	gr)= 95.80	Ao $(cn2) =$	10.36
		W X	= 44.33	V (cm3) =	82.87
CTE ANTLE	(ka/div) = : 0	.0431 - rd(qr/cm3	)= 1.146		

					<b></b>	L
LECT DIAL		CARGA	:DEFORMAC:	DEFORMACION   UNITARIA	AREA CORREGIDA	ESFUERZO :
:	(div)	(kg)	(mm*E-2)		(cm2)	(kg/cm2)
!	0.0	. 0.00	. 9 ;	0.00	10.36	. 0.00
i	40.0	1.72	18	0.13	18.37	
į	82.0	3.53	20	9.25	10.38	0.34
į	125.0	5.39	30	0.38	19.48	0.52
1	162.0	6.98	40	0.50	10.41	8.67
i	202.0	8.71	50	0.63	19.42	9.84
i	312.0	13.45	1 75 1	0.94	10.46	11:29
į	439.0	18.53	1 199	1.26	10.49	1.77
•	480.0	20.69	125	1.57	10.52	1.97
į	309.0	12.93	150	1.89	10.56	1.22
±		4	_ 4 4			+

ESFUERZO MAXIMO:

1.97 Kg/cm2

Muwilhure.

ING. GERMAN LUNA H.

JEFF LE LABORATORIO

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## PROYECTO "TRASVASES MANABI"

PROYECTO: SONDEO: MUESTRA: PROFUNDIDAD: TRASVASES "MANABI" C-24 BLOQUE M-1 1.50-180

