

## CERTIFICADO DE PRUEBAS EN FABRICA

|   |  |   |  |   |
|---|--|---|--|---|
| Cliente / Customer<br><b>PLESA ANAHUAC Y CIAS, S.A. DE C.V.</b>   | Confirmación de Venta/Sales Confirmation<br><b>72899-01</b>              | Número / Number<br><b>T - 3827/1</b>  | Fecha / Date<br><b>13/01/2005</b>                            | Pág./Page<br><b>1/5</b>                 |
| Producto / Product<br><b>Tubos de conducción para alta temperatura/Pipes for high temperature service</b> | Orden de Compra/Purchaser Order<br><b>898</b>                            | Referencia del Cliente/Customer Reference                                   |  |   |
| Norma / Standard<br><b>ASTM A53/A106 ASME SA 106 - NACE MR0175-2001</b>                                   | Grado / Grade<br><b>B</b>  | Extremo / Ends<br><b>LISO CORTE RECTO / PLAIN END</b>                       |  |   |
| Dimensiones / Dimensions<br><b>26.7 x 3.91 mm<br/>         3/4 x 0.154 Inches</b>                         | Peso Nominal/Nominal Weight<br><b>2.20 Kg/Mt<br/>         1.47 Lb/Ft</b> | Superficie Externa / External Surface<br><b>ACEITADO<br/>         OILED</b> | Caridades / Quantities<br><b>144 Pz<br/>         144 Pcs</b> | <b>806.40 m<br/>         2645.66 Ft</b> |
|   | Longitud / Length<br><b>5.077.5 Mts<br/>         16.404 / 24.606 Ft</b>  |   |  | <b>1762 Kg<br/>         3885 Lb</b>     |

### Ensayos / Tests:

| Ensayos / Tests                                   | Mínimo / Minimum | Máximo / Maximum | Colada Heat        | Colada Heat        | Colada Heat        | Muestra Nro / Sample Number |                    |                    |                    |                    |
|---|------------------|------------------|--------------------|--------------------|--------------------|-----------------------------|--------------------|--------------------|--------------------|--------------------|
|   |                  |                  |                    |                    |                    | 15090                       | 15091              | 15092              | 15093              | 15111              |
| Colada/Heat O.P.                                  |                  |                  | 33274              | 33272              | 33273              | 33274<br>3423               | 33274<br>3423      | 33272<br>3478      | 33272<br>3478      | 33273<br>3422      |
| Composicion Quimica / Chemical Composition        |                  |                  | Satisfactorio / OK | Satisfactorio / OK | Satisfactorio / OK | Satisfactorio / OK          | Satisfactorio / OK | Satisfactorio / OK | Satisfactorio / OK | Satisfactorio / OK |
| C %   |                  | 0.300 %          | 0.1500             | 0.1500             | 0.1600             | 0.151                       | 0.152              | 0.150              | 0.144              | 0.167              |
| Mn %  |                  | 1.060 %          | 0.5700             | 0.5700             | 0.5700             | 0.585                       | 0.585              | 0.588              | 0.587              | 0.581              |
| S %   |                  | 0.035 %          | 0.0013             | 0.0010             | 0.0008             | 0.001                       | 0.001              | 0.002              | 0.002              | 0.001              |
| P %   |                  | 0.035 %          | 0.0090             | 0.0090             | 0.0090             | 0.008                       | 0.008              | 0.009              | 0.009              | 0.008              |
| Si %  |                  | 0.100 %          | 0.1900             | 0.2000             | 0.1900             | 0.192                       | 0.192              | 0.202              | 0.201              | 0.185              |
| Ni %  |                  | 0.400 %          | 0.0210             | 0.0280             | 0.0200             | 0.020                       | 0.020              | 0.027              | 0.027              | 0.020              |
| Cr %  |                  | 0.400 %          | 0.0300             | 0.0400             | 0.0200             | 0.038                       | 0.038              | 0.044              | 0.044              | 0.035              |
| Mo %  |                  | 0.150 %          | 0.0100             | 0.0100             | 0.0100             | 0.010                       | 0.010              | 0.014              | 0.014              | 0.008              |
| V %   |                  | 0.080 %          | 0.0010             | 0.0010             | 0.0010             | 0.000                       | 0.000              | 0.000              | 0.000              | 0.000              |
| Cu %  |                  | 0.400 %          | 0.0310             | 0.0510             | 0.0260             | 0.027                       | 0.028              | 0.046              | 0.046              | 0.025              |
| Traccion Longitudinal / Longitudinal Tensile Test |                  |                  |                    |                    |                    | Satisfactorio / OK          | Satisfactorio / OK | Satisfactorio / OK | Satisfactorio / OK | Satisfactorio / OK |
| Fluencia/YS MPa                                   | 240 MPa          |                  |                    |                    |                    | 289                         |                    | 301                |                    | 306                |
| Fluencia/YS PSI                                   | 35000 PSI        |                  |                    |                    |                    | 41930                       |                    | 43737              |                    | 44448              |
| Alargamiento/Elongation %                         | 30.0 %           |                  |                    |                    |                    | 52.0                        |                    | 52.0               |                    | 52.0               |
| Resistencia/TS MPa                                | 415 MPa          |                  |                    |                    |                    | 431                         |                    | 433                |                    | 442                |
| Resistencia/TS PSI                                | 60000 PSI        |                  |                    |                    |                    | 62639                       |                    | 62867              |                    | 64147              |
| OFFSET/OFFSET                                     |                  |                  |                    |                    |                    | 0.20                        |                    | 0.20               |                    | 0.20               |

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| Cliente / Customer<br><b>PLESA ANAHUAC Y CIA, S.A. DE C.V.</b>  |  | Confirmación de Venta/Sales Confirmation<br><b>72899-01</b> |  | Número / Number<br><b>T - 38271</b>                                      |  | Fecha / Date<br><b>13/01/2005</b>                                      |  | Pág./Page<br><b>2/5</b>   |  |   |  |   |  |                                     |  |
| Producto / Product<br><b>Tubos de conducción para alta temperatura/Pipes for high temperature service</b> |  | Orden de Compra/Purchaser Order<br><b>898</b>               |  | Referencia del Cliente/Customer Reference                                |  |  |  |   |  |   |  |   |  |                                     |  |
| Norma / Standard<br><b>ASTM A53/A106 ASME SA 106 - NACE MR0175-2001</b>                                   |  | Grado / Grade<br><b>B</b>                                   |  | Extremo / Ends<br><b>LISO CORTE RECTO / PLAIN END</b>                    |  |  |  |   |  |   |  |   |  |                                     |  |
| Dimensiones / Dimensions<br><b>26.7 x 3.91 mm<br/>         3/4 x 0.154 Inches</b>                         |  | Schedule<br><b>080</b>                                      |  | Peso Nominal/Nominal Weight<br><b>2.20 Kg/Mt<br/>         1.47 Lb/Ft</b> |  | Longitud / Length<br><b>5.07/5 Mts<br/>         16.404 / 24.606 Ft</b> |  | Superficie Externa / External Surface<br><b>ACEITADO<br/>         OILED</b> |  | Cantidades / Quantities<br><b>144 Pz<br/>         144 Pcs</b> |  | <b>806.40 m<br/>         2645.66 Ft</b> |  | <b>1762 Kg<br/>         3885 Lb</b> |  |

### Ensayos / Tests:

| Ensayos / Tests     | Mínimo / Minimum | Máximo / Maximum | Colada / Heat | Colada / Heat | Colada / Heat | Muestra Nro / Sample Number |                     |                     |                     |                     |
|---------------------|------------------|------------------|---------------|---------------|---------------|-----------------------------|---------------------|---------------------|---------------------|---------------------|
|                     |                  |                  |               |               |               | 15090                       | 15091               | 15092               | 15093               | 15111               |
| Colada/Heat O.P.    |                  |                  | 33274         | 33272         | 33273         | 33274<br>3423               | 33274<br>3423       | 33272<br>3478       | 33272<br>3478       | 33273<br>3422       |
| Dureza              |                  |                  |               |               |               | Satisfactorio               | Satisfactorio       | Satisfactorio       | Satisfactorio       | Satisfactorio       |
| Hardness            |                  |                  |               |               |               | OK                          | OK                  | OK                  | OK                  | OK                  |
| Dureza/Hardness HRB |                  | 99.0 HRB         |               |               |               | 68.9                        | 68.4                | 67.6                | 69.0                | 70.9                |
| Doblez              |                  |                  |               |               |               |                             |                     |                     |                     |                     |
| Bending             |                  |                  |               |               |               | Satisfactorio<br>OK         | Satisfactorio<br>OK | Satisfactorio<br>OK | Satisfactorio<br>OK | Satisfactorio<br>OK |

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| <i>Cliente / Customer</i><br>PLESA ANAHUAC Y CIAS, S.A. DE C.V.   | <i>Confirmación de Venta/Sales Confirmation</i><br>72899-01    | <i>Número / Number</i><br>T - 3827/1   | <i>Fecha / Date</i><br>13/01/2005                  | <i>Pág./Page</i><br>3/5                              |
| <i>Producto / Product</i><br>Tubos de conducción para alta temperatura/Pipes for high temperature service | <i>Orden de Compra/Purchaser Order</i><br>898                  | <i>Referencia del Cliente/Customer Reference</i><br>Extremo / Ends<br>LISO CORTE RECTO / PLAIN END |  |  |
| <i>Norma / Standard</i><br>ASTM A53A106 ASME SA 106 - NACE MR0175-2001                                    | <i>Grado / Grade</i><br>B                                      | <i>Superficie Externa / External Surface</i><br>ACEITADO<br>OILED                                  |  |  |
| <i>Dimensiones / Dimensions</i><br>26.7 x 3.91 mm<br>3/4 x 0.154 Inches                                   | <i>Peso Nominal/Nominal Weight</i><br>2.20 Kg/Mt<br>1.47 Lb/Ft | <i>Longitud / Length</i><br>5.07.5 Mts<br>16.404 / 24.606 Ft                                       | <i>Caridades / Quantities</i><br>144 Pz<br>144 Pcs | <i>806.40 m<br/>2645.66 Ft</i><br>1762 Kg<br>3885 Lb |

### Ensayos / Tests:

| <i>Ensayos</i><br>Tests          | <i>Mínimo</i><br>Minimum | <i>Máximo</i><br>Maximum | <i>15112</i>         | <i>33273</i> | <i>3422</i> | <i>Muestra Nro / Sample Number</i> |
|----------------------------------|--------------------------|--------------------------|----------------------|--------------|-------------|------------------------------------|
| <i>Colada/Heat</i><br>O.P.       |                          |                          |                      |              |             |                                    |
| <b>Composicion Quimica</b>       |                          |                          | <b>Satisfactorio</b> |              |             |                                    |
| <b>Chemical Composition</b>      |                          |                          | <b>Ok</b>            |              |             |                                    |
| C %                              |                          | 0.300 %                  |                      | 0.163        |             |                                    |
| Mn %                             |                          | 1.060 %                  |                      | 0.580        |             |                                    |
| S %                              |                          | 0.035 %                  |                      | 0.000        |             |                                    |
| P %                              |                          | 0.035 %                  |                      | 0.008        |             |                                    |
| Si %                             |                          | 0.100 %                  |                      | 0.185        |             |                                    |
| Ni %                             |                          | 0.400 %                  |                      | 0.020        |             |                                    |
| Cr %                             |                          | 0.400 %                  |                      | 0.034        |             |                                    |
| Mo %                             |                          | 0.150 %                  |                      | 0.008        |             |                                    |
| V %                              |                          | 0.080 %                  |                      | 0.000        |             |                                    |
| Cu %                             |                          | 0.400 %                  |                      | 0.024        |             |                                    |
| <b>Traccion Longitudinal</b>     |                          |                          |                      |              |             |                                    |
| <b>Longitudinal Tensile Test</b> |                          |                          |                      |              |             |                                    |
| <i>Filencia/YS MPa</i>           |                          | 240 MPa                  |                      |              |             |                                    |
| <i>Filencia/YS PSI</i>           |                          | 35000 PSI                |                      |              |             |                                    |
| <i>Alargamiento/Elongation %</i> |                          | 30.0 %                   |                      |              |             |                                    |
| <i>Resistencia/TS MPa</i>        |                          | 415 MPa                  |                      |              |             |                                    |
| <i>Resistencia/TS PSI</i>        |                          | 60000 PSI                |                      |              |             |                                    |
| <i>OFFSET/OFFSET</i>             |                          |                          |                      |              |             |                                    |

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| Producto / Product<br><b>Tubos de conducción para alta temperatura/Pipes for high temperature service</b> |  | Orden de Compra/Purchaser Order<br><b>898</b>               |  | Referencia del Cliente/Customer Reference                       |  |  |  |                            |  |
| Norma / Standard<br><b>ASTM A53/A106 ASME SA 106 - NACE MR0175-2001</b>                                   |  | Grado / Grade<br><b>B</b>                                   |  | Extremo / Ends<br><b>LISO CORTE RECTO / PLAIN END</b>           |  | Cantidades / Quantities<br><b>144 Pz 806.40 m<br/>144 Pcs 2645.66 Ft</b> |  | <b>1762 Kg<br/>3885 Lb</b> |  |
| Dimensiones / Dimensions<br><b>26.7 x 3.91 mm<br/>3/4 x 0.154 Inches</b>                                  |  | Schedule<br><b>080</b>                                      |  | Peso Nominal/Nominal Weight<br><b>2.20 Kg/Mt<br/>1.47 Lb/Ft</b> |  | Longitud / Length<br><b>5.077.5 Mts<br/>16.404 / 24.606 Ft</b>           |  |                            |  |
| <b>Ensayos</b>  |  | <b>Mínimo</b>   |  | <b>Máximo</b>   |  | <b>Muestra Nro. / Sample Number</b>                                      |  |                            |  |
| <b>Tests</b>  |  | <b>Minimum</b>  |  | <b>Maximum</b>  |  |  |  |                            |  |
| <b>Colada/Heat<br/>O.P.</b>   |  |   |  |   |  | <b>15112<br/>33273<br/>3422</b>  |  |                            |  |
| <b>Dureza</b>   |  |   |  |   |  | <b>Satisfactorio</b>   |  |                            |  |
| <b>Hardness</b>   |  |   |  |   |  | <b>OK</b>  |  |                            |  |
| <b>Dureza/Hardness HRB</b>  |  |   |  | <b>99.0 HRB</b>   |  | <b>70.8</b>  |  |                            |  |
| <b>Doblez</b>   |  |   |  |   |  | <b>Satisfactorio</b>   |  |                            |  |
| <b>Bending</b>  |  |   |  |   |  | <b>OK</b>  |  |                            |  |

**Ensayos / Tests:**



## CERTIFICADO DE PRUEBAS EN FABRICA

Tubos de Acero de México, S.A.  
 Km 433.7 Carr. México-Veracruz  
 Via Xalapa  
 (91697) Veracruz, Ver. México  
 (52) 229 989 1100 tel  
 (52) 229 989 1120 fax

|  |  |   |  |  |  |  |  |   |  |   |  |                                     |  |
|--|--|---|--|--|--|--|--|---|--|---|--|-------------------------------------|--|
| Cliente / Customer<br><b>PLESA ANAHUAC Y CIAS, S.A. DE C.V.</b>  |  | Confirmación de Venta/Sales Confirmation<br><b>72899-01</b> |  | Número / Number<br><b>T - 3827/1</b>                                     |  | Fecha / Date<br><b>13/01/2005</b>                                      |  | Pág./Page<br><b>5/5</b>                                       |  |   |  |                                     |  |
| Product / Product<br><b>Tubos de conducción para alta temperatura/Pipes for high temperature service</b> |  | Orden de Compra/Purchaser Order<br><b>898</b>               |  | Referencia del Cliente/Customer Reference                                |  |  |  |   |  |   |  |                                     |  |
| Norma / Standard<br><b>ASTM A53/A106 ASME SA 106 - NACE MR0175-2001</b>                                  |  | Grado / Grade<br><b>B</b>                                   |  | Extremo / Ends<br><b>LISO CORTE RECTO / PLAIN END</b>                    |  |  |  |   |  |   |  |                                     |  |
| Dimensiones / Dimensions<br><b>26.7 x 3.91 mm<br/>         3/4 x 0.154 inches</b>                        |  | Schedule<br><b>080</b>                                      |  | Peso Nominal/Nominal Weight<br><b>2.20 Kg/Mt<br/>         1.47 Lb/Ft</b> |  | Longitud / Length<br><b>5,07.5 Mts<br/>         16.404 / 24.606 Ft</b> |  | Cantidades / Quantities<br><b>144 Pz<br/>         144 Pcs</b> |  | <b>806.40 m<br/>         2645.66 Ft</b> |  | <b>1762 Kg<br/>         3885 Lb</b> |  |

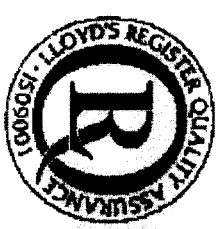
### Observaciones:

TAMSA REF.: R503666  
 Tratamiento térmico: NORMALIZADO 920° C  
 CORRIENTES EDDY 100%  
 Fabricación de acero: Fundición por arco eléctrico/ L F y Colado continuo - Acero Calmado al Aluminio.  
 La practica de afino en el horno-cuchara incluye una inyección final de una vanilla de Silicio de Calcio para obtener una forma globular de eventuales microinclusiones.  
 Fabricación de tubo: TUBOS S/C ESTIRADO EN FRIO  
 Material libre de contaminación de Mercurio

### Remarks:

Heat treatment: NORMALIZED 920° C  
 EDDY CURRENT 100%  
 Steel making process: E.A.F./L.F and continuous casting.  
 Full aluminum killed and fine grain practice.  
 The L.F practice includes a final injection of Calcium Silice for microinclusion shape control.  
 Pipe manufacturing process: SEAMLESS TUBE COLD DRAWN  
 Material free from Mercury contamination.

|   |   |
|---|---|
| <p>Por la presente certificamos que el material aquí descrito ha sido fabricado de acuerdo con las normas y especificaciones solicitadas en vuestra orden y satisface los correspondientes requerimientos.</p> <p>Este certificado se emite mediante un sistema computarizado.<br/>         En el certificado en papel el logo TENARIS, está impreso.<br/>         En caso que el poseedor del certificado entregue una copia del mismo, deberá garantizar la conformidad con el original, haciéndose responsable por cualquier uso ilegal o indebido.<br/>         Este certificado no es, ni puede ser usado, como una declaración de origen.<br/>         Cualquier alteración y/ o falsificación estará sujeta a la ley.<br/>         Si necesita asegurar la autenticidad de este certificado, contactarse con TAMSA</p> | <p>We hereby certify that material herein described has been manufactured in accordance with the standards and specifications required in your order and satisfies the corresponding requirements.</p> <p>This certificate is issued by a computerized system.<br/>         On the original on paper the TENARIS trade-mark is stamped<br/>         In case the owner of the certificate would release a copy of it, he must attest its conformity to the original one taking upon himself the responsibility for any unlawful or not allowed use.<br/>         This certificate is not a declaration of origin nor may it be used as a declaration of origin.<br/>         Any alteration and/ or falsification will be subject to the law.<br/>         If you need to assure the authenticity of this certificate, please do not hesitate to contact TAMSA</p> |
| <p><b>ORIGINAL DEBIDAMENTE FIRMADO</b></p> <p style="text-align: right;">QUALITY CERTIFICATION DEPT.<br/>         DTO CERTIFICACION DE CALIDAD<br/> <b>ING. HONORIO ALVAREZ AVILA</b></p>   |   |





# Tenaris

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 Km 433.7 Carr. México-Veracruz  
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 (91697) Veracruz, Ver. México  
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| Producto / Product<br><b>Tubos de conducción para alta temperatura/Pipes for high temperature service</b> |  |   |  | Orden de Compra/Purchaser Order<br><b>898</b>                            |  | Referencia del Cliente/Customer Reference<br><b>Extremo / Ends<br/>         LISO CORTE RECTO / PLAIN END</b> |  |   |  |
| Norma / Standard<br><b>ASTM A53/A106 ASME SA 106 - NACE MR0175-2001</b>                                   |  |   |  | Grado / Grade<br><b>B</b>  |  |  |  |   |  |
| Dimensiones / Dimensions<br><b>26.7 x 3.91 mm<br/>         3/4 x 0.154 Inches</b>                         |  | Schedule<br><b>080</b>                                      |  | Peso Nominal/Nominal Weight<br><b>2.20 Kg/Mt<br/>         1.47 Lb/Ft</b> |  | Longitud / Length<br><b>5,077.5 Mts<br/>         16,404 / 24,606 Ft</b>                                      |  | Superficie Externa / External Surface<br><b>ACEITADO<br/>         OILED</b> |  |
|   |  |   |  | Caridades / Quantities<br><b>144 Pz<br/>         144 Pcs</b>             |  | <b>806.40 m<br/>         2645.66 Ft</b>  |  | <b>1762 Kg<br/>         3885 Lb</b>   |  |

### Packing List:

| Paquete Bundle  | Piezas Pieces | Metros Meters | Pies Feet      | Kilos Kilograms | Libras Pounds  | Calada Heat | Orden Order |
|-----------------|---------------|---------------|----------------|-----------------|----------------|-------------|-------------|
| 17560           | 40            | 224.00        | 734.91         | 489             | 1078.22        | 33272       | 3478        |
| 17626           | 6             | 33.60         | 110.24         | 73              | 160.96         | 33274       | 3423        |
| 65032           | 98            | 548.80        | 1800.52        | 1200            | 2645.93        | 33273       | 3422        |
| <b>Totales:</b> | <b>144</b>    | <b>806.40</b> | <b>2645.67</b> | <b>1762</b>     | <b>3885.11</b> |             |             |