



Calle Guayana No. 5724  
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# CERTIFICADO DE TUBERIA

## PIPE CERTIFICATE

|                           |                                 |                               |                                |  |                          |                          |  |   |
|---------------------------|---------------------------------|-------------------------------|--------------------------------|--|--------------------------|--------------------------|--|---|
| O.T. (order no.)<br>33163 | DIAMETRO (outside diam.)<br>16" | ESPESOR (thickness)<br>0.280" | GRADO (grade)<br>A53-B / A53-A | ESPECIFICACION (specification)<br>ASTM | PROCESO (process)<br>ERW | PEDIDO (contract)<br>S/N | CLIENTE (customer)<br>HYLSA S.A. DE C.V.   | No. CERTIFICADO (certificate No.)<br>020177 |
|                           |                                 |                               |                                |  |                          |                          | DIRECCION (address):<br>AV. GUERRERO No. 151 SAN NICOLAS DE LOS GARZA, N.L. C.P. 66452 | FECHA (date)<br>26/04/02                    |
|                           |                                 |                               |                                |  |                          |                          | O. PREPARACION (preparation order)<br>B-025-2002                                       | PROVEEDOR (supplier)<br>HYLSA               |

| Tubo (pipe) | SOLDA (weld) | T L P O E | UNDADES (inches) | ORIENTACION (orientation) | TAMANO (size) | BEND | HARDNESS HV | PRUEBA DE IMPACTO (Charpy) |                    |                    | GRAN SIZE | T L P O E | C M n P S S i A l C u C r N i M o T i N b B V N A l s C a P C M C E |   |     |     |      |      |       |       |      |       |       |       |       |       |       |       |        |       |   |   |        |      |      |
|-------------|--------------|-----------|------------------|---------------------------|---------------|------|-------------|----------------------------|--------------------|--------------------|-----------|-----------|---|---|-----|-----|------|------|-------|-------|------|-------|-------|-------|-------|-------|-------|-------|--------|-------|---|---|--------|------|------|
|             |              |           |                  |                           |               |      |             | 10 °C (orientation)        | 5 °C (orientation) | 1 °C (orientation) |           |           |   |   |     |     |      |      |       |       |      |       |       |       |       |       |       |       |        |       |   |   |        |      |      |
| 9           | 29769        | H 7       | 6                | 60669                     | 64878         | 38   | 0.93        | 1                          | 2                  | 3                  | AVG       | 1         | 2   | 3 | AVG | P 7 | 0.09 | 0.29 | 0.008 | 0.003 | 0.06 | 0.046 | 0.020 | 0.004 | 0.014 | 0.001 | 0.006 | 0.001 | 0.0002 | 0.002 | - | - | 0.0040 | 0.11 | 0.14 |
|             | 29768        | H 7       | 6                | 57330                     | 71032         | 36   | 0.89        | 1                          | 2                  | 3                  | AVG       | 1         | 2   | 3 | AVG | P 7 | 0.09 | 0.29 | 0.008 | 0.003 | 0.06 | 0.043 | 0.017 | 0.002 | 0.014 | 0.001 | 0.006 | 0.001 | 0.0002 | 0.001 | - | - | 0.0030 | 0.10 | 0.14 |
| 54          | 29768        | H 7       | 7                | 57330                     | 64602         | 36   | 0.89        | 1                          | 2                  | 3                  | AVG       | 1         | 2   | 3 | AVG | P 7 | 0.09 | 0.29 | 0.007 | 0.002 | 0.05 | 0.045 | 0.016 | 0.002 | 0.014 | 0.001 | 0.006 | 0.001 | 0.0002 | 0.002 | - | - | 0.0030 | 0.10 | 0.14 |

**PRUEBA HIDROSTATICA:** PRESION: 740 Psi TIEMPO: 10 seg  
 (hydrostatic test) (pressure) (time)

**ULTRASONIDO (U.T.):** STANDARD DE REFERENCIA G REFERENCIA STANDARD  
 (ultrasonic) (reference standard)

**RAYOS-X (RT):** PENETROMETRO (penetrometer) N/A

**NORMALIZADO DE SOLDADURA:** TEMPERATURA (temperature): 1800° F Min.  
 (heat treatment weld)

**REFERENCE STANDARD:** F: U.T. DRILLED HOLE 1/16" G: U.T. DRILLED HOLE 1/8"  
 U.T. NOTCH N-5, J: U.T. NOTCH V-10 L: RT HOLE 1/16" N: RT HOLE 2-2T O: RT HOLE 2-4T

**ORIENTACION (orientation):**  
 1. TRANSVERSAL (transverse)  
 2. LONGITUDINAL (longitudinal)  
 TAMANO (size)  
 3. RECTANGULAR (rectangle) 1 1/2"  
 4. CILINDRICAL (round bar) 0.500"  
 5. CILINDRICAL (round bar) 0.250"  
 LOCALIZACION (location)

**SOLDADURA (weld):**  
 6. SOLDADURA (weld)  
**METAL BASE (base metal):**  
 7. METAL BASE (base metal)  
**ZONA AFECTADA (f.a.z.):**  
 8. ZONA AFECTADA (f.a.z.)  
**LINEA DE FUSION (fusion line):**  
 9. LINEA DE FUSION (fusion line)  
**TIPO DE FUSION (type):**  
 H: COLADA (heat)  
 P: PRODUCTO (product)  
 R: REMUESTREO (recheck)

CERTIFICAMOS QUE EL MATERIAL DESCRITO HA SIDO HECHO DE ACUERDO CON LA ESPECIFICACION MENCIONADA, Y QUE LOS RESULTADOS SON COMO APARECEN EN LOS REGISTROS DE LA COMPANIA. WE HEREBY CERTIFY THAT MATERIAL DESCRIBED HEREIN HAS BEEN MADE IN ACCORDANCE WITH THE SPECIFICATION MENTIONED AND THAT THESE TEST RESULT ARE AS THEY APPEAR IN RECORDS OF THE COMPANY.

Control de Calidad (Quality Control)

F-TUMBE-013