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## CONSOLIDATION TEST

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**HIDROSUELOS CIA. LTDA.**  
**ENSAYO DE CONSOLIDACION / CONSOLIDATION TEST**  
**HUMEDAD Y CALCULOS / MOISTURE AND CALCULATIONS**

**PROYECTO/PROJECT:** Travesaños/Trasbasin  
**LOCALIZACION/SITE:** Canal abierto/Open Channel

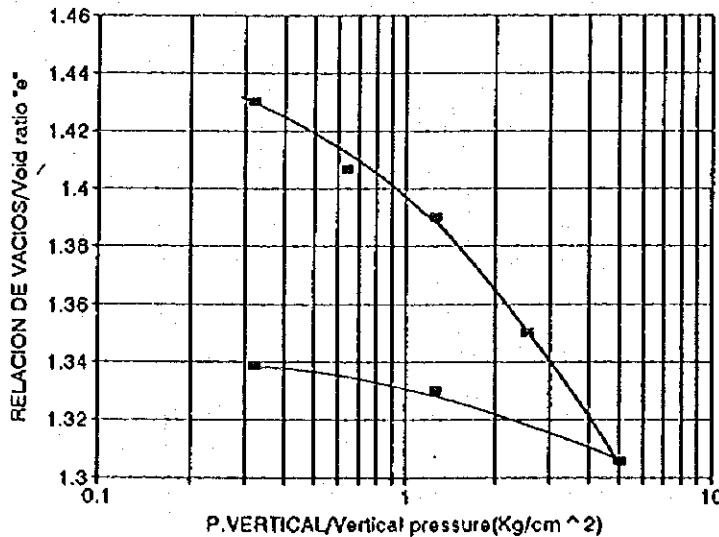
**CALICATA No./PIT No.:** C-10      **MUESTRA No./SAMPLE No.:** M-1  
**PROFUNDIDAD/DEPTH:** 0.50 - 1.40 m.      **FECHA/DATE:** Enero94/Jan.94  
**ENSAYADO/PERFORM.BY:** G.S.      **CALCULO/CALCULATED BY:** F.V.

HUMEDAD / MOISTURE	INICIAL/INITIAL	FINAL/final
Tara + SH/can+wet soil weight	637.19 gr	637.10 gr
Tara + SS/can+dry soil weight	594.12 gr	594.12 gr
Tara/can	503.79 gr	503.79 gr
Humedad/Moisture	47.68 %	47.58 %

ANILLO No./Ring number	VII
DIAMETRO ANILLO/Ring diameter:	6.35 cm
AREA DEL ANILLO/Ring Area	31.67 cm <sup>2</sup>
ALTURA DEL ANILLO/Ring height:	25.40 mm
G.ESPECIF./Specific gravity:	2.768
ALTURA SOLIDOS/Solids height:	10.30 mm
VARIACION ALTURA/Height Change:	1.04 mm

Hf MUEST/Specimen final height	24.36 mm
Ho AGUA/Initial water height:	13.59 mm
Hf AGUA/Final height of water:	13.57 mm
R.VACIOS INIC./Initial void ratio:	1.47
R.VACIOS FINAL/Final void ratio:	1.37
Sr-o(%) /Initial saturation degree:	90.00 %
Sr-f%) /Final saturation degree:	96.48 %

**CARGA-ASENTAMIENTO/LOAD-SETTLEMENT**



$P_c = 0.55 \text{ kg/cm}^2$   
 $C_c = 0.125$



**HIDROSUELOS CIA. LTDA.**

**ENSAYO DE CONSOLIDACION / CONSOLIDATION TEST  
DATOS Y RESULTADOS/DATAS AND RESULTS**

PROYECTO/PROJECT: Trasvasos/Trasbasin  
 LOCALIZACION/SITE: Canal abierto/Open Channel  
 CALICATA No./PIT No.: C-10  
 PROFUNDIDAD/DEPTH: 0.50 - 1.40 m.  
 ENSAYADO/PERFORM.BY: G.S.

MUESTRA No./SAMPLE No.: M-1  
 FECHA/DATE: Enero94/Jan.94  
 CALCULO/CALCULATED BY: F.V.

DELTA	P	d	Def. unit.	H	e	Pm	Hm	t 50	e m	av	Ov	Ov m	K
min	Kg/cm2	mm	%	mm		Kg/cm2	mm	seg		cm2/Kg	mm2/min	mm2/min	cm/seg
0	0.00	0.00	0.00	25.40	1.47								
1440	0.32	0.37	1.46	25.03	1.43	0.16	25.21	102.0	1.45	0.112	18.419		1.4E-07
1440	0.64	0.61	2.40	24.79	1.41	0.48	24.91	168.0	1.42	0.073	10.914	14.667	5.5E-08
1440	1.26	0.78	3.07	24.62	1.39	0.95	24.71	120.0	1.40	0.027	15.030	12.972	2.8E-08
4320	2.53	1.19	4.69	24.21	1.35	1.90	24.42	150.0	1.37	0.031	11.743	13.386	2.6E-08
1440	5.05	1.65	6.50	23.75	1.31	3.79	23.98	420.0	1.33	0.018	4.046	7.894	5.2E-09

**DESCARGA / UNLOAD**

0	5.05	1.65	6.50	23.75	1.31
180	1.26	1.40	5.51	24.00	1.33
180	0.32	1.31	5.16	24.09	1.34
180	0.00	1.04	4.09	24.36	1.37



**HIDROSUELOS CIA. LTDA.**  
**ENSAYO DE CONSOLIDACION / CONSOLIDATION TEST**  
**REGISTRO DE DATOS/DATA REGISTER**

**PROYECTO/PROJECT:** Travesaños/Trasbasin  
**LOCALIZACION/SITE:** Canal abierto/Open Channel  
**CALICATA No./PIT No.:** C-10 **MUESTRA No./SAMPLE No.:** M-1  
**PROFUNDIDAD/DEPTH:** 0.50 - 1.40 m. **FECHA/DATE:** Enero94/Jan.94  
**ENSAYADO/PERFORM.BY:** G.S. **CALCULO/CALCULATED BY:** F.V.  
**EXPANSION:** 0.36 mm **FECHA DE INICIO/Initial date:** 04-I-1994

TIEMPO Time (min)	CARGA 1 Load 1 0.32Kg/cm <sup>2</sup>	CARGA 2 Load 2 0.64Kg/cm <sup>2</sup>	CARGA 3 Load 3 1.26Kg/cm <sup>2</sup>	CARGA 4 Load 4 2.53Kg/cm <sup>2</sup>	CARGA 5 Load 5 5.05Kg/cm <sup>2</sup>
	dial x 0.00254mm	dial x 0.00254mm	dial x 0.00254mm	dial x 0.00254mm	dial x 0.00254mm
0.1	112.0	201.0	271.0	400.0	550.0
0.2	113.0	202.0	272.0	402.0	553.0
0.3	114.0	203.0	273.0	404.0	556.0
0.4	115.0	204.0	273.0	406.0	558.0
0.5	116.0	205.0	275.0	408.0	561.0
0.6	117.0	206.0	276.0	410.0	562.0
0.7	118.0	207.0	277.0	412.0	564.0
0.8	119.0	208.0	278.0	414.0	566.0
0.9	120.0	209.0	278.5	416.0	567.0
1.0	121.0	210.0	279.0	417.0	568.0
2.0	126.0	215.0	285.0	427.0	576.0
3.0	129.0	218.0	289.0	433.0	581.0
4.0	131.0	220.0	291.0	437.0	584.0
5.0	132.0	221.0	293.0	439.0	587.0
10.0	136.0	226.0	297.0	447.0	596.0
15.0	138.0	228.0	299.0	450.0	602.0
30.0	140.0	231.0	302.0	456.0	611.0
60.0	142.0	234.0	304.0	461.0	620.0
100.0	143.0	236.0	305.0	463.0	626.0
150.0	144.0	237.0	306.0	465.0	631.0
200.0	144.0	238.0	306.0	466.0	634.0
250.0	144.5	238.0	306.5	466.5	636.0
300.0	145.0	238.5	306.5	467.0	638.0
350.0	145.0	238.5	307.0	467.5	640.0
400.0	145.0	238.5	307.0	468.0	641.0
450.0	145.5	238.5	307.0	468.0	642.0
1440.0	146.0	239.0	308.0	469.0	648.0
1440.0	---	---	---	470.0	---

**DESCARGA/UNLOAD**

TIEMPO Time (min)	CARGA Load Kg/cm <sup>2</sup>	dial x 0.00254
0	5.05	648
180	1.26	552
180	0.32	516
180	0.00	409



# HIDROSUELOS CIA. LTDA.

## ENSAYO DE CONSOLIDACION / CONSOLIDATION TEST

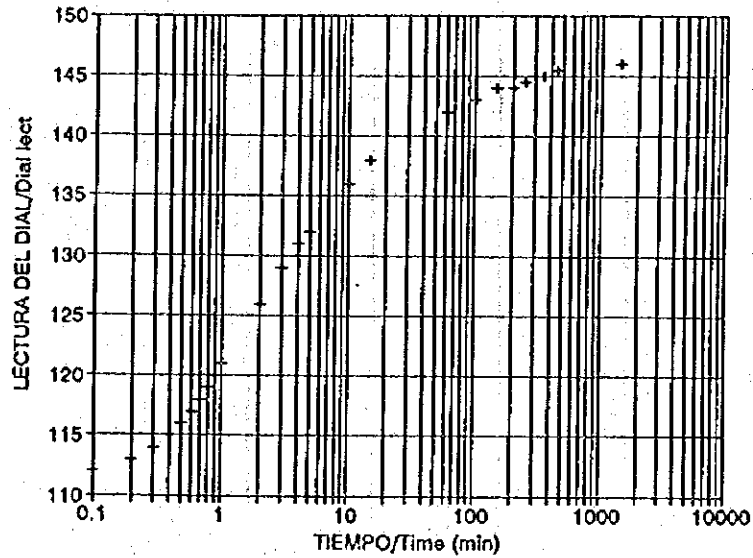
### CURVA TIEMPO-DEFORMACION/TIME DEFORMATION GRAPHIC

**PROYECTO/PROJECT:** Travesaños/Trasbaen  
**LOCALIZACION/SITE:** Canal abierto/Open Channel  
**CALICATA No./PIT No.:** C-10 **MUESTRA No./SAMPLE No.:** M-1  
**PROFUNDIDAD/DEPTH:** 0.50 - 1.40 m. **FECHA/DATE:** Enero94/Jan.94  
**ENSAYADO/PERFORM BY:** G.S. **CALCULO/CALCULATED BY:** F.V.

#### CARGA 1/LOAD 1

0.32 Kg/cm<sup>2</sup>

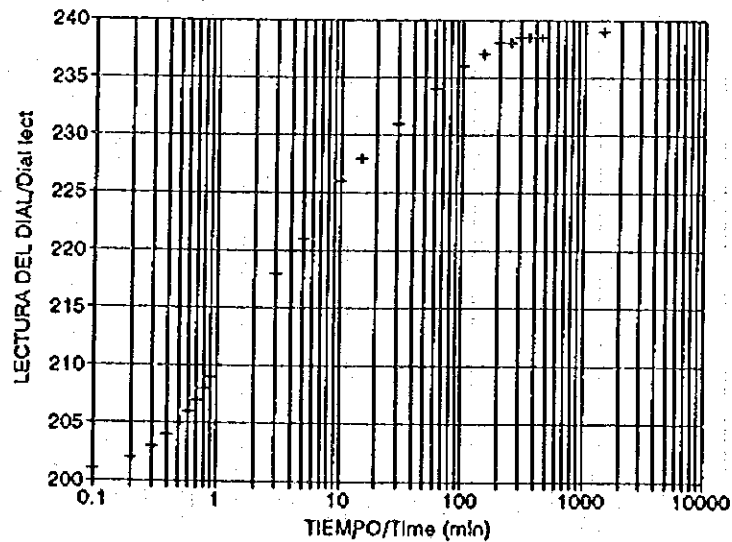
t<sub>50</sub> = 102s.



#### CARGA 2/LOAD 2

0.64 Kg/cm<sup>2</sup>

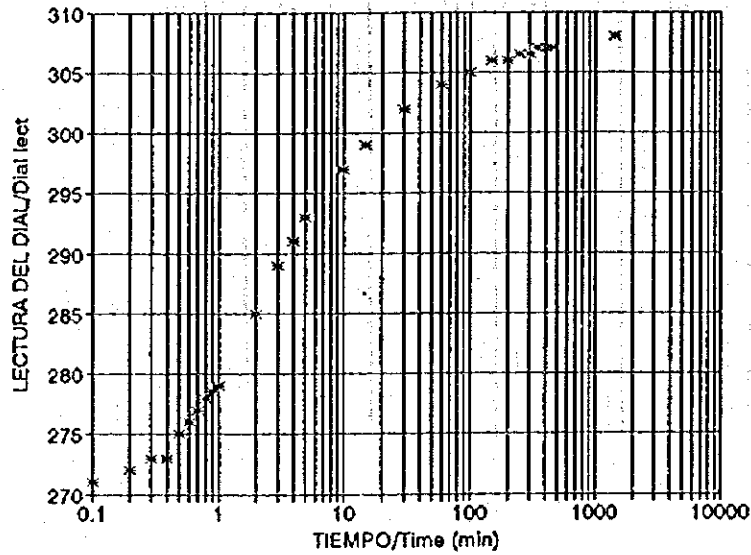
t<sub>50</sub> = 168 s.



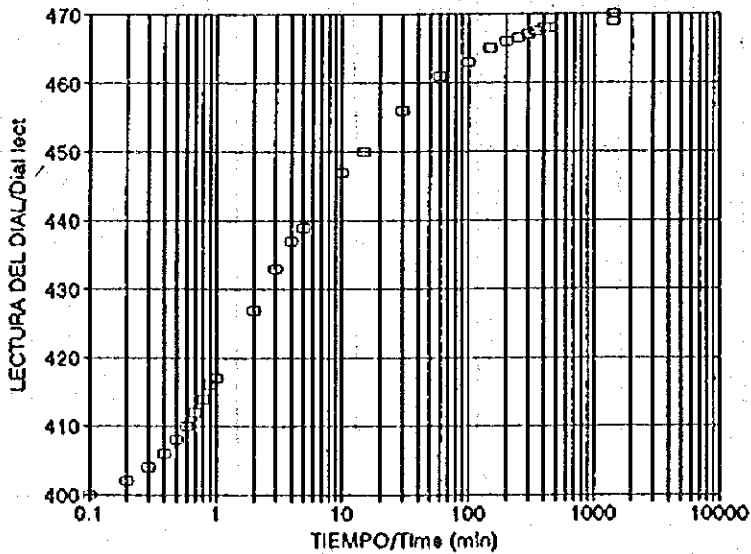


**HIDROSUELOS CIA. LTDA.**  
**ENSAYO DE CONSOLIDACION / CONSOLIDATION TEST**  
**CURVA TIEMPO-DEFORMATION/TIME DEFORMATION GRAPHIC**

**PROYECTO/PROJECT:** Traevases/Traebasin  
**LOCALIZACION/SITE:** Canal abierto/Open Channel  
**CALICATA No./PIT No.:** C-10 **MUESTRA No./SAMPLE No.:** M-1  
**PROFUNDIDAD/DEPTH:** 0.50 - 1.40 m. **FECHA/DATE:** Enero94/Jan.94  
**ENSAYADO/PERFORM BY:** G.S. **CALCULO/CALCULATED BY:** F.V.  
**CARGA 3/LOAD 3**  
**1.26 Kg/cm<sup>2</sup>** **150=120 s.**



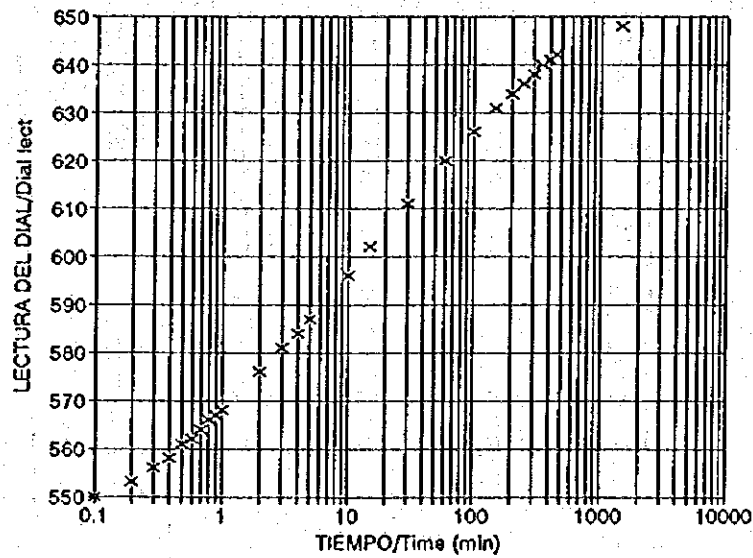
**CARGA 4/LOAD 4**  
**2.53 Kg/cm<sup>2</sup>** **150=150 s.**





**HIDROSUELOS CIA. LTDA.**  
**ENSAYO DE CONSOLIDACION / CONSOLIDATION TEST**  
**CURVA TIEMPO-DEFORMATION/TIME DEFORMATION GRAPHIC**

**PROYECTO/PROJECT:** Traasvasos/Traasbasin  
**LOCALIZACION/SITE:** Canal abierto/Open Channel  
**CALICATA No./PIT No.:** C-10 **MUESTRA No./SAMPLE No.:** M-1  
**PROFUNDIDAD/DEPTH:** 0.50 - 1.40 m. **FECHA/DATE:** Enero94/Jan.94  
**ENSAYADO/PERFORM.BY:** G.S. **CALCULO/CALCULATED BY:** F.V.  
**CARGA 5/LOAD 5**  
**5.05 Kg/cm<sup>2</sup>** **t<sub>50</sub>=420 s.**





**HIDROSUELOS CIA. LTDA.**  
**ENSAYO DE CONSOLIDACION / CONSOLIDATION TEST**  
**HUMEDAD Y CALCULOS / MOISTURE AND CALCULATIONS**

**PROYECTO/PROJECT:** Travaees/Trasbeeln  
**LOCALIZACION/SITE:** Canal abierto/Open Channel

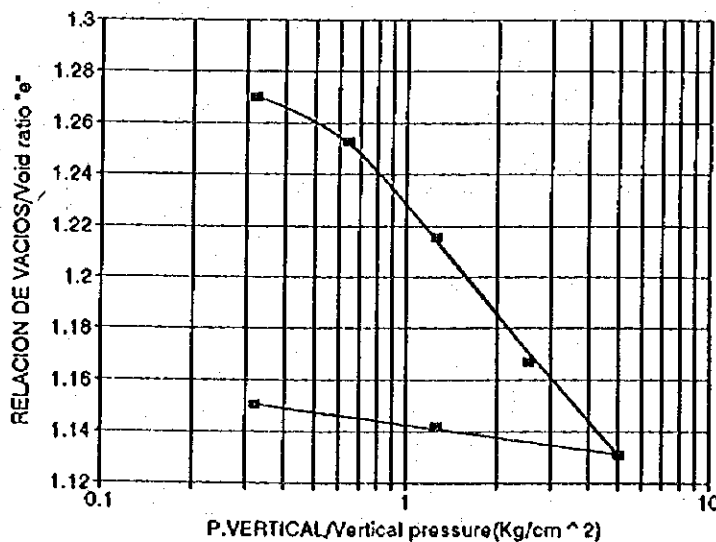
**CALICATA No./PIT No.:** C-11      **MUESTRA No./SAMPLE No.:** M-1  
**PROFUNDIDAD/DEPTH:** 0.55 - 1.60 m.      **FECHA/DATE:** Enero94/Jan.94  
**ENSAYADO/PERFORM.BY:** G.S.      **CALCULO/CALCULATED BY:** F.V.

HUMEDAD / MOISTURE	INICIAL/INITIAL	FINAL/final
Tara + SH/can+wet soil weight	644.58 gr	643.00 gr
Tara + SS/can+dry soil weight	601.45 gr	601.45 gr
Tara/can	511.99 gr	511.99 gr
Humedad/Moisture	48.21 %	46.45 %

ANILLO No./Ring number	III
DIAMETRO ANILLO/Ring diameter:	6.35 cm
AREA DEL ANILLO/Ring Area	31.67 cm <sup>2</sup>
ALTURA DEL ANILLO/Ring height:	25.40 mm
G.ESPECIF./Specific gravity:	2.606
ALTURA SOLIDOS/Solids height:	10.84 mm
VARIACION ALTURA/Height Change:	1.93 mm

Hf MUEST/Specimen final height	23.47 mm
Ho AGUA/Initial water height:	13.62 mm
Hf AGUA/Final height of water:	13.12 mm
R.VACIOS INIC./Initial void ratio:	1.34
R.VACIOS FINAL/Final void ratio:	1.17
Sr-o(%) /Initial saturation degree:	93.54 %
Sr-f%) /Final saturation degree:	103.88 %

**CARGA-ASENTAMIENTO/LOAD-SETTLEMENT**



$P_c = 0.46 \text{ kg/cm}^2$   
 $C_c = 0.136$



**HIDROSUELOS CIA. LTDA.**  
**ENSAYO DE CONSOLIDACION / CONSOLIDATION TEST**  
**DATOS Y RESULTADOS/DATAS AND RESULTS**



**PROYECTO/PROJECT:** Travases/Trasbasin  
**LOCALIZACION/SITE:** Canal abierto/Open Channel  
**CALICATA No./PIT No.:** C-11  
**PROFUNDIDAD/DEPTH:** 0.55 - 1.60 m.  
**ENSAYADO/PERFORM.BY:** G.S.

**MUESTRA No./SAMPLE No.:** M-1  
**FECHA/DATE:** Enero94/Jan.94  
**CALCULO/CALCULATED BY:** F.V.

DELTA t	P	d	Det. unit.	H	e	Pm	Hm	t 50	e m	a v	Cv	Cv m	K
min	Kg/cm2	mm	%	mm		Kg/cm2	mm	seg		cm2/Kg	mm2/min	mm2/min	cm/seg
0	0.00	0.00	0.00	25.40	1.34								
1440	0.32	0.79	3.11	24.61	1.27	0.16	25.01	99.0	1.307	0.228	18.663	17.120	3.1E-07
1440	0.64	0.98	3.86	24.42	1.25	0.48	24.52	114.0	1.262	0.055	15.578	10.011	6.3E-08
4320	1.26	1.38	5.43	24.02	1.22	0.95	24.22	390.0	1.234	0.060	4.445	4.100	2.0E-08
1440	2.53	1.91	7.52	23.49	1.17	1.90	23.76	444.0	1.191	0.038	3.756	3.188	1.1E-08
1440	5.05	2.30	9.06	23.10	1.13	3.79	23.30	612.0	1.149	0.014	2.620	2.9E-09	

**DESCARGA / UNLOAD**

0	5.05	2.30	9.06	23.10	1.13
180	1.26	2.18	8.58	23.22	1.14
180	0.32	2.09	8.23	23.31	1.15
180	0.00	1.93	7.60	23.47	1.17



**HIDROSUELOS CIA, LTDA.**  
**ENSAYO DE CONSOLIDACION / CONSOLIDATION TEST**  
**REGISTRO DE DATOS/DATA REGISTER**

**PROYECTO/PROJECT:** Travesaños/Trasbaesin  
**LOCALIZACION/SITE:** Canal abierto/Open Channel  
**CALICATA No./PIT No.:** C-11 **MUESTRA No./SAMPLE No.:** M-1  
**PROFUNDIDAD/DEPTH:** 0.55 - 1.60 m. **FECHA/DATE:** Enero94/Jan.94  
**ENSAYADO/PERFORM.BY:** G.S. **CALCULO/CALCULATED BY:** F.V.  
**EXPANSION:** 0.35 mm **FECHA DE INICIO/Initial date:** 04-1-1994

TIEMPO Time (min)	CARGA 1 Load 1 0.32Kg/cm <sup>2</sup> dial x 0.00254mm	CARGA 2 Load 2 0.64Kg/cm <sup>2</sup> dial x 0.00254mm	CARGA 3 Load 3 1.26Kg/cm <sup>2</sup> dial x 0.00254mm	CARGA 4 Load 4 2.53Kg/cm <sup>2</sup> dial x 0.00254mm	CARGA 5 Load 5 5.05Kg/cm <sup>2</sup> dial x 0.00254mm
	0.1	281.0	352.0	433.0	607.0
0.2	282.0	353.0	436.0	612.0	792.0
0.3	283.0	354.0	440.0	618.0	795.0
0.4	284.0	355.0	445.0	622.0	796.0
0.5	285.0	356.0	447.0	625.0	799.0
0.6	286.0	357.0	448.0	628.0	800.0
0.7	287.0	358.0	450.0	631.0	802.0
0.8	288.0	359.0	452.0	633.0	803.0
0.9	289.0	360.0	453.0	635.0	804.0
1.0	290.0	361.0	460.0	636.5	805.0
2.0	294.0	366.0	465.0	649.0	814.0
3.0	297.0	369.0	469.0	655.0	819.0
4.0	298.0	371.0	472.0	659.0	823.0
5.0	299.0	372.0	475.0	662.0	826.0
10.0	302.0	375.0	485.0	673.0	837.0
15.0	304.0	377.0	489.0	681.0	843.0
30.0	306.0	378.0	498.0	694.0	853.0
60.0	308.0	381.5	508.0	708.0	864.0
100.0	309.0	383.0	514.0	718.0	875.0
150.0	310.0	383.5	520.0	725.0	880.0
200.0	310.5	384.0	525.0	731.0	885.0
250.0	310.5	384.5	527.0	735.0	888.0
300.0	311.0	385.0	530.0	738.0	891.0
350.0	311.0	385.0	531.0	740.0	894.0
400.0	311.5	385.5	532.0	741.0	895.0
450.0	311.5	385.5	534.0	742.0	897.0
1440.0	312.0	386.0	542.0	748.0	904.0
4320.0	---	---	---	751.0	---

**DESCARGA/UNLOAD**

TIEMPO Time (min)	CARGA Load Kg/cm <sup>2</sup>	dial x 0.00254
0	5.05	904
180	1.26	858
180	0.32	824
180	0.00	758



# HIDROSUELOS CIA. LTDA.

## ENSAYO DE CONSOLIDACION / CONSOLIDATION TEST

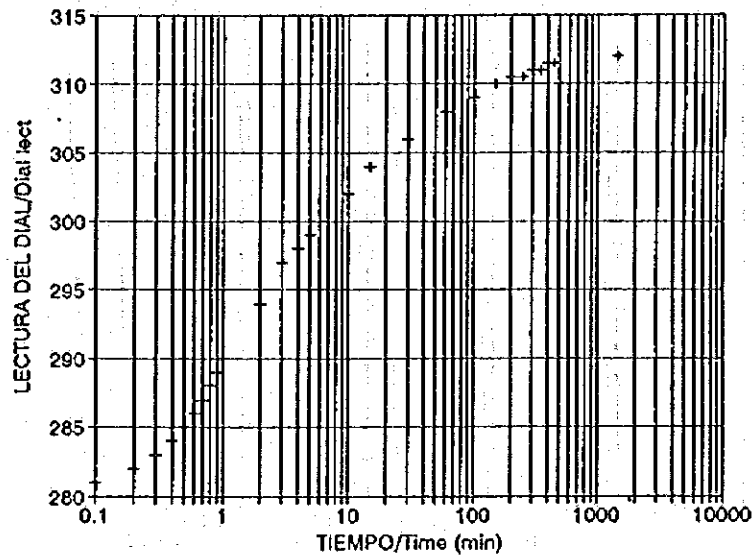
### CURVA TIEMPO-DEFORMATION/TIME DEFORMATION GRAPHIC

**PROYECTO/PROJECT:** Travesaes/Trasbasin  
**LOCALIZACION/SITE:** Canal abierto/Open Channel  
**CALICATA No./PIT No.:** C-11 **MUESTRA No./SAMPLE No.:** M-1  
**PROFUNDIDAD/DEPTH:** 0.55 - 1.60 m. **FECHA/DATE:** Enero94/Jan.94  
**ENSAYADO/PERFORM BY:** O.S. **CALCULO/CALCULATED BY:** F.V.

#### CARGA 1/LOAD 1

0.32 Kg/cm<sup>2</sup>

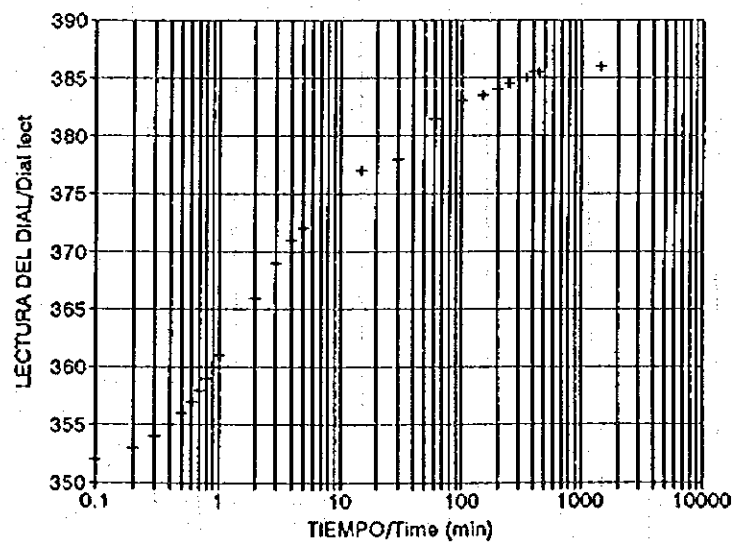
t<sub>50</sub> = 99 s.



#### CARGA 2/LOAD 2

0.64 Kg/cm<sup>2</sup>

t<sub>50</sub> = 114 s.





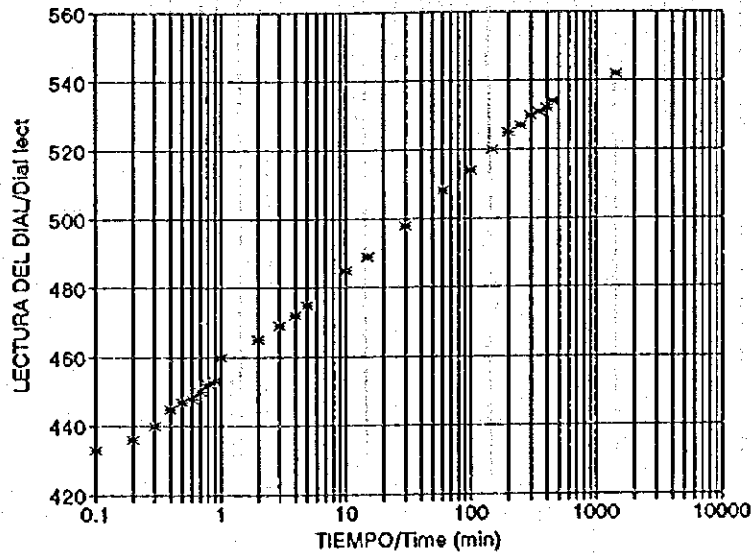
**HIDROSUELOS CIA. LTDA.**  
**ENSAYO DE CONSOLIDACION / CONSOLIDATION TEST**  
**CURVA TIEMPO-DEFORMATION/TIME DEFORMATION GRAPHIC**

**PROYECTO/PROJECT:** Travesaños/Trasbarrin  
**LOCALIZACION/SITE:** Canal abierto/Open Channel  
**CALICATA No./PIT No.:** C-11 **MUESTRA No./SAMPLE No.:** M-1  
**PROFUNDIDAD/DEPTH:** 0.55 - 1.60 m. **FECHA/DATE:** Enero94/Jan.94  
**ENSAYADO/PERFORM.BY:** G.S. **CALCULO/CALCULATED BY:** F.V.

**CARGA 3/LOAD 3**

1.26 Kg/cm<sup>2</sup>

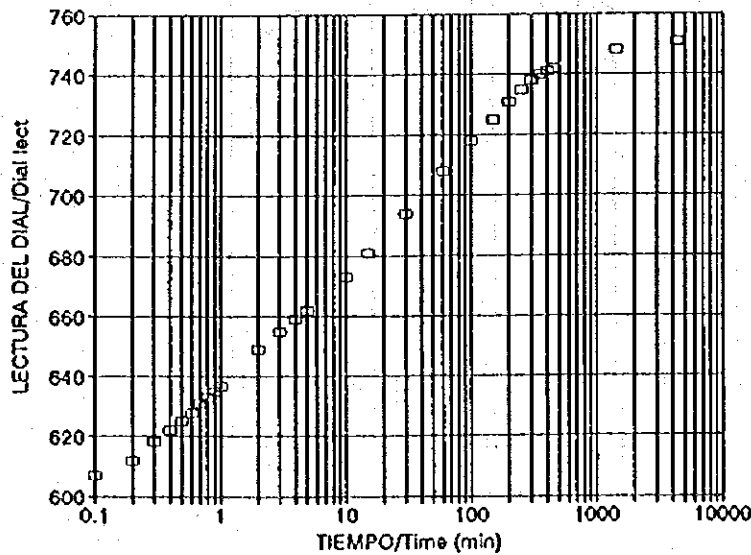
150 = 390 s.



**CARGA 4/LOAD 4**

2.53 Kg/cm<sup>2</sup>

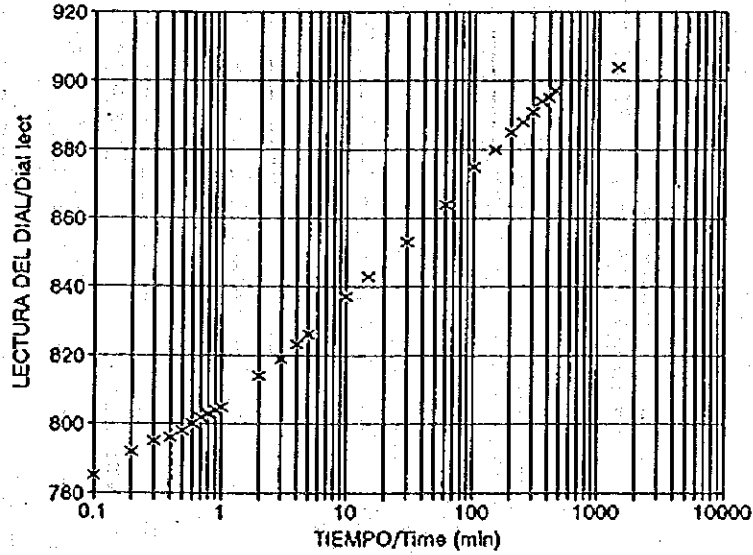
150 = 444 s.





**HIDROSUELOS CIA. LTDA.**  
**ENSAYO DE CONSOLIDACION / CONSOLIDATION TEST**  
**CURVA TIEMPO-DEFORMACION/TIME DEFORMATION GRAPHIC**

**PROYECTO/PROJECT:** Travesaños/Trasbasln  
**LOCALIZACION/SITE:** Canal abierto/Open Channel  
**CALICATA No./PIT No.:** C-11 **MUESTRA No./SAMPLE No.:** M-1  
**PROFUNDIDAD/DEPTH:** 0.55 - 1.60 m. **FECHA/DATE:** Enero94/Jan.94  
**ENSAYADO/PERFORM.BY:** G.S. **CALCULO/CALCULATED BY:** F.V.  
**CARGA 5/LOAD 5**  
**5.05 Kg/cm<sup>2</sup>** **150=612 s.**





**HIDROSUELOS CIA. LTDA.**  
**ENSAYO DE CONSOLIDACION / CONSOLIDATION TEST**  
**HUMEDAD Y CALCULOS / MOISTURE AND CALCULATIONS**

**PROYECTO/PROJECT:** Travesaños/Trasbaein  
**LOCALIZACION/SITE:** Canal abierto/Open Channel

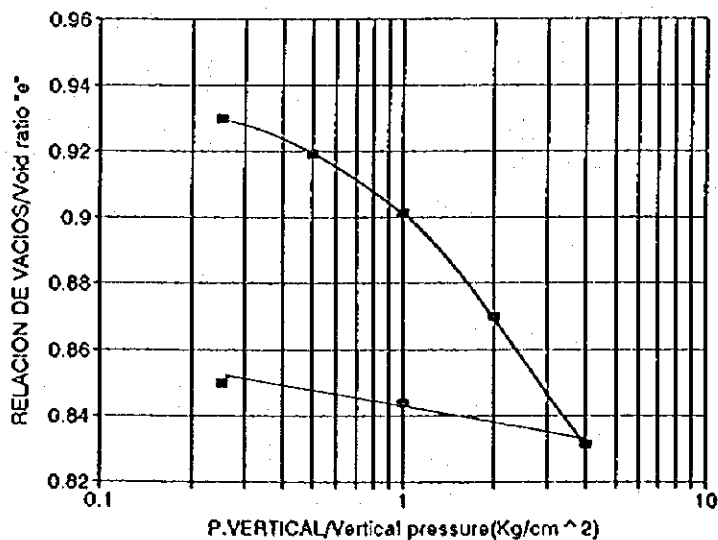
**CALICATA No./PIT No.:** C-12      **MUESTRA No./SAMPLE No.:** M-2  
**PROFUNDIDAD/DEPTH:** 2.00 m.      **FECHA/DATE:** Enero94/Jan.94  
**ENSAYADO/PERFORM.BY:** G.S.      **CALCULO/CALCULATED BY:** F.V.

HUMEDAD / MOISTURE	INICIAL/INITIAL	FINAL/final
Tara + SH/can + wet soil weight	656.45 gr	656.99 gr
Tara + SS/can + dry soil weight	631.44 gr	631.44 gr
Tara/can	521.00 gr	521.00 gr
Humedad/Moisture	22.65 %	23.13 %

ANILLO No./Ring number	VI
DIAMETRO ANILLO/Ring diameter:	6.35 cm
AREA DEL ANILLO/Ring Area	31.67 cm <sup>2</sup>
ALTURA DEL ANILLO/Ring height:	25.40 mm
G.ESPECIF./Specific gravity:	2.683
ALTURA SOLIDOS/Solids height:	13.00 mm
VARIACION ALTURA/Height Change:	1.09 mm

HI MUEST/Specimen final height	24.31 mm
Ho AGUA/Initial water height:	7.90 mm
Hi AGUA/Final height of water:	8.07 mm
R.VACIOS INIC./Initial void ratio:	0.95
R.VACIOS FINAL/Final void ratio:	0.87
Sr-o(%) /Initial saturation degree:	63.70 %
Sr-f(%) /Final saturation degree:	71.35 %

**CARGA-ASENTAMIENTO/LOAD-SETTLEMENT**



$P_c = 1.05 \text{ kg/cm}^2$   
 $C_c = 0.126$

**HIDROSUELOS CIA. LTDA.**  
**ENSAYO DE CONSOLIDACION / CONSOLIDATION TEST**  
**DATOS Y RESULTADOS/DATAS AND RESULTS**



**PROYECTO/PROJECT:** Traszvasos/Traszbasin  
**LOCALIZACION/SITE:** Canal abierto/Open Channel  
**CALICATA No./PIT No.:** C-12  
**PROFUNDIDAD/DEPTH:** 2.00 m.  
**ENSAYADO/PERFORM.BY:** G.S.

**MUESTRA No./SAMPLE No.:** M-2  
**FECHA/DATE:** Enero94/Jan.94  
**CALCULO/CALCULATED BY:** F.V.

DELTA t	P	d	Def. unit.	H	e	Pm	Hm	t50	e m	a v	Cv	Cv m	K
min	Kg/cm2	mm	%	mm		Kg/cm2	mm	seg		cm2/Kg	mm2/min	mm2/min	cm/seg
0	0.00	0.00	0.00	25.40	0.95								
1440	0.25	0.31	1.22	25.09	0.93	0.13	25.25	162.0	0.942	0.095	11.625		9.6E-08
1440	0.50	0.45	1.77	24.95	0.92	0.38	25.02	198.0	0.925	0.043	9.343	10.484	3.5E-08
1440	1.00	0.68	2.68	24.72	0.90	0.75	24.84	435.0	0.910	0.035	4.190	6.766	1.3E-08
4320	2.00	1.09	4.29	24.31	0.87	1.50	24.52	354.0	0.886	0.032	5.017	4.603	1.4E-08
1440	4.00	1.59	6.26	23.81	0.83	3.00	24.06	360.0	0.851	0.019	4.752	4.884	8.3E-09

**DESCARGA / UNLOAD**

0	4.00	1.59	6.26	23.81	0.83
180	1.00	1.43	5.63	23.97	0.84
180	0.25	1.35	5.31	24.05	0.85
180	0.00	1.09	4.29	24.31	0.87



**HIDROSUELOS CIA. LTDA.**  
**ENSAYO DE CONSOLIDACION / CONSOLIDATION TEST**  
**REGISTRO DE DATOS/DATA REGISTER**

**PROYECTO/PROJECT:** Travesaños/Trasbaein  
**LOCALIZACION/SITE:** Canal abierto/Open Channel  
**CALICATA No./PIT No.:** C-12 **MUESTRA No./SAMPLE No.:** M-2  
**PROFUNDIDAD/DEPTH:** 2.00 m. **FECHA/DATE:** Enero94/Jan.94  
**ENSAYADO/PERFORM.BY:** G.S. **CALCULO/CALCULATED BY:** F.V.  
**EXPANSION:** 0.43 mm **FECHA DE INICIO/Initial date:** 04-1-1994

TIEMPO Time (min)	CARGA 1 Load 1 0.25Kg/cm <sup>2</sup>	CARGA 2 Load 2 0.5Kg/cm <sup>2</sup>	CARGA 3 Load 3 1.00Kg/cm <sup>2</sup>	CARGA 4 Load 4 2.00Kg/cm <sup>2</sup>	CARGA 5 Load 5 4.00Kg/cm <sup>2</sup>
	dial x 0.00254mm	dial x 0.00254mm	dial x 0.00254mm	dial x 0.00254mm	dial x 0.00254mm
0.1	83.0	125.0	212.0	325.0	528.0
0.2	84.0	128.0	213.0	328.0	530.0
0.3	85.0	130.0	214.0	330.0	533.0
0.4	86.0	132.0	215.0	332.0	535.0
0.5	87.0	134.0	216.0	334.0	536.0
0.6	88.0	135.0	217.0	336.0	538.0
0.7	89.0	136.0	218.0	338.0	540.0
0.8	90.0	137.0	219.0	339.0	542.0
0.9	91.0	138.0	220.0	340.0	543.0
1.0	92.0	138.5	220.5	341.0	544.0
2.0	97.0	143.0	225.0	350.0	554.0
3.0	100.0	145.0	228.0	356.0	560.0
4.0	102.0	147.0	230.0	362.0	565.0
5.0	103.0	149.0	232.0	365.0	567.0
10.0	107.0	153.0	238.0	376.0	576.0
15.0	109.0	155.0	240.0	383.0	583.0
30.0	113.0	159.0	246.0	390.0	591.0
60.0	116.0	163.0	251.0	398.0	600.0
100.0	117.5	165.0	255.0	405.0	606.0
150.0	119.0	168.0	256.0	409.0	612.0
200.0	119.0	169.0	261.0	412.0	615.0
250.0	120.0	170.0	262.0	415.0	618.0
300.0	120.0	171.0	264.0	416.0	620.0
350.0	120.5	172.0	265.0	417.0	621.0
400.0	121.0	172.5	265.5	418.0	622.0
450.0	121.0	173.0	266.0	419.0	623.0
1440.0	122.0	176.0	269.0	426.0	627.0
4320.0	---	---	---	429.0	---

**DESCARGA/UNLOAD**

TIEMPO Time (min)	CARGA Load Kg/cm <sup>2</sup>	dial x 0.00254
0	4.00	627
180	1.00	562
180	0.25	532
180	0.00	429





# HIDROSUELOS CIA. LTDA.

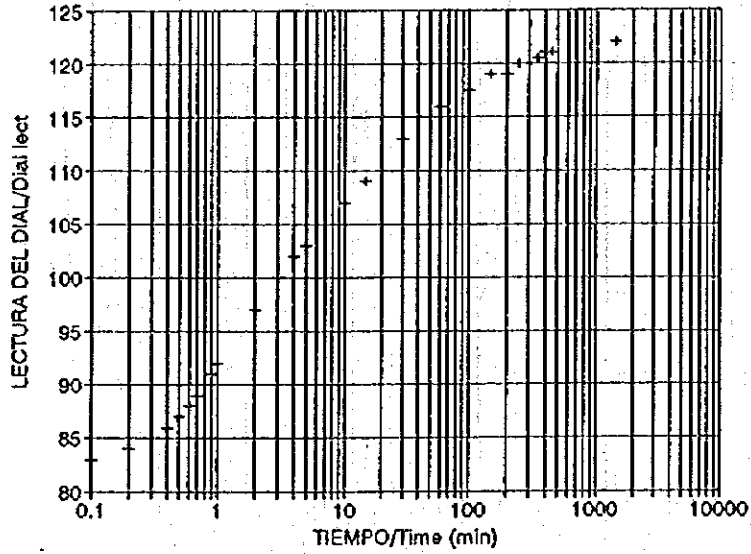
## ENSAYO DE CONSOLIDACION / CONSOLIDATION TEST

### CURVA TIEMPO-DEFORMATION/TIME DEFORMATION GRAPHIC

**PROYECTO/PROJECT:** Travesaños/Trasbarran  
**LOCALIZACION/SITE:** Canal abierto/Open Channel  
**CALICATA No./PIT No.:** C-12 **MUESTRA No./SAMPLE No.:** M-2  
**PROFUNDIDAD/DEPTH:** 2.00 m. **FECHA/DATE:** Enero 94/Jan. 94  
**ENSAYADO/PERFORM BY:** G.S. **CALCULO/CALCULATED BY:** F.V.

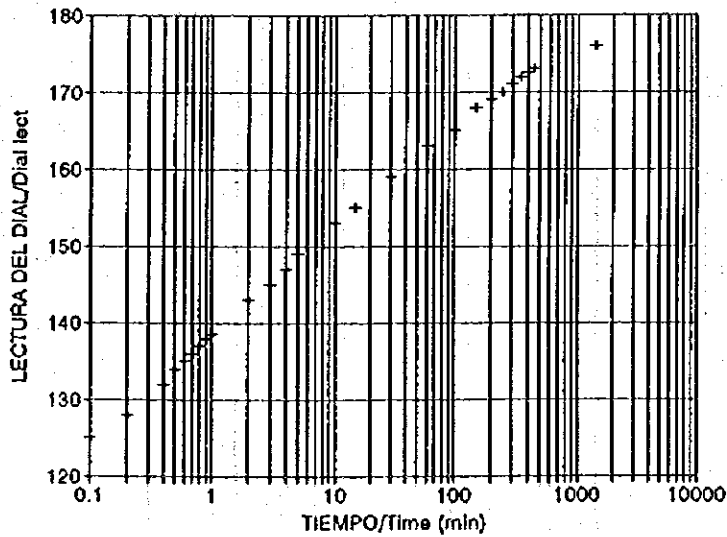
#### CARGA 1/LOAD 1

0.25 Kg/cm<sup>2</sup>      150(sec) = 162



#### CARGA 2/LOAD 2

0.50 Kg/cm<sup>2</sup>      150(sec) = 198



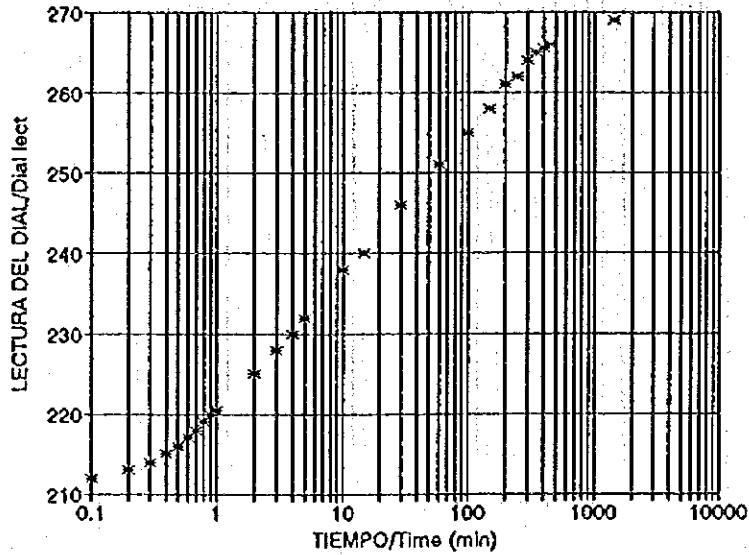


**HIDROSUELOS CIA. LTDA.**  
**ENSAYO DE CONSOLIDACION / CONSOLIDATION TEST**  
**CURVA TIEMPO-DEFORMATION/TIME DEFORMATION GRAPHIC**

**PROYECTO/PROJECT:** Trasmasa/Trasbasin  
**LOCALIZACION/SITE:** Canal abierto/Open Channel  
**CALICATA No./PIT No.:** C-12      **MUESTRA No./SAMPLE No.:** M-2  
**PROFUNDIDAD/DEPTH:** 2.00 m.      **FECHA/DATE:** Enero94/Jan.94  
**ENSAYADO/PERFORM.BY:** G.S.      **CALCULO/CALCULATED BY:** F.V.

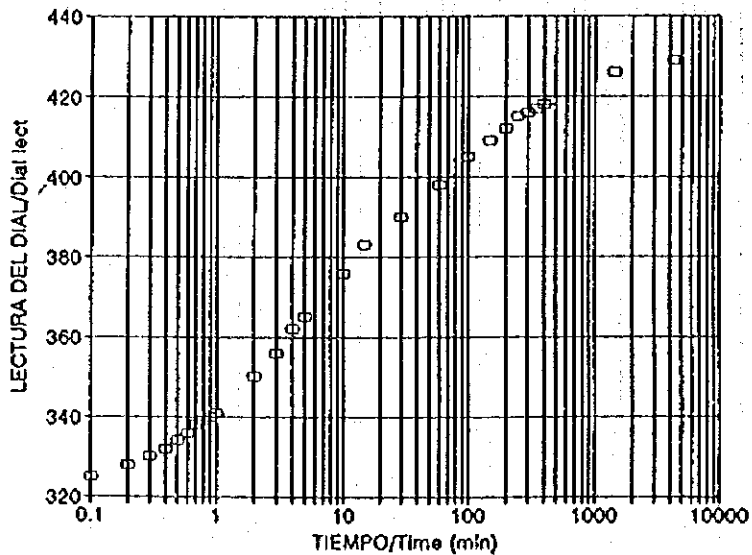
**CARGA 3/LOAD 3**

1.00 Kg/cm<sup>2</sup>      150(sec) = 435



**CARGA 4/LOAD 4**

2.00 Kg/cm<sup>2</sup>      150(sec) = 354



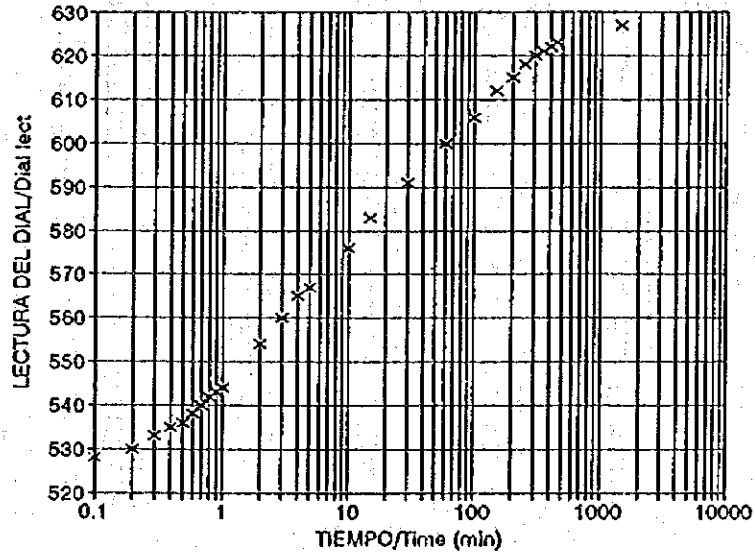


**HIDROSUELOS CIA. LTDA.**  
**ENSAYO DE CONSOLIDACION / CONSOLIDATION TEST**  
**CURVA TIEMPO-DEFORMATION/TIME DEFORMATION GRAPHIC**

**PROYECTO/PROJECT:** Travesaas/Trasbasin  
**LOCALIZACION/SITE:** Canal abierto/Open Channel  
**CALICATA No./PIT No.:** C-12 **MUESTRA No./SAMPLE No.:** M-2  
**PROFUNDIDAD/DEPTH:** 2.00 m. **FECHA/DATE:** Enero94/Jan.94  
**ENSAYADO/PERFORM.BY:** G.S. **CALCULO/CALCULATED BY:** F.V.

**CARGA 5/LOAD 5**

**4.00 Kg/cm<sup>2</sup>      150(sec) = 360**





**HIDROSUELOS CIA. LTDA.**  
**ENSAYO DE CONSOLIDACION / CONSOLIDATION TEST**  
**HUMEDAD Y CALCULOS / MOISTURE AND CALCULATIONS**

**PROYECTO/PROJECT:** Travesaero/Trasbasin  
**LOCALIZACION/SITE:** Canal abierto/Open Channel

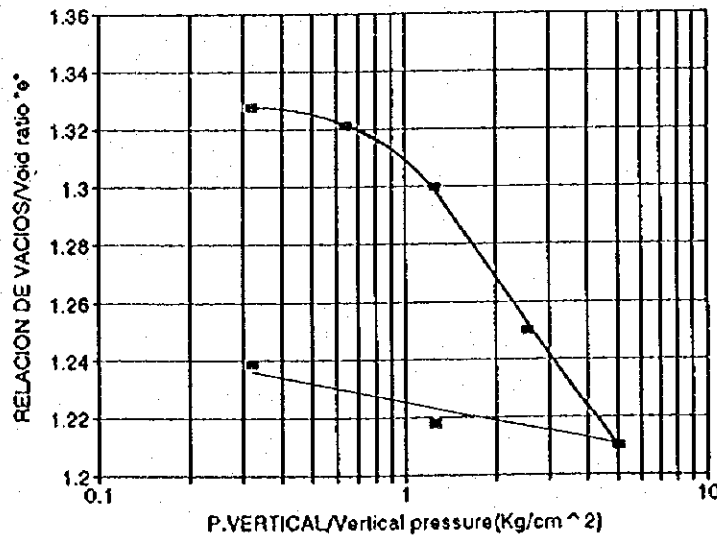
**CALICATA No./PIT No.:** C-13      **MUESTRA No./SAMPLE No.:** M-1  
**PROFUNDIDAD/DEPTH:** 0.80-2.00 m.      **FECHA/DATE:** Enero94/Jan.94  
**ENSAYADO/PERFORM.BY:** G.S.      **CALCULO/CALCULATED BY:** F.V.

HUMEDAD / MOISTURE	INICIAL/INITIAL		FINAL/final	
Tara + SH/can+wet soil weight	643.44	gr	642.80	gr
Tara + SS/can+dry soil weight	597.99	gr	597.99	gr
Tara/can	503.79	gr	503.79	gr
Humedad/Moisture	48.25	%	47.57	%

ANILLO No./Ring number	II	
DIAMETRO ANILLO/Ring diameter:	6.35	cm
AREA DEL ANILLO/Ring Area	31.67	cm <sup>2</sup>
ALTURA DEL ANILLO/Ring height:	25.40	mm
G.ESPECIF./Specific gravity:	2.743	
ALTURA SOLIDOS/Solids height:	10.84	mm
VARIACION ALTURA/Height Change:	0.94	mm

HI MUEST/Specimen final height	24.46	mm
Ho AGUA/Initial water height:	14.35	mm
HI AGUA/Final height of water:	14.14	mm
R.VACIOS INIC./Initial void ratio:	1.34	
R.VACIOS FINAL/Final void ratio:	1.26	
Sr-o(%) /Initial saturation degree:	98.53	%
Sr-f(%) /Final saturation degree:	103.85	%

**CARGA-ASENTAMIENTO/LOAD-SETTLEMENT**



$P_c = 0.95 \text{ kg/cm}^2$   
 $C_c = 0.16 \text{ kg/cm}^2$

# HIDROSUELOS CIA. LTDA.

## ENSAYO DE CONSOLIDACION / CONSOLIDATION TEST DATOS Y RESULTADOS/DATAS AND RESULTS



**PROYECTO/PROJECT:** Trasvases/Trasbasin  
**LOCALIZACION/SITE:** Canal abierto/Open Channel  
**CALICATA No./PIT No.:** C-13  
**PROFUNDIDAD/DEPTH:** 0.80-2.00 m.  
**ENSAYADO/PERFORM BY:** G.S.

**MUESTRA No./SAMPLE No.:** M-1  
**FECHA/DATE:** Enero94/Jan.94  
**CALCULO/CALCULATED BY:** F.V.

DELTA t	P	d	Det. unit.	H	e	Pm	Hm	t 50	e m	a v	Cv	Cv m	K
min	Kg/cm2	mm	%	mm		Kg/cm2	mm	seg		cm2/Kg	mm2/min	mm2/min	cm/seg
0	0.00	0.00	0.00	25.40	1.34	0.16	25.32		1.335				
1440	0.32	0.17	0.67	25.23	1.33	0.48	25.20	78.0	1.324	0.049	24.278	14.045	8.5E-08
1440	0.64	0.24	0.94	25.16	1.32	0.95	25.05	492.0	1.310	0.020	3.813	4.524	5.5E-09
1440	1.26	0.47	1.85	24.93	1.30	1.90	24.66	354.0	1.275	0.034	5.236	6.778	1.3E-08
1440	2.53	1.01	3.98	24.39	1.25	3.79	24.18	216.0	1.230	0.039	8.319	5.119	2.4E-08
4320	5.05	1.44	5.67	23.96	1.21			900.0		0.016	1.919		2.3E-09

### DESCARGA / UNLOAD

0	5.05	1.44	5.67	23.96	1.21
180	1.26	1.36	5.35	24.04	1.22
180	0.32	1.13	4.45	24.27	1.24
180	0.00	0.94	3.70	24.46	1.26



**HIDROSUELOS CIA. LTDA.**  
**ENSAYO DE CONSOLIDACION / CONSOLIDATION TEST**  
**REGISTRO DE DATOS/DATA REGISTER**

**PROYECTO/PROJECT:** Traesvases/Traebasin  
**LOCALIZACION/SITE:** Canal abierto/Open Channel  
**CALICATA No./PIT No.:** C-13 **MUESTRA No./SAMPLE No.:** M-1  
**PROFUNDIDAD/DEPTH:** 0.80-2.00 m. **FECHA/DATE:** Enero94/Jan.94  
**ENSAYADO/PERFORM BY:** G.S. **CALCULO/CALCULATED BY:** F.V.  
**EXPANSION:** 2.75 mm

TIEMPO Time (min)	CARGA 1 Load 1 0.32Kg/cm <sup>2</sup>	CARGA 2 Load 2 0.64Kg/cm <sup>2</sup>	CARGA 3 Load 3 1.26Kg/cm <sup>2</sup>	CARGA 4 Load 4 2.53Kg/cm <sup>2</sup>	CARGA 5 Load 5 5.05Kg/cm <sup>2</sup>
	dial x 0.00254mm	dial x 0.00254mm	dial x 0.00254mm	dial x 0.00254mm	dial x 0.00254mm
0.1	35.0	65.0	120.0	307.0	490.0
0.2	37.0	65.5	122.0	310.0	492.0
0.3	38.0	66.0	124.0	313.0	494.0
0.4	39.0	67.0	125.0	315.0	496.0
0.5	40.0	67.5	126.0	318.0	497.0
0.6	41.0	68.0	128.0	320.0	498.0
0.7	42.0	68.5	129.0	321.0	498.5
0.8	43.0	69.0	130.0	323.0	500.0
0.9	44.0	69.5	131.0	324.0	501.0
1.0	45.0	70.0	132.0	326.0	502.0
2.0	51.0	72.0	137.0	335.0	507.0
3.0	54.0	74.0	141.0	340.0	510.0
4.0	56.0	75.0	143.0	344.0	513.0
5.0	57.0	76.0	145.0	347.0	515.0
10.0	60.0	79.0	152.0	356.0	522.0
15.0	61.0	80.0	155.0	361.0	526.0
30.0	63.0	83.0	162.0	370.0	532.0
60.0	63.5	86.0	168.0	376.0	539.0
100.0	64.0	88.0	172.0	382.0	544.0
150.0	64.0	90.0	175.0	385.0	548.0
200.0	64.0	91.0	177.0	388.0	551.0
250.0	64.0	92.0	178.0	389.0	553.0
300.0	64.0	92.5	180.0	390.0	554.0
350.0	64.0	93.0	181.0	392.0	556.0
400.0	64.0	94.0	181.0	392.0	557.0
450.0	65.0	95.0	182.0	393.0	558.0
1440.0	65.0	99.0	184.0	398.0	563.0
4320.0	---	---	---	---	567.0

**DESCARGA/UNLOAD**

TIEMPO Time (min)	CARGA Load Kg/cm <sup>2</sup>	dial x 0.00254
0	5.05	567
180	1.26	534
180	0.32	445
180	0.00	370

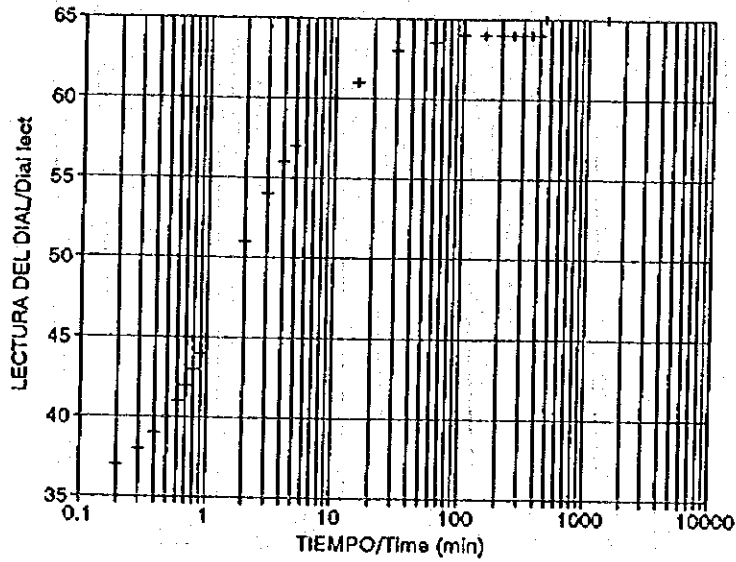


**HIDROSUELOS CIA. LTDA.**  
**ENSAYO DE CONSOLIDACION / CONSOLIDATION TEST**  
**CURVA TIEMPO-DEFORMATION/TIME DEFORMATION GRAPHIC**

**PROYECTO/PROJECT:** Travesa/Trasbasin  
**LOCALIZACION/SITE:** Canal abierto/Open Channel  
**CALICATA No./PIT No.:** C-13 **MUESTRA No./SAMPLE No.:** M-1  
**PROFUNDIDAD/DEPTH:** 0.80-2.00 m. **FECHA/DATE:** Enero94/Jan.94  
**ENSAYADO/PERFORM.BY:** G.S. **CALCULO/CALCULATED BY:** F.V.

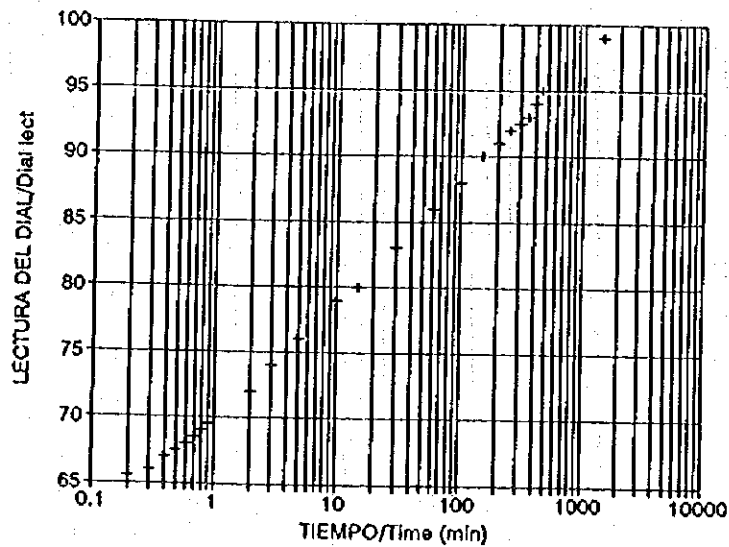
**CARGA 1/LOAD 1**

**0.32 Kg/cm<sup>2</sup>**      **150(sec)= 78**



**CARGA 2/LOAD 2**

**0.64 Kg/cm<sup>2</sup>**      **150(sec)= 492**



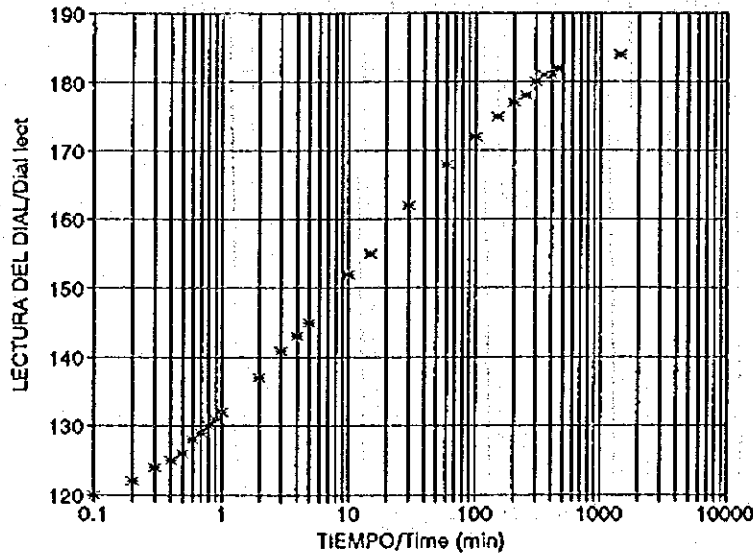


**HIDROSUELOS CIA. LTDA.**  
**ENSAYO DE CONSOLIDACION / CONSOLIDATION TEST**  
**CURVA TIEMPO-DEFORMATION/TIME DEFORMATION GRAPHIC**

**PROYECTO/PROJECT:** Travesaas/Traebasin  
**LOCALIZACION/SITE:** Canal abierto/Open Channel  
**CALICATA No./PIT No.:** C-13 **MUESTRA No./SAMPLE No.:** M-1  
**PROFUNDIDAD/DEPTH:** 0.80-2.00 m. **FECHA/DATE:** Enero94/Jan.94  
**ENSAYADO/PERFORM.BY:** G.S. **CALCULO/CALCULATED BY:** F.V.

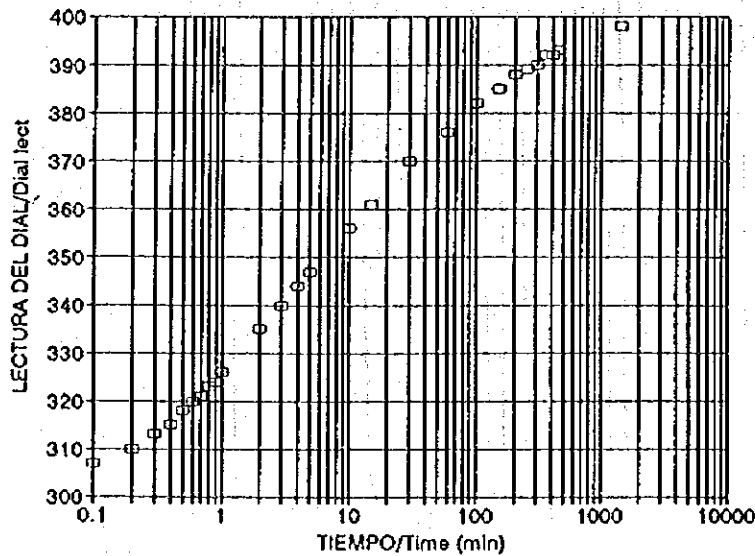
**CARGA 3/LOAD 3**

1.26 Kg/cm<sup>2</sup>      150(sec) = 354



**CARGA 4/LOAD 4**

2.53 Kg/cm<sup>2</sup>      150(sec) = 216

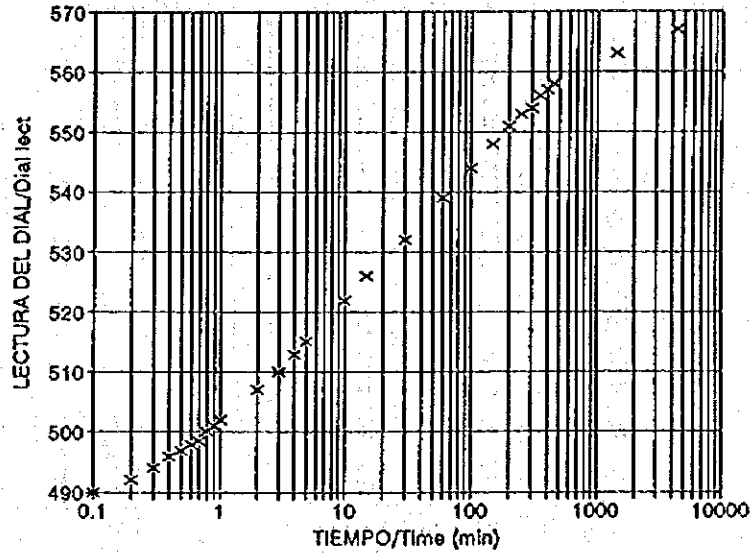






**HIDROSUELOS CIA. LTDA.**  
**ENSAYO DE CONSOLIDACION / CONSOLIDATION TEST**  
**CURVA TIEMPO-DEFORMATION/TIME DEFORMATION GRAPHIC**

**PROYECTO/PROJECT:** Travesaños/Trasbasin  
**LOCALIZACION/SITE:** Canal abierto/Open Channel  
**CALICATA No./PIT No.:** C-13      **MUESTRA No./SAMPLE No.:** M-1  
**PROFUNDIDAD/DEPTH:** 0.80-2.00 m.      **FECHA/DATE:** Enero94/Jan.94  
**ENSAYADO/PERFORM.BY:** G.S.      **CALCULO/CALCULATED BY:** F.V.  
**CARGA 5/LOAD 5**  
**5.05 Kg/cm<sup>2</sup>      150(sec)= 900**



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**HIDROSUELOS CIA. LTDA.**  
**ENSAYO DE CONSOLIDACION / CONSOLIDATION TEST**  
**HUMEDAD Y CALCULOS / MOISTURE AND CALCULATIONS**

**PROYECTO/PROJECT:** Travesaños/Trasbaein  
**LOCALIZACION/SITE:** Canal abierto/Open Channel

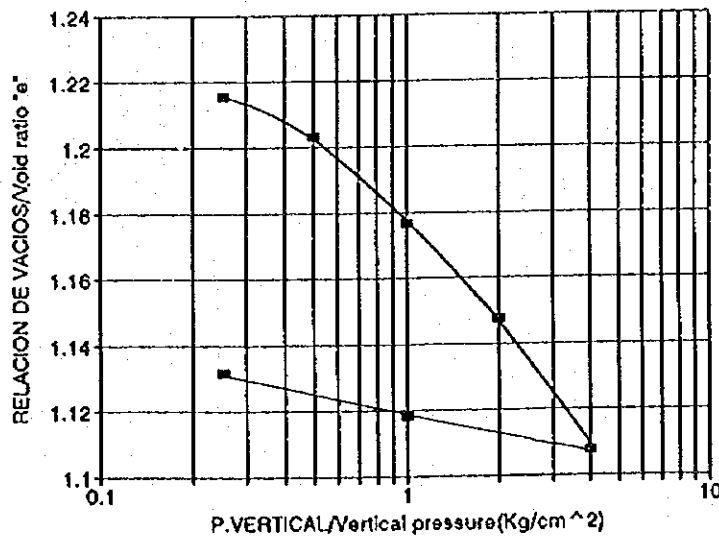
**CALICATA No./PIT No.:** C-14      **MUESTRA No./SAMPLE No.:** M-2  
**PROFUNDIDAD/DEPTH:** 2.0-3.50 m.      **FECHA/DATE:** Enero94/Jan.94  
**ENSAYADO/PERFORM.BY:** G.S.      **CALCULO/CALCULATED BY:** F.V.

HUMEDAD / MOISTURE	INICIAL/INITIAL	FINAL/final
Tara + SH/can + wet soil weight	641.70 gr	640.73 gr
Tara + SS/can + dry soil weight	596.46 gr	596.46 gr
Tara/can	504.50 gr	504.50 gr
Humedad/Moisture	49.20 %	48.14 %

ANILLO No./Ring number	IX	
DIAMETRO ANILLO/Ring diameter:	6.35	cm
AREA DEL ANILLO/Ring Area	31.67	cm <sup>2</sup>
ALTURA DEL ANILLO/Ring height:	25.40	mm
G.ESPECIF./Specific gravity:	2.565	
ALTURA SOLIDOS/Solids height:	11.32	mm
VARIACION ALTURA/Height Change:	1.06	mm

Hf MUEST/Specimen final height	24.34	mm
Ho AGUA/Initial water height:	14.28	mm
Hf AGUA/Final height of water:	13.98	mm
R.VACIOS INIC./Initial void ratio:	1.24	
R.VACIOS FINAL/Final void ratio:	1.15	
Sr-o(%) /Initial saturation degree:	101.45	%
Sr-f(%) /Final saturation degree:	107.36	%

**CARGA-ASENTAMIENTO/LOAD-SETTLEMENT**



$P_c = 0.72 \text{ kg/cm}^2$   
 $C_c = 0.145$



**HIDROSUELOS CIA. LTDA.**  
**ENSAYO DE CONSOLIDACION / CONSOLIDATION TEST**  
**DATOS Y RESULTADOS/DATAS AND RESULTS**

**PROYECTO/PROJECT:** Trasvases/Trasbasin  
**LOCALIZACION/SITE:** Canal abierto/Open Channel  
**CALICATA No./PIT No.:** C-14  
**PROFUNDIDAD/DEPTH:** 2.0-3.50 m.  
**ENSAYADO/PERFORM.BY:** G.S.

**MUESTRA No./SAMPLE No.:** M-2  
**FECHA/DATE:** Enero94/Jan.94  
**CALCULO/CALCULATED BY:** F.V.

DELTA t	P	d	Def. unit.	H	e	Pm	Hm	t50	em	av	Cv	Cv m	K
min	Kg/cm2	mm	%	mm		Kg/cm2	mm	seg		cm2/Kg	mm2/min	mm2/min	cm/seg
0	0.00	0.00	0.00	25.40	1.24								
1440	0.25	0.32	1.26	25.08	1.22	0.13	25.24	48.0	1.230	0.113	39.219	23.460	3.3E-07
1440	0.50	0.46	1.81	24.94	1.20	0.38	25.01	240.0	1.209	0.049	7.701	6.877	2.9E-08
1440	1.00	0.76	2.99	24.64	1.18	0.75	24.79	300.0	1.190	0.053	6.053	8.113	2.5E-08
1440	2.00	1.09	4.29	24.31	1.15	1.50	24.48	174.0	1.162	0.029	10.173	7.834	2.3E-08
1440	4.00	1.54	6.06	23.86	1.11	3.00	24.09	312.0	1.128	0.020	5.494		8.6E-09

**DESCARGA / UNLOAD**

0	4.00	1.54	6.06	23.86	1.11
180	1.00	1.42	5.59	23.98	1.12
180	0.25	1.27	5.00	24.13	1.13
180	0.00	1.06	4.17	24.34	1.15



**HIDROSUELOS CIA. LTDA.**  
**ENSAYO DE CONSOLIDACION / CONSOLIDATION TEST**  
**REGISTRO DE DATOS/DATA REGISTER**

**PROYECTO/PROJECT:** Traevases/Traebasin  
**LOCALIZACION/SITE:** Canal abierto/Open Channel  
**CALICATA No./PIT No.:** C-14 **MUESTRA No./SAMPLE No.:** M-2  
**PROFUNDIDAD/DEPTH:** 2.0-3.50 m. **FECHA/DATE:** Enero94/Jan.94  
**ENSAYADO/PERFORM.BY:** G.S. **CALCULO/CALCULATED BY:** F.V.  
**EXPANSION:** 0.57 mm

TIEMPO Time (min)	CARGA 1 Load 1	CARGA 2 Load 2	CARGA 3 Load 3	CARGA 4 Load 4	CARGA 5 Load 5
	0.25Kg/cm <sup>2</sup>	0.50Kg/cm <sup>2</sup>	1.00Kg/cm <sup>2</sup>	2.00Kg/cm <sup>2</sup>	4.00Kg/cm <sup>2</sup>
	dial x 0.00254mm	dial x 0.00254mm	dial x 0.00254mm	dial x 0.00254mm	dial x 0.00254mm
0.1	70.0	143.5	241.0	351.0	510.0
0.2	74.0	145.5	243.0	355.0	515.0
0.3	77.0	147.0	245.0	358.0	518.0
0.4	79.0	148.0	247.0	360.0	521.0
0.5	81.0	149.0	248.0	362.0	524.0
0.6	83.0	150.0	249.0	364.0	525.0
0.7	85.0	150.5	250.0	366.0	527.0
0.8	86.0	151.0	251.0	367.0	529.0
0.9	88.0	152.0	252.0	368.0	530.0
1.0	89.0	152.5	253.0	370.0	531.0
2.0	96.0	156.0	258.0	378.0	541.0
3.0	100.0	158.0	261.0	383.0	546.0
4.0	103.0	159.5	263.0	386.0	550.0
5.0	105.0	161.0	265.0	388.0	554.0
10.0	111.0	164.0	271.0	395.0	563.0
15.0	113.5	165.5	274.0	399.0	569.0
30.0	117.0	170.0	279.0	405.0	577.0
60.0	120.0	173.0	285.0	411.0	586.0
100.0	121.0	175.0	288.0	415.0	592.0
150.0	122.0	176.0	290.0	418.0	595.0
200.0	122.0	177.0	292.0	420.0	597.0
250.0	122.0	177.5	293.0	421.0	598.0
300.0	123.0	178.0	294.0	422.0	600.0
350.0	124.0	178.5	295.0	423.0	601.0
400.0	124.0	179.0	295.5	424.0	602.0
450.0	124.0	179.5	296.0	425.0	603.0
1440.0	125.0	182.0	299.0	428.0	606.0
4320.0	---	---	---	---	608.0

**DESCARGA/UNLOAD**

TIEMPO Time (min)	CARGA Load Kg/cm <sup>2</sup>	dial x 0.00254
0	4.00	608
180	1.00	559
180	0.25	500
180	0.00	418

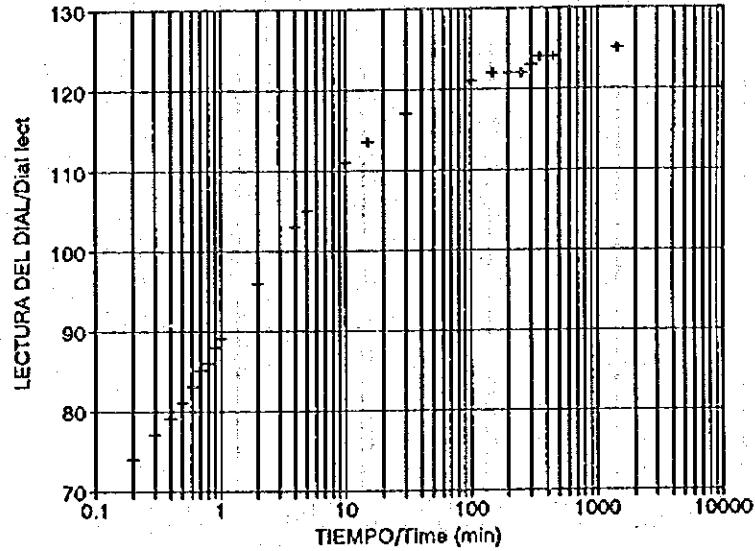


**HIDROSUELOS CIA. LTDA.**  
**ENSAYO DE CONSOLIDACION / CONSOLIDATION TEST**  
**CURVA TIEMPO-DEFORMATION/TIME DEFORMATION GRAPHIC**

**PROYECTO/PROJECT:** Travesaños/Trasbaein  
**LOCALIZACION/SITE:** Canal abierto/Open Channel  
**CALICATA No./PIT No.:** C-14 **MUESTRA No./SAMPLE No.:** M-2  
**PROFUNDIDAD/DEPTH:** 2.0-3.50 m. **FECHA/DATE:** Enero94/Jan.94  
**ENSAYADO/PERFORM.BY:** G.S. **CALCULO/CALCULATED BY:** F.V.

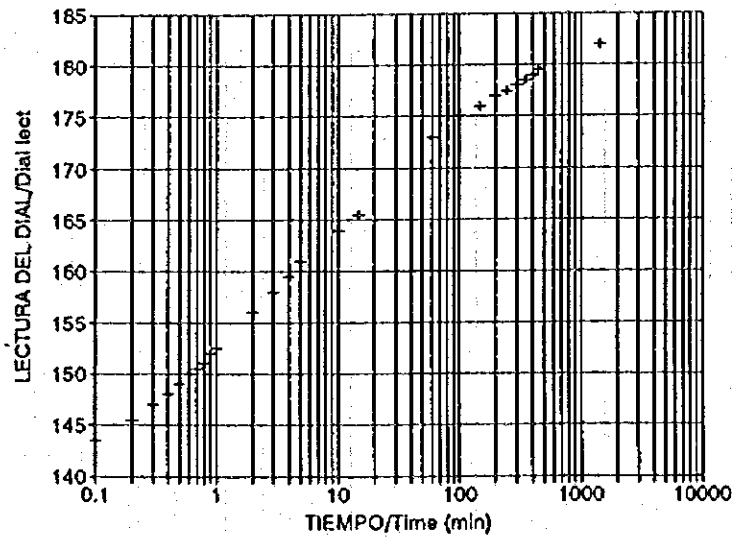
**CARGA 1/LOAD 1**

0.25 Kg/cm<sup>2</sup>      150(sec) = 48



**CARGA 2/LOAD 2**

0.50 Kg/cm<sup>2</sup>      150(sec) = 240



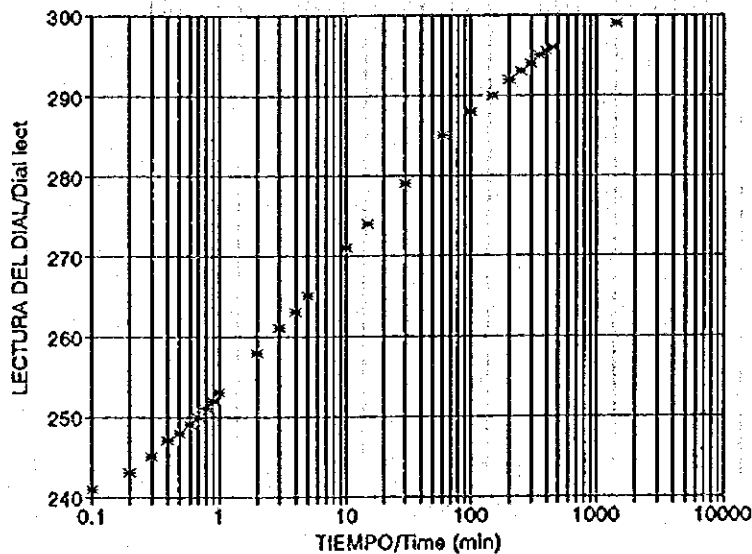


**HIDROSUELOS CIA. LTDA.**  
**ENSAYO DE CONSOLIDACION / CONSOLIDATION TEST**  
**CURVA TIEMPO-DEFORMACION/TIME DEFORMATION GRAPHIC**

**PROYECTO/PROJECT:** Travesaños/Trasbasin  
**LOCALIZACION/SITE:** Canal abierto/Open Channel  
**CALICATA No./PIT No.:** C-14      **MUESTRA No./SAMPLE No.:** M-2  
**PROFUNDIDAD/DEPTH:** 2.0-3.50 m.      **FECHA/DATE:** Enero94/Jan.94  
**ENSAYADO/PERFORM BY:** G.S.      **CALCULO/CALCULATED BY:** F.V.

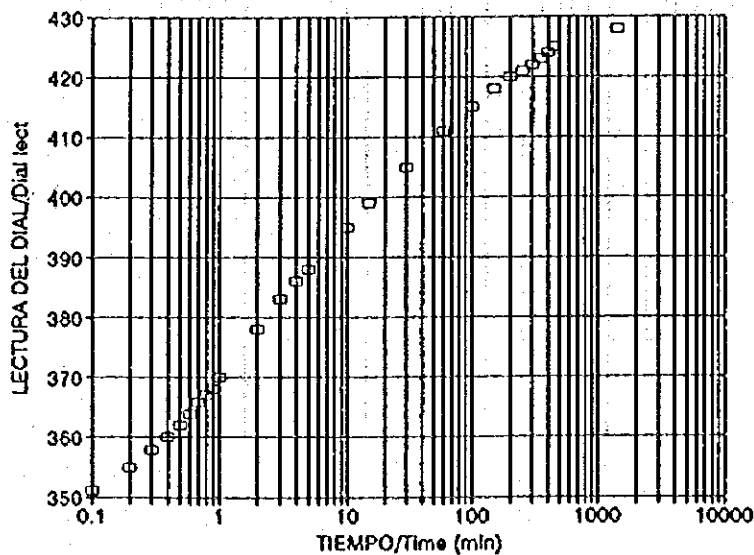
**CARGA 3/LOAD 3**

1.00 Kg/cm<sup>2</sup>      t<sub>50</sub>(sec) = 300



**CARGA 4/LOAD 4**

2.00 Kg/cm<sup>2</sup>      t<sub>50</sub>(sec) = 174

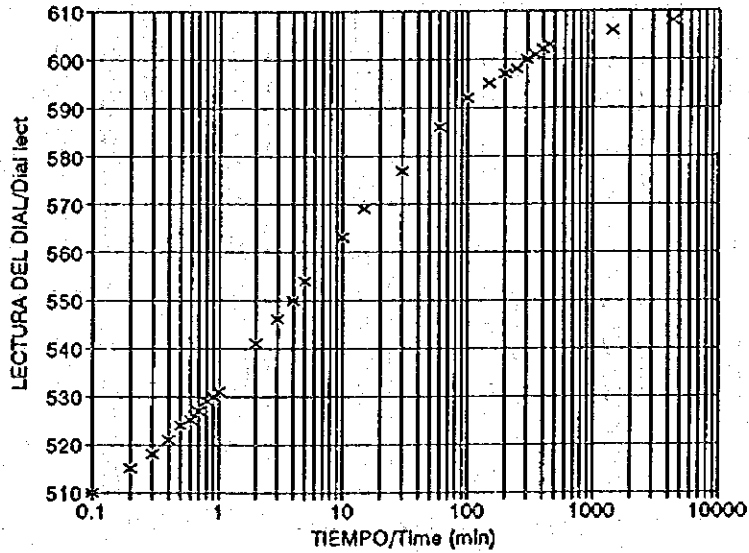




**HIDROSUELOS CIA. LTDA.**  
**ENSAYO DE CONSOLIDACION / CONSOLIDATION TEST**  
**CURVA TIEMPO-DEFORMATION/TIME DEFORMATION GRAPHIC**

<b>PROYECTO/PROJECT:</b>	Trasvaseo/Trasbasin		
<b>LOCALIZACION/SITE:</b>	Canal abierto/Open Channel		
<b>CALICATA No./PIT No.:</b>	C-14	<b>MUESTRA No./SAMPLE No.:</b>	M-2
<b>PROFUNDIDAD/DEPTH:</b>	2.0-3.50 m.	<b>FECHA/DATE:</b>	Enero94/Jan.94
<b>ENSAYADO/PERFORM BY:</b>	G.S.	<b>CALCULO/CALCULATED BY:</b>	F.V.

**CARGA 5/LOAD 5**  
**4.00 Kg/cm<sup>2</sup>      t<sub>50(sec)</sub> = 312**





**HIDROSUELOS CIA. LTDA.**  
**ENSAYO DE CONSOLIDACION / CONSOLIDATION TEST**  
**HUMEDAD Y CALCULOS / MOISTURE AND CALCULATIONS**

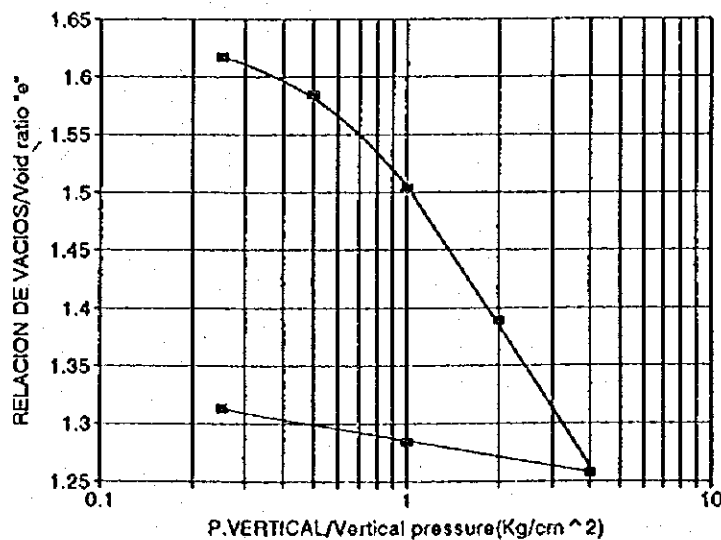
**PROYECTO/PROJECT:** Travesaños/Trasbasin  
**LOCALIZACION/SITE:** Canal abierto/Open Channel  
**CALICATA No./PIT No.:** C-15      **MUESTRA No./SAMPLE No.:** M-1  
**PROFUNDIDAD/DEPTH:** 0.40-1.00 m.      **FECHA/DATE:** Enero94/Jan.94  
**ENSAYADO/PERFORM.BY:** G.S.      **CALCULO/CALCULATED BY:** F.V.

HUMEDAD / MOISTURE	INICIAL/INITIAL	FINAL/final
Tara + SH/can + wet soil weight	640.00 gr	635.04 gr
Tara + SS/can + dry soil weight	592.77 gr	592.77 gr
Tara/can	511.99 gr	511.99 gr
Humedad/Moisture	58.47 %	52.33 %

ANILLO No./Ring number	III
DIAMETRO ANILLO/Ring diameter:	6.35 cm
AREA DEL ANILLO/Ring Area	31.67 cm <sup>2</sup>
ALTURA DEL ANILLO/Ring height:	25.40 mm
G.ESPECIF./Specific gravity:	2.658
ALTURA SOLIDOS/Solids height:	9.60 mm
VARIACION ALTURA/Height Change:	3.01 mm

HI MUEST/Specimen final height	22.39 mm
Ho AGUA/Initial water height:	14.92 mm
HI AGUA/Final height of water:	13.35 mm
R.VACIOS INIC./Initial void ratio:	1.65
R.VACIOS FINAL/Final void ratio:	1.33
Sr-o(%) /Initial saturation degree:	94.42 %
Sr-f%) /Final saturation degree:	104.40 %

**CARGA-ASENTAMIENTO/LOAD-SETTLEMENT**



Pc = 0.8 kg/cm<sup>2</sup>  
Cc = 0.439



**HIDROSUELOS CIA. LTDA.**  
**ENSAYO DE CONSOLIDACION / CONSOLIDATION TEST**  
**DATOS Y RESULTADOS/DATAS AND RESULTS**



**PROYECTO/PROJECT:** Trasvases/Trasbasin  
**LOCALIZACION/SITE:** Canal abierto/Open Channel  
**CALICATA No./PIT No.:** C-15  
**PROFUNDIDAD/DEPTH:** 0.40-1.00 m.  
**ENSAYADO/PERFORM.BY:** G.S.

**MUESTRA No./SAMPLE No.:** M-1  
**FECHA/DATE:** Enero94/Jan.94  
**CALCULO/CALCULATED BY:** F.V.

DELTA	P	d	Def. unit.	H	e	Pm	Hm	t 50	e m	a v	Cv	Ov m	K
min	Kg/cm2	mm	%	mm		Kg/cm2	mm	seg		cm2/Kg	mm2/min	mm2/min	cm/seg
0	0.00	0.00	0.00	25.40	1.65								
1440	0.25	0.28	1.10	25.12	1.62	0.13	25.26	468.0	1.631	0.117	4.029		3.0E-08
1440	0.50	0.59	2.32	24.81	1.58	0.38	24.96	600.0	1.601	0.129	3.070	3.549	2.6E-08
1440	1.00	1.36	5.35	24.04	1.50	0.75	24.43	780.0	1.544	0.160	2.260	2.665	2.4E-08
1440	2.00	2.45	9.69	22.94	1.39	1.50	23.49	900.0	1.447	0.115	1.812	2.036	1.4E-08
4320	4.00	3.73	14.69	21.67	1.26	3.00	22.31	960.0	1.323	0.066	1.531	1.672	7.5E-09

DESCARGA / UNLOAD			
0	4.00	3.73	14.69
180	1.00	3.47	13.66
180	0.25	3.19	12.56
180	0.00	3.01	11.85
			21.67
			21.93
			22.21
			22.39
			1.26
			1.28
			1.31
			1.33



**HIDROSUELOS CIA. LTDA.**  
**ENSAYO DE CONSOLIDACION / CONSOLIDATION TEST**  
**REGISTRO DE DATOS/DATA REGISTER**

**PROYECTO/PROJECT:** Travesaños/Trasbasin  
**LOCALIZACION/SITE:** Canal abierto/Open Channel  
**CALICATA No./PIT No.:** C-15 **MUESTRA No./SAMPLE No.:** M-1  
**PROFUNDIDAD/DEPTH:** 0.40-1.00 m. **FECHA/DATE:** Enero94/Jan.94  
**ENSAYADO/PERFORM.BY:** G.S. **CALCULO/CALCULATED BY:** F.V.  
**EXPANSION:** 2.7 mm

TIEMPO Time (min)	CARGA 1	CARGA 2	CARGA 3	CARGA 4	CARGA 5
	Load 1	Load 2	Load 3	Load 4	Load 5
	0.25Kg/cm <sup>2</sup>	0.50Kg/cm <sup>2</sup>	1.00Kg/cm <sup>2</sup>	2.00Kg/cm <sup>2</sup>	4.00Kg/cm <sup>2</sup>
	dial x 0.00254mm	dial x 0.00254mm	dial x 0.00254mm	dial x 0.00254mm	dial x 0.00254mm
0.1	47.0	140.0	318.0	650.0	1050.0
0.2	49.0	142.0	320.0	660.0	1060.0
0.3	51.0	144.0	324.0	667.0	1070.0
0.4	53.0	146.0	329.0	670.0	1080.0
0.5	54.0	147.0	331.0	676.0	1085.0
0.6	55.0	149.0	333.0	680.0	1090.0
0.7	56.0	150.0	338.0	683.0	1093.0
0.8	57.0	151.0	340.0	689.0	1100.0
0.9	58.0	152.0	341.0	690.0	1102.0
1.0	59.0	153.0	345.0	692.0	1105.0
2.0	64.0	160.0	361.0	717.0	1131.0
3.0	67.0	165.0	371.0	730.0	1150.0
4.0	69.0	168.0	380.0	740.0	1160.0
5.0	71.0	171.0	388.0	750.0	1170.0
10.0	76.0	180.0	408.0	779.0	1209.0
15.0	79.0	185.0	419.0	795.0	1230.0
30.0	84.0	194.0	438.0	825.0	1266.0
60.0	90.0	202.0	459.0	859.0	1304.0
100.0	94.0	208.0	472.0	881.0	1332.0
150.0	98.0	213.0	485.0	900.0	1356.0
200.0	100.0	216.0	492.0	917.0	1372.0
250.0	101.0	218.0	500.0	924.0	1386.0
300.0	102.0	220.0	505.0	932.0	1395.0
350.0	103.0	222.0	510.0	940.0	1401.0
400.0	104.0	224.0	511.0	945.0	1410.0
450.0	105.0	225.0	515.0	950.0	1415.0
1940.0	110.0	232.0	535.0	969.0	1453.0
4320.0	---	---	---	---	1468.0

**DESCARGA/UNLOAD**

TIEMPO Time (min)	CARGA Load Kg/cm <sup>2</sup>	dial x 0.00254
0	4.00	1468
180	1.00	1365
180	0.25	1254
180	0.00	1184

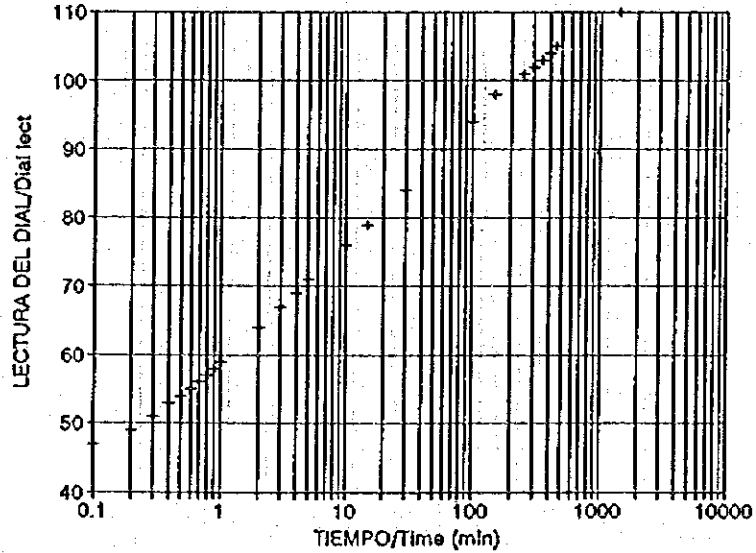


**HIDROSUELOS CIA. LTDA.**  
**ENSAYO DE CONSOLIDACION / CONSOLIDATION TEST**  
**CURVA TIEMPO-DEFORMATION/TIME DEFORMATION GRAPHIC**

**PROYECTO/PROJECT:** Travesaños/Trasbasin  
**LOCALIZACION/SITE:** Canal abierto/Open Channel  
**CALICATA No./PIT No.:** C-15      **MUESTRA No./SAMPLE No.:** M-1  
**PROFUNDIDAD/DEPTH:** 0.40-1.00 m.      **FECHA/DATE:** Enero94/Jan.94  
**ENSAYADO/PERFORM.BY:** O.S.      **CALCULO/CALCULATED BY:** F.V.

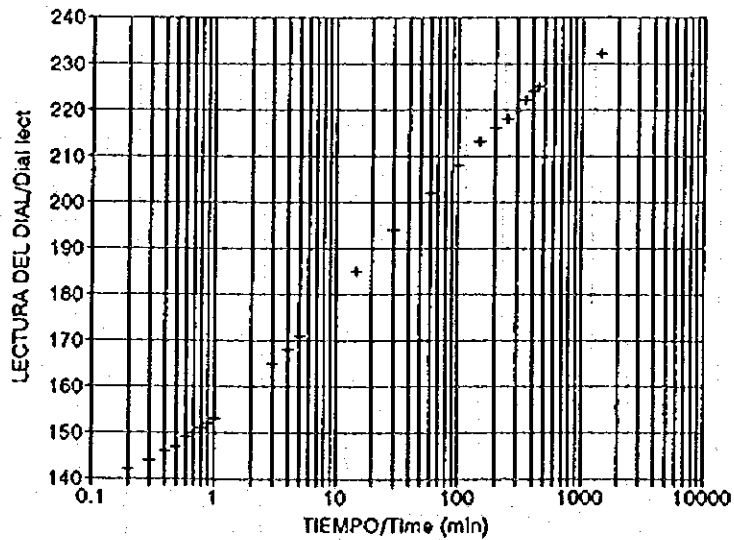
**CARGA 1/LOAD 1**

0.25 Kg/cm<sup>2</sup>      t<sub>50(sec)</sub>= 468



**CARGA 2/LOAD 2**

0.50 Kg/cm<sup>2</sup>      t<sub>50(sec)</sub>= 600



234



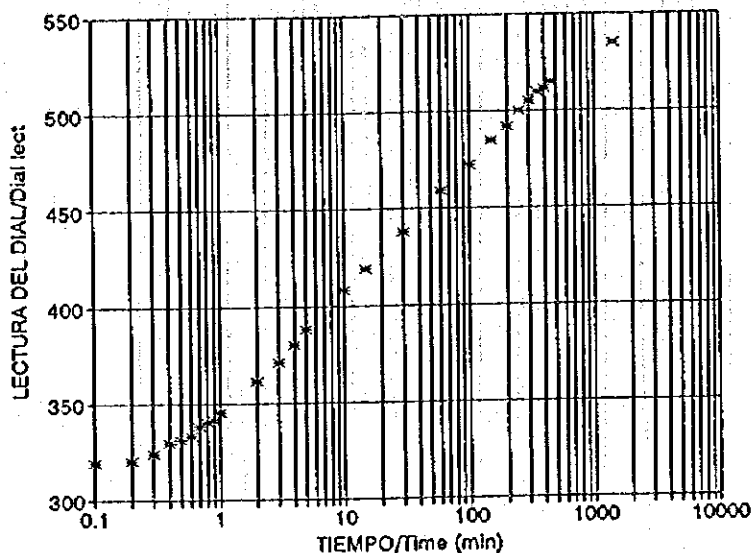
**HIDROSUELOS CIA. LTDA.**  
**ENSAYO DE CONSOLIDACION / CONSOLIDATION TEST**  
**CURVA TIEMPO-DEFORMATION/TIME DEFORMATION GRAPHIC**

**PROYECTO/PROJECT:** Travesaño/Trasbasin  
**LOCALIZACION/SITE:** Canal abierto/Open Channel  
**CALICATA No./PIT No.:** C-15 **MUESTRA No./SAMPLE No.:** M-1  
**PROFUNDIDAD/DEPTH:** 0.40-1.00 m. **FECHA/DATE:** Enero94/Jan.94  
**ENSAYADO/PERFORM.BY:** O.S. **CALCULO/CALCULATED BY:** F.V.

**CARGA 3/LOAD 3**

1.00 Kg/cm<sup>2</sup>

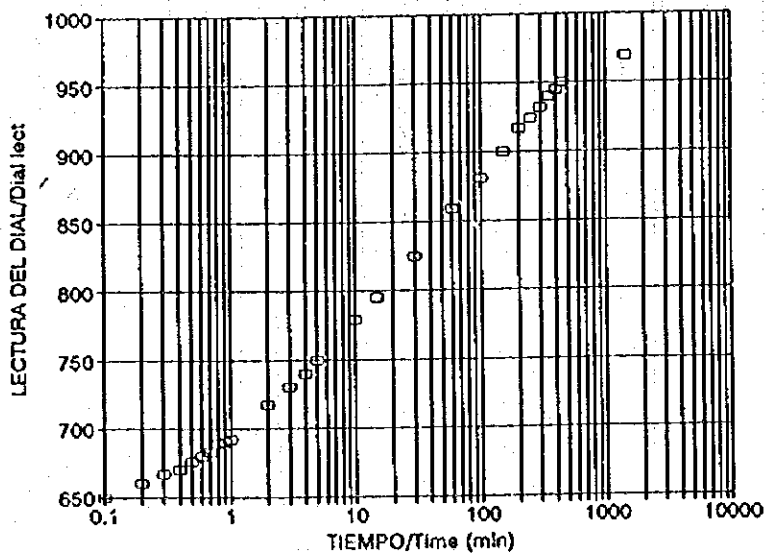
150(sec) = 780



**CARGA 4/LOAD 4**

2.00 Kg/cm<sup>2</sup>

150(sec) = 900



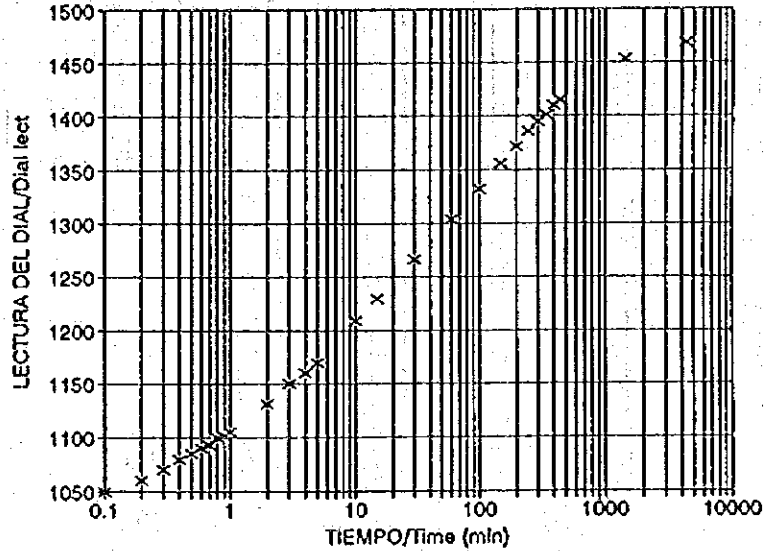


**HIDROSUELOS CIA. LTDA.**  
**ENSAYO DE CONSOLIDACION / CONSOLIDATION TEST**  
**CURVA TIEMPO-DEFORMATION/TIME DEFORMATION GRAPHIC**

**PROYECTO/PROJECT:** Travesaños/Trasbeeln  
**LOCALIZACION/SITE:** Canal abierto/Open Channel  
**CALICATA No./PIT No.:** C-15 **MUESTRA No./SAMPLE No.:** M-1  
**PROFUNDIDAD/DEPTH:** 0.40-1.00 m. **FECHA/DATE:** Enero94/Jan.94  
**ENSAYADO/PERFORM BY:** G.S. **CALCULO/CALCULATED BY:** F.V.

**CARGA 5/LOAD 5**

**4.00 Kg/cm<sup>2</sup>      150(sec) = 960**





**HIDROSUELOS CIA. LTDA.**  
**ENSAYO DE CONSOLIDACION / CONSOLIDATION TEST**  
**HUMEDAD Y CALCULOS / MOISTURE AND CALCULATIONS**

**PROYECTO/PROJECT:** Travesaños/Trasbasin  
**LOCALIZACION/SITE:** Canal abierto/Open Channel

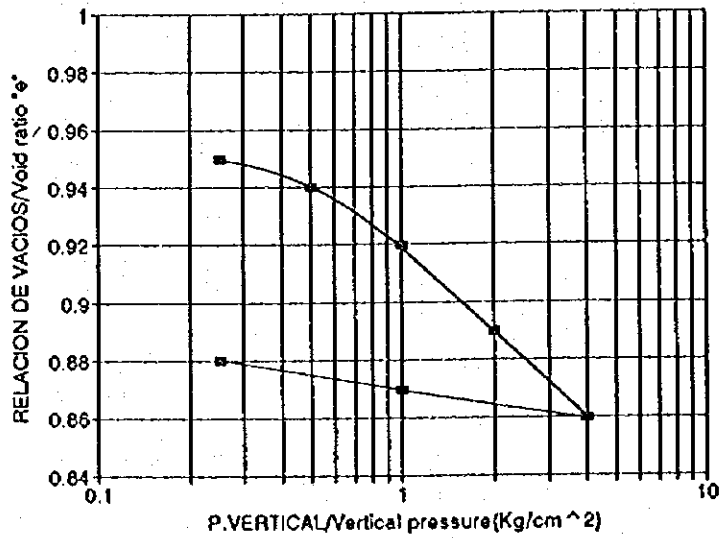
**CALICATA No./PIT No.:** C-16      **MUESTRA No./SAMPLE No.:** M-2  
**PROFUNDIDAD/DEPTH:** 2.00-3.50 m.      **FECHA/DATE:** Enero94/Jan.94  
**ENSAYADO/PERFORM.BY:** G.S.      **CALCULO/CALCULATED BY:** F.V.

HUMEDAD / MOISTURE	INICIAL/INITIAL	FINAL/final
Tara + SH/can+wet soil weight	666.06 gr	663.74 gr
Tara+SS/can+dry soil weight	622.09 gr	622.09 gr
Tara/can	521.00 gr	521.00 gr
Humedad/Moisture	43.50 %	41.20 %

ANILLO No./Ring number	VI
DIAMETRO ANILLO/Ring diameter:	6.35 cm
AREA DEL ANILLO/Ring Area	31.67 cm <sup>2</sup>
ALTURA DEL ANILLO/Ring height:	25.40 mm
G.ESPECIF./Specific gravity:	2.457
ALTURA SOLIDOS/Solids height:	12.99 mm
VARIACION ALTURA/Height Change:	0.85 mm

Hf MUEST/Specimen final height	24.55 mm
Ho AGUA/Initial water height:	13.88 mm
Hf AGUA/Final height of water:	13.15 mm
R.VACIOS INIC./Initial void ratio:	0.96
R.VACIOS FINAL/Final void ratio:	0.89
Sr-o(%) /Initial saturation degree:	111.86 %
Sr-f(%) /Final saturation degree:	113.75 %

**CARGA-ASENTAMIENTO/LOAD-SETTLEMENT**



Pc = 0.75 kg/cm<sup>2</sup>  
Cc = 0.107



**HIDROSUEÑOS CIA. LTDA.**  
**ENSAYO DE CONSOLIDACION / CONSOLIDATION TEST**  
**DATOS Y RESULTADOS/DATAS AND RESULTS**

**PROYECTO/PROJECT:** Trasvases/Trasbasin  
**LOCALIZACION/SITE:** Canal abierto/Open Channel  
**CALICATA No./PIT No.:** C-16  
**PROFUNDIDAD/DEPTH:** 2.00-3.50 m.  
**ENSAYADO/PERFORM.BY:** G.S.

**MUESTRA No./SAMPLE No.:** M-2  
**FECHA/DATE:** Enero94/Jan.94  
**CALCULO/CALCULATED BY:** F.V.

DELTA t	P	d	Det. unit.	H	e	Pm	Hm	t50	e m	av	Cv	Cv m	K
min	Kg/cm2	mm	%	mm		Kg/cm2	mm	seg		cm2/Kg	mm2/min	mm2/min	cm/seg
0	0.00	0.00	0.00	25.40	0.96								
1440	0.25	0.07	0.28	25.33	0.95	0.13	25.37	42.0	0.953	0.022	45.267		8.3E-08
1440	0.50	0.20	0.79	25.20	0.94	0.38	25.27	108.0	0.945		17.465	31.366	6.0E-08
1440	1.00	0.46	1.81	24.94	0.92	0.75	25.07	84.0	0.930	0.040	22.110	19.788	7.7E-08
1440	2.00	0.85	3.35	24.55	0.89	1.50	24.75	150.0	0.905	0.030	12.063	17.086	3.2E-08
4320	4.00	1.24	4.88	24.16	0.86	3.00	24.36	126.0	0.875	0.015	13.911	12.987	1.9E-08

DESCARGA / UNLOAD			
0	4.00	1.24	4.88
180	1.00	1.11	4.37
180	0.25	0.98	3.86
180	0.00	0.85	3.35



**HIDROSUELOS CIA. LTDA.**  
**ENSAYO DE CONSOLIDACION / CONSOLIDATION TEST**  
**REGISTRO DE DATOS/DATA REGISTER**

**PROYECTO/PROJECT:** Trayaseos/Trasbasin  
**LOCALIZACION/SITE:** Canal abierto/Open Channel  
**CALICATA No./PIT No.:** C-16 **MUESTRA No./SAMPLE No.:** M-2  
**PROFUNDIDAD/DEPTH:** 2.00-3.50 m. **FECHA/DATE:** Enero94/Jan.94  
**ENSAYADO/PERFORM BY:** G.S. **CALCULO/CALCULATED BY:** F.V.  
**EXPANSION:** 0.85mm

TIEMPO Time (min)	CARGA 1 Load 1 0.25Kg/cm <sup>2</sup> dial x 0.00254mm	CARGA 2 Load 2 0.50Kg/cm <sup>2</sup> dial x 0.00254mm	CARGA 3 Load 3 1.00Kg/cm <sup>2</sup> dial x 0.00254mm	CARGA 4 Load 4 2.00Kg/cm <sup>2</sup> dial x 0.00254mm	CARGA 5 Load 5 4.00Kg/cm <sup>2</sup> dial x 0.00254mm
	0.1	6.0	38.0	116.0	244.0
0.2	8.0	40.0	118.0	246.0	335.0
0.3	10.0	42.0	120.0	248.0	340.0
0.4	11.0	43.0	122.0	250.0	344.0
0.5	12.0	44.0	124.0	252.0	350.0
0.6	13.0	45.0	126.0	254.0	354.0
0.7	14.0	46.0	128.0	256.0	357.0
0.8	15.0	47.0	130.0	258.0	362.0
0.9	16.0	48.0	132.0	260.0	365.0
1.0	17.0	49.0	134.0	262.0	367.0
2.0	21.0	54.0	146.0	276.0	390.0
3.0	22.0	57.0	151.0	283.0	400.0
4.0	23.0	59.0	155.0	288.0	408.0
5.0	24.0	60.0	157.0	291.0	414.0
10.0	25.0	64.0	164.0	300.0	428.0
15.0	26.0	67.0	167.0	306.0	435.0
30.0	26.5	70.0	171.0	314.0	449.0
60.0	27.0	72.0	174.0	320.0	460.0
100.0	27.0	74.0	178.0	324.0	467.0
150.0	27.0	75.0	177.0	326.0	470.0
200.0	27.0	76.0	178.0	328.0	473.0
250.0	27.0	76.5	179.0	329.0	474.0
300.0	27.0	77.0	179.0	330.0	476.0
350.0	27.0	77.5	180.0	331.0	477.0
400.0	27.0	77.5	180.0	331.5	478.0
450.0	27.0	78.0	180.0	332.0	479.0
1440.0	27.0	79.0	181.0	334.0	485.0
4320.0	----	----	----	----	486.0

**DESCARGA/UNLOAD**

TIEMPO Time (min)	CARGA Load Kg/cm <sup>2</sup>	dial x 0.00254
0	4.00	488
180	1.00	437
180	0.25	385
180	0.00	334



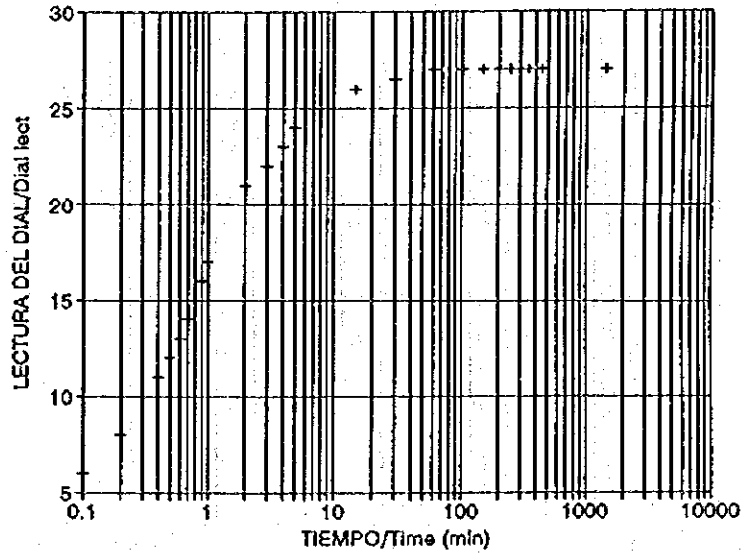


**HIDROSUELOS CIA. LTDA.**  
**ENSAYO DE CONSOLIDACION / CONSOLIDATION TEST**  
**CURVA TIEMPO-DEFORMACION/TIME DEFORMATION GRAPHIC**

**PROYECTO/PROJECT:** Travesaños/Trasbaein  
**LOCALIZACION/SITE:** Canal abierto/Open Channel  
**CALICATA No./PIT No.:** C-18 **MUESTRA No./SAMPLE No.:** M-2  
**PROFUNDIDAD/DEPTH:** 2.00-3.50 m. **FECHA/DATE:** Enero94/Jan.94  
**ENSAYADO/PERFORM.BY:** G.S. **CALCULO/CALCULATED BY:** F.V.

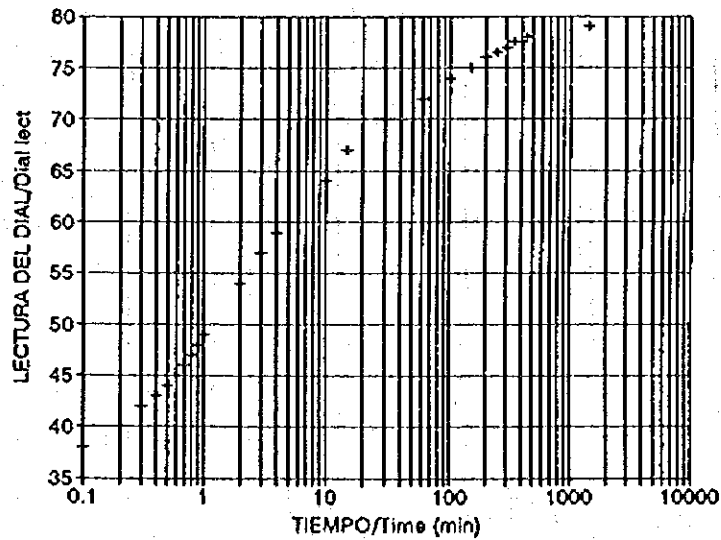
**CARGA 1/LOAD 1**

**0.25 Kg/cm<sup>2</sup>** **150(sec) = 42**



**CARGA 2/LOAD 2**

**0.50 Kg/cm<sup>2</sup>** **150(sec) = 108**





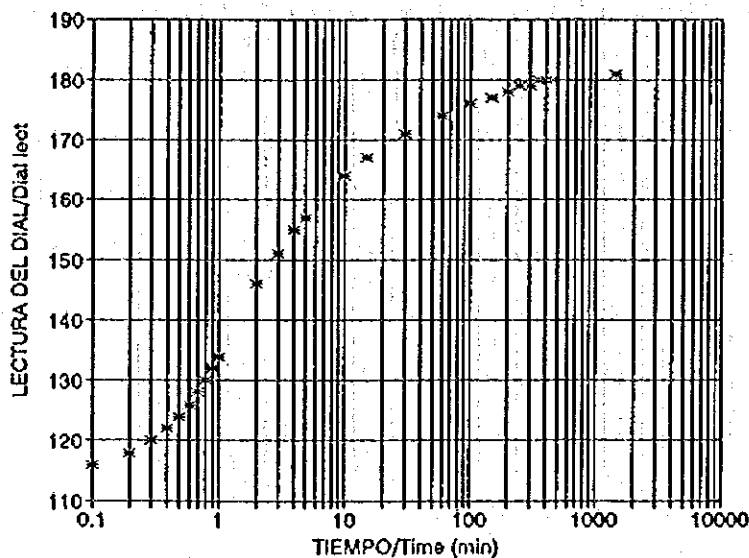
**HIDROSUELOS CIA. LTDA.**  
**ENSAYO DE CONSOLIDACION / CONSOLIDATION TEST**  
**CURVA TIEMPO-DEFORMATION/TIME DEFORMATION GRAPHIC**

**PROYECTO/PROJECT:** Trecevases/Traebasin  
**LOCALIZACION/SITE:** Canal abierto/Open Channel  
**CALICATA No./PIT No.:** C-16 **MUESTRA No./SAMPLE No.:** M-2  
**PROFUNDIDAD/DEPTH:** 2.00-3.50 m. **FECHA/DATE:** Enero94/Jan.94  
**ENSAYADO/PERFORM BY:** O.S. **CALCULO/CALCULATED BY:** F.V.

**CARGA 3/LOAD 3**

1.00 Kg/cm<sup>2</sup>

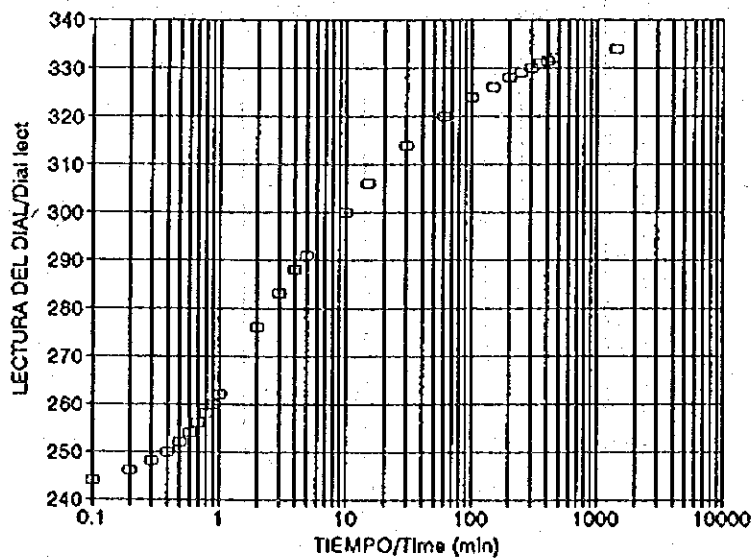
t<sub>50(sec)</sub> = 84



**CARGA 4/LOAD 4**

2.00 Kg/cm<sup>2</sup>

t<sub>50(sec)</sub> = 150

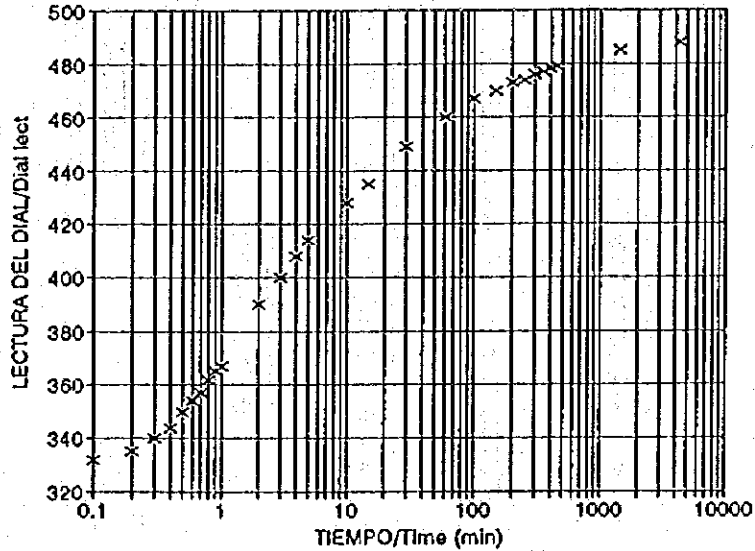




**HIDROSUELOS CIA. LTDA.**  
**ENSAYO DE CONSOLIDACION / CONSOLIDATION TEST**  
**CURVA TIEMPO-DEFORMATION/TIME DEFORMATION GRAPHIC**

**PROYECTO/PROJECT:** Travesaños/Trasbaen  
**LOCALIZACION/SITE:** Canal abierto/Open Channel  
**CALICATA No./PIT No.:** C-16 **MUESTRA No./SAMPLE No.:** M-2  
**PROFUNDIDAD/DEPTH:** 2.00-3.50 m. **FECHA/DATE:** Enero94/Jan.94  
**ENSAYADO/PERFORM.BY:** G.S. **CALCULO/CALCULATED BY:** F.V.

**CARGA 5/LOAD 5**  
**4.00 Kg/cm<sup>2</sup>      t<sub>50(sec)</sub>= 126**





**HIDROSUELOS CIA. LTDA.**  
**ENSAYO DE CONSOLIDACION / CONSOLIDATION TEST**  
**HUMEDAD Y CALCULOS / MOISTURE AND CALCULATIONS**

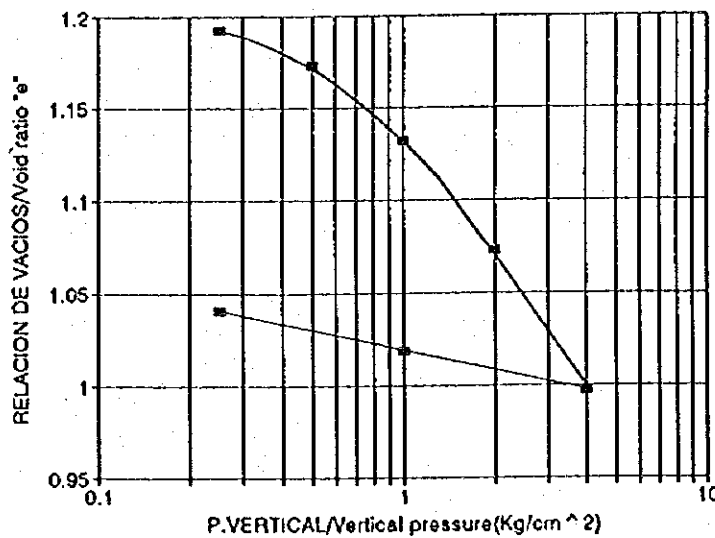
**PROYECTO/PROJECT:** Travesaños/Trasbaein  
**LOCALIZACION/SITE:** Canal abierto/Open Channel  
**CALICATA No./PIT No.:** C-17      **MUESTRA No./SAMPLE No.:** M-1  
**PROFUNDIDAD/DEPTH:** 0.40-1.60m.      **FECHA/DATE:** Enero94/Jan.94  
**ENSAYADO/PERFORM.BY:** G.S.      **CALCULO/CALCULATED BY:** F.V.

HUMEDAD / MOISTURE	INICIAL/INITIAL		FINAL/final	
Tara + SH/can + wet soil weight	654.18	gr	653.00	gr
Tara + SS/can + dry soil weight	611.00	gr	611.00	gr
Tara/can	516.42	gr	516.42	gr
Humedad/Moisture	45.65	%	44.41	%

ANILLO No./Ring number	VI	
DIAMETRO ANILLO/Ring diameter:	6.35	cm
AREA DEL ANILLO/Ring Area	31.67	cm <sup>2</sup>
ALTURA DEL ANILLO/Ring height:	25.40	mm
G.ESPECIF./Specific gravity:	2.623	
ALTURA SOLIDOS/Solids height:	11.39	mm
VARIACION ALTURA/Height Change:	1.90	mm

Hf MUEST/Specimen final height	23.50	mm
Ho AGUA/Initial water height:	13.64	mm
Hf AGUA/Final height of water:	13.27	mm
R.VACIOS INIC./Initial void ratio:	1.23	
R.VACIOS FINAL/Final void ratio:	1.06	
Sr-o(%) /Initial saturation degree:	97.36	%
Sr-f%) /Final saturation degree:	109.55	%

**CARGA-ASENTAMIENTO/LOAD-SETTLEMENT**



Pc = 0.8 kg/cm<sup>2</sup>  
Cc = 0.2434

**HIDROSUELOS CIA. LTDA.**  
**ENSAYO DE CONSOLIDACION / CONSOLIDATION TEST**  
**DATOS Y RESULTADOS/DATAS AND RESULTS**



PROYECTO/PROJECT: Trasvases/Trasbasin  
 LOCALIZACION/SITE: Canal abierto/Open Channel  
 CALICATA No./PIT No.: C-17  
 PROFUNDIDAD/DEPTH: 0.40-1.60m.  
 ENSAYADO/PERFORM.BY: G.S.

MUESTRA No./SAMPLE No.: M-1  
 FECHA/DATE: Enero94/Jan.94  
 CALCULO/CALCULATED BY: F.V.

DELTA t	P	d	Def. unit.	H	e	Pm	Hm	t50	e m	av	Cv	Cvm	K
min	Kg/cm2	mm	%	mm		Kg/cm2	mm	seg		cm2/Kg	mm2/min	mm2/min	cm/seg
0	0.00	0.00	0.00	25.40	1.23								
1440	0.25	0.43	1.69	24.97	1.19	0.13	25.19	102.0	1.211	0.151	18.376	12.570	2.1E-07
1440	0.50	0.65	2.56	24.75	1.17	0.38	24.86	270.0	1.183	0.077	6.764	6.993	4.0E-08
1440	1.00	1.11	4.37	24.29	1.13	0.75	24.52	246.0	1.153	0.081	7.222	8.656	4.6E-08
1440	2.00	1.79	7.05	23.61	1.07	1.50	23.95	168.0	1.103	0.060	10.089	10.337	4.8E-08
4320	4.00	2.65	10.43	22.75	1.00	3.00	23.18	150.0	1.035	0.038	10.585		3.3E-08

DESCARGA / UNLOAD			
0	4.00	2.65	10.43
180	1.00	2.41	9.49
180	0.25	2.16	8.50
180	0.00	1.90	7.48



**HIDROSUELOS CIA. LTDA.**  
**ENSAYO DE CONSOLIDACION / CONSOLIDATION TEST**  
**REGISTRO DE DATOS/DATA REGISTER**

**PROYECTO/PROJECT:** Travesaños/Trasbaein  
**LOCALIZACION/SITE:** Canal abierto/Open Channel  
**CALICATA No./PIT No.:** C-17 **MUESTRA No./SAMPLE No.:** M-1  
**PROFUNDIDAD/DEPTH:** 0.40-1.60m. **FECHA/DATE:** Enero94/Jan.94  
**ENSAYADO/PERFORM BY:** G.S. **CALCULO/CALCULATED BY:** F.V.  
**EXPANSION:** 1.62 mm

TIEMPO Time (min)	CARGA 1 Load 1 0.25Kg/cm <sup>2</sup>	CARGA 2 Load 2 0.50Kg/cm <sup>2</sup>	CARGA 3 Load 3 1.00Kg/cm <sup>2</sup>	CARGA 4 Load 4 2.00Kg/cm <sup>2</sup>	CARGA 5 Load 5 4.00Kg/cm <sup>2</sup>
	dial x 0.00254mm	dial x 0.00254mm	dial x 0.00254mm	dial x 0.00254mm	dial x 0.00254mm
0.1	127.0	220.0	304.0	525.0	820.0
0.2	129.0	221.5	310.0	535.0	828.0
0.3	131.0	222.0	316.0	543.0	835.0
0.4	133.0	223.0	319.0	548.0	842.0
0.5	134.0	224.0	323.0	552.0	850.0
0.6	135.0	224.5	326.0	555.0	855.0
0.7	136.0	225.0	327.0	560.0	860.0
0.8	136.5	226.0	330.0	563.0	865.0
0.9	137.0	226.5	332.0	565.0	870.0
1.0	138.0	227.0	334.0	568.0	872.0
2.0	142.0	230.0	345.0	584.0	895.0
3.0	145.0	232.0	351.0	594.0	903.0
4.0	147.0	234.0	356.0	601.0	915.0
5.0	148.0	235.0	360.0	606.0	920.0
10.0	154.0	238.0	374.0	624.0	940.0
15.0	156.0	240.0	379.0	634.0	951.0
30.0	159.0	244.0	390.0	649.0	971.0
60.0	163.0	247.0	400.0	661.0	990.0
100.0	165.0	249.0	409.0	670.0	1002.0
150.0	166.0	251.0	414.0	676.0	1010.0
200.0	167.0	252.0	417.0	681.0	1016.0
250.0	168.0	252.5	420.0	685.0	1020.0
300.0	168.5	253.0	423.0	687.0	1021.0
350.0	169.0	253.5	425.0	689.0	1025.0
400.0	169.0	254.0	426.0	691.0	1028.0
450.0	169.5	254.5	427.0	692.0	1029.0
1440.0	170.0	257.0	436.0	703.0	1040.0
4320.0	....	....	....	....	1045.0

**DESCARGA/UNLOAD**

TIEMPO Time (min)	CARGA Load Kg/cm <sup>2</sup>	dial x 0.00254
0	4.00	1045
180	1.00	948
180	0.25	852
180	0.00	749

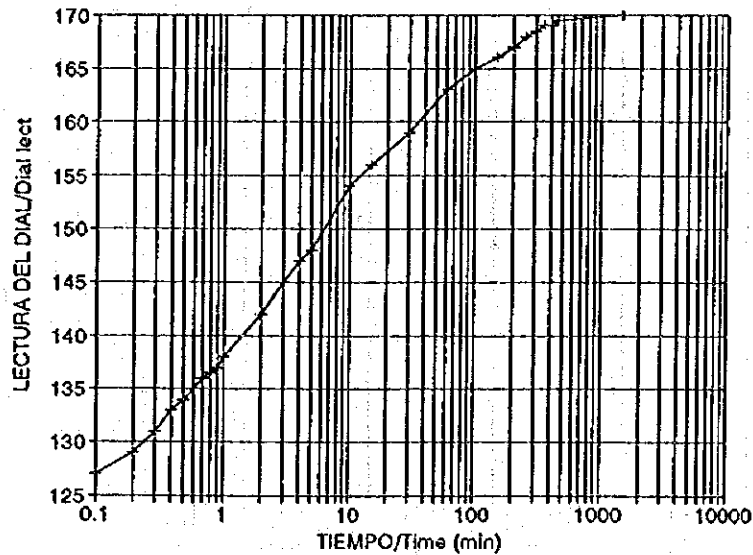


**HIDROSUELOS CIA. LTDA.**  
**ENSAYO DE CONSOLIDACION / CONSOLIDATION TEST**  
**CURVA TIEMPO-DEFORMATION/TIME DEFORMATION GRAPHIC**

**PROYECTO/PROJECT:** Travesaños/Trasbasin  
**LOCALIZACION/SITE:** Canal abierto/Open Channel  
**CALICATA No./PIT No.:** C-17 **MUESTRA No./SAMPLE No.:** M-1  
**PROFUNDIDAD/DEPTH:** 0.40-1.60m. **FECHA/DATE:** Enero94/Jan.94  
**ENSAYADO/PERFORM.BY:** G.S. **CALCULO/CALCULATED BY:** F.V.

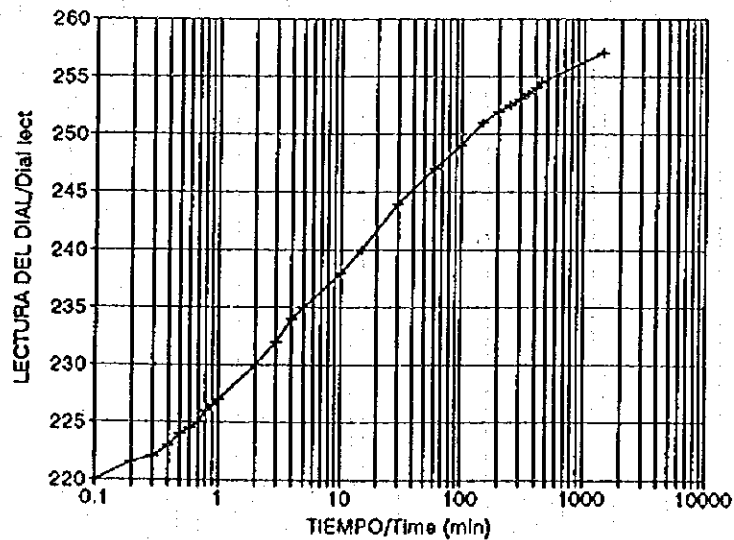
**CARGA 1/LOAD 1**

0.25 Kg/cm<sup>2</sup>      150(sec) = 102



**CARGA 2/LOAD 2**

0.50 Kg/cm<sup>2</sup>      150(sec) = 270



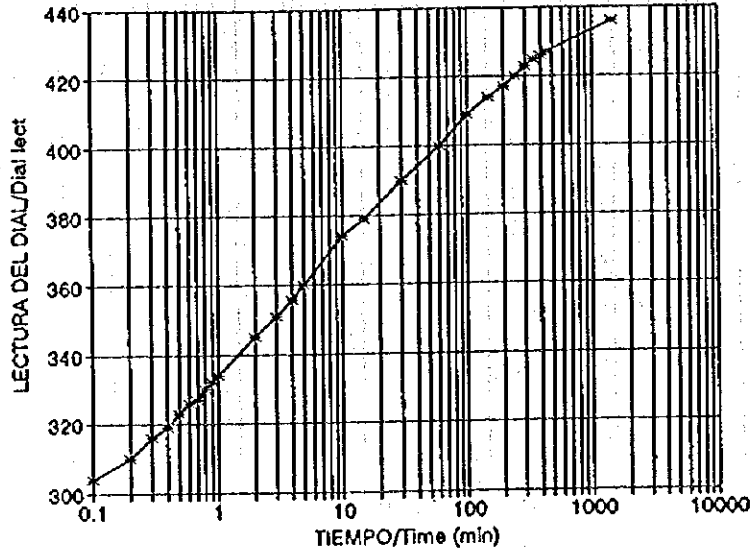


**HIDROSUELOS CIA. LTDA.**  
**ENSAYO DE CONSOLIDACION / CONSOLIDATION TEST**  
**CURVA TIEMPO-DEFORMATION/TIME DEFORMATION GRAPHIC**

**PROYECTO/PROJECT:** Travesaas/Trasbasin  
**LOCALIZACION/SITE:** Canal abierto/Open Channel  
**CALICATA No./PIT No.:** C-17      **MUESTRA No./SAMPLE No.:** M-1  
**PROFUNDIDAD/DEPTH:** 0.40-1.60m.      **FECHA/DATE:** Enero94/Jan.94  
**ENSAYADO/PERFORM.BY:** G.S.      **CALCULO/CALCULATED BY:** F.V.

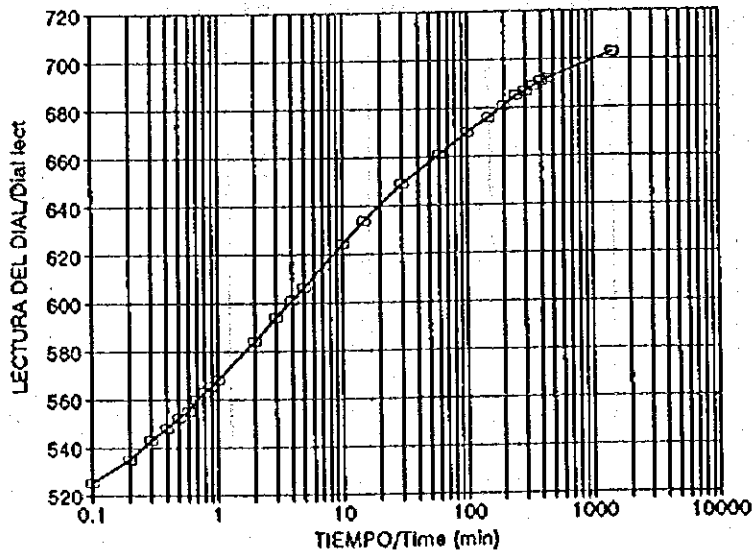
**CARGA 3/LOAD 3**

**1.00 Kg/cm<sup>2</sup>      150(sec) = 246**



**CARGA 4/LOAD 4**

**2.00 Kg/cm<sup>2</sup>      150(sec) = 168**







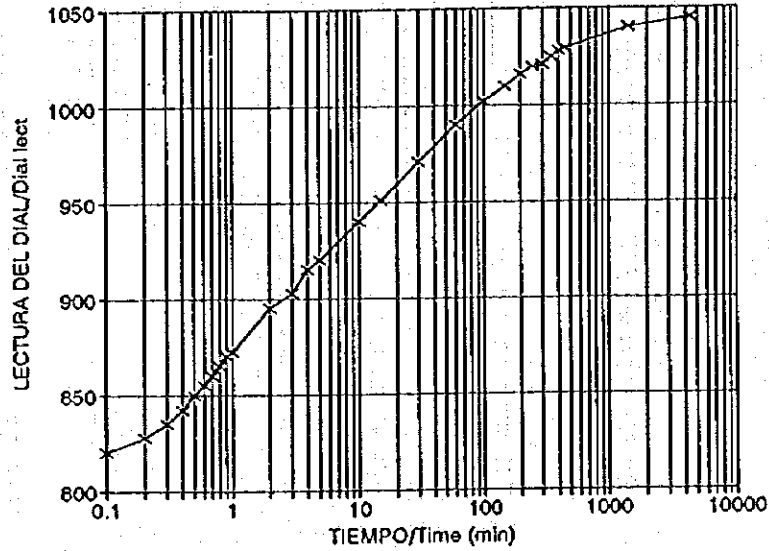
**HIDROSUELOS CIA. LTDA.**  
**ENSAYO DE CONSOLIDACION / CONSOLIDATION TEST**  
**CURVA TIEMPO-DEFORMATION/TIME DEFORMATION GRAPHIC**

**PROYECTO/PROJECT:** Travesaños/Trasbasin  
**LOCALIZACION/SITE:** Canal abierto/Open Channel  
**CAUCATA No./PIT No.:** C-17 **MUESTRA No./SAMPLE No.:** M-1  
**PROFUNDIDAD/DEPTH:** 0.40-1.60m. **FECHA/DATE:** Enero94/Jan.94  
**ENSAYADO/PERFORM.BY:** G.S. **CALCULO/CALCULATED BY:** F.V.

**CARGA 5/LOAD 5**

**4.00 Kg/cm<sup>2</sup>**

**150(sec) = 150**





**HIDROSUELOS CIA. LTDA.**  
**ENSAYO DE CONSOLIDACION / CONSOLIDATION TEST**  
**HUMEDAD Y CALCULOS / MOISTURE AND CALCULATIONS**

**PROYECTO/PROJECT:** Traveses/Trasbasin  
**LOCALIZACION/SITE:** Canal abierto/Open Channel

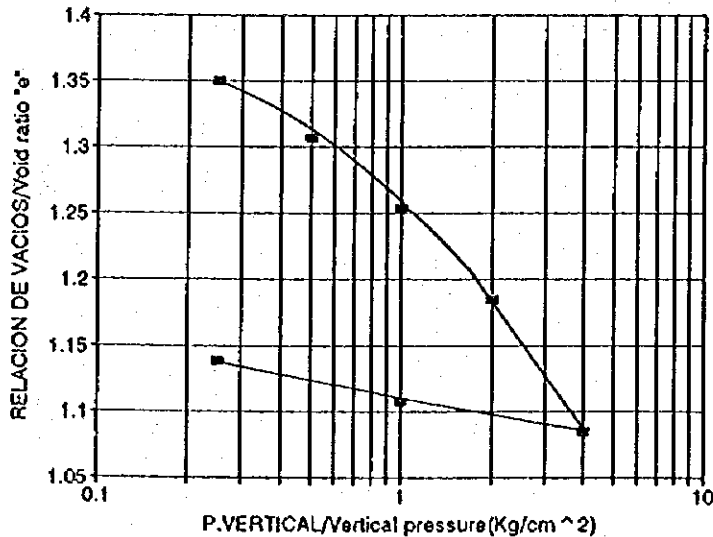
**CALICATA No./PIT No.:** C-18      **MUESTRA No./SAMPLE No.:** M-1  
**PROFUNDIDAD/DEPTH:** 0.30-1.50m.      **FECHA/DATE:** Enero94/Jan.94  
**ENSAYADO/PERFORM.BY:** G.S.      **CALCULO/CALCULATED BY:** F.V.

HUMEDAD / MOISTURE	INICIAL/INITIAL	FINAL/final
Tara + SH/can+wet soil weight	637.55 gr	633.79 gr
Tara+SS/can+dry soil weight	594.25 gr	594.25 gr
Tara/can	504.50 gr	504.50 gr
Humedad/Moisture	48.25 %	44.06 %

ANILLO No./Ring number	IX
DIAMETRO ANILLO/Ring diameter:	6.35 cm
AREA DEL ANILLO/Ring Area	31.67 cm <sup>2</sup>
ALTURA DEL ANILLO/Ring height:	25.40 mm
G.ESPECIF./Specific gravity:	2.726
ALTURA SOLIDOS/Solids height:	10.40 mm
VARIACION ALTURA/Height Change:	2.78 mm

HI MUEST/Specimen final height	22.62 mm
Ho AGUA/Initial water height:	13.68 mm
Hi AGUA/Final height of water:	12.49 mm
R.VACIOS INIC./Initial void ratio:	1.44
R.VACIOS FINAL/Final void ratio:	1.17
Sr-o(%) /Initial saturation degree:	91.18 %
Sr-1(%) /Final saturation degree:	102.21 %

**CARGA-ASENTAMIENTO/LOAD-SETTLEMENT**



Pc = 0.7 kg/cm<sup>2</sup>  
Cc = 0.335

**HIDROSUELOS CIA. LTDA.**  
**ENSAYO DE CONSOLIDACION / CONSOLIDATION TEST**  
**DATOS Y RESULTADOS/DATAS AND RESULTS**



**PROYECTO/PROJECT:** Traszases/Trasbasin  
**LOCALIZACION/SITE:** Canal abierto/Open Channel  
**CALICATA No./PIT No.:** C-18  
**PROFUNDIDAD/DEPTH:** 0.30-1.60m.  
**ENSAYADO/PERFORM.BY:** G.S.

**MUESTRA No./SAMPLE No.:** M-1  
**FECHA/DATE:** Enero94/Jan.94  
**CALCULO/CALCULATED BY:** F.V.

DELTA t	P	d	Def. unit.	H	e	Pm	Hm	t 150	e m	av	Ov	Ovm	K
min	Kg/cm2	mm	%	mm		Kg/cm2	mm	seg		cm2/Kg	mm2/min	mm2/min	cm/seg
0	0.00	0.00	0.00	25.40	1.44								
1440	0.25	0.96	3.78	24.44	1.35	0.13	24.92	105.0	1.396	0.369	17.477		4.6E-07
1440	0.50	1.41	5.55	23.99	1.31	0.38	24.21	189.0	1.328	0.173	9.168	13.322	1.1E-07
1440	1.00	1.96	7.72	23.44	1.25	0.75	23.71	210.0	1.280	0.106	7.914	8.541	
4320	2.00	2.68	10.55	22.72	1.18	1.50	23.08	144.0	1.219	0.069	10.931	9.422	6.2E-08
1440	4.00	3.72	14.65	21.68	1.08	3.00	22.20	234.0	1.135	0.050	6.224	8.577	5.8E-08
													2.5E-08

**DESCARGA / UNLOAD**

0	4.00	3.72	14.65	21.68	1.08
180	1.00	3.48	13.70	21.92	1.11
180	0.25	3.16	12.44	22.24	1.14
180	0.00	2.78	10.94	22.62	1.17



**HIDROSUELOS CIA. LTDA.**  
**ENSAYO DE CONSOLIDACION / CONSOLIDATION TEST**  
**REGISTRO DE DATOS/DATA REGISTER**

**PROYECTO/PROJECT:** Travesaas/Trasbasin  
**LOCALIZACION/SITE:** Canal abierto/Open Channel  
**CALICATA No./PIT No.:** C-18 **MUESTRA No./SAMPLE No.:** M-1  
**PROFUNDIDAD/DEPTH:** 0.30-1.60m. **FECHA/DATE:** Enero94/Jan.94  
**ENSAYADO/PERFORM.BY:** G.S. **CALCULO/CALCULATED BY:** F.V.  
**EXPANSION:** 0.69 mm

TIEMPO Time (min)	CARGA 1 Load 1 0.25Kg/cm <sup>2</sup>	CARGA 2 Load 2 0.50Kg/cm <sup>2</sup>	CARGA 3 Load 3 1.00Kg/cm <sup>2</sup>	CARGA 4 Load 4 2.00Kg/cm <sup>2</sup>	CARGA 5 Load 5 4.00Kg/cm <sup>2</sup>
	dial x 0.00254mm	dial x 0.00254mm	dial x 0.00254mm	dial x 0.00254mm	dial x 0.00254mm
0.1	347.0	511.0	639.0	880.0	1245.0
0.2	348.0	512.0	638.0	889.0	1252.0
0.3	349.0	513.0	643.0	896.0	1262.0
0.4	350.0	514.0	646.0	902.0	1269.0
0.5	351.0	515.0	650.0	907.0	1275.0
0.6	352.0	516.0	653.0	912.0	1280.0
0.7	353.0	517.0	655.0	915.0	1284.0
0.8	354.0	518.0	659.0	919.0	1289.0
0.9	354.5	519.0	662.0	922.0	1292.0
1.0	355.0	520.0	664.0	925.0	1295.0
2.0	360.0	525.0	680.0	947.0	1315.0
3.0	363.0	528.0	689.0	962.0	1329.0
4.0	364.0	530.0	694.0	972.0	1339.0
5.0	365.5	532.0	694.0	978.0	1345.0
10.0	369.0	537.0	711.0	995.0	1369.0
15.0	371.0	540.0	717.0	1004.0	1379.0
30.0	372.0	544.0	730.0	1015.0	1398.0
60.0	374.0	548.0	742.0	1025.0	1412.0
100.0	376.0	549.5	750.0	1033.0	1425.0
150.0	376.0	551.0	755.0	1037.0	1432.0
200.0	376.5	551.5	760.0	1042.0	1440.0
250.0	377.0	552.0	762.0	1044.0	1442.0
300.0	377.0	552.5	764.0	1048.0	1446.0
350.0	377.5	552.5	765.0	1047.0	1450.0
400.0	377.5	553.0	766.0	1049.0	1451.0
450.0	377.5	553.0	767.0	1050.0	1452.0
1440.0	378.0	554.0	772.0	1053.0	1465.0
4320.0	----	----	----	1057.0	----

**DESCARGA/UNLOAD**

TIEMPO Time (min)	CARGA Load Kg/cm <sup>2</sup>	dial x 0.00254
0	4.00	1465
180	1.00	1369
180	0.25	1245
180	0.00	1095

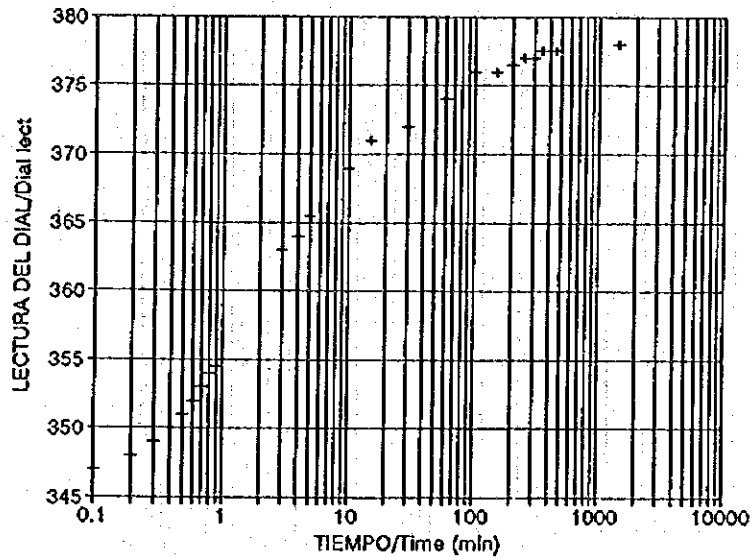


**HIDROSUELOS CIA. LTDA.**  
**ENSAYO DE CONSOLIDACION / CONSOLIDATION TEST**  
**CURVA TIEMPO-DEFORMATION/TIME DEFORMATION GRAPHIC**

**PROYECTO/PROJECT:** Travesaños/Trasbasin  
**LOCALIZACION/SITE:** Canal abierto/Open Channel  
**CALICATA No./PIT No.:** C-18 **MUESTRA No./SAMPLE No.:** M-1  
**PROFUNDIDAD/DEPTH:** 0.30-1.60m. **FECHA/DATE:** Enero94/Jan.94  
**ENSAYADO/PERFORM.BY:** Q.S. **CALCULO/CALCULATED BY:** F.V.

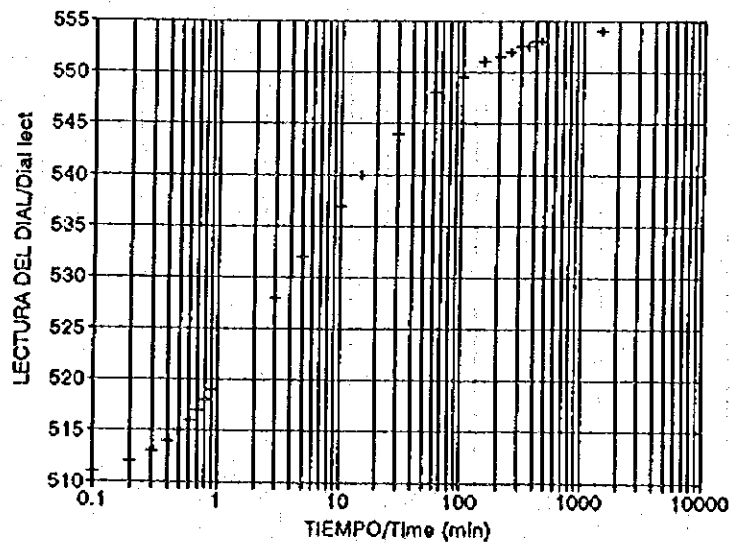
**CARGA 1/LOAD 1**

**0.25 Kg/cm<sup>2</sup>** **t50(sec)= 105**



**CARGA 2/LOAD 2**

**0.50 Kg/cm<sup>2</sup>** **t50(sec)= 189**





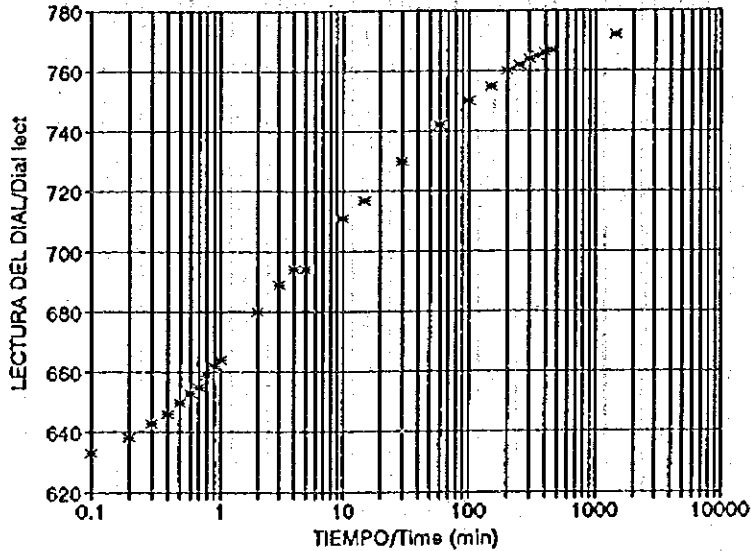
**HIDROSUELOS CIA. LTDA.**  
**ENSAYO DE CONSOLIDACION / CONSOLIDATION TEST**  
**CURVA TIEMPO-DEFORMACION/TIME DEFORMATION GRAPHIC**

**PROYECTO/PROJECT:** Traszvaos/Trasvaosin  
**LOCALIZACION/SITE:** Canal abierto/Open Channel  
**CALICATA No./PIT No.:** C-18 **MUESTRA No./SAMPLE No.:** M-1  
**PROFUNDIDAD/DEPTH:** 0.30-1.60m. **FECHA/DATE:** Enero94/Jan.94  
**ENSAYADO/PERFORM.BY:** G.S. **CALCULO/CALCULATED BY:** F.V.

**CARGA 3/LOAD 3**

1.00 Kg/cm<sup>2</sup>

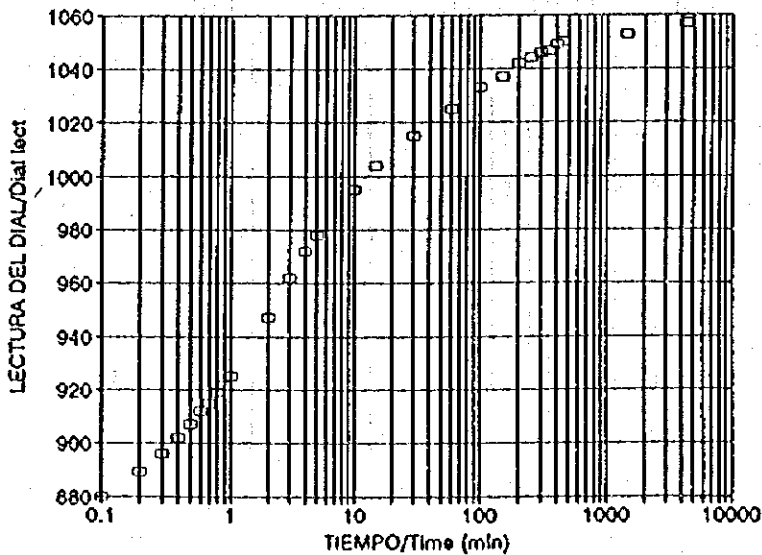
t<sub>50(sec)</sub> = 210



**CARGA 4/LOAD 4**

2.00 Kg/cm<sup>2</sup>

t<sub>50(sec)</sub> = 144





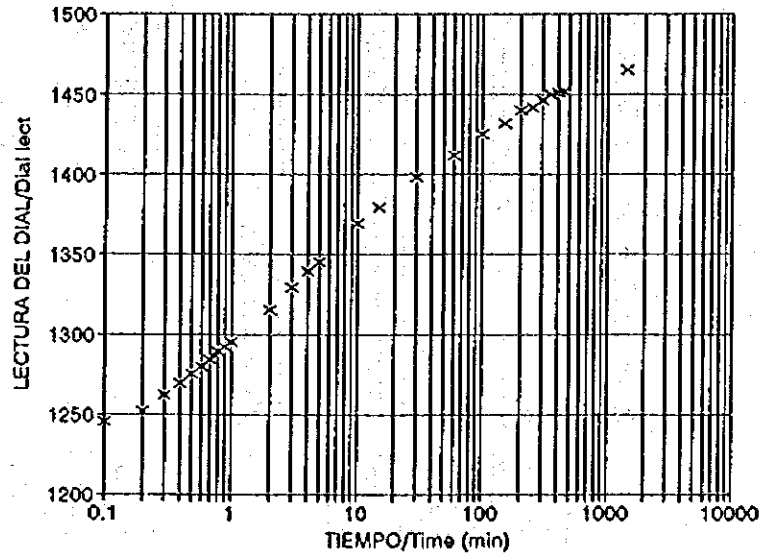
**HIDROSUELOS CIA. LTDA.**  
**ENSAYO DE CONSOLIDACION / CONSOLIDATION TEST**  
**CURVA TIEMPO-DEFORMATION/TIME DEFORMATION GRAPHIC**

**PROYECTO/PROJECT:** Travesaños/Trasbasin  
**LOCALIZACION/SITE:** Canal abierto/Open Channel  
**CALICATA No./PIT No.:** C-16 **MUESTRA No./SAMPLE No.:** M-1  
**PROFUNDIDAD/DEPTH:** 0.30-1.60m. **FECHA/DATE:** Enero94/Jan.94  
**ENSAYADO/PERFORM.BY:** G.S. **CALCULO/CALCULATED BY:** F.V.

**CARGA 5/LOAD 5**

**4.00 Kg/cm<sup>2</sup>**

**t<sub>50</sub>(sec) = 234**





**HIDROSUELOS CIA. LTDA.**  
**ENSAYO DE CONSOLIDACION / CONSOLIDATION TEST**  
**HUMEDAD Y CALCULOS / MOISTURE AND CALCULATIONS**

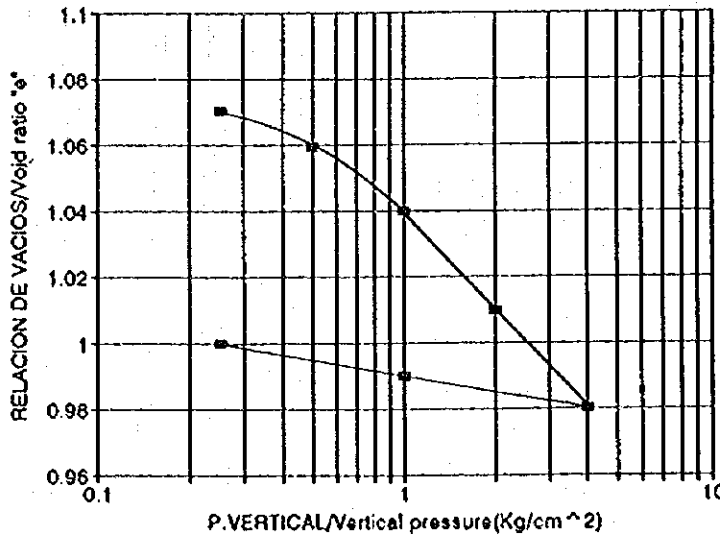
**PROYECTO/PROJECT:** Travesa/Trasbaén  
**LOCALIZACION/SITE:** Canal abierto/Open Channel  
**CALICATA No./PIT No.:** C-19      **MUESTRA No./SAMPLE No.:** M-2  
**PROFUNDIDAD/DEPTH:** 2.00-4.00m.      **FECHA/DATE:** Enero94/Jan.94  
**ENSAYADO/PERFORM.BY:** G.S.      **CALCULO/CALCULATED BY:** F.V.

HUMEDAD / MOISTURE	INICIAL/INITIAL	FINAL/final
Tara + SH/can + wet soil weight	675.83 gr	672.97 gr
Tara + SS/can + dry soil weight	632.23 gr	632.23 gr
Tara/can	531.50 gr	531.25 gr
Humedad/Moisture	43.28 %	40.34 %

ANILLO No./Ring number	IX
DIAMETRO ANILLO/Ring diameter:	6.35 cm
AREA DEL ANILLO/Ring Area	31.67 cm <sup>2</sup>
ALTURA DEL ANILLO/Ring height:	25.40 mm
G.ESPECIF./Specific gravity:	2.607
ALTURA SOLIDOS/Solids height:	12.23 mm
VARIACION ALTURA/Height Change:	0.82 mm

Hf MUEST/Specimen final height	24.58 mm
Ho AGUA/Initial water height:	13.80 mm
Hf AGUA/Final height of water:	12.86 mm
R.VACIOS INIC./Initial void ratio:	1.08
R.VACIOS FINAL/Final void ratio:	1.01
Sr-o(%) /Initial saturation degree:	104.79 %
Sr-f(%) /Final saturation degree:	104.16 %

**CARGA-ASENTAMIENTO/LOAD-SETTLEMENT**



Pc = 0.65 kg/cm<sup>2</sup>  
Cc = 0.098





**HIDROSUELOS CIA. LTDA.**  
**ENSAYO DE CONSOLIDACION / CONSOLIDATION TEST**  
**DATOS Y RESULTADOS/DATAS AND RESULTS**

**PROYECTO/PROJECT:** Traszases/Trasbasin  
**LOCALIZACION/SITE:** Canal abierto/Open Channel  
**CALICATA No./PIT No.:** C-19  
**PROFUNDIDAD/DEPTH:** 2.00-4.00m.  
**ENSAYADO/PERFORM.BY:** G.S.

**MUESTRA No./SAMPLE No.:** M-2  
**FECHA/DATE:** Enero94/Jan.94  
**CALCULO/CALCULATED BY:** F.V.

DELTA t	P	d	Def. unit.	H	e	Pm	Hm	t 150	e.m	av	Qv	Qvm	K
min	Kg/cm2	mm	%	mm		Kg/cm2	mm	seg		cm2/Kg	mm2/min	mm2/min	cm/seg
0	0.00	0.00	0.00	25.40	1.08								
1440	0.25	0.08	0.31	25.32	1.07	0.13	25.36	324.0	1.074	0.026	5.866	9.762	1.2E-08
1440	0.50	0.21	0.83	25.19	1.06	0.38	25.26	138.0	1.065	0.043	13.658		4.7E-08
1440	1.00	0.45	1.77	24.95	1.04	0.75	25.07	216.0	1.050	0.039	8.598	11.128	2.8E-08
4320	2.00	0.82	3.23	24.58	1.01	1.50	24.77	540.0	1.025	0.030	3.356	5.977	8.4E-09
1440	4.00	1.18	4.65	24.22	0.98	3.00	24.40	720.0	0.995	0.015	2.443	2.900	3.0E-09

**DESCARGA / UNLOAD**

0	4.00	1.18	4.65	24.22	0.98
180	1.00	1.06	4.17	24.34	0.99
180	0.25	0.94	3.70	24.46	1.00
180	0.00	0.82	3.23	24.58	1.01



**HIDROSUELOS CIA. LTDA.**  
**ENSAYO DE CONSOLIDACION / CONSOLIDATION TEST**  
**REGISTRO DE DATOS/DATA REGISTER**

**PROYECTO/PROJECT:** Travesaño/Trasbasin  
**LOCALIZACION/SITE:** Canal abierto/Open Channel  
**CALICATA No./PIT No.:** C-19 **MUESTRA No./SAMPLE No.:** M-2  
**PROFUNDIDAD/DEPTH:** 2.00-4.00m. **FECHA/DATE:** Enero94/Jan.94  
**ENSAYADO/PERFORM.BY:** G.S. **CALCULO/CALCULATED BY:** F.V.  
**EXPANSION:** 0.89 mm

TIEMPO Time (min)	CARGA 1	CARGA 2	CARGA 3	CARGA 4	CARGA 5
	Load 1	Load 2	Load 3	Load 4	Load 5
	0.25Kg/cm <sup>2</sup>	0.50Kg/cm <sup>2</sup>	1.00Kg/cm <sup>2</sup>	2.00Kg/cm <sup>2</sup>	4.00Kg/cm <sup>2</sup>
	dial x 0.00254mm	dial x 0.00254mm	dial x 0.00254mm	dial x 0.00254mm	dial x 0.00254mm
0.1	9.0	49.0	102.0	205.0	334.0
0.2	10.0	50.0	104.0	208.0	336.0
0.3	11.0	51.5	106.0	210.0	340.0
0.4	11.5	52.5	108.0	212.0	343.0
0.5	12.0	53.5	110.0	215.0	344.0
0.6	12.5	54.5	112.0	216.0	346.0
0.7	13.0	55.0	113.0	218.0	347.0
0.8	13.0	56.0	115.0	220.0	349.0
0.9	13.5	56.5	116.0	221.0	350.0
1.0	14.0	57.0	117.0	222.0	352.0
2.0	16.0	61.0	126.0	233.0	362.0
3.0	17.5	63.5	131.0	240.0	367.0
4.0	18.5	65.0	134.0	245.0	372.0
5.0	19.0	66.5	137.0	249.0	376.0
10.0	21.5	70.0	146.0	261.0	389.0
15.0	22.5	72.0	150.0	267.0	396.0
30.0	25.0	75.0	157.0	280.0	411.0
60.0	27.0	77.0	163.0	289.0	425.0
100.0	28.0	78.0	167.0	296.0	435.0
150.0	29.5	79.0	170.0	302.0	444.0
200.0	30.0	79.5	172.0	305.0	448.0
250.0	30.5	80.0	173.0	307.0	452.0
300.0	31.0	80.0	174.0	310.0	455.0
350.0	31.5	80.0	174.5	311.0	456.0
400.0	32.0	80.0	175.0	312.0	458.0
450.0	32.0	80.5	175.0	313.0	460.0
1440.0	33.0	81.0	177.0	319.0	468.0
4320.0	----	----	----	322.0	----

**DESCARGA/UNLOAD**

TIEMPO Time (min)	CARGA Load Kg/cm <sup>2</sup>	dial x 0.00254
0	4.00	466
180	1.00	416
180	0.25	370
180	0.00	322

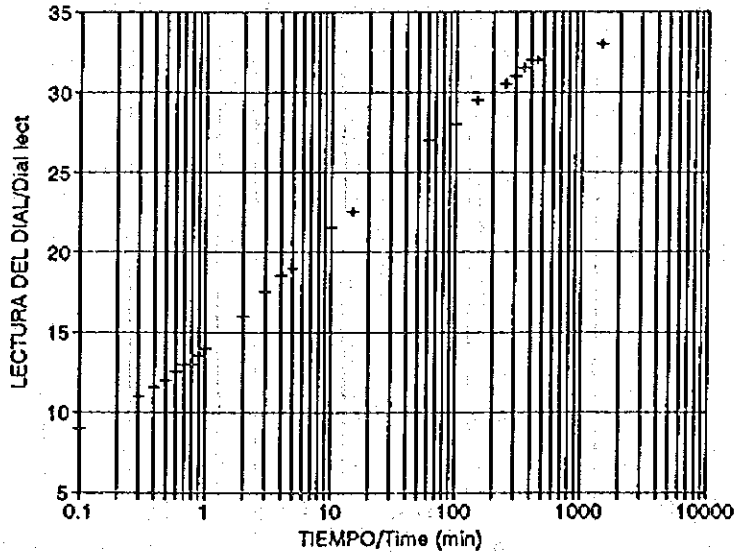


**HIDROSUELOS CIA. LTDA;**  
**ENSAYO DE CONSOLIDACION / CONSOLIDATION TEST**  
**CURVA TIEMPO-DEFORMACION/TIME DEFORMATION GRAPHIC**

**PROYECTO/PROJECT:** Travesaños/Trasbasin  
**LOCALIZACION/SITE:** Canal abierto/Open Channel  
**CALICATA No./PIT No.:** C-19 **MUESTRA No./SAMPLE No.:** M-2  
**PROFUNDIDAD/DEPTH:** 2.00-4.00m. **FECHA/DATE:** Enero94/Jan.94  
**ENSAYADO/PERFORM.BY:** G.S. **CALCULO/CALCULATED BY:** F.V.

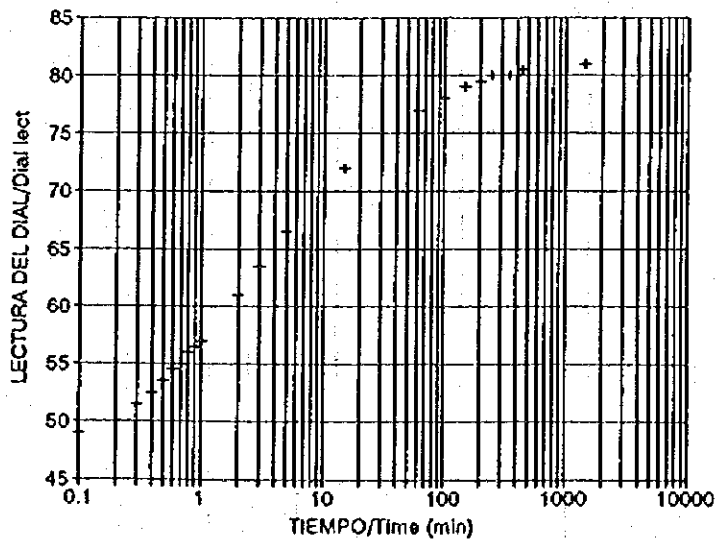
**CARGA 1/LOAD 1**

0.25 Kg/cm<sup>2</sup>      150(sec)= 324



**CARGA 2/LOAD 2**

0.50 Kg/cm<sup>2</sup>      150(sec)= 138

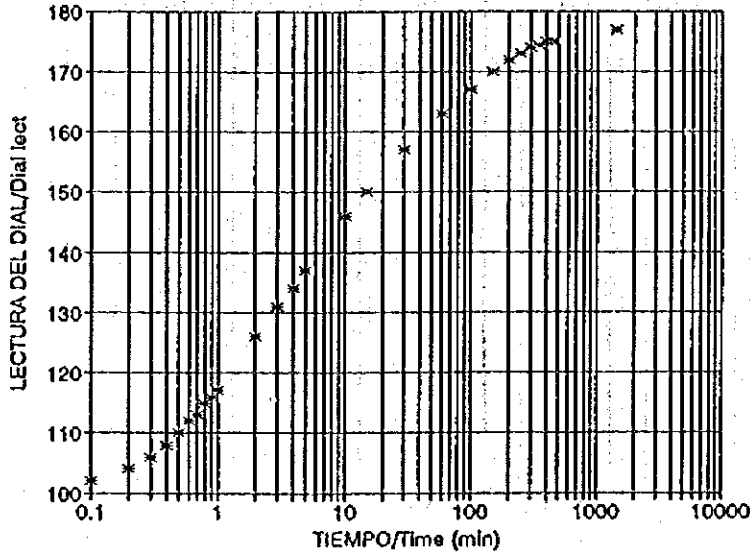




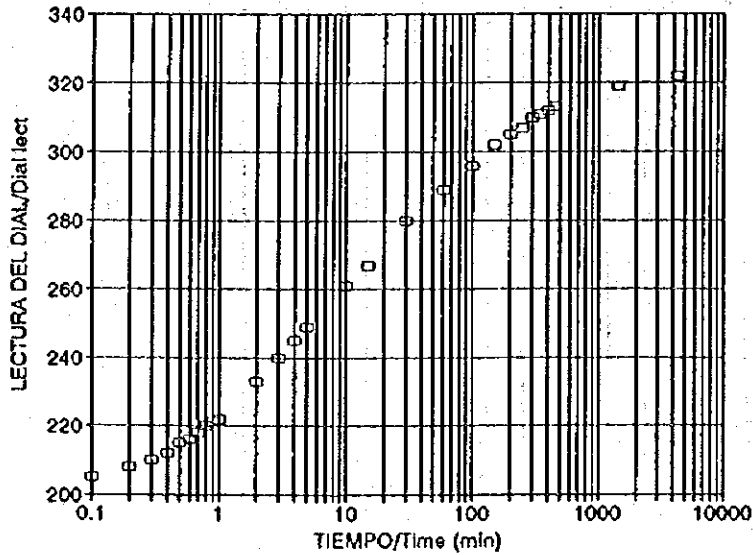
**HIDROSUELOS CIA. LTDA.**  
**ENSAYO DE CONSOLIDACION / CONSOLIDATION TEST**  
**CURVA TIEMPO-DEFORMATION/TIME DEFORMATION GRAPHIC**

**PROYECTO/PROJECT:** Traspaseo/Trasbasin  
**LOCALIZACION/SITE:** Canal abierto/Open Channel  
**CALICATA No./PIT No.:** C-19 **MUESTRA No./SAMPLE No.:** M-2  
**PROFUNDIDAD/DEPTH:** 2.00-4.00m. **FECHA/DATE:** Enero94/Jan.94  
**ENSAYADO/PERFORM BY:** G.S. **CALCULO/CALCULATED BY:** F.V.

**CARGA 3/LOAD 3**  
**1.00 Kg/cm<sup>2</sup>      150(sec) = 216**



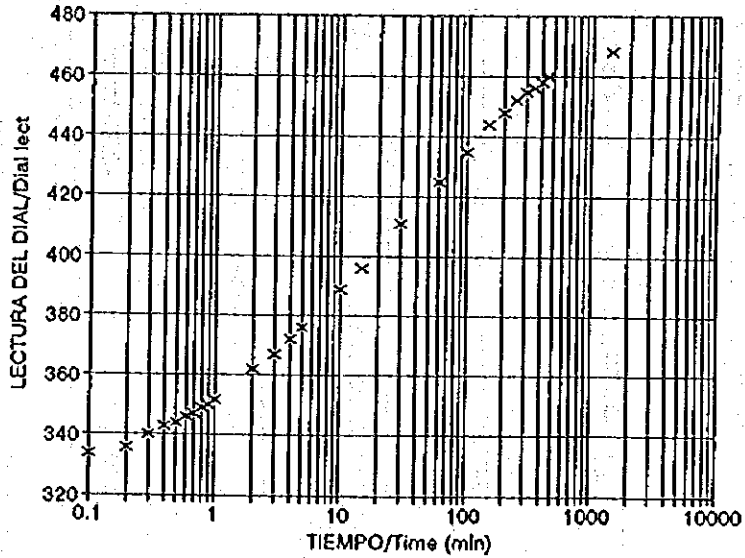
**CARGA 4/LOAD 4**  
**2.00 Kg/cm<sup>2</sup>      150(sec) = 540**





**HIDROSUELOS CIA. LTDA.**  
**ENSAYO DE CONSOLIDACION / CONSOLIDATION TEST**  
**CURVA TIEMPO-DEFORMATION/TIME DEFORMATION GRAPHIC**

**PROYECTO/PROJECT:** Travesaños/Trasbasin  
**LOCALIZACION/SITE:** Canal abierto/Open Channel  
**CALICATA No./PIT No.:** C-19 **MUESTRA No./SAMPLE No.:** M-2  
**PROFUNDIDAD/DEPTH:** 2.00-4.00m. **FECHA/DATE:** Enero94/Jan.94  
**ENSAYADO/PERFORM.BY:** G.S. **CALCULO/CALCULATEO BY:** F.V.  
**CARGA 5/LOAD 5**  
**4.00 Kg/cm<sup>2</sup>      150(sec) = 720**





**HIDROSUELOS CIA. LTDA.**  
**ENSAYO DE CONSOLIDACION / CONSOLIDATION TEST**  
**HUMEDAD Y CALCULOS / MOISTURE AND CALCULATIONS**

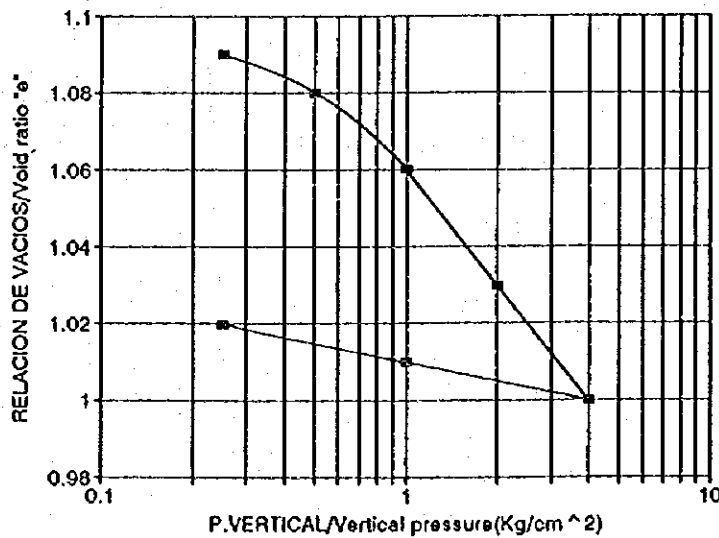
**PROYECTO/PROJECT:** Traasvases/Traebasin  
**LOCALIZACION/SITE:** Linea Transmision/Transmission Line  
**CALICATA No./PIT No.:** C-20      **MUESTRA No./SAMPLE No.:** M-1  
**PROFUNDIDAD/DEPTH:** 0.35-1.10m.      **FECHA/DATE:** Enero94/Jan.94  
**ENSAYADO/PERFORM BY:** G.S.      **CALCULO/CALCULATED BY:** F.V.

HUMEDAD / MOISTURE	INICIAL/INITIAL		FINAL/final	
Tara + SH/can+wet soil weight	654.84	gr	657.52	gr
Tara+SS/can+dry soil weight	618.00	gr	618.00	gr
Tara/can	516.42	gr	516.42	gr
Humedad/Moisture	36.27	%	38.91	%

ANILLO No./Ring number	VII	
DIAMETRO ANILLO/Ring diameter:	6.35	cm
AREA DEL ANILLO/Ring Area	31.67	cm <sup>2</sup>
ALTURA DEL ANILLO/Ring height:	25.40	mm
G.ESPECIF./Specific gravity:	2.650	
ALTURA SOLIDOS/Solids height:	12.10	mm
VARIACION ALTURA/Height Change:	0.78	mm

Hf MUEST/Specimen final height	24.62	mm
Ho AGUA/Initial water height:	11.63	mm
Hf AGUA/Final height of water:	12.47	mm
R.VACIOS INIC./Initial void ratio:	1.10	
R.VACIOS FINAL/Final void ratio:	1.03	
Sr-o(%) /Initial saturation degree:	87.44	%
Sr-f%) /Final saturation degree:	99.64	%

**CARGA-ASENTAMIENTO/LOAD-SETTLEMENT**



Pc = 0.75 kg/cm<sup>2</sup>  
Cc = 0.106

**HIDROSUELOS CIA. LTDA.**  
**ENSAYO DE CONSOLIDACION / CONSOLIDATION TEST**  
**DATOS Y RESULTADOS/DATAS AND RESULTS**



PROYECTO/PROJECT: Trasvases/Trasbasin  
 LOCALIZACION/SITE: Linea Transmission/Transmission Line  
 CALICATA No./PIT No.: C-20  
 PROFUNDIDAD/DEPTH: 0.35-1.10m.  
 ENSAYADO/PERFORM.BY: G.S.

MUESTRA No./SAMPLE No.: M-1  
 FECHA/DATE: Enero94/Jan.94  
 CALCULO/CALCULATED BY: F.V.

DELTA t	P	d	Def. unit.	H	e	Pm	Hm	t50	e m	av	Cv	Cv m	K
min	Kg/cm2	mm	%	mm		Kg/cm2	mm	seg		cm2/Kg	mm2/min	mm2/min	cm/seg
0	0.00	0.00	0.00	25.40	1.10								
1440	0.25	0.11	0.43	25.29	1.09	0.13	25.35	108.0	1.095	0.036	17.576		5.1E-08
1440	0.50	0.23	0.91	25.17	1.08	0.38	25.23	84.0	1.085	0.040	22.393	19.984	7.1E-08
1440	1.00	0.47	1.85	24.93	1.06	0.75	25.05	114.0	1.070	0.040	16.266	19.329	5.2E-08
4320	2.00	0.84	3.31	24.56	1.03	1.50	24.75	147.0	1.045	0.031	12.309	14.287	3.1E-08
1440	4.00	1.20	4.72	24.20	1.00	3.00	24.38	225.0	1.015	0.015	7.806	10.058	9.7E-09

DESCARGA / UNLOAD

0	4.00	1.20	4.72	24.20	1.00
180	1.00	1.08	4.25	24.32	1.01
180	0.25	0.96	3.78	24.44	1.02
180	0.00	0.78	3.07	24.62	1.03



**HIDROSUELOS CIA. LTDA.**  
**ENSAYO DE CONSOLIDACION / CONSOLIDATION TEST**  
**REGISTRO DE DATOS/DATA REGISTER**

**PROYECTO/PROJECT:** Travesaños/Trasbaein  
**LOCALIZACION/SITE:** Línea Transmisión/Transmission Line  
**CALICATA No./PIT No.:** C-20 **MUESTRA No./SAMPLE No.:** M-1  
**PROFUNDIDAD/DEPTH:** 0.35-1.10m. **FECHA/DATE:** Enero94/Jan.94  
**ENSAYADO/PERFORM BY:** G.S. **CALCULO/CALCULATED BY:** F.V.  
**EXPANSION:** 0.00mm

TIEMPO Time (min)	CARGA 1 Load 1 0.25Kg/cm <sup>2</sup> dial x 0.00254mm	CARGA 2 Load 2 0.50Kg/cm <sup>2</sup> dial x 0.00254mm	CARGA 3 Load 3 1.00Kg/cm <sup>2</sup> dial x 0.00254mm	CARGA 4 Load 4 2.00Kg/cm <sup>2</sup> dial x 0.00254mm	CARGA 5 Load 5 4.00Kg/cm <sup>2</sup> dial x 0.00254mm
	0.1	20.0	65.0	120.0	254.0
0.2	21.0	66.0	122.0	256.0	375.0
0.3	22.0	67.0	124.0	259.0	380.0
0.4	23.0	68.0	126.0	262.0	383.0
0.5	24.0	69.0	128.0	264.0	387.0
0.6	24.5	70.0	130.0	266.0	388.0
0.7	25.0	71.0	132.0	268.0	390.0
0.8	26.0	71.5	134.0	270.0	391.0
0.9	26.0	72.0	136.0	272.0	392.0
1.0	27.0	73.0	138.0	274.0	393.0
2.0	30.0	77.0	148.0	284.0	405.0
3.0	32.0	79.0	154.0	289.0	409.0
4.0	33.0	80.0	157.0	293.0	413.0
5.0	34.0	81.0	160.0	296.0	415.0
10.0	36.0	84.0	168.0	303.0	427.0
15.0	37.5	85.0	168.0	307.0	432.0
30.0	39.0	87.0	173.0	312.0	442.0
60.0	41.0	88.0	177.0	317.0	450.0
100.0	42.0	89.0	180.0	320.0	457.0
150.0	42.5	89.5	182.0	322.0	460.0
200.0	43.0	89.5	183.0	323.0	463.0
250.0	43.0	90.0	184.0	324.0	465.0
300.0	43.5	90.0	185.0	325.0	467.0
350.0	43.5	90.0	185.0	326.0	468.0
400.0	43.5	90.5	186.0	327.0	469.0
450.0	44.0	90.5	186.0	327.0	470.0
1440.0	44.0	91.0	187.0	329.0	472.0
4320.0	----	----	----	330.0	----

**DESCARGA/UNLOAD**

TIEMPO Time (min)	CARGA Load Kg/cm <sup>2</sup>	dial x 0.00254
0	4.00	472
180	1.00	425
180	0.25	377
180	0.00	306



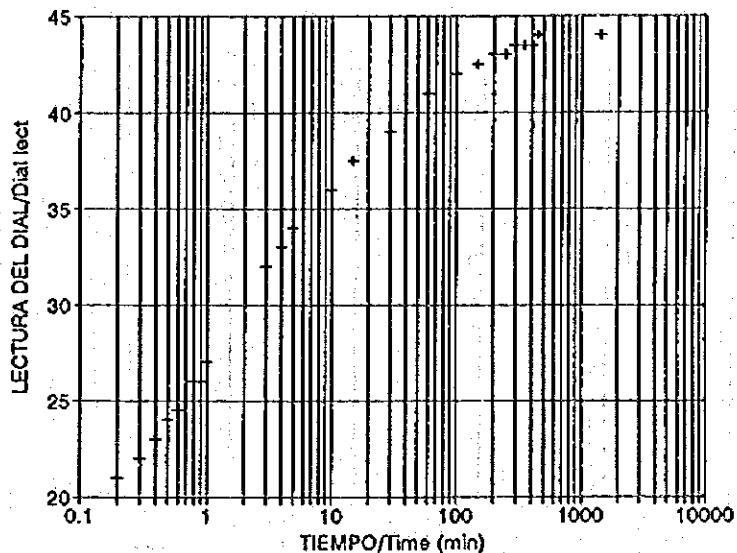


**HIDROSUELOS CIA. LTDA,**  
**ENSAYO DE CONSOLIDACION / CONSOLIDATION TEST**  
**CURVA TIEMPO-DEFORMATION/TIME DEFORMATION GRAPHIC**

**PROYECTO/PROJECT:** Travesa/Trasbasin  
**LOCALIZACION/SITE:** Linea Transmision/Transmission Line  
**CALICATA No./PIF No.:** C-20 **MUESTRA No./SAMPLE No.:** M-1  
**PROFUNDIDAD/DEPTH:** 0.35-1.10m. **FECHA/DATE:** Enero94/Jan.94  
**ENSAYADO/PERFORM.BY:** G.S. **CALCULO/CALCULATED BY:** F.V.

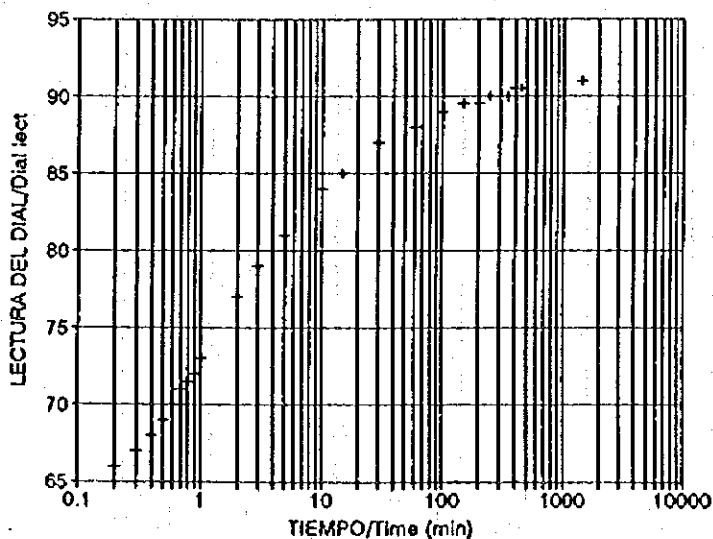
**CARGA 1/LOAD 1**

0.25 Kg/cm<sup>2</sup>      150(sec) = 108



**CARGA 2/LOAD 2**

0.50 Kg/cm<sup>2</sup>      150(sec) = 84



264



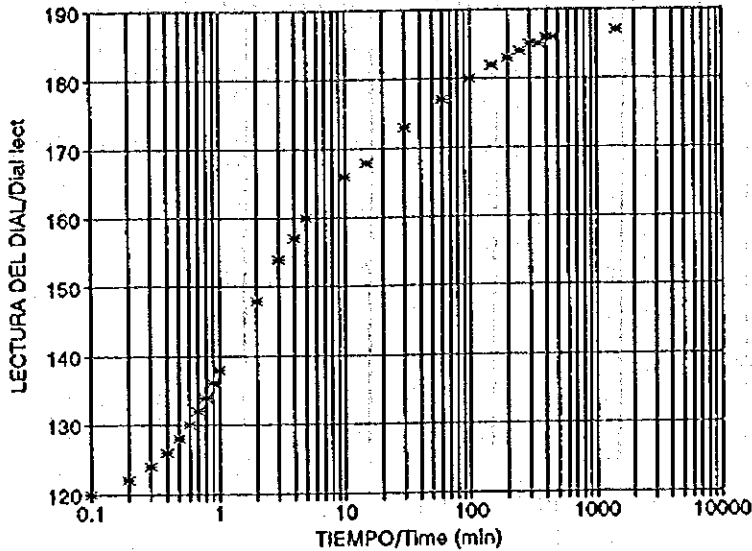
**HIDROSUELOS CIA. LTDA.**  
**ENSAYO DE CONSOLIDACION / CONSOLIDATION TEST**  
**CURVA TIEMPO-DEFORMATION/TIME DEFORMATION GRAPHIC**

**PROYECTO/PROJECT:** Travesaños/Trasbaein  
**LOCALIZACION/SITE:** Línea Transmision/Transmission Line  
**CALICATA No./PIT No.:** C-20 **MUESTRA No./SAMPLE No.:** M-1  
**PROFUNDIDAD/DEPTH:** 0.35-1.10m. **FECHA/DATE:** Enero94/Jan.94  
**ENSAYADO/PERFORM.BY:** O.S. **CALCULO/CALCULATED BY:** F.V.

**CARGA 3/LOAD 3**

**1.00 Kg/cm<sup>2</sup>**

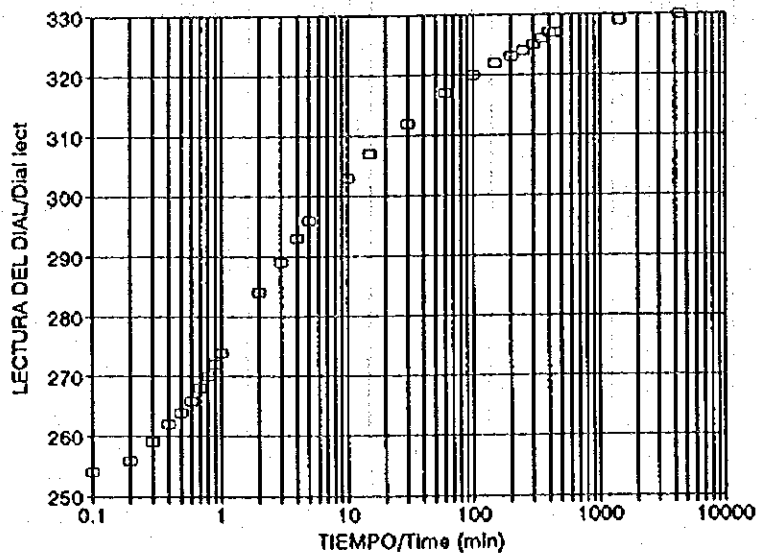
**150(sec)= 114**



**CARGA 4/LOAD 4**

**2.00 Kg/cm<sup>2</sup>**

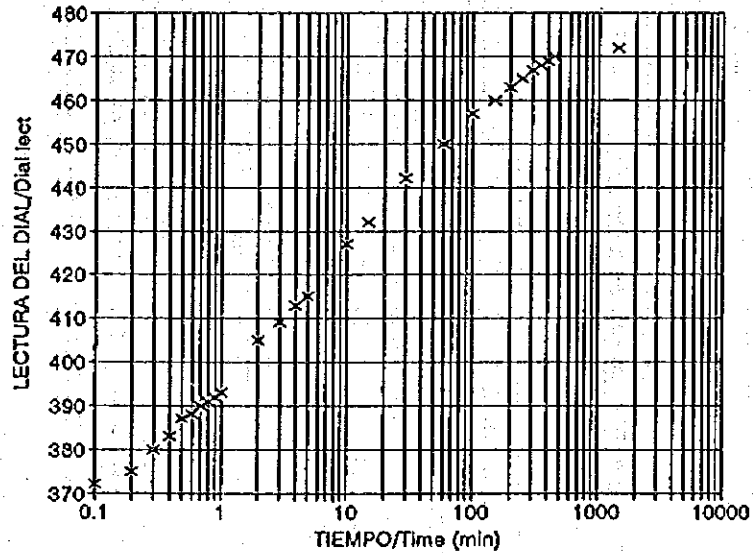
**150(sec)= 147**





**HIDROSUELOS CIA. LTDA.**  
**ENSAYO DE CONSOLIDACION / CONSOLIDATION TEST**  
**CURVA TIEMPO-DEFORMATION/TIME DEFORMATION GRAPHIC**

**PROYECTO/PROJECT:** Travesaños/Trasbaen  
**LOCALIZACION/SITE:** Línea Transmision/Transmission Line  
**CALICATA No./PIT No.:** C-20      **MUESTRA No./SAMPLE No.:** M-1  
**PROFUNDIDAD/DEPTH:** 0.35-1.10m.      **FECHA/DATE:** Enero94/Jan.94  
**ENSAYADO/PERFORM.BY:** G.S.      **CALCULO/CALCULATED BY:** F.V.  
**CARGA 5/LOAD 5**  
**4.00 Kg/cm<sup>2</sup>      150(sec) = 225**





**HIDROSUELOS CIA. LTDA.**  
**ENSAYO DE CONSOLIDACION / CONSOLIDATION TEST**  
**HUMEDAD Y CALCULOS / MOISTURE AND CALCULATIONS**

**PROYECTO/PROJECT:** Travesaños/Trasbasin  
**LOCALIZACION/SITE:** Línea de Transmisión/Transmision Line

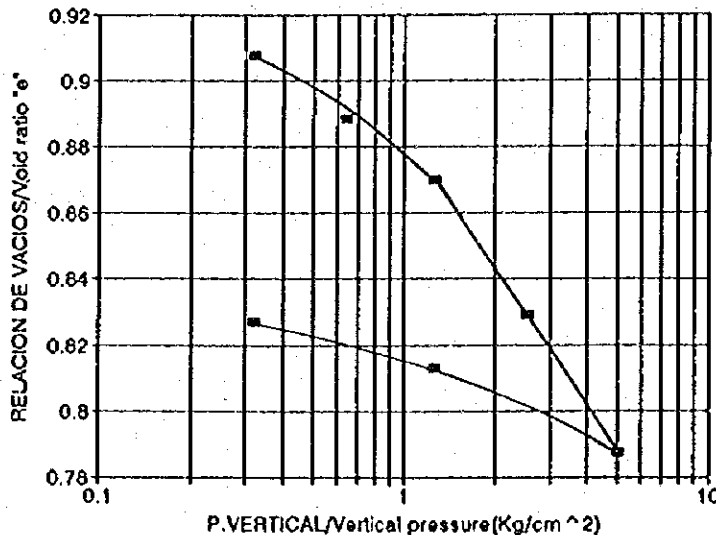
**CALICATA No./PIT No.:** C-25      **MUESTRA No./SAMPLE No.:** M-1  
**PROFUNDIDAD/DEPTH:** 0.4-1.00 m.      **FECHA/DATE:** Enero94/Jan.94  
**ENSAYADO/PERFORM.BY:** G.S.      **CALCULO/CALCULATED BY:** F.V.

HUMEDAD / MOISTURE	INICIAL/INITIAL	FINAL/final
Tara + SH/can + wet soil weight	678.61 gr	678.17 gr
Tara + SS/can + dry soil weight	641.33 gr	641.33 gr
Tara/can	531.25 gr	531.25 gr
Humedad/Moisture	33.87 %	33.47 %

ANILLO No./Ring number	VIII
DIAMETRO ANILLO/Ring diameter:	6.35 cm
AREA DEL ANILLO/Ring Area	31.67 cm <sup>2</sup>
ALTURA DEL ANILLO/Ring height:	25.40 mm
G.ESPECIF./Specific gravity:	2.673
ALTURA SOLIDOS/Solids height:	13.00 mm
VARIACION ALTURA/Height Change:	1.22 mm

H MUEST/Specimen final height	24.18 mm
Ho AGUA/Initial water height:	11.77 mm
Hf AGUA/Final height of water:	11.63 mm
R.VACIOS INIC./Initial void ratio:	0.95
R.VACIOS FINAL/Final void ratio:	0.86
Sr-o(%) /Initial saturation degree:	94.90 %
Sr-f(%) /Final saturation degree:	104.02 %

**CARGA-ASENTAMIENTO/LOAD-SETTLEMENT**



$P_c = 0.74 \text{ kg/cm}$   
 $C_c = 0.134$



**HIDROSUELOS CIA. LTDA.**  
**ENSAYO DE CONSOLIDACION / CONSOLIDATION TEST**  
**DATOS Y RESULTADOS/DATAS AND RESULTS**

**PROYECTO/PROJECT:** Traszvasos/Trasbasin  
**LOCALIZACION/SITE:** Linea de Transmision/Transmission L  
**CALICATA No./PIT No.:** C-21  
**PROFUNDIDAD/DEPTH:** 0.4-1.00 m.  
**ENSAYADO/PERFORM.BY:** G.S.

**MUESTRA No./SAMPLE No.:** M-1  
**FECHA/DATE:** Enero94/Jan.94  
**CALCULO/CALCULATED BY:** F.V.

DELTA t	P	d	Def. unit.	H	e	Pm	Hm	t 50	e m	a v	Cv	Cv m	K
min	Kg/cm2	mm	%	mm		Kg/cm2	mm	seg		cm2/Kg	mm2/min	mm2/min	cm/seg
0	0.00	0.00	0.00	25.40	0.95								
1440	0.32	0.60	2.36	24.80	0.91	0.16	25.10	72.0	0.931	0.144	25.857		3.3E-07
1440	0.64	0.85	3.35	24.55	0.89	0.48	24.68	540.0	0.898	0.060	3.332	14.594	1.8E-08
1440	1.26	1.09	4.29	24.31	0.87	0.95	24.43	450.0	0.879	0.030	3.919	3.625	1.0E-08
1440	2.53	1.62	6.38	23.78	0.83	1.90	24.05	144.0	0.850	0.032	11.864	7.892	3.5E-08
1440	5.05	2.16	8.50	23.24	0.79	3.79	23.51	264.0	0.808	0.016	6.187	9.026	9.5E-09

**DESCARGA / UNLOAD**

0	5.05	2.16	8.50	23.24	0.79
180	1.26	1.83	7.20	23.57	0.81
180	0.32	1.65	6.50	23.75	0.83
180	0.00	1.22	4.80	24.18	0.86



**HIDROSUELOS CIA. LTDA.**  
**ENSAYO DE CONSOLIDACION / CONSOLIDATION TEST**  
**REGISTRO DE DATOS/DATA REGISTER**

**PROYECTO/PROJECT:** Travesaños/Trasbasin  
**LOCALIZACION/SITE:** Línea de Transmisión/Transmision Line  
**CALICATA No./PIT No.:** C-21 **MUESTRA No./SAMPLE No.:** M-1  
**PROFUNDIDAD/DEPTH:** 0.4-1.00 m. **FECHA/DATE:** Enero94/Jan.94  
**ENSAYADO/PERFORM BY:** Q.S. **CALCULO/CALCULATED BY:** F.V.  
**EXPANSION:** 0.57 mm

TIEMPO Time (min)	CARGA 1	CARGA 2	CARGA 3	CARGA 4	CARGA 5
	Load 1	Load 2	Load 3	Load 4	Load 5
	0.32Kg/cm <sup>2</sup>	0.64Kg/cm <sup>2</sup>	1.26Kg/cm <sup>2</sup>	2.53Kg/cm <sup>2</sup>	5.05Kg/cm <sup>2</sup>
	dial x 0.00254mm	dial x 0.00254mm	dial x 0.00254mm	dial x 0.00254mm	dial x 0.00254mm
0.1	167.0	286.0	370.0	548.0	768.0
0.2	171.0	288.0	372.0	553.0	772.0
0.3	175.0	290.0	373.0	557.0	775.0
0.4	179.0	291.0	374.0	560.0	777.0
0.5	182.0	292.0	375.0	562.0	779.0
0.6	184.0	293.0	375.5	564.0	780.0
0.7	187.0	294.0	376.0	566.0	782.0
0.8	189.0	294.5	377.0	568.0	783.0
0.9	191.0	295.0	378.0	570.0	784.0
1.0	193.0	295.5	379.0	571.0	785.0
2.0	203.0	299.0	383.0	580.0	792.0
3.0	208.0	301.0	386.0	585.0	796.0
4.0	211.0	303.0	389.0	588.0	798.0
5.0	213.0	304.0	391.0	591.0	801.0
10.0	219.0	309.0	397.0	599.0	808.0
15.0	222.0	311.0	400.0	603.0	813.0
30.0	227.0	316.0	406.0	610.0	820.0
60.0	231.0	320.0	411.0	617.0	828.0
100.0	234.0	324.0	415.0	621.0	833.0
150.0	235.0	327.0	417.0	624.0	836.0
200.0	236.0	329.0	419.0	626.0	839.0
250.0	236.5	331.0	421.0	628.0	841.0
300.0	237.0	332.0	422.0	629.0	842.0
350.0	237.5	333.0	423.0	630.0	843.0
400.0	238.0	333.5	424.0	631.0	844.0
450.0	238.0	334.0	425.0	632.0	845.0
1440.0	238.0	336.0	429.0	637.0	849.0
4320.0	—	—	—	—	851.0

**DESCARGA/UNLOAD**

TIEMPO Time (min)	CARGA Load Kg/cm <sup>2</sup>	dial x 0.00254
0	5.05	851
180	1.26	720
180	0.32	649
180	0.00	480

268

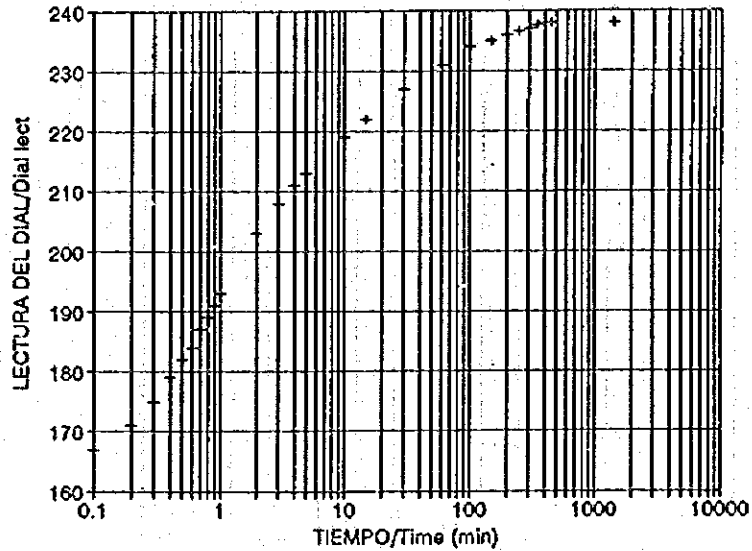


**HIDROSUELOS CIA. LTDA.**  
**ENSAYO DE CONSOLIDACION / CONSOLIDATION TEST**  
**CURVA TIEMPO-DEFORMATION/TIME DEFORMATION GRAPHIC**

**PROYECTO/PROJECT:** Traveses/Traebasin  
**LOCALIZACION/SITE:** Linea de Transmision/Transmission Line  
**CALICATA No./PIT No.:** C-24 **MUESTRA No./SAMPLE No.:** M-1  
**PROFUNDIDAD/DEPTH:** 0.4-1.00 m. **FECHA/DATE:** Enero94/Jan.94  
**ENSAYADO/PERFORM.BY:** G.S. **CALCULO/CALCULATED BY:** F.V.

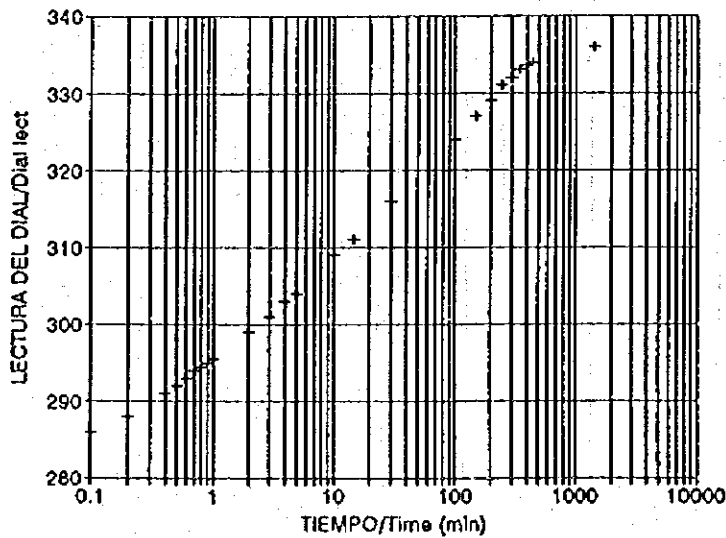
**CARGA 1/LOAD 1**

**0.32 Kg/cm<sup>2</sup>** **t<sub>50</sub>(sec)= 72**



**CARGA 2/LOAD 2**

**0.64 Kg/cm<sup>2</sup>** **t<sub>50</sub>(sec)= 540**



270

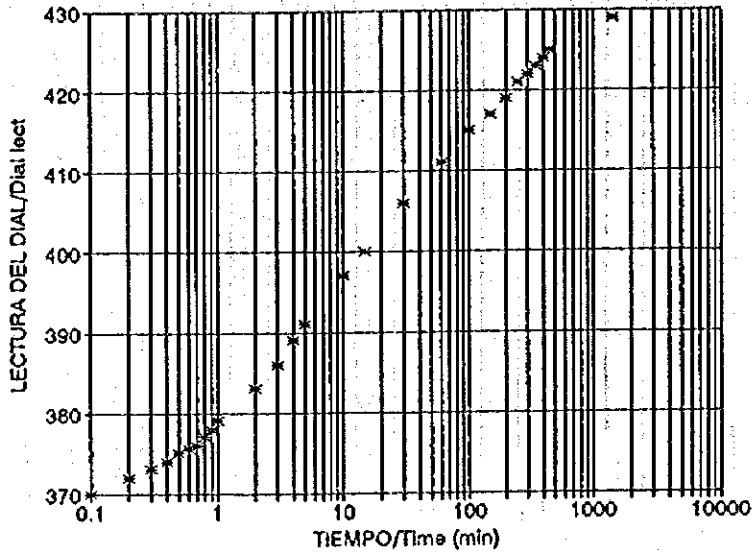


**HIDROSUELOS CIA. LTDA.**  
**ENSAYO DE CONSOLIDACION / CONSOLIDATION TEST**  
**CURVA TIEMPO-DEFORMATION/TIME DEFORMATION GRAPHIC**

**PROYECTO/PROJECT:** Travesaas/Trasbasin  
**LOCALIZACION/SITE:** Linea de Transmision/Transmission Line  
**CALICATA No./PIT No.:** C-21 **MUESTRA No./SAMPLE No.:** M-1  
**PROFUNDIDAD/DEPTH:** 0.4-1.00 m. **FECHA/DATE:** Enero94/Jan.94  
**ENSAYADO/PERFORM.BY:** G.S. **CALCULO/CALCULATED BY:** F.V.

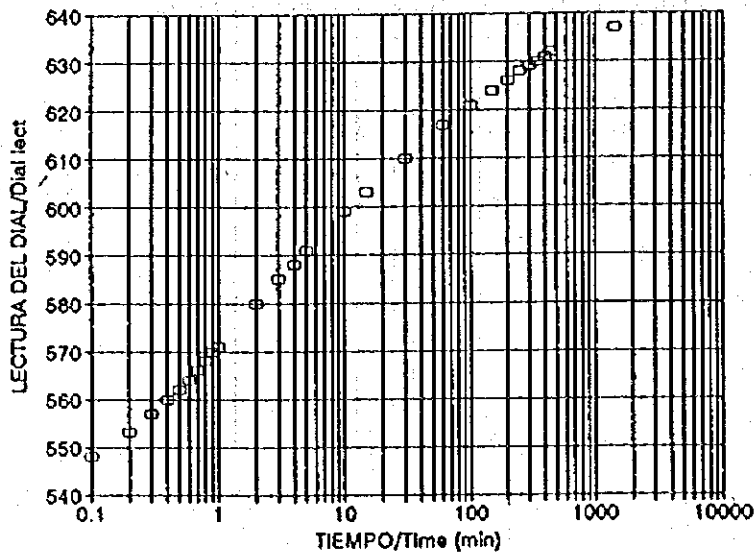
**CARGA 3/LOAD 3**

1.26 Kg/cm<sup>2</sup>      t<sub>50(sec)</sub> = 450



**CARGA 4/LOAD 4**

2.53 Kg/cm<sup>2</sup>      t<sub>50(sec)</sub> = 144





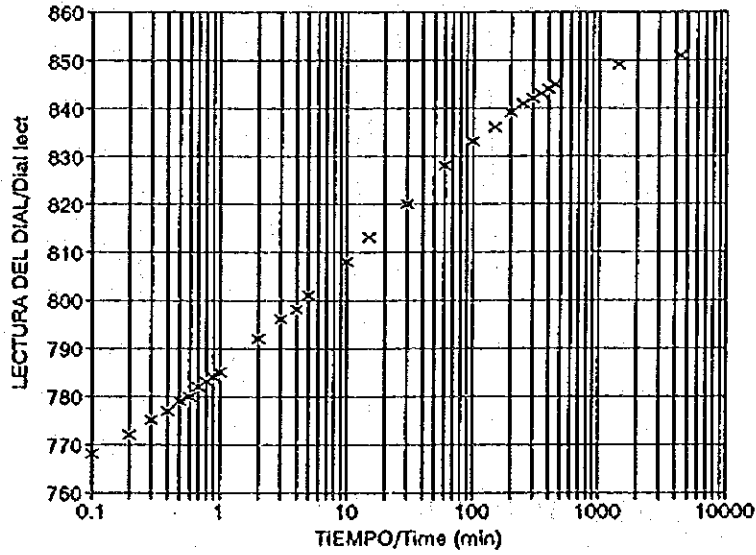


**HIDROSUELOS CIA. LTDA.**  
**ENSAYO DE CONSOLIDACION / CONSOLIDATION TEST**  
**CURVA TIEMPO-DEFORMATION/TIME DEFORMATION GRAPHIC**

**PROYECTO/PROJECT:** Travesaños/Trasobasin  
**LOCALIZACION/SITE:** Línea de Transmisión/Transmission Line  
**CALICATA No./PIT No.:** C-21      **MUESTRA No./SAMPLE No.:** M-1  
**PROFUNDIDAD/DEPTH:** 0.4-1.00 m.      **FECHA/DATE:** Enero94/Jan.94  
**ENSAYADO/PERFORM.BY:** G.S.      **CALCULO/CALCULATED BY:** F.V.

**CARGA 5/LOAD 5**

**5.05 Kg/cm<sup>2</sup>      150(sec)= 264**





0

**UNDISTURBED SAMPLE**

0

0

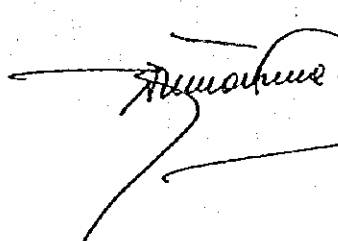
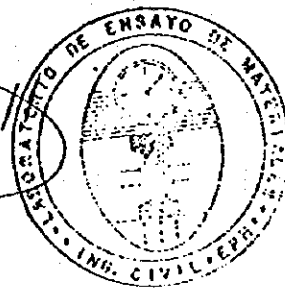
**ESCUELA POLITECNICA NACIONAL**  
**FACULTAD DE INGENIERIA CIVIL**  
**LABORATORIO DE MECANICA DE ROCAS**

**PROYECTO "TRASVASES MANABI"**

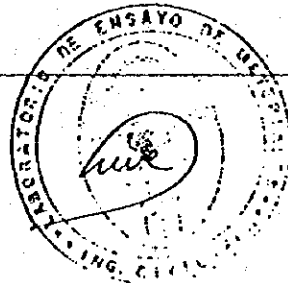
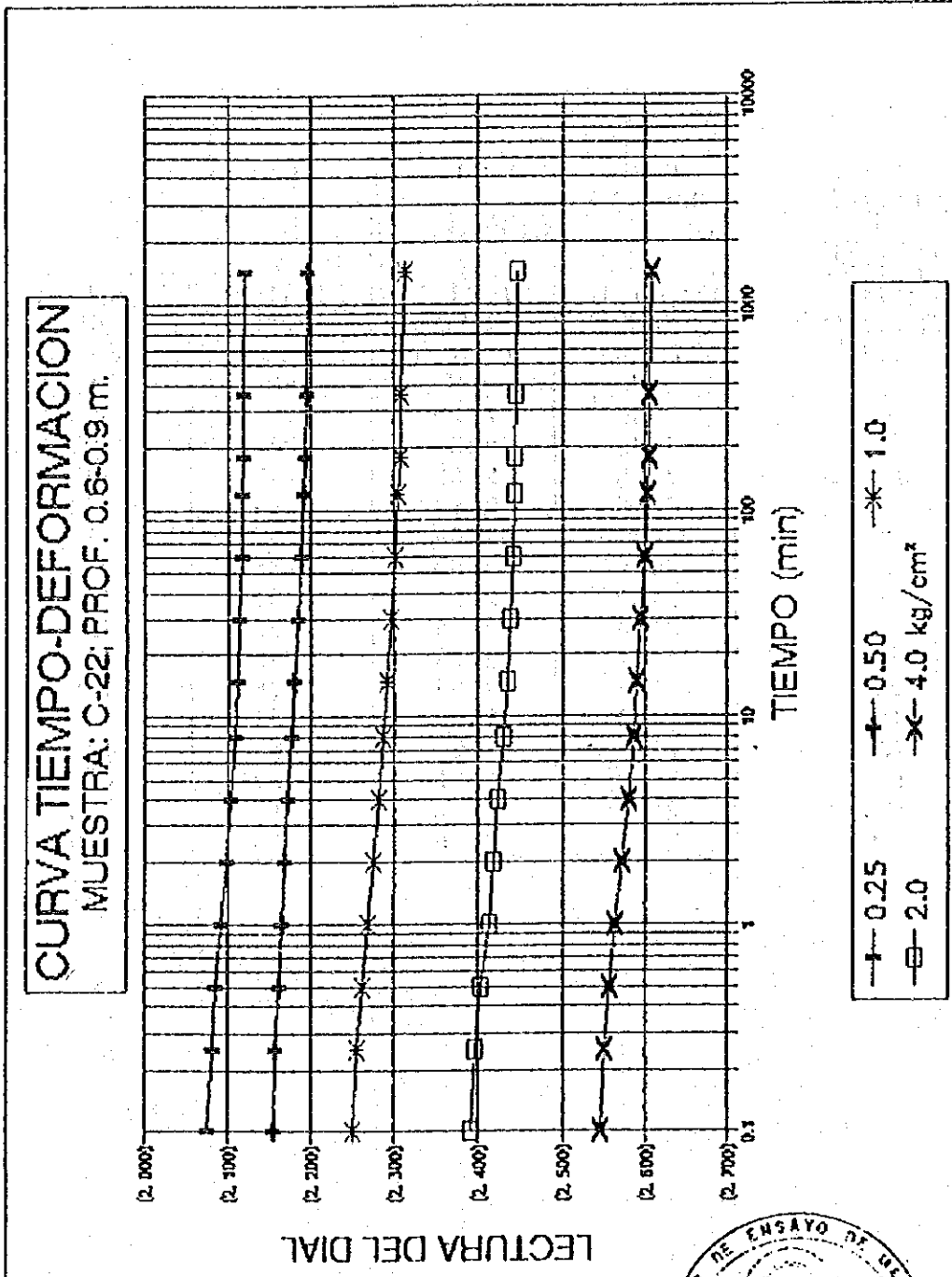
ENSAYO DE CONSOLIDACION

SONDEO: C-22      BLOQUE: # 1  
 PROF. (m): 0.6 - 0.9

REGISTRO DE CARGA					
CARGA Nº	1	2	3	4	5
FECHA	94-01-10	94-01-11	94-01-12	94-01-13	94-01-
PRESION (kg/cm <sup>2</sup> )	0.25	0.50	1.00	2.00	4.00
TIEMPO (min)	LECTURA DIAL	LECTURA DIAL	LECTURA DIAL	LECTURA DIAL	LECTUR DIAL
0	2050	2120	2198	2314	2446
0.1	2075	2154	2250	2391	2545
0.25	2080	2156	2256	2397	2550
0.5	2086	2160	2262	2404	2557
1	2092	2164	2268	2412	2564
2	2098	2168	2275	2418	2572
4	2103	2172	2282	2424	2580
8	2108	2176	2287	2430	2586
15	2111	2179	2292	2434	2591
30	2114	2184	2296	2438	2596
60	2116	2187	2301	2441	2600
120	2117	2190	2305	2442	2604
180	2118	2192	2307	2443	2605
360	2119	2194	2310	2444	2606
1440	2120	2196	2314	2446	2608

PROYECTO "TRASVASES MANABI"



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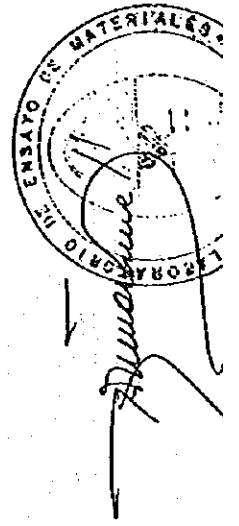
PROYECTO "TRASVASES MANABI"

MUESTRA: C-22

DIAMETRO (cm) = 6.31  
 AREA (cm<sup>2</sup>) = 31.27  
 ALTURA (mm) = 15.65  
 VOLUMEN (cm<sup>3</sup>) = 48.94  
 G<sub>s</sub> (gr/cm<sup>3</sup>) = 2.830  
 P<sub>o</sub> = 1.546  
 T 50 = 0.197  
 W<sub>h</sub> (gr/cm<sup>3</sup>) = 1.710

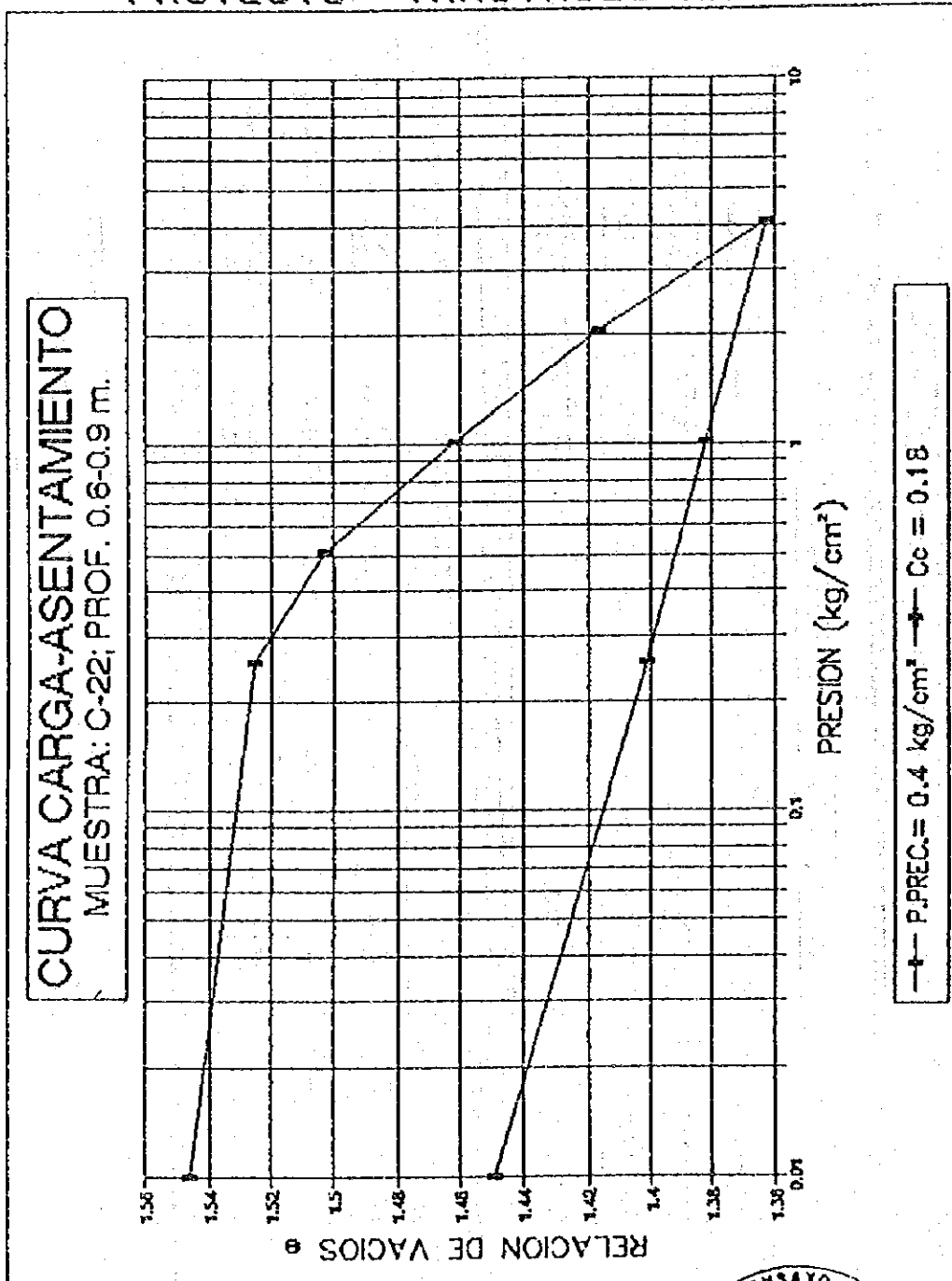
w (%) = 53.86  
 W<sub>h</sub> (gr) = 83.70  
 W<sub>s</sub> (gr) = 54.40  
 H<sub>s</sub> (mm) = 6.15  
 H<sub>v</sub> (mm) = 9.50  
 V<sub>s</sub> (cm<sup>3</sup>) = 19.22  
 W<sub>v</sub> (cm<sup>3</sup>) = 29.72  
 S<sub>r</sub> (%) = 98.50

CARGA NO	CARGA (kg)	PRESION (kg/cm <sup>2</sup> )	LECTURA DIAL (mm)	RESUMEN DE DATOS Y CALCULOS		RELACION VACIOS	150 (mm)	Cv (mm <sup>2</sup> /mte)
				DEFORMACION (mm)	DEFORMACION CORREGIDA (mm)			
0	0	0.01	2050	0.000	0.000	1.546	0.0	0.000
1	1	0.26	2120	0.178	0.127	1.525	2.5	4.747
2	2	0.51	2195	0.193	0.138	1.503	5.5	2.120
3	4	1.02	2314	0.300	0.255	1.461	4.0	2.819
4	8	2.05	2445	0.335	0.275	1.417	2.5	4.347
5	15	4.09	2608	0.411	0.331	1.363	4.0	2.597
	4	1.02	2550	0.147	0.117	1.382		
	1	0.26	2479	0.180	0.120	1.401		
	0	0.01	2340	0.353	0.293	1.449		

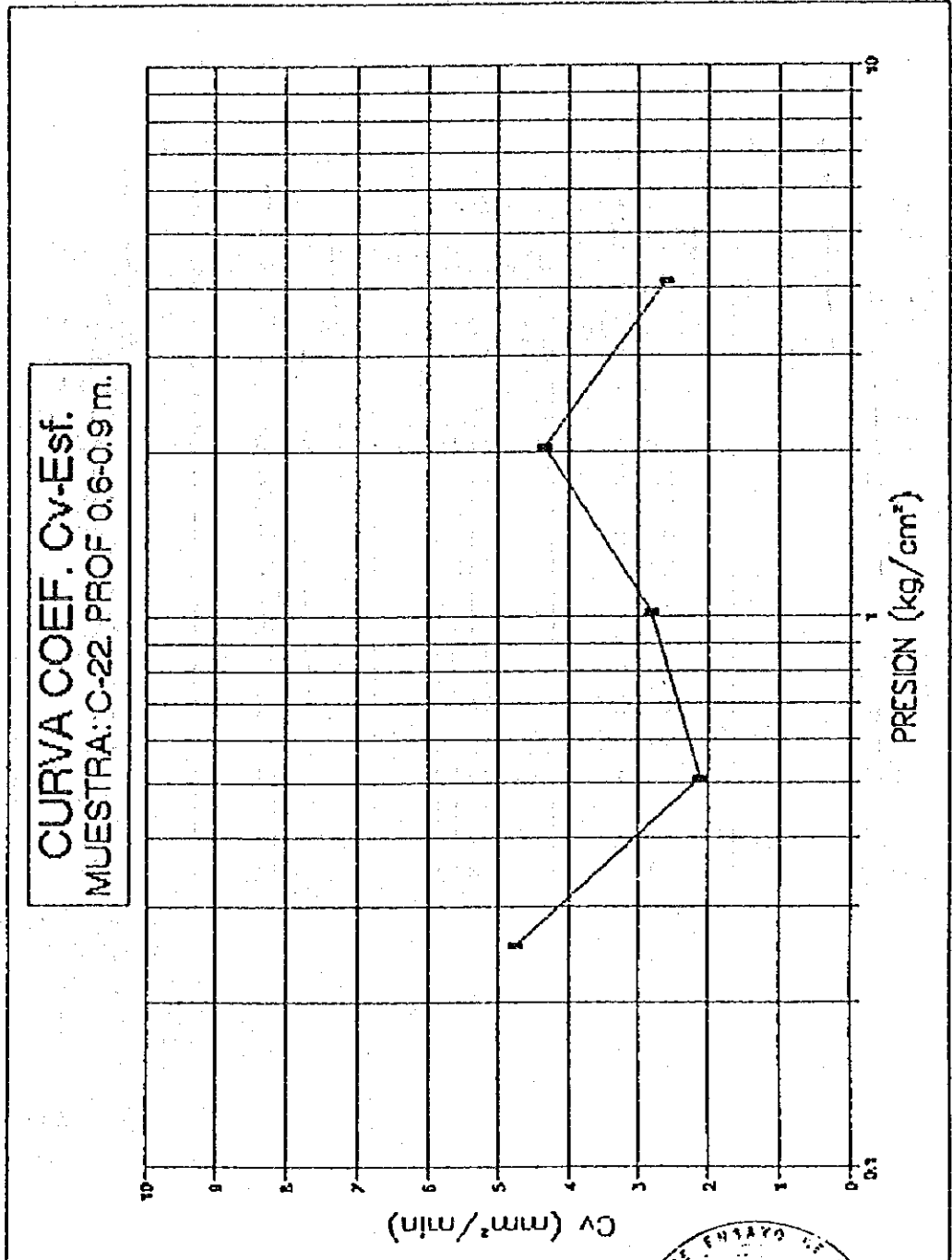


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 LABORATORIO DE MECANICA DE ROCAS

PROYECTO "TRASVASES MANABI"



PROYECTO "TRASVASES MANABI"



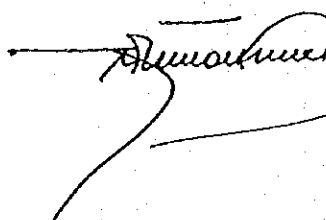

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LABORATORIO DE MECANICA DE ROCAS

**PROYECTO "TRASVASES MANABI"**

ENSAYO DE CONSOLIDACION

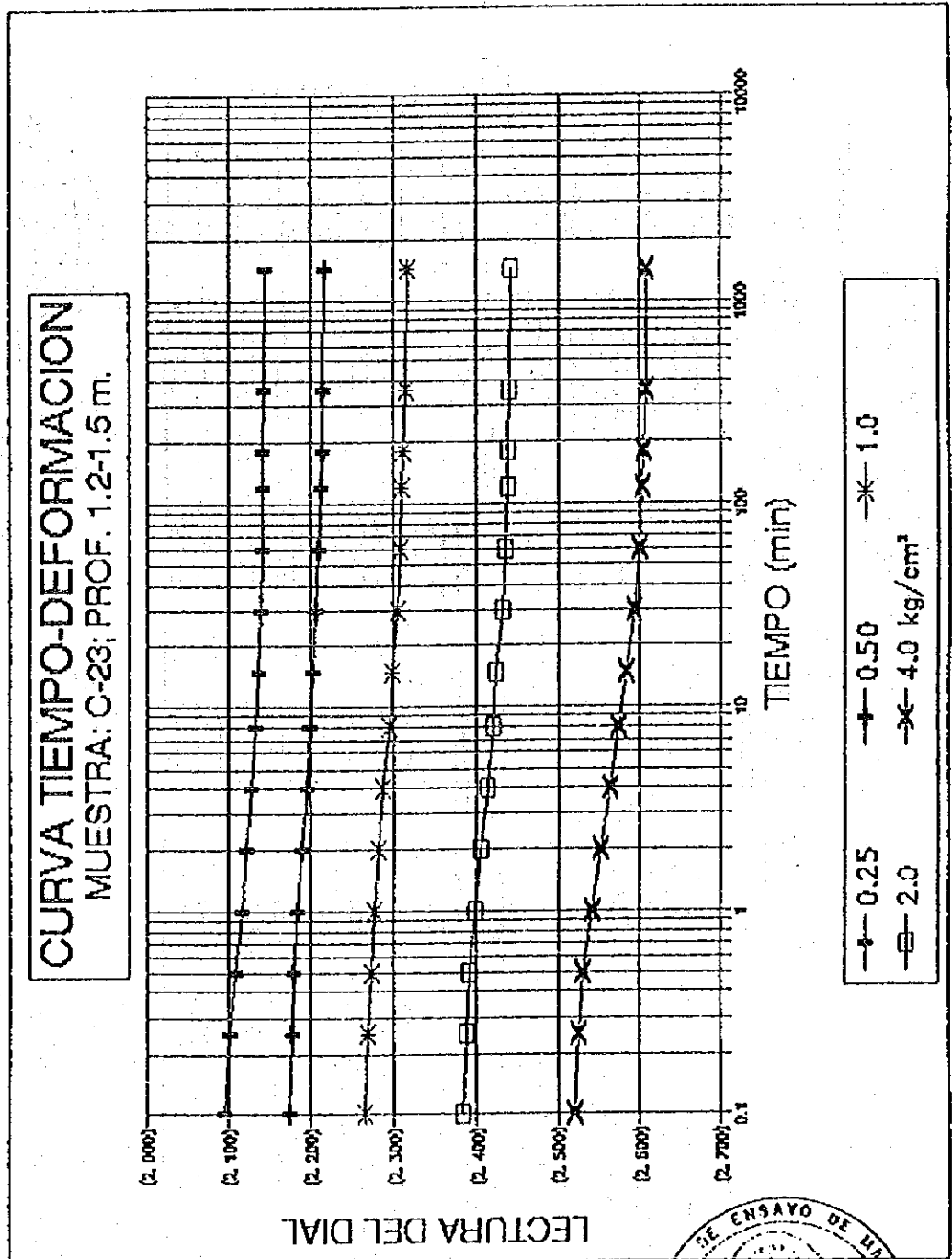
SONDEO: C-23 BLOQUE: # 1  
 PROF. (m): 1.2 - 1.5

REGISTRO DE CARGA					
CARGA Nº	1	2	3	4	5
FECHA	94-01-10	94-01-11	94-01-12	94-01-13	94-01-14
PRESION (kg/cm <sup>2</sup> )	0.25	0.50	1.00	2.00	4.00
TIEMPO (min)	LECTURA DIAL	LECTURA DIAL	LECTURA DIAL	LECTURA DIAL	LECTURA DIAL
0	2000	2145	2216	2317	2441
0.1	2095	2174	2266	2383	2521
0.25	2101	2177	2269	2388	2526
0.5	2108	2180	2273	2392	2532
1	2116	2184	2277	2398	2542
2	2122	2189	2283	2405	2552
4	2128	2195	2288	2412	2564
8	2133	2200	2295	2419	2574
15	2136	2203	2299	2424	2584
30	2138	2206	2304	2432	2594
60	2140	2209	2308	2435	2600
120	2141	2212	2311	2437	2604
180	2142	2213	2313	2438	2606
360	2143	2214	2315	2439	2608
1440	2145	2216	2317	2441	2609



PROYECTO "TRASVASES MANABI"



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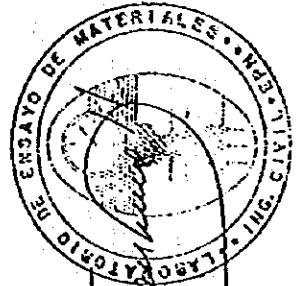
PROYECTO "TRASVASES MANABI"

MUESTRA C-23

DIÁMETRO (cm) = 5.31  
 ÁREA (cm<sup>2</sup>) = 31.27  
 ALTURA (mm) = 15.54  
 VOLUMEN (cm<sup>3</sup>) = 48.60  
 G<sub>s</sub> (gr/cm<sup>3</sup>) = 2.890  
 ρ<sub>o</sub> = 1.442  
 T<sub>50</sub> = 0.197  
 t<sub>h</sub> (gr/cm<sup>3</sup>) = 1.757

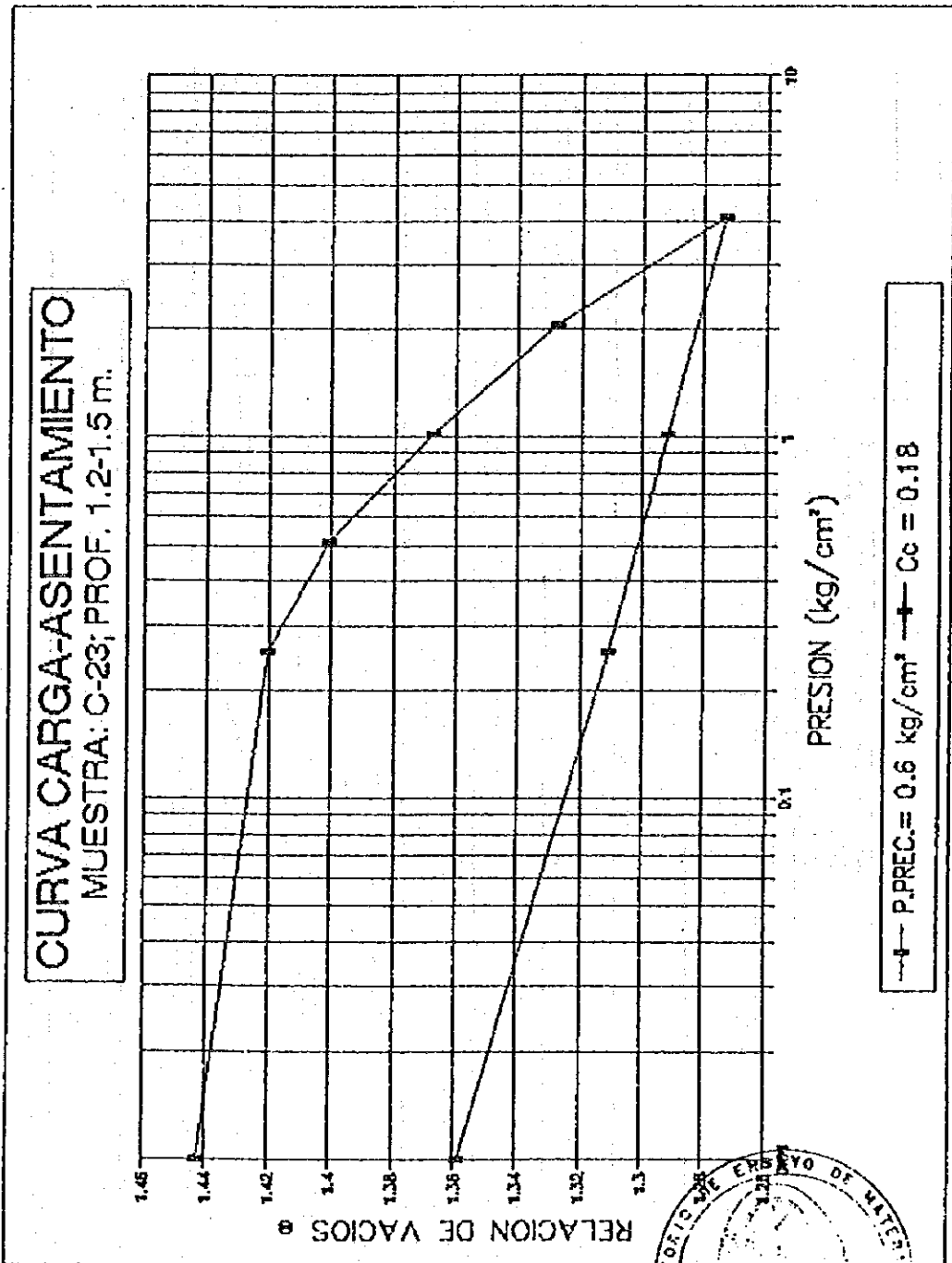
w (%) = 49.37  
 W<sub>h</sub> (gr) = 85.89  
 W<sub>s</sub> (gr) = 57.50  
 H<sub>s</sub> (mm) = 6.35  
 H<sub>v</sub> (mm) = 9.18  
 V<sub>s</sub> (cm<sup>3</sup>) = 19.90  
 V<sub>v</sub> (cm<sup>3</sup>) = 28.70  
 S<sub>r</sub> (%) = 98.92

RESUMEN DE DATOS Y CÁLCULOS									
CARGA NO	CARGA (kg)	PRESIÓN (kg/cm <sup>2</sup> )	LECTURA DIAL	DEFORMACION (mm)	DEFORMACION CORREGIDA (mm)	E <sub>v</sub>	RELACION VACIOS	ISO (n/in)	C <sub>v</sub> (mm <sup>2</sup> /min)
0	0	0.01	2070	0.000	0.000	0.000	1.442	2.5	4.672
1	1	0.25	2145	0.191	0.140	0.022	1.421	4.0	2.873
2	2	0.51	2216	0.180	0.125	0.020	1.401	5.0	2.235
3	4	1.02	2317	0.257	0.212	0.033	1.368	4.0	2.700
4	8	2.05	2441	0.315	0.255	0.040	1.328	4.0	2.575
5	16	4.09	2609	0.427	0.347	0.054	1.273		
	4	1.02	2550	0.150	0.120	0.019	1.292		
	1	0.25	2479	0.180	0.120	0.019	1.311		
	0	0.01	2335	0.355	0.305	0.048	1.359		

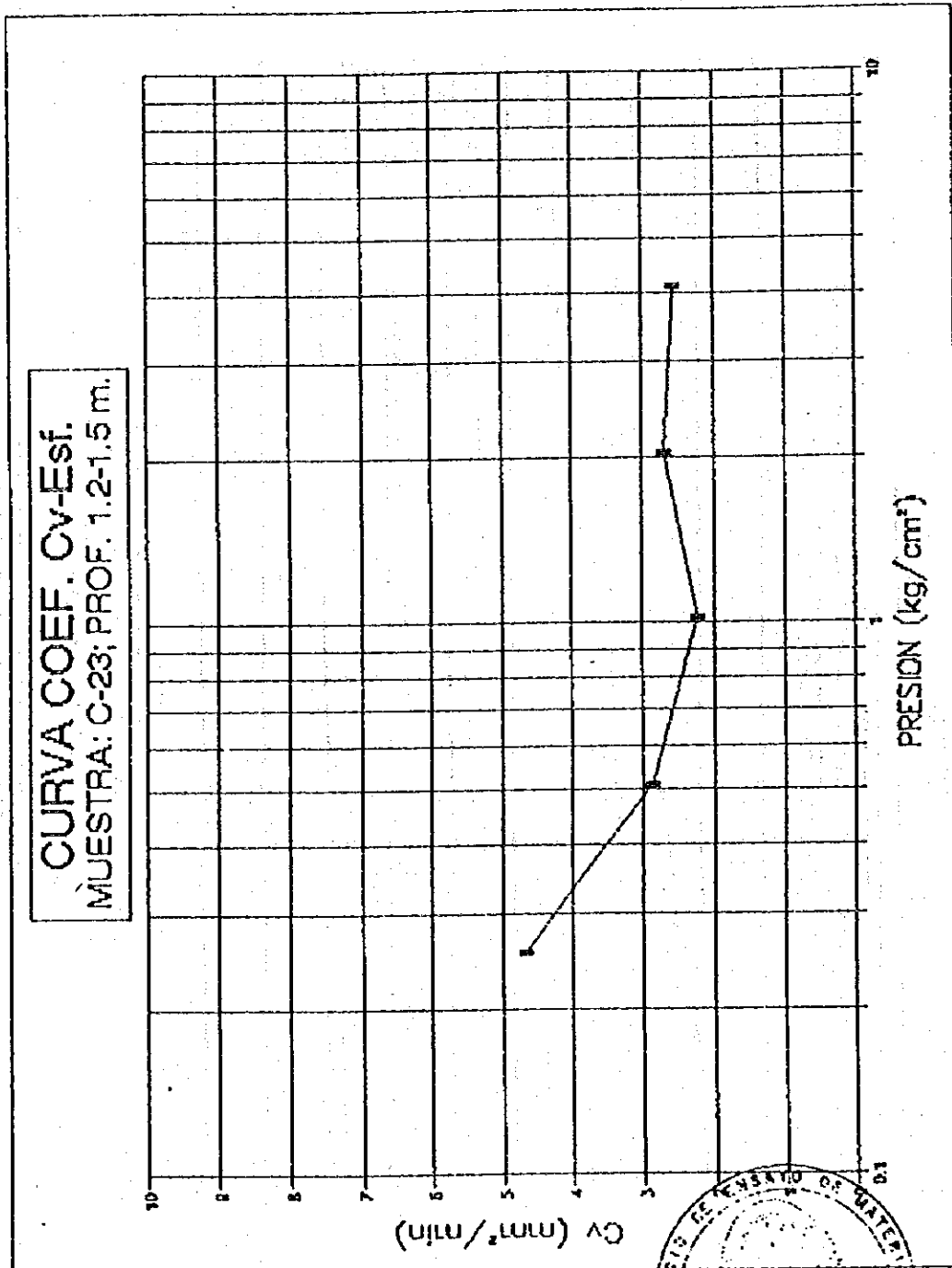


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PROYECTO "TRASVASES MANABI"



PROYECTO "TRASVASES MANABI"



**ESCUELA POLITECNICA NACIONAL**  
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**LABORATORIO DE MECANICA DE ROCAS**

**PROYECTO "TRASVASES MANABI"**

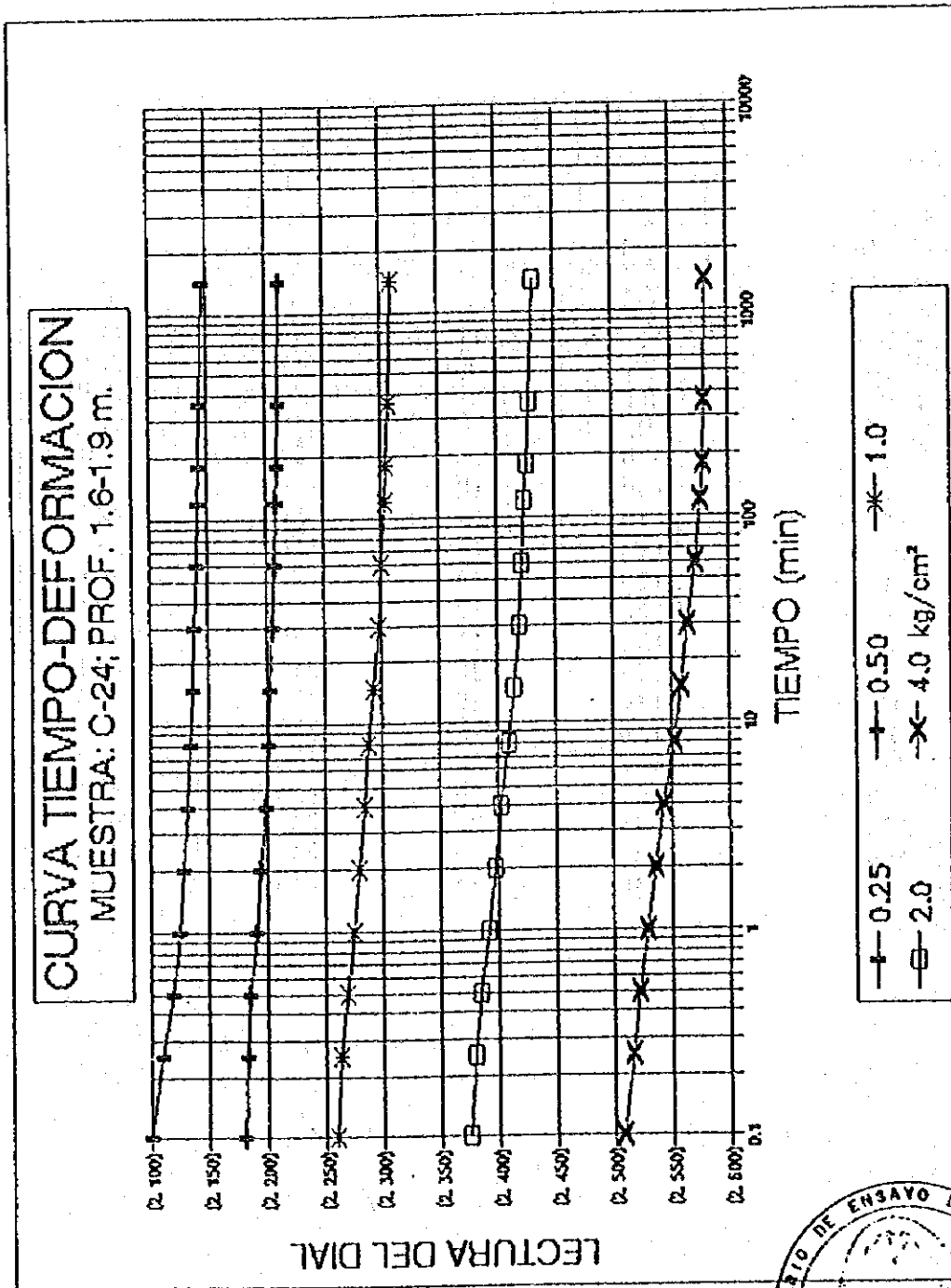
ENSAYO DE CONSOLIDACION

SONDEO: C-24      BLOQUE: # 1  
 PROF. (m): 1.6 - 1.9

REGISTRO DE CARGA					
CARGA Nº	1	2	3	4	5
FECHA	94-01-24	94-01-25	94-01-26	94-01-27	94-01-28
PRESION (kg/cm <sup>2</sup> )	0.25	0.50	1.00	2.00	4.00
TIEMPO (min)	LECTURA DIAL	LECTURA DIAL	LECTURA DIAL	LECTURA DIAL	LECTURA DIAL
0	2000	2146	2212	2310	2432
0.1	2100	2180	2260	2375	2508
0.25	2110	2183	2264	2380	2515
0.5	2118	2186	2269	2385	2522
1	2125	2191	2275	2391	2529
2	2129	2195	2280	2397	2536
4	2132	2199	2285	2403	2543
8	2134	2202	2289	2409	2552
15	2136	2204	2293	2414	2558
30	2138	2206	2297	2418	2565
60	2140	2208	2300	2422	2572
120	2142	2209	2304	2424	2576
180	2143	2210	2305	2426	2578
360	2144	2211	2308	2428	2580
1440	2146	2212	2310	2432	2582

*[Handwritten Signature]*

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

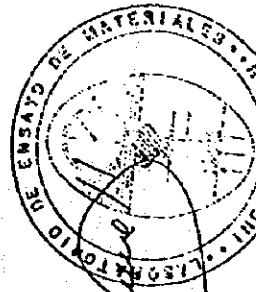
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MUESTRA: C-24

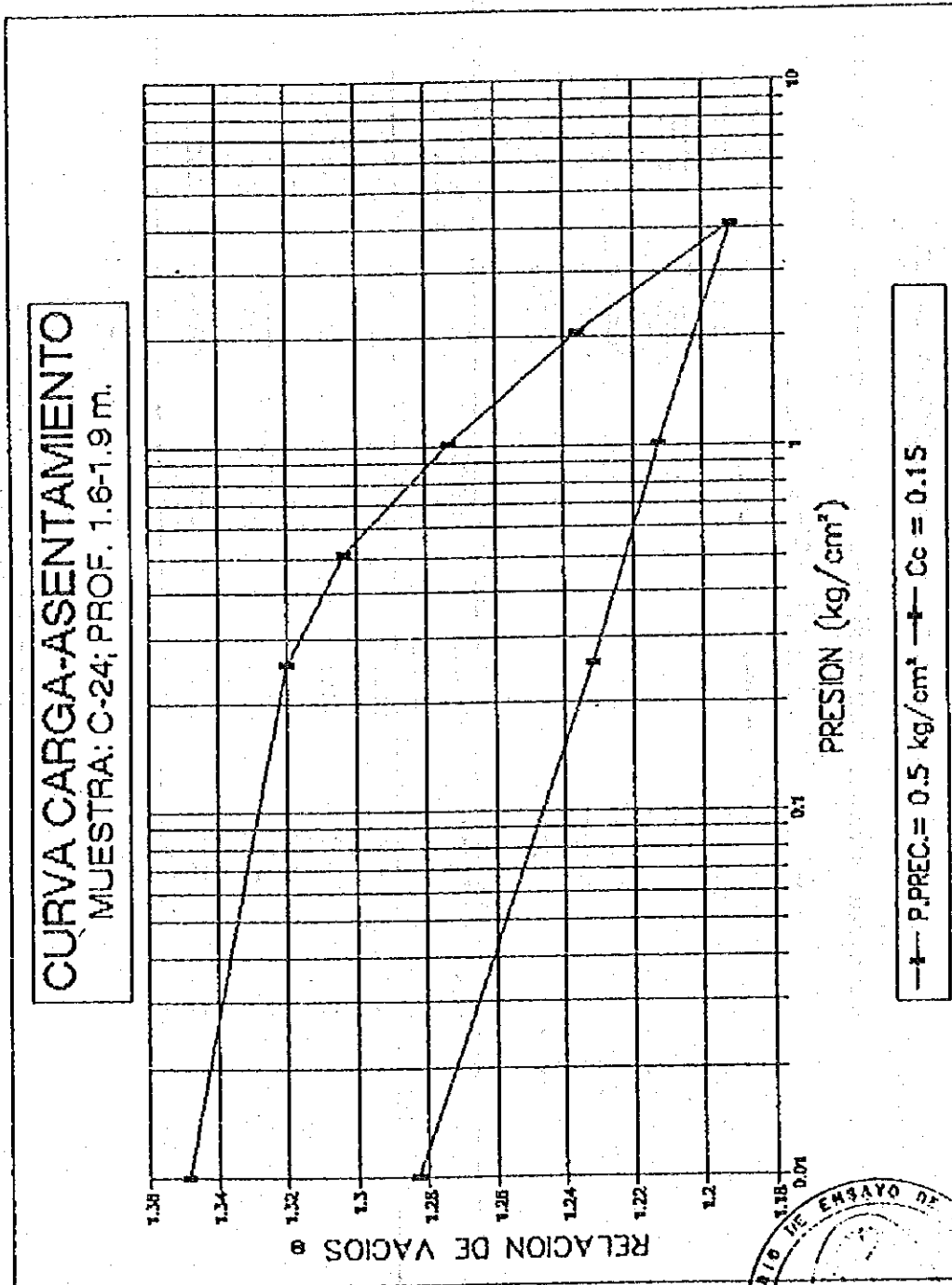
DIAMETRO (cm) = 6.31  
 AREA (cm<sup>2</sup>) = 31.27  
 ALTURA (mm) = 15.88  
 VOLUMEN (cm<sup>3</sup>) = 49.66  
 G<sub>s</sub> (Gr/cm<sup>3</sup>) = 2.800  
 P<sub>0</sub> = 1.349  
 T<sub>50</sub> = 0.197  
 γ<sub>h</sub> (Gr/cm<sup>3</sup>) = 1.753

w (%) = 47.91  
 W<sub>h</sub> (Gr) = 87.56  
 W<sub>s</sub> (Gr) = 59.20  
 H<sub>s</sub> (mm) = 6.26  
 H<sub>v</sub> (mm) = 9.12  
 V<sub>s</sub> (cm<sup>3</sup>) = 21.14  
 W<sub>v</sub> (cm<sup>3</sup>) = 28.52  
 S<sub>r</sub> (%) = 99.45

CARGA NO	CARGA (kg)	PRESSION (kg/cm <sup>2</sup> )	LECTURA DIAL	DEFORMACION (mm)	DEFORMACION CORREGIDA (mm)	Ev	RELACION VACIOS	ISO (min)	Gr (mm <sup>2</sup> /min)
0	0	0.01	2050	0.000	0.000	0.000	1.349	2.0	6.060
1	1	0.26	2146	0.244	0.193	0.029	1.320	3.0	3.982
2	2	0.51	2212	0.158	0.113	0.017	1.304	4.0	2.909
3	4	1.02	2310	0.249	0.204	0.030	1.273	4.0	2.815
4	8	2.05	2432	0.310	0.250	0.037	1.236	4.5	2.404
5	15	4.09	2582	0.381	0.301	0.045	1.192		
	4	1.02	2515	0.170	0.140	0.021	1.213		
	1	0.26	2440	0.191	0.131	0.019	1.232		
	0	0.01	2280	0.405	0.346	0.051	1.283		



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